

Strengthening and Implementing the Global Response Supplementary Material

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Table of Contents

4.SM.1	Benchmark Indicators for Sectoral Changes in Emissions as Presented in Table 4.1 (Section 4.2.1)	4SM-3
4.SM.2	Enabling Conditions and Constraints of Overarching Adaptation Options as Discussed in Section 4.3.5	4SM-4
4.SM.3	Carbon Dioxide Removal Costs, Deployment and Side Effects: Literature Basis for Figure 4.2 (Section 4.3.7)	4SM-7
4.SM.4	Guidance and Assessment for Feasibility Assessment	4SM-8
4.SM.4.1	Guidance for Feasibility Assessment as Presented in Section 4.5.1	4SM-8
4.SM.4.2	Feasibility Assessment of Mitigation Options as Presented in Section 4.5.2	4SM-9
4.SM.4.3	Feasibility Assessment of Adaptation Options as Presented in Section 4.5.3	4SM-24
4.SM.5	Adaptation and Mitigation Synergies and Trade-offs as Discussed in Section 4.5.4	4SM-41
4.SM.5.1	Mitigation Options with Adaptation Synergies and Trade-offs.....	4SM-41
4.SM.5.2	Adaptation Options with Mitigation Synergies and Trade-Offs	4SM-45
References	4SM-49

4.SM.1 Benchmark Indicators for Sectoral Changes in Emissions as Presented in Table 4.1 (Section 4.2.1)

Integrated assessment models (IAMs) and other sector scenarios provide sectoral detail underpinning the declines in greenhouse gas (GHG) emissions by the middle of the century (Chapter 2, Sections 2.3 and 2.4). Table 4.SM.1 indicates the pace of the transitions that are deemed necessary in 2020, 2030 and 2050 at the sector level for 1.5°C-consistent pathways, and complements this with bottom-up studies from literature that give actionable policy targets (the lines in white). A summary of this table is presented in Section 4.2.1.

Table 4.SM.1 | Benchmark indicators indicating the sectoral changes in emissions, fuels and technologies that would need to take place in 1.5°C-consistent pathways, based on selected IAM 1.5°C pathways assessed in Chapter 2 (with no, low and high overshoot) (dark grey rows), four archetype scenarios (light grey rows) and bottom-up studies including IEA (white rows). The numbers in square brackets in some columns indicate the scenario count for the specific indicator.

Pathways		Number of Scenarios	Energy			Buildings		Transport			Industry
			Share of renewables in primary energy [%]	Share of renewables in electricity generation [%]	Share of fossil fuels in electricity generation [%]	Change in energy demand for buildings (2010 baseline) [%]	Direct emissions reductions from buildings (2010 baseline) [%]	Share of low-carbon fuels (electricity, hydrogen and biofuel) in transport [%]	Share of electricity in transport [%]	Share of biofuels in transport [%]	Industrial emissions reductions (2010 baseline) [%]
IAM Pathways 2020	No or low overshoot 1.5	50	14.90 (16.25, 14.24)	26.32 (29.04, 24.13)	61.32 (63.15, 58.64)	-10.84 (-7.49, -11.96) [42]	-1.47 (6.62, -7.98) [42]	4.42 (4.51, 3.66) [29]	1.24 (1.75, 1.10) [49]	3.03 (3.23, 1.69) [37]	-12.68 (-0.50, -15.79) [42]
	Low overshoot 1.5	43	15.31 (16.23, 14.03)	26.26 (28.83, 23.58)	61.08 (63.17, 58.74)	-10.86 (-7.53, -14.83) [35]	-0.83 (6.62, -9.69) [35]	4.39 (4.51, 3.59) [23]	1.24 (1.79, 1.09) [42]	1.97 (3.17, 1.55) [31]	-11.81 (-1.66, -17.80) [35]
	High overshoot 1.5	35	15.08 (15.84, 14.44)	28.37 (29.24, 24.33)	61.58 (63.83, 59.70)	-12.49 (-10.75, -19.44) [29]	-3.52 (6.62, -15.22) [29]	3.59 (4.45, 3.27) [23]	1.40 (1.53, 1.10)	2.18 (2.98, 1.72) [24]	-15.50 (-12.70, -23.70) [29]
	S1		12.46	23.24	63.72	-9.20	-0.83		0.95	1.69	4.46
	S2		16.61	27.00	60.11	-16.20	-0.25	2.18	0.97	1.22	-20.61
	S5		13.46	17.38	71.03			3.16	0.95	2.20	
	LED		15.63	24.61	54.11	-8.78	15.11		2.51		-32.87
Other Studies 2020	Löffler et al. (2017)		13.47	31.41	57.60						
	IEA (2017a) (ETP)		19.02	29.91	58.63	-1.52	10.25	5.74	1.70	4.03	-9.37
	IEA (2017b) (WEM)		16.67	29.32	58.75	-7.44	5.78	4.94	1.21	3.73	-6.51
IAM Pathways 2030	No or low overshoot 1.5	50	29.08 (37.06, 25.73)	53.68 (64.80, 46.74)	30.04 (37.60, 20.25)	0.30 (7.31, -6.73) [42]	33.53 (51.77, 21.47) [42]	12.07 (17.83, 8.55) [29]	5.20 (7.13, 3.27) [49]	6.54 (10.05, 2.51) [37]	42.29 (54.71, 34.25) [42]
	Low overshoot 1.5	43	28.75 (35.31, 25.45)	52.63 (58.90, 44.48)	31.54 (38.14, 23.14)	-2.61 (5.41, -7.73) [35]	30.11 (43.16, 20.58) [35]	9.71 (15.24, 8.44) [23]	4.99 (6.84, 3.18) [42]	5.06 (9.60, 2.12) [31]	39.81 (49.58, 30.13) [35]
	High overshoot 1.5	35	23.65 (27.45, 20.03)	42.73 (53.78, 36.91)	42.02 (47.27, 32.61)	-16.64 (-12.07, -20.01) [29]	8.15 (23.54, -0.61) [29]	6.65 (8.32, 5.55) [23]	3.46 (4.68, 2.54)	3.54 (3.85, 1.38) [24]	17.67 (27.65, -12.81) [29]
	S1		28.79	57.89	27.84	-7.68	35.32		3.92	5.06	49.09
	S2		28.72	47.89	35.37	-14.12	47.92	5.17	4.46	0.71	19.11
	S5		13.78	25.11	57.38			3.43	1.32	1.93	
	LED		37.42	59.64	17.14	30.42	59.81		20.93		42.10
Other Studies 2030	Löffler et al. (2017)		45.59	79.25	13.73						
	IEA (2017a) (ETP)		31.09	46.73	37.92	1.98	46.91	13.80	5.47	8.18	22.39
	IEA (2017b) (WEM)		27.24	49.58	34.74	-6.37	32.03	17.12	5.76	11.20	15.28
IAM Pathways 2050	No or low overshoot 1.5	50	60.24 (67.09, 51.77)	77.12 (86.43, 69.23)	8.61 (13.42, 3.88)	-17.19 (3.31, -36.20) [42]	70.26 (89.56, 54.48) [42]	55.00 (65.66, 34.67) [29]	22.67 (28.73, 17.30) [49]	15.24 (22.95, 10.95) [37]	78.75 (90.79, 67.33) [42]
	Low overshoot 1.5	43	58.37 (66.65, 49.97)	75.98 (85.32, 68.54)	8.69 (13.59, 4.80)	-19.43 (2.17, -37.44) [35]	68.30 (89.48, 54.32) [35]	52.95 (65.14, 34.10) [23]	22.63 (30.20, 16.74) [42]	14.71 (21.73, 10.11) [31]	78.69 (89.17, 70.60) [35]
	High overshoot 1.5	35	62.16 (67.51, 47.48)	82.39 (88.34, 63.65)	6.33 (16.06, 2.26)	-37.41 (-13.37, -51.04) [29]	48.64 (59.49, 40.82) [29]	38.38 (43.62, 27.01) [23]	18.49 (22.88, 13.67)	14.96 (17.78, 5.10) [24]	68.12 (80.61, 53.62) [29]

Notes: Values for no or low, low and high overshoot 1.5 indicate the median and the interquartile ranges for indicators for 1.5°C-consistent pathways distinguishing the level of overshoot, collected in the scenario database established for the assessment of this Special Report (see Chapter 2, Section 2.1 and http://data.ene.iiasa.ac.at/sr15_scenario_analysis/assessment/sr15_4SM1_supplementary_sectoral_indicators.html). Four illustrative pathway archetypes were selected for comparison: S1 (AIM 2.0, SSP1-19), S2 (MESSAGE-GLOBIOM 1.0, SSP2-19), S5 (REMIND-MAGPIE 1.5, SSP5-19) and low energy demand (MESSAGEix-GLOBIOM 1.0, LED) (see Chapter 2, Section 2.1). The selected studies indicate mitigation transitions in key sectors consistent with limiting warming to 1.5°C (IEA, 2017a, 2017c; Löffler et al., 2017), grounded in published scenarios combined with expert judgement.



Table 4.SM.1 (continued)

Pathways	Number of Scenarios	Energy			Buildings		Transport			Industry
		Share of renewables in primary energy [%]	Share of renewables in electricity generation [%]	Share of fossil fuels in electricity generation [%]	Change in energy demand for buildings (2010 baseline) [%]	Direct emissions reductions from buildings (2010 baseline) [%]	Share of low-carbon fuels (electricity, hydrogen and biofuel) in transport [%]	Share of electricity in transport [%]	Share of biofuels in transport [%]	Industrial emissions reductions (2010 baseline) [%]
IAM Pathways 2050	S1	58.37	81.26	10.15	-20.54	79.74		33.68	12.95	73.70
	S2	52.90	63.08	11.42	-24.59	89.65	25.65	22.67	2.98	72.81
	S5	67.04	70.27	6.69			53.36	9.54	35.46	
	LED	72.51	77.40	0.19	44.67	95.00		59.21		91.38
Other Studies 2050	Löffler et al. (2017)	100.00	99.76	0.00						
	IEA (2017a) (ETP)	57.77	74.33	9.72	5.10	82.71	54.83	29.65	24.43	57.26
	IEA (2017b) (WEM)	47.02	68.72	13.71	-5.38	73.14	58.18	32.07	25.19	54.61

Notes: Values for no or low, low and high overshoot 1.5 indicate the median and the interquartile ranges for indicators for 1.5°C-consistent pathways distinguishing the level of overshoot, collected in the scenario database established for the assessment of this Special Report (see Chapter 2, Section 2.1 and http://data.ene.iiasa.ac.at/sr15_scenario_analysis/assessment/sr15_4SM.1_supplementary_sectoral_indicators.html). Four illustrative pathway archetypes were selected for comparison: S1 (AIM 2.0, SSP1-19), S2 (MESSAGE-GLOBIOM 1.0, SSP2-19), S5 (REMIND-MAGPIE 1.5, SSP5-19) and low energy demand (MESSAGEix-GLOBIOM 1.0, LED) (see Chapter 2, Section 2.1). The selected studies indicate mitigation transitions in key sectors consistent with limiting warming to 1.5°C (IEA, 2017a, 2017c; Löffler et al., 2017), grounded in published scenarios combined with expert judgement.

4.SM.2 Enabling Conditions and Constraints of Overarching Adaptation Options as Discussed in Section 4.3.5

Table 4.SM.2 | Overarching adaptation options: Enabling conditions and constraints. This table underpins Section 4.3.5 and Table 4.4 in Section 4.3.5.

Adaptation Option	Enabling Conditions	Constraints	Examples
Disaster risk management	<p>Pools resources and expertise for risk reduction (Howes et al., 2015; Kelman et al., 2015; Wallace, 2017).</p> <p>Integrates adaptation into existing management (Howes et al., 2015).</p> <p>Supports post-disaster recovery and reconstruction (Kelman et al., 2015; Kull et al., 2016).</p> <p>Engages local and indigenous knowledge to improve preparedness and response (McNamara and Prasad, 2014; Mawere and Mubaya, 2015; Kaya et al., 2016; Chambers et al., 2017; Granderson, 2017).</p>	<p>Uncertainty over projected climate impacts and absence of downscaled climate projections (van der Keur et al., 2016; de Leon and Pittock, 2017; Wallace, 2017).</p> <p>Limited institutional, technical and financial capacity in frontline agencies (de Leon and Pittock, 2017; Kita, 2017; Wallace, 2017).</p> <p>Adaptation and disaster risk management communities operate separately (Kelman et al., 2015; Serrao-Neumann et al., 2015; de Leon and Pittock, 2017).</p>	<p><i>Glacial lake outburst floods (GLOFs)</i> 1.5°C will increase risk of GLOFs (Cogley, 2017; Kraaijenbrink et al., 2017).</p> <p>Infrastructural measures technically and economically unfeasible in many regions (Muñoz et al., 2016; Schwanghart et al., 2016; Watanabe et al., 2016; Haeblerli et al., 2017).</p> <p>Early warning systems (Anaconda et al., 2015) and monitoring of dangerous lakes and surrounding slopes (including using remote sensing) offer disaster risk management opportunities (Emmer et al., 2016; Milner et al., 2017).</p> <p>Institutional leadership and community engagement essential for effectiveness (Anaconda et al., 2015; Watanabe et al., 2016).</p>
Risk sharing and spreading: insurance	<p>Buffers climate risk (Wolfram and Yokoi-Arai, 2015; O'Hare et al., 2016; Glaas et al., 2017; Jenkins et al., 2017; Patel et al., 2017).</p> <p>Shifts the mobilization of financial resources towards strategic approaches (Surminski et al., 2016).</p> <p>Incentivizes investments and behaviour that reduce exposure (Linnerooth-Bayer and Hochrainer-Stigler, 2015; Shapiro, 2016; Jenkins et al., 2017).</p>	<p>Can provide disincentives for reducing risk and can distort incentives for adaptation strategies (Annan and Schlenker, 2015; Nicola, 2015).</p> <p>Underwrites a return to the 'status quo' rather than enabling adaptive behaviour (O'Hare et al., 2016).</p> <p>Financial, social and institutional barriers to implementation and uptake, especially in low-income nations (García Romero and Molina, 2015; Joyette et al., 2015; Lashley and Warner, 2015; Jin et al., 2016).</p>	<p><i>Crop insurance</i> In Kenya during the 2011 drought, index-based insurance payouts for livestock reduced distress sales by 64% among better-off pastoralist households and reduced the likelihood of rationing food intake by 43% among poorer households (Hansen et al., 2017).</p> <p>In USA Annan and Schlenker (2015) found insured crops were significantly more sensitive to extreme heat because insured farmers were disincentivized from investing in costly adaptation strategies since their insurance compensated for potential losses</p> <p>In Bangladesh low institutional trust and financial literacy mean that fewer women enrol in weather-based crop insurance (Akter et al., 2016).</p> <p><i>World Bank 'cat bond' issuance in Caribbean</i> In 2007 the Caribbean Catastrophe Risk Insurance Facility (CCRIF) was formed to pool risk from tropical cyclones, earthquakes and excess rainfalls (Murphy et al., 2012; CCRIF, 2017).</p> <p>36 payouts have been made to 13 governments, totalling 130.5 million USD and partially funded by CCRIF, within 14 days of the event (CCRIF, 2017). Speed of payment allows countries to finance immediate needs (Murphy et al., 2012).</p> <p>Though widely perceived to be successful, evidence of success remains limited (Teh, 2015).</p>

Table 4.SM.2 (continued)

Adaptation Option	Enabling Conditions	Constraints	Examples
Risk sharing and spreading: social protection programmes	<p>Builds generic adaptive capacity and reduces social vulnerability (Weldegebriel and Prowse, 2013; Eakin et al., 2014; Lemos et al., 2016; Schwan and Yu, 2017).</p> <p>Must be complemented with a comprehensive climate risk management approach (Schwan and Yu, 2017) that also takes into account disaster risk management, adaptation and vulnerability reduction goals (Davies et al., 2013).</p>	<p>Inadequate targeting, leakages and lack of institutional architecture, especially in Least Developed Countries (Ravi and Engler, 2015; Schwan and Yu, 2017).</p> <p>Uncertainties about effectiveness of processes of delivering social protection (e.g., cash or 'in kind').</p> <p>Necessary but insufficient to decrease households' vulnerability if stand-alone (Lemos et al., 2016).</p> <p>When delivered without emphasis on vulnerability reduction, investments may be maladaptive in long run (Nelson et al., 2016).</p>	<p><i>Cash transfer programmes</i></p> <p>In sub-Saharan Africa cash transfer programmes targeting poor communities have proven successful in smoothing household welfare and food security during droughts, strengthening community ties and reducing debt levels (del Ninno et al., 2016; Asfaw et al., 2017; Asfaw and Davis, 2018).</p> <p>In Brazil higher levels of income due to cash transfer programmes have been linked to food security, as households are able to invest in irrigation, but there have been limited long-term investments in reducing vulnerability among the poorest households (Lemos et al., 2016; Mesquita and Bursztyn, 2016; Nelson et al., 2016).</p>
Education and learning	<p>Co-production of solutions strengthens adaptation implementation (Butler et al., 2016a; Thi Hong Phuong et al., 2017; Ford et al., 2018).</p> <p>Social learning strengthens adaptation and affects longer-term change (Clemens et al., 2015; Ensor and Harvey, 2015; Henly-Shepard et al., 2015).</p> <p>International learning and cooperation mechanisms, supranational organizations (Vinkde Kruijff and Pahl-Wostl, 2016) and international, collaborative projects (Cochrane et al., 2017; Harvey et al., 2017) can build adaptive capacity.</p>	<p>Not appropriate in all circumstances (e.g., highly marginalized locations) (Ford et al., 2016, 2018).</p> <p>Education and learning on their own may not provide 'enough adaptive capacity to respond to climate change' (Thi Hong Phuong et al., 2017).</p> <p>Participation in and of itself does not necessarily build capacity (Ford et al., 2016).</p>	<p><i>Participatory scenario planning (PSP)</i></p> <p>PSP is a process by which multiple stakeholders work together to envision future scenarios under a range of climatic conditions (Flynn et al., 2018).</p> <p>PSP has been observed to facilitate the interaction of multiple knowledge systems, resulting in learning and the co-production of knowledge on adaptation (Tschakert et al., 2014; Oteros-Rozas et al., 2015; Star et al., 2016; Flynn et al., 2018).</p>
Population health and health system	<p>1.5°C will primarily exacerbate existing health challenges (K.R. Smith et al., 2014), which can be targeted by enhancing health services.</p> <p>Age, pre-existing medical conditions and social deprivation are found to be the key (but not the only) factors that make people vulnerable and lead to more adverse health outcomes related to climate change impacts. Interventions to reduce climate change-driven health impacts can be mainstreamed through existing health programming and service delivery (WHO, 2015; Paavola, 2017).</p> <p>Needs to be combined with iterative management involving regular monitoring of effectiveness in the light of climate impacts (Hess and Ebi, 2016; Ebi and del Barrio, 2017).</p> <p>Collaboration with local stakeholders, public education campaigns and the tailoring of communication to local needs are essential (Berry and Richardson, 2016; van Loenhout et al., 2016).</p>	<p>Governance challenges: for example, absence of coordination across scales, lack of mandate for action on adaptation (Austin et al., 2016; Ebi and del Barrio, 2017; Shimamoto and McCormick, 2017).</p> <p>Absence of information and understanding on climate impacts (Nigatu et al., 2014; Xiao et al., 2016; Sheehan et al., 2017).</p> <p>Many health services currently do not consider climate change (Hess and Ebi, 2016).</p> <p>Adaptation strategies based on individual preparedness, action and behaviour change may aggravate health and social inequalities due to their selective uptake, unless they are coupled with broad public information campaigns and financial support for undertaking adaptive measures (Paavola, 2017).</p>	<p><i>Heat wave early warning and response systems</i></p> <p>Heat wave early warning and response systems coordinate the implementation of multiple measures in response to predicted extreme temperatures (e.g., public announcements, opening public cooling shelters, distributing information on heat stress symptoms) and have been shown to be effective in a wide variety of contexts (Knowlton et al., 2014; Takahashi et al., 2015; Nitschke et al., 2016, 2017).</p>
Indigenous knowledge	<p>Indigenous knowledge underpins the adaptive capacity of indigenous communities through the diversity and flexibility of indigenous agro-ecological systems, collective social memory, repository of accumulated experience and from social networks that are essential for disaster response and recovery (Hiwasaki et al., 2015; Pearce et al., 2015; Mapfumo et al., 2016; Sherman et al., 2016; Ingty, 2017; Ruiz-Mallén et al., 2017).</p> <p>Knowledge of environmental conditions helps communities detect and monitor change (Johnson et al., 2015; Mistry and Berardi, 2016; Williams et al., 2017).</p>	<p>Acculturation, dispossession of land rights and land grabbing, colonization and social change are challenging indigenous knowledge systems (Ford, 2012; Nakashima et al., 2012; McNamara and Prasad, 2014; Pearce et al., 2015).</p> <p>Broader structural challenges, systemic inequality and dominant governance systems prevent indigenous epistemologies and worldviews from meaningfully being integrated into adaptation (Thornton and Manasfi, 2010; Mistry et al., 2016; Russell-Smith et al., 2017).</p> <p>Can promote conservative attitudes, limit uptake of new information and practices and may not be sustainable in all circumstances given socio-cultural changes experienced (Granderson, 2017; Kihila, 2017; Mccubbin et al., 2017)</p>	<p><i>Cultural programming</i></p> <p>Options such as integration of indigenous knowledge into resource management systems and school curricula, digital storytelling and filmmaking, cultural events, web-based knowledge banks, radio dramas and documentation of knowledge are identified as potential adaptations (Cunsolo Willox et al., 2013; McNamara and Prasad, 2014; MacDonald et al., 2015b; Pearce et al., 2015; Chambers et al., 2017; Inamara and Thomas, 2017), but need to be carefully analysed for their potential to reduce vulnerability, including potential trade-offs (Granderson, 2017)</p>

Table 4.SM.2 (continued)

Adaptation Option	Enabling Conditions	Constraints	Examples
<p>Human migration</p>	<p>Revising and adopting migration issues in national disaster risk reduction policies, national action plans, and intended nationally determined contributions (INDCs)/NDCs (Kuruppu and Willie, 2015; Yamamoto et al., 2017).</p> <p>Utilizing existing social protection programmes to manage climate-induced migration (Schwan and Yu, 2017).</p> <p>Moving away from ad hoc approaches to migration and displacement (Thomas and Benjamin, 2018).</p> <p>Migration can serve as an important risk management strategy, leading to increased incomes (Cattaneo and Peri, 2016).</p> <p>Migration might become the only feasible adaptation option in highly vulnerable areas (Betzold, 2015; Wilkinson et al., 2016).</p>	<p>Research conducted on a 'case by case' approach fails to provide the effective scaling of policy to national or international levels (Gemenne and Blocher, 2017; Grecequet et al., 2017).</p> <p>Few policies on migration exist at the national or sub-national scales (Yamamoto et al., 2017).</p> <p>Financial, social and ecological costs (Grecequet et al., 2017).</p> <p>Stress on urban system resources and services (Bhagat, 2017).</p> <p>Migrants at risk of insecure tenure, unsafe living conditions and exclusion in their destinations (Bettini et al., 2016; Gioli et al., 2016; Bhagat, 2017; Schwan and Yu, 2017).</p>	<p><i>Autonomous and planned relocation in small island developing states and semi-arid regions</i></p> <p>Migration is improving access to financial and social capital and reducing risk exposure in some locations (e.g., in the Solomon Islands; Birk and Rasmussen, 2014). The ad hoc nature of migration and displacement can be overcome by integrating disaster risk reduction and climate change adaptation into national sustainable development plans (Thomas and Benjamin, 2018).</p> <p>In semi-arid India, populations in rural regions already experiencing 1.5°C warming are migrating to cities (Gajjar et al., 2018) but are inadequately covered by existing policies (Bhagat, 2017).</p>
<p>Climate services</p>	<p>Rapid technical development, due to increased financial inputs and growing demand, is enabling improved quality of climate information (Rogers and Tsirkunov, 2010; Clements et al., 2013; Perrels et al., 2013; Gasc et al., 2014; WMO, 2015; Roudier et al., 2016).</p> <p>Multiple stakeholder engagement and participatory processes to interpret climate information are effective to improve uptake and use (Mantilla et al., 2014; Sivakumar et al., 2014; Coulibaly et al., 2015; Gebru et al., 2015; Brasseur and Gallardo, 2016; Lourenço et al., 2016; Singh et al., 2016; Vaughan et al., 2016; Kihila, 2017; Lobo et al., 2017).</p> <p>Scaling climate services may occur through: leveraging capacities of project champions, knowledge brokers, and intermediaries (Mantilla et al., 2014; Coulibaly et al., 2015); co-production of knowledge (Kirchhoff et al., 2013) that enables users to actively participate in adaptation decisions (Vaughan and Dessai, 2014); developing clear financial models to ensure sustainability (Webber and Donner, 2017), which includes multi-stakeholder engagement through iterative participatory processes (Girvetz et al., 2014; Dorward et al., 2015); and leveraging appropriate communication channels such as mobile technology (Hampson et al., 2014; Gebru et al., 2015).</p>	<p>Issues of timing of information provision and scale of information remain barriers (Dinku et al., 2014; Jancoles et al., 2014; Gebru et al., 2015; Weisse et al., 2015; Brasseur and Gallardo, 2016; Cortekar et al., 2016; Singh et al., 2016; Snow et al., 2016; Vaughan et al., 2016; Kihila, 2017).</p> <p>Lower uptake by women, remote communities and those without technical support (Carr and Onzere, 2017; Singh et al., 2017).</p> <p>Issues of trust and usability of information provided (L. Jones et al., 2016; Singh et al., 2017; C.J. White et al., 2017).</p> <p>Continued focus on supply-driven provision of climate information rather than specific needs of end users (Lourenço et al., 2016).</p>	<p><i>Improved adaptation decision-making.</i></p> <p>Semi-arid regions in India and sub-Saharan Africa facing 1.5°C warming are seeing benefits of climate services in agriculture planning, drought management and flood warning (Vincent et al., 2015; Lobo et al., 2017; Singh et al., 2017; C. Vaughan et al., 2018).</p> <p>Climate services are being widely applied in sectors such as agriculture, health, disaster management and insurance (Lourenço et al., 2016; C. Vaughan et al., 2018), with implications for adaptation decision-making.</p> <p>Several programmes aimed at using climate services for better decision-making are showing signs of success: from various actors, at various scales, using different forms of information delivery and uptake. These involve: participatory analysis of seasonal forecasts in East Africa (Dorward et al., 2015); non-governmental organization-driven weather advisories in India (Lobo et al., 2017); innovations in government agriculture extension services in various countries across sub-Saharan Africa and South Asia (Singh et al., 2016); and broadening the scope of climate services to directly inform spatial planning and adaptation interventions in the Netherlands (Goosen et al., 2013).</p>

4.SM.3 Carbon Dioxide Removal Costs, Deployment and Side Effects: Literature Basis for Figure 4.2 (Section 4.3.7)

Table 4.SM.3 | References supporting Figure 4.2 in Section 4.3.7. Evidence on Carbon Dioxide Removal (CDR) abatement costs, 2050 deployment potentials and side effects. Based on systematic review (Fuss et al., 2018).

Option	Costs	Potentials
Afforestation and reforestation (AR)	Myers and Goreau, 1991; van Kooten et al., 1992, 1999; Winjum et al., 1992, 1993; Dixon et al., 1993; Swisher, 1994; Brown et al., 1995; Chang, 1999; Plantinga et al., 1999; Sohngen and Alig, 2000; van Kooten, 2000; Plantinga and Mauldin, 2001; Ravindranath et al., 2001; Sohngen and Mendelsohn, 2003; van Vliet et al., 2003; Baral and Guha, 2004; Richards and Stokes, 2004; Koning et al., 2005; Lakyda et al., 2005; Lee et al., 2005; Olschewski and Benítez, 2005; Richards and Stavins, 2005; Yemshanov et al., 2005; Benítez and Obersteiner, 2006; Han et al., 2007; Ahn, 2008; Hedenus and Azar, 2009; Dominy et al., 2010; Rootzén et al., 2010; Ryan et al., 2010; Torres et al., 2010; Winsten et al., 2011; Paterson and Bryan, 2012; Townsend et al., 2012; Nijnik et al., 2013; Paul et al., 2013; Polglase et al., 2013; Carwardine et al., 2015; Evans et al., 2015; Maraseni and Cockfield, 2015; Haim et al., 2016	Dixon et al., 1994; Nilsson and Schopfhauser, 1995; Cannell, 2003; Richards and Stokes, 2004; Houghton et al., 2015; Houghton and Nassikas, 2018
Bioenergy with carbon dioxide capture and storage (BECCS)	Möllersten et al., 2003, 2004, 2006; Keith et al., 2006; Azar et al., 2006; Luckow et al., 2010; Abanades et al., 2011; Gough and Upham, 2011; Laude and Ricci, 2011; Laude et al., 2011; Ranjan and Herzog, 2011; Carbo et al., 2011; De Visser et al., 2011; Fabbri et al., 2011; Koormeef et al., 2012b; Kärki et al., 2013; Fornell et al., 2013; Akgul et al., 2014; N. Johnson et al., 2014; Arasto et al., 2014; Al-Qayim et al., 2015; Onarheim et al., 2015; Creutzig et al., 2015; Moreira et al., 2016; Rochedo et al., 2016; Sanchez and Callaway, 2016	Fischer and Schrattenholzer, 2001; Yamamoto et al., 2001; Hoogwijk et al., 2005, 2009; Moreira, 2006; Obersteiner et al., 2006; Smeets et al., 2007; Smeets and Faaij, 2007; Hakala et al., 2008; van Vuuren et al., 2009; Dornburg et al., 2010; Gregg and Smith, 2010; Thrän et al., 2010; Beringer et al., 2011; Haberl et al., 2011; Cornelissen et al., 2012; Erb et al., 2012; Rogner et al., 2012; W.K. Smith et al., 2012; Lauri et al., 2014; Kraxner and Nordström, 2015; Searle and Malins, 2015; Buchholz et al., 2016; Calvin et al., 2016; Tokimatsu et al., 2017
Biochar	McCarl et al., 2009; Smith, 2016	Lehmann et al., 2006; Laird et al., 2009; Lee et al., 2010; Moore et al., 2010; Pratt and Moran, 2010; Woolf et al., 2010; Powell and Lenton, 2012; Hamilton et al., 2015; Lomax et al., 2015; Smith, 2016
Soil carbon sequestration (SCS)	Smith et al., 2008; Smith, 2016	Batjes, 1998; Metting et al., 2001; Lal, 2003a, b, 2004a, c, 2010, 2011, 2013; Lal et al., 2007; Smith et al., 2008; Salati et al., 2010; Conant, 2011; Smith, 2012, 2016; Benbi, 2013; Lorenz and Lal, 2014; Powlson et al., 2014; Sommer and Bossio, 2014; Henderson et al., 2015; Lassaletta and Aguilera, 2015; Smith, 2016; Minasny et al., 2017; Zomer et al., 2017
Direct air carbon dioxide capture and storage (DACCS)	Zeman, 2003, 2014; Keith et al., 2006; Nikulshina et al., 2006; Stolaroff et al., 2008; Lackner, 2009; House et al., 2011; Simon et al., 2011; Socolow et al., 2011; Holmes and Keith, 2012; Kulkarni and Sholl, 2012; Mazzotti et al., 2013; W. Zhang et al., 2014; Geng et al., 2016; Sakwa-Novak et al., 2016; SEAB, 2016; Sinha et al., 2017; van der Giesen et al., 2017	
Enhanced weathering (EW)	Schilling and Krijgsman, 2006; Hartmann and Kempe, 2008; Köhler et al., 2010; Renforth, 2012; Taylor et al., 2016; Strefler et al., 2018a	Hartmann and Kempe, 2008; Köhler et al., 2010, 2013; Renforth et al., 2011; Hauck et al., 2016; Taylor et al., 2016; Strefler et al., 2018a
Ocean alkalization (OA)	Rau and Caldeira, 1999; Rau et al., 2007; Harvey, 2008; Rau, 2008; Paquay and Zeebe, 2013; Renforth et al., 2013; Renforth and Kruger, 2013; Renforth and Henderson, 2017	Harvey, 2008; Paquay and Zeebe, 2013; González and Ilyina, 2016
Reviews	Lenton, 2010, 2014; McGlashan et al., 2012; McLaren, 2012; Caldecott et al., 2015; NRC, 2015; UNEP, 2017b	

4.SM.4 Guidance and Assessment for Feasibility Assessment

4.SM.4.1 Guidance for Feasibility Assessment as presented in Section 4.5.1

Table 4.SM.4 | Guidance for conducting the feasibility assessment of mitigation and adaptation options. See 4.SM.4.2 for the assessment and literature basis of the assessment of mitigation options and 4.SM.4.3 for the assessment and literature basis of adaptation options.

Entry for Indicator-Option Combination	Guidance for Conducting the Feasibility Assessment of Mitigation and Adaptation Options	
NA (not applicable)	The indicator is not relevant to the option	
NE (no evidence)	<ul style="list-style-type: none"> No peer-reviewed literature could be located supporting an assessment of whether this indicator would limit the option's feasibility The peer-reviewed literature that mentions the issue is not robust enough 	
LE (limited evidence)	<ul style="list-style-type: none"> One or two papers make statements/present research that could be a basis for the assessment, but this evidence is considered too limited Two or more papers provide a basis for the assessment as a side issue in the paper, not as a core issue 	
A	A feasibility assessment can be made: <ul style="list-style-type: none"> If there are one or two robust papers (or more) that contain references which also support the assessment If literature is plentiful If one or a number of meta-studies and reviews provide extensive treatment of the indicator-option combination 	A = The indicator could block the feasibility of this option
B		B = The indicator does not have a positive nor a negative effect on the feasibility of the option
C		C = The indicator does not pose any barrier to the feasibility of this option

Table 4.SM.5 | Parameters used for the calculation of the overall feasibility of the dimension-option combinations.

<i>#indicators</i>	Number of indicators used to assess the overall feasibility of a dimension, typically two to five
<i>#NA</i>	Number of indicators that are not applicable (NA) to the option
<i>#NE&LE</i>	Total number of indicators for which there is no evidence (NE) or limited evidence (LE)
<i>#A</i>	Number of indicators assessed as A
<i>#B</i>	Number of indicators assessed as B
<i>#C</i>	Number of indicators assessed as C
<i>#effective indicators</i>	$\#effective\ indicators = \#indicators - \#NA$
<i>AVG</i>	$AVG = (1*\#A + 2*\#B + 3*\#C)/(\#effective\ indicators - NE\&LE)$

Table 4.SM.6 | Legend criteria for the overall feasibility of the dimension-option combinations as shown in Table 4.11 for mitigation options and Table 4.12 for adaptation options.

Legend of Table 4.11 and Table 4.12	Legend Criteria for the Overall Feasibility of each of the Dimension-Option Combinations
NA	$\#indicators = \#NA$
	$\#NE\&LE > 0.5 \times \#effective\ indicators$
	$AVG \leq 1.5$ $\#NE\&LE \leq 0.5 \times \#effective\ indicators$
	$1.5 < AVG \leq 2.5$ $\#NE\&LE \leq 0.5 \times \#effective\ indicators$
	$AVG > 2.5$ $\#NE\&LE \leq 0.5 \times \#effective\ indicators$

4.SM.4.2 Feasibility Assessment of Mitigation Options as Presented in Section 4.5.2

4.SM.4.2.1 Feasibility Assessment of Mitigation Options in Energy System Transitions

Table 4.SM.7 | Feasibility assessment of energy system transition mitigation options: wind (on-shore and off-shore), solar photovoltaic (PV), and bioenergy. For methodology, see 4.SM.4.1.

	Wind (On-shore and Off-shore)	Solar PV	Bioenergy	
Evidence	Robust	Robust	Robust	
Agreement	Medium	High	Medium	
Economic	Cost-effectiveness	IRENA, 2015, 2016; Shafiee et al., 2016; Silva Herran et al., 2016; Voormolen et al., 2016; WEC, 2016	Cengiz and Mamiş, 2015; IRENA, 2015, 2016; Climate Council, 2017a	Brown, 2015; Creutzig et al., 2015; Patel et al., 2016
	Absence of distributional effects	Corfee-Morlot et al., 2012; Greene and Geisken, 2013	Corfee-Morlot et al., 2012; Toovey and Malin, 2016	Agoramoorthy et al., 2009; Ewing and Msangi, 2009; Arndt et al., 2011a; Schoneveld et al., 2011; German and Schoneveld, 2012; Creutzig et al., 2013; Hunsberger et al., 2014; Popp et al., 2014; Persson, 2015; Buck, 2016; Kline et al., 2017; Robledo-Abad et al., 2017; Stevanović et al., 2017
	Employment and productivity enhancement potential	Clean Energy Council, 2012; Climate Council, 2016; IEA, 2017; IRENA, 2017	Climate Council, 2016, 2017b; IEA, 2017d; IRENA, 2017b	Parcell and Westhoff, 2006; Gohin, 2008; Wicke et al., 2009; Arndt et al., 2011a; Rathmann et al., 2012; Silalertruksa et al., 2012; Augusto Horta Nogueira and Silva Capaz, 2013; Ribeiro, 2013
Technological	Technical scalability	Al-Maghalseh and Maharmeh, 2016; Silva Herran et al., 2016; IRENA, 2017a, b	IRENA, 2017a	Socol et al., 2009; Fiorese et al., 2014; Vimmerstedt et al., 2015; Humpenöder et al., 2017
	Maturity	IRENA, 2017a; UNEP, 2017a	Despotou, 2012	Socol et al., 2009; Corsatea, 2014; Fiorese et al., 2014; Creutzig et al., 2015; Strzalka et al., 2017
	Simplicity	IRENA, 2016	IRENA, 2016	Demirbas and Demirbas, 2007; Surendra et al., 2014
	Absence of risk	UNEP, 2017a	Bahill and Chaves, 2013; UNEP 2017a	Buchholz et al., 2016; Liu et al., 2018
Institutional	Political acceptability	Borch et al., 2014; Baker, 2015; Furtado and Perrot, 2015; Kar and Sharma, 2015; WEC, 2016; Bistline, 2017; UNEP, 2017a	Baker, 2015; UNEP, 2017a; Shukla et al., 2018	Longstaff et al., 2015; Favretto et al., 2017; Goetz et al., 2017; Timilsina et al., 2012; Broch et al., 2013; Monterfio and Sonnenfeld, 2013; Stattman et al., 2013; Aha and Ayitey, 2017
	Legal and administrative acceptability	Kar and Sharma, 2015; Bistline, 2017; Comello et al., 2017; UNEP, 2017a	Shrimali and Rohra, 2012; Comello et al., 2017; UNEP, 2017a; Shukla et al., 2018	Gamborg et al., 2014; Amos, 2016; Naiki, 2016
	Institutional capacity	Corfee-Morlot et al., 2012; Kar and Sharma, 2015; Goodale and Milman, 2016; Bistline, 2017; Comello et al., 2017; UNEP, 2017a	Corfee-Morlot et al., 2012; Shrimali and Rohra, 2012; Comello et al., 2017; UNEP, 2017a; Shukla et al., 2018	LE Gamborg et al., 2014; Favretto et al., 2017
	Transparency and accountability potential	Eberhard et al., 2014; Furtado and Perrot, 2015; Swilling et al., 2016; Bistline, 2017; UNEP, 2017a	Eberhard et al., 2014; Swilling et al., 2016; UNEP, 2017a	Plevin et al., 2010; Creutzig et al., 2015; Pyörälä et al., 2014; Torssonen et al., 2016; Baul et al., 2017; Kilpeläinen et al., 2017; Zanchi et al., 2012; Hammar et al., 2015; Daioglou et al., 2017; Booth, 2018; Sterman et al., 2018; Schulze et al., 2012; Buchholz et al., 2014; Harris et al., 2015; Repo et al., 2015; Röder et al., 2015; DeCicco et al., 2016; Qin et al., 2016; Röder and Thornley, 2016; Robledo-Abad et al., 2017



Table 4.SM.7 (continued)

		Wind (On-shore and Off-shore)	Solar PV	Bioenergy
Evidence		Robust	Robust	Robust
Agreement		Medium	High	Medium
Socio-cultural	Social co-benefits (health, education)	Silva Herran et al., 2016; Geels et al., 2017; IEA, 2017d; UNEP, 2017a, b	Geels et al., 2017; IEA, 2017d; UNEP, 2017a, b	Kar et al., 2012; Anenberg et al., 2013; Knoblauch et al., 2014; Porter et al., 2015; Weldu et al., 2017
	Public acceptance	Kondili and Kaldellis, 2012; Borch et al., 2014; Heidenreich, 2015; Geraint and Gianluca, 2016; Brennan et al., 2017; Geels et al., 2017; IEA, 2017d; Sütterlin and Siegrist, 2017; UNEP, 2017a, b	Brennan et al., 2017; Geels et al., 2017; IEA, 2017d; Sütterlin and Siegrist, 2017; UNEP, 2017a, b	Khanal et al., 2010; Delshad and Raymond, 2013; Dragojlovic and Einsiedel, 2015; Fytilli and Zabaniotou, 2017; Goetz et al., 2017; Moula et al., 2017
	Social and regional inclusiveness	Geels et al., 2017; IEA 2017d; UNEP, 2017a, b	Geels et al., 2017; IEA 2017d; UNEP, 2017a, b	Creutzig et al., 2013, 2015; Favretto et al., 2017; Robledo-Abad et al., 2017
	Intergenerational equity	Geels et al., 2017; IEA, 2017d; UNEP, 2017a, b	Geels et al., 2017; IEA 2017d; UNEP, 2017a, b	NE
	Human capabilities	Bistline, 2017; Geels et al., 2017; IEA, 2017d; UNEP, 2017a, b	Shrimali and Rohra, 2012; Geels et al., 2017; IEA, 2017d; UNEP, 2017a, b; Shukla et al., 2018	NE
Environmental/ecological	Reduction of air pollution	Clean Energy Council, 2012; Kondili and Kaldellis, 2012; UNEP, 2017a, b	UNEP, 2017a, b	LE Kar et al., 2012; Anenberg et al., 2013; Knoblauch et al., 2014; Porter et al., 2015; Weldu et al., 2017
	Reduction of toxic waste	UNEP, 2017a, b	UNEP, 2017a, b	NE
	Reduction of water use	UNEP, 2017a, b; Kondili & Kaldellis 2012	UNEP, 2017a, b	Gerbens-Leenes et al., 2009; Gheewala et al., 2011; Smith and Torn, 2013; Bonsch et al., 2016; Lampert et al., 2016; Mouratiadou et al., 2016; Smith et al., 2016; Wei et al., 2016; Mathioudakis et al., 2017
	Improved biodiversity	UNEP, 2017a, b	UNEP, 2017a, b	Immerzeel et al., 2014; Dale et al., 2015; Holland et al., 2015; Kline et al., 2015; Santangeli et al., 2016; Tarr et al., 2017
Geophysical	Physical feasibility (physical potentials)	Al-Maghalseh & Maharmeh, 2016; UNEP, 2017a, b	UNEP, 2017a, b	Beringer et al., 2011; Klein et al., 2014; Slade et al., 2014; Creutzig et al., 2015; Kraxner and Nordström, 2015; Searle and Malins, 2015; Smith et al., 2016; Boysen et al., 2017b; Tokimatsu et al., 2017; Heck et al., 2018
	Limited use of land	Silva Herran et al., 2016; Mohan, 2017; UNEP, 2017a, b	Mohan, 2017; UNEP, 2017a, b	Popp et al., 2014; Creutzig et al., 2015; Bonsch et al., 2016; Hammond and Li, 2016; Williamson, 2016; Robledo-Abad et al., 2017
	Limited use of scarce (geo)physical resources	UNEP, 2017a, b	UNEP, 2017a, b	NA
	Global spread	UNEP, 2017a, b	UNEP, 2017a, b	Deng et al., 2015; Daigoglou et al., 2017; Robledo-Abad et al., 2017

Table 4.SM.8 | Feasibility assessment of energy system transition mitigation options: electricity storage, power sector carbon capture and storage (CCS) and nuclear energy. For methodology, see 4.SM.4.1.

		Electricity Storage		Power Sector CCS		Nuclear Energy
	Evidence	Robust		Robust		Robust
	Agreement	Medium		High		High
Economic	Cost-effectiveness	ACOLA, 2017; IRENA, 2015; Schmidt et al., 2017; Quann, 2017		Rubin et al., 2015; Global CCS Institute, 2017; IEA, 2017a; Castrejón et al., 2018		Finon and Roques, 2013; Bruckner et al., 2014; Lovering et al., 2016; Koomey et al., 2017
	Absence of distributional effects	Corfee-Morlot et al., 2012; ACOLA, 2017	NE		NE	
	Employment and productivity enhancement potential	ACOLA, 2017; Climate Council, 2017a; IEA, 2017d; IRENA, 2017b		Wei et al., 2010; Koelbl et al., 2016; IEA, 2017a		Kenley et al., 2009; Wei et al., 2010
Technological	Technical scalability	ACOLA, 2017; IRENA, 2017a		IPCC, 2005; de Coninck and Benson, 2014; Aminu et al., 2017		Bruckner et al., 2014; IAEA, 2018
	Maturity	ACOLA, 2017; IRENA, 2017a		Zheng and Xu, 2014; Abanades et al., 2015; Bui et al., 2018; Qiu and Yang, 2018		Bruckner et al., 2014
	Simplicity	IRENA, 2016; ACOLA, 2017	LE	Wei et al., 2010; IEA GHG, 2012		Esteban and Portugal-Pereira, 2014
	Absence of risk	ACOLA, 2017; UNEP, 2017a		IPCC, 2005; Boot-Handford et al., 2014; de Coninck and Benson, 2014; Aminu et al., 2017		Hirschberg et al., 2016; Rose and Sweeting, 2016; Wheatley et al., 2016
Institutional	Political acceptability	ACOLA, 2017; Nguyen et al., 2017; UNEP, 2017a		de Coninck and Benson, 2014; Boot-Handford et al., 2014; Aminu et al., 2017		Bruckner et al., 2014; IAEA, 2017
	Legal and administrative acceptability	ACOLA, 2017; Nguyen et al., 2017; UNEP, 2017a		Boot-Handford et al., 2014; de Coninck and Benson, 2014; Dixon et al., 2015	NE	
	Institutional capacity	Corfee-Morlot et al., 2012; ACOLA, 2017; IEA, 2017a; Nguyen et al., 2017; UNEP, 2017a	LE	Ashworth et al., 2015		Tosa, 2015; Vivoda and Graetz, 2015; Figueroa, 2016; Juraku, 2016; Taebi and Mayer, 2017
	Transparency and accountability potential	ACOLA, 2017; Nguyen et al., 2017; UNEP, 2017a	NE			Figueroa, 2016
Socio-cultural	Social co-benefits (health, education)	ACOLA, 2017; Geels et al., 2017; IEA, 2017c; UNEP, 2017a, b	NE			WHO, 2011; Endo et al., 2012; Nagataki et al., 2013; Bruckner et al., 2014; Ishikawa, 2014; Nakayachi et al., 2015; Beresford et al., 2016; Fridman et al., 2016; Hirschberg et al., 2016; Oe et al., 2016; Suzuki et al., 2017; Kawaguchi and Yukutake, 2017
	Public acceptance	ACOLA, 2017; Climate Council, 2017a; Geels et al., 2017; IEA, 2017c; UNEP, 2017a, b		Seigo et al., 2014; Ashworth et al., 2015; Aminu et al., 2017		Bruckner et al., 2014; Kim et al., 2014; Diaz-Maurin and Kovacic, 2015; Murakami et al., 2015; Nishikawa et al., 2016; Tsujikawa et al., 2016; Huhtala and Remes, 2017; IAEA, 2017; Wu, 2017; Ho et al., 2018
	Social and regional inclusiveness	ACOLA, 2017; Geels et al., 2017; IEA, 2017d; UNEP, 2017a, b	NA		NE	
	Intergenerational equity	ACOLA, 2017; Geels et al., 2017; IEA, 2017c; UNEP, 2017a, b		Alcalde et al., 2018		Bruckner et al., 2014
	Human capabilities	ACOLA, 2017; Geels et al., 2017; IEA, 2017d; Newman et al., 2017; UNEP, 2017a, b		Shackley et al., 2009; IEA GHG, 2012	NE	
Environmental/ecological	Reduction of air pollution	ACOLA, 2017; UNEP, 2017a, b		Koornneef et al., 2008; Odeh and Cockerill, 2008; Pehnt and Henkel, 2009; Korre et al., 2010; Nie et al., 2011; Modahl et al., 2012; Corsten et al., 2013; Cuéllar-Franca and Azapagic, 2015; Gibon et al., 2017		Cheng and Hammond, 2017



Table 4.SM.8 (continued)

		Electricity Storage	Power Sector CCS	Nuclear Energy
Evidence		Robust	Robust	Robust
Agreement		Medium	High	High
Environmental/ ecological	Reduction of toxic waste	ACOLA, 2017; UNEP, 2017a, b	Koornneef et al., 2008; Odeh and Cockerill, 2008; Pehnt and Henkel, 2009; Korre et al., 2010; Nie et al., 2011; Modahl et al., 2012; Corsten et al., 2013; Cuéllar-Franca and Azapagic, 2015; Gibon et al., 2017	Bruckner et al., 2014
	Reduction of water use	ACOLA, 2017; UNEP, 2017a, b	Koornneef et al., 2008, 2012a; Odeh and Cockerill, 2008; Pehnt and Henkel, 2009; Korre et al., 2010; Nie et al., 2011; Modahl et al., 2012; Corsten et al., 2013; Cooney et al., 2015; Cuéllar-Franca and Azapagic, 2015; Gibon et al., 2017	Bailly du Bois et al., 2012; Kato et al., 2012; Sakaguchi et al., 2012; Tsumune et al., 2012; Ueda et al., 2013; Bruckner et al., 2014
	Improved biodiversity	NA	Koornneef et al., 2008, 2012a; Odeh and Cockerill, 2008; Pehnt and Henkel, 2009; Korre et al., 2010; Nie et al., 2011; Modahl et al., 2012; Corsten et al., 2013; Cuéllar-Franca and Azapagic, 2015; Gibon et al., 2017	Cheng and Hammond, 2017
Geophysical	Physical feasibility (physical potentials)	ACOLA, 2017; UNEP, 2017a, b	IPCC, 2005; de Coninck and Benson, 2014; Scott et al., 2015	Bruckner et al., 2014
	Limited use of land	ACOLA, 2017; UNEP, 2017a, b	Non-controversial so not investigated	Cheng and Hammond, 2017
	Limited use of scarce (geo) physical resources	ACOLA, 2017; Newman et al., 2017; UNEP, 2017a, b	IPCC, 2005; de Coninck and Benson, 2014; Scott et al., 2015	Bruckner et al., 2014; NEA, 2016
	Global spread	ACOLA, 2017; UNEP, 2017a, b	IPCC, 2005; de Coninck and Benson, 2014	IAEA, 2017

4.SM.4.2.2 Feasibility Assessment of Mitigation Options in Land and Ecosystem Transitions

Table 4.SM.9 | Feasibility assessment of the land and ecosystem transition mitigation options: reduced food wastage and efficient food production, dietary shifts, sustainable intensification of agriculture and ecosystems restoration. For methodology, see 4.SM.4.1.

		Reduced Food Wastage and Efficient Food Production	Dietary Shifts	Sustainable Intensification of Agriculture	Ecosystems Restoration
Evidence		Robust	Medium	Medium	Medium
Agreement		High	High	High	High
Economic	Cost-effectiveness	FAO, 2013a; Thyberg and Tonjes, 2016; Hebrok and Boks, 2017	LE FAO, 2013b	LE Havlik et al., 2014	Kindermann et al., 2008; Dang Phan et al., 2014; Overmars et al., 2014; Griscom et al., 2017; Ickowitz et al., 2017; Phan et al., 2017; Rakatama et al., 2017
	Absence of distributional effects	Porpino et al., 2015; Thyberg and Tonjes, 2016; Alexander et al., 2017; Hebrok and Boks, 2017	LE Żukiewicz-Sobczak et al., 2014	LE A. Smith et al., 2017	Caplow et al., 2011; German and Schoneveld, 2012; Atela et al., 2014; Sunderlin et al., 2014; Howson and Kindon, 2015; Erb et al., 2016; Poudyal et al., 2016

Table 4.SM.9 (continued)

		Reduced Food Waste and Efficient Food Production	Dietary Shifts	Sustainable Intensification of Agriculture	Ecosystems Restoration
Evidence		Robust	Medium	Medium	Medium
Agreement		High	High	High	High
Economic	Employment and productivity enhancement potential	Shepon et al., 2016; Thyberg and Tonjes, 2016; Alexander et al., 2017; Popp et al., 2017	Haggblade et al., 2015; Tschirley et al., 2015; Berti and Mulligan, 2016; Blay-Palmer et al., 2016; Shepon et al., 2016; Alexander et al., 2017; Clark and Tilman, 2017	Foley et al., 2011; Harvey et al., 2014; Clark and Tilman, 2017; Griscom et al., 2017	Brander et al., 2013; Neimark et al., 2016; Fenger et al., 2017; Jena et al., 2017, Blackman and Rivera, 2011; Hidayat et al., 2015; Oya et al., 2017
	Technical scalability	Högy et al., 2009; DaMatta et al., 2010; Lin et al., 2013; Challinor et al., 2014; Papargyropoulou et al., 2014; De Souza et al., 2015; Hebrok and Boks, 2017	Hallström et al., 2015; Alexander et al., 2017; Clark and Tilman, 2017	Harvey et al., 2014; Pretty and Bharucha, 2014; Petersen and Snapp, 2015; Clark and Tilman, 2017; Griscom et al., 2017; Waldron et al., 2017; P. Adhikari et al., 2018; Ramankutty et al., 2018	P. Smith et al., 2014, Table 11.22; Houghton et al., 2015; Griscom et al., 2017; Houghton and Nassikas, 2018
Technological	Maturity	NE	NE	LE	McLaren, 2012; P. Smith et al., 2012; Goetz et al., 2015
	Simplicity	NE	NE	NE	P. Smith et al., 2014; Erb et al., 2017; Griscom et al., 2017
	Absence of risk	Lin et al., 2013; Papargyropoulou et al., 2014; Hebrok and Boks, 2017	Hallström et al., 2015; Alexander et al., 2017; Clark and Tilman, 2017; Rösös et al., 2017	Harvey et al., 2014; Clark and Tilman, 2017; Griscom et al., 2017; Waldron et al., 2017; P. Adhikari et al., 2018; Ramankutty et al., 2018; Sparovek et al., 2018	P. Smith et al., 2014, Table 11.9
Institutional	Political acceptability	Refsgaard and Magnussen, 2009; Lin et al., 2013; Thornton and Herrero, 2014; L. Jones et al., 2016; Thyberg and Tonjes, 2016; Singh et al., 2017; C.J. White et al., 2017	NE	Smith and Gregory, 2013; Godfray and Garnett, 2014; Harvey et al., 2014; Sparovek et al., 2018	Cronin et al., 2016; Di Gregorio et al., 2017; Nantongo, 2017
	Legal and administrative acceptability	NE	NE	Smith and Gregory, 2013; Harvey et al., 2014	Sunderlin et al., 2014
	Institutional capacity	Refsgaard and Magnussen, 2009; Thornton and Herrero, 2014; Briley et al., 2015; L. Jones et al., 2016; Thyberg and Tonjes, 2016; Singh et al., 2017; C.J. White et al., 2017	NE	Smith and Gregory, 2013; Harvey et al., 2014; Lu et al., 2015; Petersen and Snapp, 2015; Mungai et al., 2016; P. Adhikari et al., 2018; Sparovek et al., 2018	Unruh, 2011; Marion Suseeya and Caplow, 2013; Wylie et al., 2016
	Transparency and accountability potential	Briley et al., 2015; L. Jones et al., 2016; Thyberg and Tonjes, 2016; Singh et al., 2017; C.J. White et al., 2017	NE	NE	Strassburg et al., 2014; Neimark et al., 2016
Socio-cultural	Social co-benefits (health, education)	Lin et al., 2013; Tilman and Clark, 2014; Wellesley et al., 2015; Thyberg and Tonjes, 2016; Hebrok and Boks, 2017; Popp et al., 2017	Alexander et al., 2016, 2017; Stoll-Kleemann and Schmidt, 2017; Ritchie et al., 2018	Pretty et al., 2011; Jones et al., 2012; Smith and Gregory, 2013; Harvey et al., 2014; Falconnier et al., 2018; Ramankutty et al., 2018; Sparovek et al., 2018	Caplow et al., 2011; Spencer et al., 2017
	Public acceptance	Lin et al., 2013; Popp et al., 2017	Alexander et al., 2016, 2017; Stoll-Kleemann and Schmidt, 2017	Smith and Gregory, 2013; Godfray and Garnett, 2014; Harvey et al., 2014; P. Adhikari et al., 2018; Ramankutty et al., 2018; Sparovek et al., 2018	Lin et al., 2012; Kragt et al., 2016; Scholte et al., 2016; hompson et al., 2016; Braun et al., 2017



Table 4.SM.9 (continued)

		Reduced Food Waste and Efficient Food Production	Dietary Shifts	Sustainable Intensification of Agriculture	Ecosystems Restoration
Evidence		Robust	Medium	Medium	Medium
Agreement		High	High	High	High
Socio-cultural	Social and regional inclusiveness	Lin et al., 2013; Tilman and Clark, 2014; Hebrok and Boks, 2017; Popp et al., 2017	Khoury et al., 2014; Tilman and Clark, 2014; Alexander et al., 2016, 2017; Stoll-Kleemann and Schmidt, 2017; Ritchie et al., 2018	Pretty et al., 2011; Smith and Gregory, 2013; Franke et al., 2014; Harvey et al., 2014; Pretty and Bharucha, 2014; Petersen and Snapp, 2015; Struik and Kuyper, 2017; Ramankutty et al., 2018; Sparovek et al., 2018	Ribot and Larson, 2012; Jagger et al., 2014; Lyons and Westoby, 2014; Brimont et al., 2015; Howson and Kindon, 2015
	Intergenerational equity	NE	LE Bajželj et al., 2014	NE	Pascuala et al., 2010; Unruh, 2011
	Human capabilities	Tilman and Clark, 2014; Thyberg and Tonjes, 2016; Hebrok and Boks, 2017	Tilman and Clark, 2014; Ritchie et al., 2018	LE Baltenweck et al., 2003; Pretty and Bharucha, 2014; Mungai et al., 2016	LE P. Smith et al., 2014, Table 11.5
Environmental/ecological	Reduction of air pollution	LE Thyberg and Tonjes, 2016	Tilman and Clark, 2014; Hallström et al., 2015; Ritchie et al., 2018	NE	NE
	Reduction of toxic waste	NE	NE	Stevens and Quinton, 2009; Tilman et al., 2011a; Pretty and Bharucha, 2014; Soussana and Lemaire, 2014; Lu et al., 2015; Ramankutty et al., 2018	NE
	Reduction of water use	Bajželj et al., 2014; West et al., 2014; Westhoek et al., 2014; Thyberg and Tonjes, 2016	Bajželj et al., 2014; West et al., 2014; Westhoek et al., 2014	LE Pretty and Bharucha, 2014	Brander et al., 2013; Devaraju et al., 2015; van Noordwijk et al., 2016; Ellison et al., 2017
	Improved biodiversity	J.A. Johnson et al., 2014; Ramankutty et al., 2018	Tilman and Clark, 2014; Hallström et al., 2015; Clark and Tilman, 2017; Ramankutty et al., 2018	Pretty and Bharucha, 2014; Waldron et al., 2017	Rey Benayas et al., 2009; Bullock et al., 2011; Jantz et al., 2014; Veldman et al., 2015; Jantke et al., 2016; Kaiser-Bunbury et al., 2017
Geophysical	Physical feasibility (physical potentials)	Cherubin et al., 2015; Ivy et al., 2017	NE	NE	Canadell and Schulze, 2014; Houghton et al., 2015; Erb et al., 2016, 2017; Griscom et al., 2017; Houghton and Nassikas, 2018; Canadell and Raupach, 2008; Strassburg et al., 2014
	Limited use of land	Thyberg and Tonjes, 2016; Ramankutty et al., 2018; Sparovek et al., 2018	LE Shepon et al., 2016; Benton et al., 2018; Ramankutty et al., 2018	Harvey et al., 2014; Clark and Tilman, 2017	Strassburg et al., 2014; Humpenöder et al., 2015; Erb et al., 2016; Kreidenweis et al., 2016
	Limited use of scarce (geo) physical resources	NE	NE	Foley et al., 2011	NE
	Global spread	LE Thyberg and Tonjes, 2016	NE	LE Tilman et al., 2011b; Havlik et al., 2014; Petersen and Snapp, 2015; Mungai et al., 2016	Strassburg et al., 2014; Erb et al., 2017

4.SM.4.2.3 Feasibility Assessment of Mitigation Options in Urban and Infrastructure System Transitions

Table 4.SM.10 | Feasibility assessment of urban and infrastructure system transition mitigation options: land use and urban planning; electric cars and buses; and sharing schemes. For methodology, see 4.SM.4.1.

		Land Use and Urban Planning	Electric Cars and Buses	Sharing Schemes
Evidence		Robust	Medium	Limited
Agreement		Medium	High	Medium
Economic	Cost-effectiveness	Trubka et al., 2010; Nahlika and Chester, 2014; Ahlfeldt and Pietrostefani, 2017; Lee and Erickson, 2017; Sharma, 2018	Peterson and Michalek, 2013; IEA, 2017b	Ambrosino et al., 2016; Cheyne and Imran, 2016; Kent and Dowling, 2016
	Absence of distributional effects	Colenbrander et al., 2015; Lwasa, 2017; Broekhoff et al., 2018; Teferi and Newman, 2018; Wiktorowicz et al., 2018	Glazebrook and Newman, 2018; Sivak and Schoettle, 2018	Gomez et al., 2015; Ambrosino et al., 2016; Kent and Dowling, 2016
	Employment and productivity enhancement potential	Ambrosino et al., 2016; Ahlfeldt and Pietrostefani, 2017; Broto, 2017; Gao and Newman, 2018; Han et al., 2018	Whitelegg, 2016; IEA, 2017b	Sweet, 2014; Cheyne and Imran, 2016
Technological	Technical scalability	Broekhoff et al., 2018; Sharma, 2018; R. Zhang et al., 2018	Brown et al., 2010; IEA, 2017b	Broch et al., 2013; Ambrosino et al., 2016; Kent and Dowling, 2016; Reis et al., 2016
	Maturity	Parnell, 2015; Newman et al., 2017	Whitelegg, 2016; IEA, 2017b	Le Vine et al., 2014; Kent and Dowling, 2016
	Simplicity	Lilford et al., 2017; Newman et al., 2017	IEA, 2017b; Glazebrook and Newman, 2018	Ambrosino et al., 2016; Giuliano and Hanson, 2017
	Absence of risk	LE Newman et al., 2017	Whitelegg, 2016; IEA, 2017b	Ambrosino et al., 2016; Kent and Dowling, 2016
Institutional	Political acceptability	Broekhoff et al., 2018; Grandin et al., 2018	Bakker and Trip, 2013; IEA, 2017b	Le Vine et al., 2014; Ambrosino et al., 2016
	Legal and administrative acceptability	Broekhoff et al., 2018; Grandin et al., 2018	Wirasingha et al., 2008; IEA, 2017b	Cannon and Summers, 2014; Le Vine et al., 2014
	Institutional capacity	Geneletti et al., 2017; Chau et al., 2018	Wirasingha et al., 2008; IEA, 2017b	Kent and Dowling, 2016; Glazebrook and Newman, 2018
	Transparency and accountability potential	Moglia et al., 2018	Wirasingha et al., 2008; IEA, 2017b	Newman et al., 2017; Glazebrook and Newman, 2018
Socio-cultural	Social co-benefits (health, education)	Nahlika and Chester, 2014; Jillella et al., 2015; Chava and Newman, 2016; Su et al., 2016; Chava et al., 2018a, b	IEA, 2017b; Newman et al., 2017	de Groot and Steg, 2007; Rojas-Rueda et al., 2012; Cheyne and Imran, 2016; Kent and Dowling, 2016
	Public acceptance	Jillella et al., 2015; Chava and Newman, 2016; Chava et al., 2018a, b; Moglia et al., 2018	Zhang et al., 2011; Bockarjova and Steg, 2014; Liao et al., 2017	de Groot and Steg, 2007; Le Vine et al., 2014; Ambrosino et al., 2016; Kent and Dowling, 2016; Reis et al., 2016
	Social and regional inclusiveness	Jillella et al., 2015; Chava and Newman, 2016; Colenbrander et al., 2017; Endo et al., 2017; Lwasa, 2017; Broekhoff et al., 2018; Chava et al., 2018a, b; Teferi and Newman, 2018	LE Newman et al., 2017	Cheyne and Imran, 2016; Kent and Dowling, 2016
	Intergenerational equity	LE Newman et al., 2017	Newman et al., 2017; Kenworthy and Schiller, 2018	Le Vine et al., 2014; Cheyne and Imran, 2016; Glazebrook and Newman, 2018
	Human capabilities	Moglia et al., 2018	Wirasingha et al., 2008; Newman et al., 2017	Reis et al., 2016; Newman et al., 2017
Environmental/ecological	Reduction of air pollution	Zubelzu et al., 2015; Glazebrook and Newman, 2018; Sharma, 2018; Thomson and Newman, 2018; R. Zang et al., 2018	Sioshansi and Denholm, 2009; Kenworthy and Schiller, 2018	Le Vine et al., 2014; Newman and Kenworthy, 2015; Nijland and van Meerkerk, 2017; Glazebrook and Newman, 2018
	Reduction of toxic waste	LE Thomson and Newman, 2018	LE Hawkins et al., 2013	Newman and Kenworthy, 2015; Newman et al., 2017; Glazebrook and Newman, 2018
	Reduction of water use	Serrao-Neumann et al., 2017	LE Glazebrook and Newman, 2018	Stephan and Crawford, 2016; Newman et al., 2017
	Improved biodiversity	Huang et al., 2018	LE Glazebrook and Newman, 2018	Newman and Kenworthy, 2015; Newman et al., 2017; Glazebrook and Newman, 2018



Table 4.SM.10 (continued)

		Land Use and Urban Planning	Electric Cars and Buses	Sharing Schemes
Evidence		Robust	Medium	Limited
Agreement		Medium	High	Medium
Geophysical	Physical feasibility (physical potentials)	Hsieh et al., 2017; Wiktorowicz et al., 2018	Glazebrook and Newman, 2018; Kenworthy and Schiller, 2018	Kent and Dowling, 2016; Newman et al., 2017
	Limited use of land	Hsieh et al., 2017	Glazebrook and Newman, 2018; Kenworthy and Schiller, 2018	Kent and Dowling, 2016; Newman et al., 2017; Hamilton and Wichman, 2018
	Limited use of scarce (geo) physical resources	LE Thomson and Newman, 2018	Newman et al., 2017; Kenworthy and Schiller, 2018	Newman and Kenworthy, 2015; Newman et al., 2017; Glazebrook and Newman, 2018
	Global spread	Pacheco-Torres et al., 2017; Glazebrook and Newman, 2018	Dhar et al., 2017, 2018; Newman et al., 2017	Le Vine et al., 2014; Kent and Dowling, 2016

Table 4.SM.11 | Feasibility assessment of urban and infrastructure system transition mitigation options: public transport, non-motorised transport, and aviation and shipping. For methodology, see 4.SM.4.1.

		Public Transport	Non-motorised Transport	Aviation and Shipping
Evidence		Robust	Robust	Medium
Agreement		Medium	High	Medium
Economic	Cost-effectiveness	Nahlkia and Chester, 2014; Bouf and Faivre D'arcier, 2015; Lee and Erickson, 2017; Lin and Du, 2017; Glazebrook and Newman, 2018; Kenworthy and Schiller, 2018	Deenihan and Caulfield, 2014; Gössling and Choi, 2015; MacDonald Gibson et al., 2015; V. Brown et al., 2016; Matan and Newman, 2016; Rajé and Saffrey, 2016; Litman, 2017, 2018	Corbett et al., 2009; Dessens et al., 2014; Cames et al., 2015a, b
	Absence of distributional effects	Kenworthy and Schiller, 2018; Linovski et al., 2018; Yangka and Newman, 2018	Newman and Kenworthy, 2015; Matan and Newman, 2016; Jensen et al., 2017; Lohmann and Gasparini, 2017; Litman, 2018	LE Cames et al., 2015a
	Employment and productivity enhancement potential	Hazledine et al., 2017; Gao and Newman, 2018; Kenworthy and Schiller, 2018	Matan and Newman, 2016; Litman, 2017, 2018; Rohani and Lawrence, 2017	Cames et al., 2015a; Gencsü and Hino, 2015
Technological	Technical scalability	Kenworthy and Schiller, 2018; Yangka and Newman, 2018; R. Zhang et al., 2018	Newman and Kenworthy, 2015; Matan and Newman, 2016; Reis et al., 2016; Stevenson et al., 2016	Dessens et al., 2014; Gencsü and Hino, 2015
	Maturity	Newman et al., 2017; Kenworthy and Schiller, 2018	Newman et al., 2015, 2017; Matan and Newman, 2016; Stevenson et al., 2016; Jensen et al., 2017	Corbett et al., 2009; Cames et al., 2015b
	Simplicity	Newman et al., 2017; Kenworthy and Schiller, 2018	Matan and Newman, 2016; Rajé and Saffrey, 2016; Stevenson et al., 2016; Litman, 2017, 2018	LE Dessens et al., 2014
	Absence of risk	Mohamed et al., 2017; Kenworthy and Schiller, 2018	Matan and Newman, 2016; Stevenson et al., 2016; Lohmann and Gasparini, 2017	LE Dessens et al., 2014
Institutional	Political acceptability	Mohamed et al., 2017; Wijaya et al., 2017; Gao and Newman, 2018; Glazebrook and Newman, 2018; Kenworthy and Schiller, 2018; Sharma, 2018; Yangka and Newman, 2018	Newman and Kenworthy, 2015; Giles-Corti et al., 2016; Matan and Newman, 2016; Jensen et al., 2017; Litman, 2017, 2018; McCosker et al., 2018	Smale et al., 2012; Bows-Larkin, 2015; Sikorska, 2015; Shi, 2016; Zhang, 2016
	Legal and administrative acceptability	Kenworthy and Schiller, 2018; Yangka and Newman, 2018	Lohmann and Gasparini, 2017; Litman, 2018	Smale et al., 2012; Bows-Larkin, 2015; Sikorska, 2015; Shi, 2016; Zhang, 2016
	Institutional capacity	Newman et al., 2017; Kenworthy and Schiller, 2018; Sharma, 2018	Reis et al., 2016; Litman, 2018	Smale et al., 2012; Bows-Larkin, 2015; Sikorska, 2015; Shi, 2016; Zhang, 2016
	Transparency and accountability potential	LE Bouf and Faivre D'arcier, 2015; Kenworthy and Schiller, 2018	Newman and Kenworthy, 2015; Matan and Newman, 2016; Lah, 2017	Smale et al., 2012; Bows-Larkin, 2015; Sikorska, 2015; Shi, 2016; Zhang, 2016

Table 4.SM.11 (continued)

	Evidence	Public Transport	Non-motorised Transport	Aviation and Shipping		
		Robust	Robust	Medium		
		Medium	High	Medium		
Agreement						
Socio-cultural	Social co-benefits (health, education)	Steg, 2003; Gatersleben and Uzzell, 2007; Nahlika and Chester, 2014; Lin and Du, 2017; Yangka and Newman, 2018	Woodcock et al., 2009; Maibach et al., 2009; Deenihan and Caulfield, 2014; Mansfield and Gibson, 2015; Matan et al., 2015; Gilderbloom et al., 2015; MacDonald Gibson et al., 2015; V. Brown et al., 2016; Matan and Newman, 2016; Rajé and Saffrey, 2016; Stevenson et al., 2016; Giles-Corti et al., 2016; Maizlish et al., 2017; Jensen et al., 2017; Lah, 2017; Lohmann and Gasparini, 2017; Litman, 2018	LE	EEA, 2017	
	Public acceptance	Steg, 2003; Wijaya et al., 2017	Gatersleben and Uzzell, 2007; Matan and Newman, 2016; Jensen et al., 2017; Lohmann and Gasparini, 2017; Newman et al., 2017		Bows-Larkin, 2015; Sikorska, 2015; EEA, 2017	
	Social and regional inclusiveness	Nahlika and Chester, 2014; Yangka and Newman, 2018	Gilderbloom et al., 2015; Stevenson et al., 2016; Jensen et al., 2017	LE	EEA, 2017	
	Intergenerational equity	Newman et al., 2017; Kenworthy and Schiller, 2018; Yangka and Newman, 2018	Rajé and Saffrey, 2016; Litman, 2018	LE	Gencsü and Hino, 2015	
	Human capabilities	Newman et al., 2017; Kenworthy and Schiller, 2018	Reis et al., 2016; Newman et al., 2017		Bows-Larkin, 2015; Sikorska, 2015; EEA, 2017b	
Environmental/ecological	Reduction of air pollution	Glazebrook and Newman, 2018; Kenworthy and Schiller, 2018; Yangka and Newman, 2018; R. Zhang et al., 2018	Woodcock et al., 2009; Stevenson et al., 2016; Maizlish et al., 2017		Dessens et al., 2014; Cames et al., 2015a; Bouman et al., 2017; EEA, 2017	
	Reduction of toxic waste	LE Newman et al., 2017	LE Newman et al., 2017		Maragkogianni et al., 2016; EEA, 2017	
	Reduction of water use	LE Newman et al., 2017	LE Newman et al., 2017		Maragkogianni et al., 2016; EEA, 2017	
	Improved biodiversity	Newman et al., 2017; Kenworthy and Schiller, 2018	LE Newman et al., 2017		Maragkogianni et al., 2016; EEA, 2017	
Geophysical	Physical feasibility (physical potentials)	Kenworthy and Schiller, 2018; Yangka and Newman, 2018	Panter et al., 2016; Lah, 2017		Bows-Larkin, 2015; Sikorska, 2015; EEA, 2017	
	Limited use of land	Ahmad et al., 2016; Kenworthy and Schiller, 2018	McCormack and Shiell, 2011; Stevenson et al., 2016; Litman, 2017; Newman et al., 2017; Ye et al., 2018	LE	EEA, 2017	
	Limited use of scarce (geo) physical resources	Lin and Du, 2017; Kenworthy and Schiller, 2018	Newman et al., 2017; Ye et al., 2018		de Jong et al., 2017; EEA, 2017	
	Global spread	Bouf and Faivre D'arcier, 2015; Glazebrook and Newman, 2018; Kenworthy and Schiller, 2018	Stevenson et al., 2016; Litman, 2017; Lohmann and Gasparini, 2017		Maragkogianni et al., 2016; EEA, 2017	

Table 4.SM.12 | Feasibility assessment of urban and infrastructure system transition mitigation options: smart grids, efficient appliances and low/zero-energy buildings. For methodology, see 4.SM.4.1.

		Smart Grids	Efficient Appliances	Low/Zero-energy Buildings
Evidence		Medium	Medium	Medium
Agreement		Medium	High	High
Economic	Cost-effectiveness	Crispim et al., 2014; Hall and Foxon, 2014; Marques et al., 2014; Muench et al., 2014; Foxon et al., 2015; Bigerna et al., 2016; Ramos et al., 2016; Schachter and Mancarella, 2016	McNeil and Bojda, 2012; Garg et al., 2017; Gerke et al., 2017	Neroutsou and Croxford, 2016; Balaban and Puppim de Oliveira, 2017; Ballarini et al., 2017; Stocker and Koch, 2017; Carlson and Pressnail, 2018
	Absence of distributional effects	Green and Newman, 2017; Neureiter, 2017; Wiktorowicz et al., 2018	Rao, 2013; Rao et al., 2016; McInnes, 2017; Rao and Ummel, 2017	Figus et al., 2017; McInnes, 2017
	Employment and productivity enhancement potential	Naus et al., 2014; Foxon et al., 2015; Shomali and Pinkse, 2016	Ryan and Campbell, 2012; Cambridge Econometrics, 2015; Garrett-Peltier, 2017; Hartwig et al., 2017	Scott et al., 2008; Ryan and Campbell, 2012; Urge-Vorsatz et al., 2012; Mirasgedis et al., 2014; Cambridge Econometrics, 2015; Hartwig et al., 2017; Krarti and Dubey, 2018
Technological	Technical scalability	Connor et al., 2014; Crispim et al., 2014; Zheng et al., 2014; Derakhshan et al., 2016; Ramos et al., 2016	Roland and Wood, 2009; Parikh and Parikh, 2016; Rao et al., 2016; Rao and Ummel, 2017; Salleh et al., 2018	Hartwig et al., 2017; Krarti et al., 2017
	Maturity	Abi Ghanem and Mander, 2014; Crispim et al., 2014; Zheng et al., 2014; Clerici et al., 2015; Derakhshan et al., 2016; Ramos et al., 2016; Otuoze et al., 2018	Zogg et al., 2009; Diczfalusy and Taylor, 2011; Rao et al., 2016; Rao and Ummel, 2017	Diczfalusy and Taylor, 2011; González et al., 2017; Jain et al., 2017b
	Simplicity	Abi Ghanem and Mander, 2014; Crispim et al., 2014; Giannantonio, 2014; Zheng et al., 2014; Clerici et al., 2015; Derakhshan et al., 2016; Ramos et al., 2016; Otuoze et al., 2018	Reyna and Chester, 2017	LE Salvalai et al., 2017
	Absence of risk	Crispim et al., 2014; Naus et al., 2014; Clerici et al., 2015; Bigerna et al., 2016; Ramos et al., 2016; Otuoze et al., 2018	NE	NE
Institutional	Political acceptability	Crispim et al., 2014; Hall and Foxon, 2014; Marques et al., 2014; Naus et al., 2014; Bulkeley et al., 2016; Shomali and Pinkse, 2016; Vesnic-Alujevic et al., 2016; Meadowcroft et al., 2018	Pereira and da Silva, 2017; Ringel, 2017	Pereira and da Silva, 2017; Ringel, 2017
	Legal and administrative acceptability	Crispim et al., 2014; Marques et al., 2014; Foxon et al., 2015; Bigerna et al., 2016	Pereira and da Silva, 2017	Chandel et al., 2016; Jain et al., 2017a; Pereira and da Silva, 2017
	Institutional capacity	Crispim et al., 2014; Marques et al., 2014; Muench et al., 2014; Clerici et al., 2015; Foxon et al., 2015; Ramos et al., 2016; Meadowcroft et al., 2018; Otuoze et al., 2018	Shah et al., 2015; Pereira and da Silva, 2017	Pereira and da Silva, 2017; Yu et al., 2017
	Transparency and accountability potential	Hall and Foxon, 2014; Naus et al., 2014; Bigerna et al., 2016; Hansen and Hauge, 2017; Otuoze et al., 2018	LE Gentile et al., 2015	LE Meyers and Kromer, 2008
Socio-cultural	Social co-benefits (health, education)	Naus et al., 2014; Foxon et al., 2015; Shomali and Pinkse, 2016; Hansen and Hauge, 2017; Meadowcroft et al., 2018; Otuoze et al., 2018	Ryan and Campbell, 2012; Payne et al., 2015	Ryan and Campbell, 2012; Payne et al., 2015; Xiong et al., 2015; Balaban and Puppim de Oliveira, 2017
	Public acceptance	Hall and Foxon, 2014; Naus et al., 2014; Bigerna et al., 2016; Green and Newman, 2017; Hansen and Hauge, 2017	Winward et al., 1998; Boardman, 2004; Swim et al., 2014; Reyna and Chester, 2017; Jain et al., 2018	NE
	Social and regional inclusiveness	Green and Newman, 2017; Neureiter, 2017; Wiktorowicz et al., 2018	Rao et al., 2016; Rao and Pachauri, 2017; Rao and Ummel, 2017	NE
	Intergenerational equity	Schlör et al., 2015; Green and Newman, 2017	NA	NA
	Human capabilities	Naus et al., 2014; Hansen and Hauge, 2017	NA	NE

Table 4.SM.12 (continued)

		Smart Grids	Efficient Appliances	Low/Zero-energy Buildings
Evidence		Medium	Medium	Medium
Agreement		Medium	High	High
Environmental/ ecological	Reduction of air pollution	Clerici et al., 2015; Newman et al., 2017	Ryan and Campbell, 2012; Zhou et al., 2018	Ryan and Campbell, 2012; Xiong et al., 2015; Balaban and Puppim de Oliveira, 2017; Zhou et al., 2018
	Reduction of toxic waste	Foxon et al., 2015; Newman et al., 2017	Ryan and Campbell, 2012	Ryan and Campbell, 2012
	Reduction of water use	Newman et al., 2017; Wiktorowicz et al., 2018	Zhou et al., 2018	Loiola et al., 2018
	Improved biodiversity	Newman et al., 2017; Wiktorowicz et al., 2018	NA	NA
Geophysical	Physical feasibility (physical potentials)	Foxon et al., 2015; Green and Newman, 2017; Wiktorowicz et al., 2018	Laitner, 2013; Heidari et al., 2018	Laitner, 2013
	Limited use of land	NA	NA	NA
	Limited use of scarce (geo) physical resources	Newman et al., 2017; Wiktorowicz et al., 2018	LE Needhidasan et al., 2014	NA
	Global spread	Crispim et al., 2014; Foxon et al., 2015; Ramos et al., 2016	NA	NA

4.SM.4.2.4 Feasibility Assessment of Mitigation Options in Industrial System Transitions

Table 4.SM.13 | Feasibility assessment of industrial system transition mitigation options: energy efficiency; bio-based and circularity; electrification and hydrogen; and industrial carbon capture, utilization and storage (CCUS). For methodology, see 4.SM.4.1.

		Energy Efficiency	Bio-based and Circularity	Electrification and Hydrogen	Industrial CCUS
Evidence		Robust	Medium	Medium	Robust
Agreement		High	Medium	High	High
Economic	Cost-effectiveness	Hasanbeigi et al., 2014; Napp et al., 2014; Forman et al., 2016; Wesseling et al., 2017	Taibi et al., 2012; Ali et al., 2017; Wesseling et al., 2017	Åhman et al., 2016; Philibert, 2017; Wesseling et al., 2017; Bataille et al., 2018	Mikunda et al., 2014; Rubin et al., 2015; Irlam, 2017
	Absence of distributional effects	LE Zha and Ding, 2015	NE	LE Nabernegg et al., 2017	NE
	Employment and productivity enhancement potential	He et al., 2013; Zhang et al., 2015; Henriques and Catarino, 2016; Färe et al., 2018	Fuentes-Saguar et al., 2017; Nabernegg et al., 2017	LE Nabernegg et al., 2017	Koelbl et al., 2016
Technological	Technical scalability	Fischedick et al., 2014; Bataille et al., 2018	de Besi and McCormick, 2015; Wesseling et al., 2017	Fischedick et al., 2014; J. Wang et al., 2017; Bataille et al., 2018	Boot-Handford et al., 2014; Global CCS Institute, 2017; Bui et al., 2018
	Maturity	Hasanbeigi et al., 2014; Napp et al., 2014; Forman et al., 2016; Wesseling et al., 2017	Quader et al., 2016; Wesseling et al., 2017	Quader et al., 2016; Philibert, 2017	Boot-Handford et al., 2014; Mikunda et al., 2014; Abanades et al., 2015; Global CCS Institute, 2017; Bui et al., 2018
	Simplicity	Fernández-Viñe et al., 2010; Wakabayashi, 2013	Henry et al., 2006; Wesseling et al., 2017	NE	IEA GHG, 2012
	Absence of risk	NA	LE Ali et al., 2017	NE	IPCC, 2005; Boot-Handford et al., 2014; de Coninck and Benson, 2014; Aminu et al., 2017



Table 4.SM.13 (continued)

		Energy Efficiency	Bio-based and Circularity	Electrification and Hydrogen	Industrial CCUS
Evidence		Robust	Medium	Medium	Robust
Agreement		High	Medium	High	High
Institutional	Political acceptability	Zhang et al., 2015; Åhman et al., 2016; Henriques and Catarino, 2016	LE Longstaff et al., 2015; Sleenhoff and Osseweijer, 2016; Goetz et al., 2017	Åhman et al., 2016; Philibert, 2017; Wesseling et al., 2017; Bataille et al., 2018	Mikunda et al., 2014; Aminu et al., 2017
	Legal and administrative acceptability	Zhang et al., 2015; Åhman et al., 2016; Henriques and Catarino, 2016	Wesseling et al., 2017	NE	de Coninck and Benson, 2014; Dixon et al., 2015; Bui et al., 2018
	Institutional capacity	Fernández-Viñé et al., 2010; Wakabayashi, 2013; Henriques and Catarino, 2016	Henry et al., 2006; Lewandowski, 2016	NE	Boot-Handford et al., 2014; de Coninck and Benson, 2014; Dixon et al., 2015; Bui et al., 2018
	Transparency and accountability potential	NA	LE Schulze et al., 2012; Harris et al., 2015; Lewandowski, 2015; Repo et al., 2015; DeCicco et al., 2016; Qin et al., 2016	NA	NE
Socio-cultural	Social co-benefits (health, education)	NA	NE	NA	NA
	Public acceptance	Fischedick et al., 2014	Khanal et al., 2010; Delshad and Raymond, 2013; Pfau et al., 2014; Dragojlovic and Einsiedel, 2015; Lewandowski, 2015; Sleenhoff and Osseweijer, 2016; Moula et al., 2017	LE Åhman et al., 2016; Wesseling et al., 2017	Wallquist et al., 2012; Seigo et al., 2014; Ashworth et al., 2015; Aminu et al., 2017
	Social and regional inclusiveness	NA	Creutzig et al., 2013, 2015; Knoblauch et al., 2014; Porter et al., 2015; Robledo-Abad et al., 2017	NA	NE
	Intergenerational equity	NA	NE	NA	NE
	Human capabilities	Cagno et al., 2013; Brunke et al., 2014; Wesseling et al., 2017	LE Henry et al., 2006	NE	LE IEA GHG, 2012
Environmental/ecological	Reduction of air pollution	Brunke et al., 2014; Rasmussen, 2017; S. Zhang et al., 2018	NE	NE	IPCC, 2005; Koornneef et al., 2012a
	Reduction of toxic waste	NE	NE	NE	NE
	Reduction of water use	Walker et al., 2013; Gu et al., 2014; Kubule et al., 2016	NE	NE	Koornneef et al., 2012a; Hylkema and Rand, 2014
	Improved biodiversity	NE	NE	NE	LE Koornneef et al., 2012a
Geophysical	Physical feasibility (physical potentials)	Napp et al., 2014; Åhman et al., 2016; Wesseling et al., 2017	Beringer et al., 2011; Klein et al., 2014; Slade et al., 2014; Creutzig et al., 2015; Kraxner and Nordström, 2015; Searle and Malins, 2015; Smith et al., 2016; Boysen et al., 2017b; Tokimatsu et al., 2017; Heck et al., 2018	Philibert, 2017	IPCC, 2005; de Coninck and Benson, 2014; Scott et al., 2015
	Limited use of land	NA	Popp et al., 2014; Creutzig et al., 2015; Bonsch et al., 2016; Hammond and Li, 2016; Williamson, 2016; Robledo-Abad et al., 2017; Henry et al., 2018	NE	NE

Table 4.SM.13 (continued)

		Energy Efficiency	Bio-based and Circularity	Electrification and Hydrogen	Industrial CCUS
	Evidence	Robust	Medium	Medium	Robust
	Agreement	High	Medium	High	High
Geophysical	Limited use of scarce (geo)physical resources	S. Zhang et al., 2014; Rasmussen, 2017	NE	NE	NE
	Global spread	Worrell et al., 2008; Fishedick et al., 2014; Åhman et al., 2016; Bataille et al., 2018	Taibi et al., 2012; Fishedick et al., 2014; Wesseling et al., 2017	Taibi et al., 2012; Fishedick et al., 2014; Wesseling et al., 2017	Kuramochi et al., 2012; Mikunda et al., 2014; Bui et al., 2018

4.SM.4.2.5 Feasibility Assessment of Carbon Dioxide Removal Mitigation Options

Table 4.SM.14 | Feasibility assessment of carbon dioxide removal mitigation options: bioenergy with carbon dioxide capture and storage (BECCS), and direct air carbon dioxide capture and storage (DACCS). For methodology, see 4.SM.4.1.

		BECCS	DACCS
	Evidence	Robust	Medium
	Agreement	Medium	Medium
Economic	Cost-effectiveness	Luckow et al., 2010; De Visser et al., 2011; Fabbri et al., 2011; Koornneef et al., 2012; McLaren, 2012; Kärki et al., 2013; Fornell et al., 2013; Akgul et al., 2014; Johnson et al., 2014; Arasto et al., 2014; Al-Qayim et al., 2015; NRC, 2015; Onarheim et al., 2015; Caldecott et al., 2015; Rochedo et al., 2016; Sanchez and Callaway, 2016; Bhave et al., 2017; Fuss et al., 2018; Honegger and Reiner, 2018	Keith et al., 2006; Pielke, 2009; House et al., 2011; Ranjan and Herzog, 2011; Simon et al., 2011; Holmes and Keith, 2012; Zeman, 2014; Sanz-Pérez et al., 2016; Sinha et al., 2017
	Absence of distributional effects	Arndt et al., 2011a; German and Schoneveld, 2012; Creutzig et al., 2013, 2015; Hunsberger et al., 2014; Popp et al., 2014; Persson, 2015; Buck, 2016; Searchinger et al., 2017; Stevanović et al., 2017; Kline et al., 2017; Robledo-Abad et al., 2017	NA
	Employment and productivity enhancement potential	NE	NA
Technological	Technical scalability	Azar et al., 2010, 2013; Gough and Upham, 2011; Nemet et al., 2018	Lackner, 2009; Pielke, 2009; Lackner et al., 2012; Nemet and Brandt, 2012; Pritchard et al., 2015; Nemet et al., 2018
	Maturity	McGlashan et al., 2012; McLaren, 2012; Boucher et al., 2014; Fuss et al., 2014; Kemper, 2015; Anderson and Peters, 2016; Vaughan and Gough, 2016; Minx et al., 2017; Pang et al., 2017; N.E. Vaughan et al., 2018; Nemet et al., 2018; Strefler et al., 2018c	McLaren, 2012; Boot-Handford et al., 2014; NRC, 2015; Nemet et al., 2018; Holmes et al., 2013; Rau et al., 2013; Agee et al., 2016
	Simplicity	Möllersten et al., 2003	Lackner et al., 2012; Hou et al., 2017; Ishimoto et al., 2017
	Absence of risk	IPCC, 2005; Boot-Handford et al., 2014; de Coninck and Benson, 2014; Anderson and Peters, 2016; Vaughan and Gough, 2016; Aminu et al., 2017; Boysen et al., 2017b	IPCC, 2005; Boot-Handford et al., 2014; de Coninck and Benson, 2014; Aminu et al., 2017
Institutional	Political acceptability	Boysen et al., 2017a; Fridahl, 2017	NE
	Legal and administrative acceptability	LE Kemper, 2015; Honegger and Reiner, 2018	Boot-Handford et al., 2014; de Coninck and Benson, 2014; Dixon et al., 2015
	Institutional capacity	McLaren, 2012; Frank et al., 2013; Kemper, 2015; Burns and Nicholson, 2017	NE McLaren, 2012
	Transparency and accountability potential	LE McLaren, 2012; NRC, 2015; Nemet et al., 2018	LE McGlashan et al., 2012; McLaren, 2012; Nemet et al., 2018
Socio-cultural	Social co-benefits (health, education)	Knoblauch et al., 2014; Porter et al., 2015; Weldu et al., 2017	NA



Table 4.SM.14 (continued)

		BECCS		DACCS	
Evidence		Robust		Medium	
Agreement		Medium		Medium	
Socio-cultural	Public acceptance		Thornley et al., 2009; Gough and Upham, 2011; Wallquist et al., 2012; Mabon et al., 2013; Boot-Handford et al., 2014; Gough et al., 2014; Dowd et al., 2015; Lomax et al., 2015; Boysen et al., 2017b; Fridahl, 2017; Robledo-Abad et al., 2017		Lackner and Brennan, 2009; Mabon et al., 2013; Boot-Handford et al., 2014; Gough et al., 2014; Lomax et al., 2015
	Social and regional inclusiveness	LE	Creutzig et al., 2013, 2015; Robledo-Abad et al., 2017	NE	
	Intergenerational equity	NE		NE	
	Human capabilities	LE	IEA GHG, 2012	LE	IEA GHG, 2012
	Impact on landscapes	NE		NE	
Environmental/ecological	Reduction of air pollution		Knoblauch et al., 2014; Porter et al., 2015; Weldu et al., 2017	NA	
	Reduction of toxic waste	NA		NA	
	Reduction of water use		Gerbens-Leenes et al., 2009; Gheewala et al., 2011; Koornneef et al., 2012a; Smith and Torn, 2013; Hylkema and Rand, 2014; Bonsch et al., 2016; Smith et al., 2016; Wei et al., 2016; Lampert et al., 2016; Mouratiadou et al., 2016; Fajardy and Mac Dowell, 2017; Mathioudakis et al., 2017	NE	
	Improved biodiversity		Lindenmayer and Hobbs, 2004; Barlow et al., 2007; Immerzeel et al., 2014; Creutzig et al., 2015; Dale et al., 2015; Holland et al., 2015; Kline et al., 2015; Santangeli et al., 2016; Tarr et al., 2017	NA	
Geophysical	Physical feasibility (physical potentials)		Beringer et al., 2011; Klein et al., 2014; Creutzig et al., 2015; Kraxner and Nordström, 2015; Searle and Malins, 2015; Smith et al., 2016; Boysen et al., 2017b; Tokimatsu et al., 2017; Heck et al., 2018; Dooley, 2013; Selosse and Ricci, 2017		McLaren, 2012; Dooley, 2013; NRC, 2015; Smith et al., 2016; Selosse and Ricci, 2017; Fuss et al., 2018
	Limited use of land		Beringer et al., 2011; Creutzig et al., 2015; NRC, 2015; Smith et al., 2016; Heck et al., 2018		Keith, 2009; Holmes and Keith, 2012; Lackner et al., 2012; NRC, 2015
	Limited use of scarce (geo)physical resources	NE		NE	
	Global spread		Bright et al., 2015; Robledo-Abad et al., 2017		Clarke et al., 2014

Table 4.SM.15 | Feasibility assessment of carbon dioxide removal mitigation options: afforestation and reforestation, soil carbon sequestration and biochar, and enhanced weathering. For methodology, see 4.SM.4.1.

		Afforestation and Reforestation	Soil Carbon Sequestration and Biochar	Enhanced Weathering
Evidence		Robust	Robust	Medium
Agreement		High	High	Low
Economic	Cost-effectiveness	Sohngen and Mendelsohn, 2003; Richards and Stokes, 2004; Richards and Stavins, 2005; Nijnik and Halder, 2013; Humpenöder et al., 2014; McLaren, 2012; Caldecott et al., 2015; NRC, 2015	McGlashan et al., 2012; McLaren, 2012; Caldecott et al., 2015; Smith et al., 2016; Fuss et al., 2018; Roberts et al., 2010; Shackley et al., 2011; Smith, 2016	Schuling and Krijgsman, 2006; Hartmann and Kempe, 2008; Köhler et al., 2010; McLaren, 2012; Renforth, 2012; Hartmann et al., 2013; NRC, 2015; Taylor et al., 2016; Strefler et al., 2018a; Renforth and Henderson, 2017
	Absence of distributional effects	Lyons and Westoby, 2014; Locatelli et al., 2015	Stringer et al., 2012	NE
	Employment and productivity enhancement potential	P. Smith et al., 2014	Lal, 2004c; Van Straaten, 2006; Pan et al., 2009; Jeffery et al., 2011	NE
Technological	Technical scalability	Shvidenko et al., 1997; Polglase et al., 2013; Cunningham et al., 2015; Zhang and Yan, 2015; Nemet et al., 2018	Jiang et al., 2014; Novak et al., 2016; Kammann et al., 2017; Nemet et al., 2018; Roberts et al., 2010; Shackley et al., 2011	Hangx and Spiers, 2009; Taylor et al., 2016; Nemet et al., 2018

Table 4.SM.15 (continued)

		Afforestation and Reforestation	Soil Carbon Sequestration and Biochar	Enhanced Weathering
Evidence		Robust	Robust	Medium
Agreement		High	High	Low
Technological	Maturity	McLaren, 2012; Gong et al., 2013; NRC, 2015; Zinda et al., 2017; Nemet et al., 2018	McLaren, 2012; Olson, 2013; Olson et al., 2014; Piccoli et al., 2016; Triberti et al., 2016; Vochozka et al., 2016; Nemet et al., 2018	McLaren, 2012; Hartmann et al., 2013; NRC, 2015; Nemet et al., 2018
	Simplicity	NE	NE	NE
	Absence of risk	NE	NE	NE
Institutional	Political acceptability	NE	NE	NE
	Legal and administrative acceptability	NE	NE	NA
	Institutional capacity	McLaren, 2012; Wang et al., 2016; Wehkamp et al., 2018b; Wehkamp et al., 2018a	LE Whitman and Lehmann, 2009; Dilling and Failey, 2013; Stavi and Lal, 2013	LE McLaren, 2012; Moosdorf et al., 2014; Buck, 2016
	Transparency and accountability potential	LE McLaren, 2012	Sanderman and Baldock, 2010; McLaren, 2012; Smith et al., 2012; Downie et al., 2014; Jandl et al., 2014; Nemet et al., 2018	LE McLaren, 2012
Socio-cultural	Social co-benefits (health, education)	Genesio et al., 2016; Ravi et al., 2016	NE	NE Schuiling and Krijgsman, 2006; Taylor et al., 2016
	Public acceptance	Nijnik and Halder, 2013; Schirmer and Bull, 2014; Trevisan et al., 2016	Glenk and Colombo, 2011; Lomax et al., 2015; Jørgensen and Termansen, 2016	LE M..J Wright et al., 2014
	Social and regional inclusiveness	Atela et al., 2014; Sunderlin et al., 2014; Brugnach et al., 2017; Ngendakumana et al., 2017; Turnhout et al., 2017	NE	NE
	Intergenerational equity	LE P. Smith et al., 2014	NE	NE
	Human capabilities	NE	NE	NE
Environmental/ecological	Reduction of air pollution	NA	NA	Schuiling and Krijgsman, 2006; Taylor et al., 2016
	Reduction of toxic waste	NA	NE	LE Schuiling and Krijgsman, 2006; Hartmann et al., 2013
	Reduction of water use	Jackson et al., 2005; Smith and Torn, 2013; Deng et al., 2017	Lal, 2004b; Bamminger et al., 2016; Smith, 2016	LE Khesghi, 1995; Rau and Caldeira, 1999; Harvey, 2008; Köhler et al., 2013; NRC, 2015
	Improved biodiversity	Díaz et al., 2009; McKinley et al., 2011; Hall et al., 2012; Venter et al., 2012; Greve et al., 2013; Cunningham et al., 2015; Locatelli et al., 2015b; Paul et al., 2016	NE	NA
Geophysical	Physical feasibility (physical potentials)	Sohngen and Mendelsohn, 2003; Canadell and Raupach, 2008; Strengers et al., 2008; Thomson et al., 2008; van Minnen et al., 2008; Houghton et al., 2015; Sonntag et al., 2016; Griscom et al., 2017	Lehmann et al., 2006; Laird et al., 2009; Lee et al., 2010; Woolf et al., 2010; Lenton, 2010; Moore et al., 2010; Pratt and Moran, 2010; McLaren, 2012; Powell and Lenton, 2012; Lomax et al., 2015; Smith, 2016; Paustian et al., 2016; Batjes, 1998; Metting et al., 2001; Lal, 2003a, b, 2004a, c, 2010, 2011, 2013; Lal et al., 2007; Smith et al., 2008; Salati et al., 2010; Conant, 2011; Smith, 2012, 2016; Benji 2013; Lorenz and Lal, 2014; Powelson et al., 2014; Sommer and Bossio, 2014; Henderson et al., 2015; Lassaletta and Aguilera, 2015; Minasny et al., 2017; Zomer et al., 2017	House et al., 2007; Hartmann and Kempe, 2008; Hangx and Spiers, 2009; Wilson et al., 2009; Köhler et al., 2010, 2013; Morales-Florez et al., 2011; Renforth et al., 2011; Manning and Renforth, 2013; Taylor et al., 2016; Hauck et al., 2016; Strefler et al., 2018a



Table 4.SM.15 (continued)

		Afforestation and Reforestation	Soil Carbon Sequestration and Biochar	Enhanced Weathering
	Evidence	Robust	Robust	Medium
	Agreement	High	High	Low
Geophysical	Limited use of land	Smith and Torn, 2013; Houghton et al., 2015	Smith, 2016; Fuss et al., 2018	Hartmann et al., 2013; Strefler et al., 2018b; Edwards et al., 2017; Kantola et al., 2017
	Limited use of scarce (geo)physical resources	LE Smith and Torn, 2013	NA	LE NRC, 2015
	Global spread	Anderson et al., 2011; Arora and Montenegro, 2011; Wang et al., 2014	Zimmermann et al., 2012; Sheng et al., 2016	Garcia et al., 2018; Strefler et al., 2018a

4.SM.4.3 Feasibility Assessment of Adaptation Options as Presented in Section 4.5.3

4.SM.4.3.1 Feasibility Assessment of Adaptation Options in Energy System Transitions

Table 4.SM.16 | Feasibility assessment of energy system transition adaptation option: power infrastructure, including water. For methodology, see 4.SM.4.1.

		Power Infrastructure, Including Water		
	Evidence	Medium		
	Agreement	High		
Economic	Microeconomic viability		Kopytko and Perkins, 2011; Inderberg and Løchen, 2012; Brouwer et al., 2015	
	Macroeconomic viability		Koch and Vögele, 2009; Kopytko and Perkins, 2011; Soito and Freitas, 2011; Inderberg and Løchen, 2012; Schaeffer et al., 2012; Jahandideh-Tehrani et al., 2014; Brouwer et al., 2015; Cortekar and Groth, 2015; Panteli and Mancarella, 2015; van Vliet et al., 2016	
	Socio-economic vulnerability reduction potential		Koch and Vögele, 2009; Soito and Freitas, 2011; Cortekar and Groth, 2015; van Vliet et al., 2016	
	Employment and productivity enhancement potential		Inderberg and Løchen, 2012; Cortekar and Groth, 2015; Panteli and Mancarella, 2015; van Vliet et al., 2016	
Technological	Technical resource availability		Koch and Vögele, 2009; Soito and Freitas, 2011; Inderberg and Løchen, 2012; Jahandideh-Tehrani et al., 2014; Cortekar and Groth, 2015; Murrant et al., 2015; Panteli and Mancarella, 2015; Parkinson and Djilali, 2015; van Vliet et al., 2016	
	Risks mitigation potential (stranded assets, unforeseen impacts)		Koch and Vögele, 2009; Inderberg and Løchen, 2012; Schaeffer et al., 2012; Jahandideh-Tehrani et al., 2014; Cortekar and Groth, 2015; Murrant et al., 2015; Panteli and Mancarella, 2015; Parkinson and Djilali, 2015; van Vliet et al., 2016	
Institutional	Political acceptability		Soito and Freitas, 2011; Inderberg and Løchen, 2012; Cortekar and Groth, 2015; Murrant et al., 2015	
	Legal and administrative acceptability		Soito and Freitas, 2011; Inderberg and Løchen, 2012; Cortekar and Groth, 2015; Benson, 2018	
	Institutional capacity and administrative feasibility		Eisenack and Stecker, 2012; Inderberg and Løchen, 2012; Cortekar and Groth, 2015; Murrant et al., 2015	
	Transparency and accountability potential	LE	Inderberg and Løchen, 2012; Cortekar and Groth, 2015	
Socio-cultural	Social co-benefits (health, education)	NA		
	Socio-cultural acceptability	LE	Soito and Freitas, 2011; Inderberg and Løchen, 2012	
	Social and regional inclusiveness	LE	Soito and Freitas, 2011	
	Intergenerational equity	LE	Soito and Freitas, 2011	
Environmental/ecological	Ecological capacity		Koch and Vögele, 2009; Soito and Freitas, 2011; Inderberg and Løchen, 2012; Schaeffer et al., 2012; Jahandideh-Tehrani et al., 2014; Murrant et al., 2015; Parkinson and Djilali, 2015	
	Adaptive capacity/resilience		Koch and Vögele, 2009; Soito and Freitas, 2011; Inderberg and Løchen, 2012; Schaeffer et al., 2012; Jahandideh-Tehrani et al., 2014; Cortekar and Groth, 2015; Murrant et al., 2015; Parkinson and Djilali, 2015; van Vliet et al., 2016	

Table 4.SM.16 (continued)

		Power Infrastructure, Including Water	
		Evidence	Medium
		Agreement	High
Geophysical	Physical feasibility		Koch and Vögele, 2009; Eisenack and Stecker, 2012; Schaeffer et al., 2012; Jahandideh-Tehrani et al., 2014; Brouwer et al., 2015; Cortekar and Groth, 2015; Murrant et al., 2015; Panteli and Mancarella, 2015; Parkinson and Djilali, 2015; van Vliet et al., 2016
	Land use change enhancement potential		Schaeffer et al., 2012; Jahandideh-Tehrani et al., 2014; Parkinson and Djilali, 2015
	Hazard risk reduction potential		Inderberg and Løchen, 2012; Schaeffer et al., 2012; Jahandideh-Tehrani et al., 2014; Brouwer et al., 2015; Cortekar and Groth, 2015; Murrant et al., 2015; Panteli and Mancarella, 2015; Parkinson and Djilali, 2015; van Vliet et al., 2016

4.SM.4.3.2 Feasibility Assessment of Adaptation Options in Land and Ecosystem Transitions

Table 4.SM.17 | Feasibility assessment of land and ecosystem transition adaptation options: conservation agriculture, efficient irrigation, efficient livestock systems, agroforestry and community-based adaptation. For methodology, see 4.SM.4.1.

		Conservation Agriculture	Efficient Irrigation	Efficient Livestock Systems	Agroforestry	Community-based Adaptation
		Medium	Medium	Limited	Medium	Medium
		Medium	Medium	High	High	High
Economic	Microeconomic viability	Grabowski and Kerr, 2014; Jat et al., 2014; Pittelkow et al., 2014; Thierfelder et al., 2015, 2017; H. Smith et al., 2017	Olmstead, 2014; Roco et al., 2014; Venot et al., 2014; Varela-Ortega et al., 2016; Bjornlund et al., 2017; Herwehe and Scott, 2017; Mdemu et al., 2017	Thornton and Herrero, 2014; Herrero et al., 2015; Weindl et al., 2015; Ghahramani and Bowran, 2018	Valdivia et al., 2012; K Murthy, 2013; Lasco et al., 2014; Mbow et al., 2014a, b; Brockington et al., 2016; Iiyama et al., 2017; Jacobi et al., 2017; Hernández-Morcillo et al., 2018	Mannke, 2011; Archer et al., 2014; H. Wright et al., 2014; Fernández-Giménez et al., 2015; Dodman et al., 2017a
	Macroeconomic viability	Ndah et al., 2015; Thierfelder et al., 2015; H. Smith et al., 2017	Elliott et al., 2014; Kirby et al., 2014; Olmstead, 2014; Girard et al., 2015; Kahil et al., 2015; Varela-Ortega et al., 2016; Bjornlund et al., 2017; Herwehe and Scott, 2017	Herrero et al., 2015; Weindl et al., 2015; García de Jalón et al., 2017	Valdivia et al., 2012; Lasco et al., 2014; Jacobi et al., 2017; Hernández-Morcillo et al., 2018	NE
	Socio-economic vulnerability reduction potential	Bhan and Behera, 2014; Pittelkow et al., 2014; Stevenson et al., 2014; Prosdociimi et al., 2016; H. Smith et al., 2017	Burney and Naylor, 2012; Levidow et al., 2014; Roco et al., 2014; Venot et al., 2014; Ashofteh et al., 2017; Bjornlund et al., 2017	Herrero et al., 2015; García de Jalón et al., 2017; Thornton et al., 2018	Valdivia et al., 2012; Brockington et al., 2016; Coq-Huelva et al., 2017; Coulibaly et al., 2017; Iiyama et al., 2017; Jacobi et al., 2017; Quandt et al., 2017	Mannke, 2011; Archer et al., 2014; Reid and Huq, 2014; H. Wright et al., 2014; Fernández-Giménez et al., 2015; Ensor et al., 2016, 2018; Ford et al., 2018
	Employment and productivity enhancement	Bhan and Behera, 2014; Grabowski and Kerr, 2014; Kirkegaard et al., 2014; Pittelkow et al., 2014; Stevenson et al., 2014	Burney and Naylor, 2012; Burney et al., 2014; Kirby et al., 2014; Levidow et al., 2014	Briske et al., 2015; García de Jalón et al., 2017	LE Verchot et al., 2007; Buckeridge et al., 2012	Mannke, 2011; Reid and Huq, 2014; Fernández-Giménez et al., 2015
Technological	Technical resource availability	Palm et al., 2014; Stevenson et al., 2014; Adenle et al., 2015; H. Smith et al., 2017	Venot et al., 2014; Esteve et al., 2015; Fishman et al., 2015; Azhoni et al., 2017; Mdemu et al., 2017	Descheemaeker et al., 2016; Thornton et al., 2018	Verchot et al., 2007; Valdivia et al., 2012; Mbow et al., 2014a; Iiyama et al., 2017; Jacobi et al., 2017; Hernández-Morcillo et al., 2018	LE H. Wright et al., 2014; Fernández-Giménez et al., 2015
	Risks mitigation potential	Bhan and Behera, 2014; Palm et al., 2014; Pittelkow et al., 2014	Burney et al., 2014; Fishman et al., 2015; Jägermeyr et al., 2015; Blanc et al., 2017	Briske et al., 2015; Thornton and Herrero, 2015; Thornton et al., 2018	Verchot et al., 2007; Jacobi et al., 2017; Abdulai et al., 2018; Hernández-Morcillo et al., 2018; Sida et al., 2018	NA



Table 4.SM.17 (continued)

		Conservation Agriculture	Efficient Irrigation	Efficient Livestock Systems	Agroforestry	Community-based Adaptation	
	Evidence	Medium	Medium	Limited	Medium	Medium	
	Agreement	Medium	Medium	High	High	High	
Institutional	Political acceptability	Adenle et al., 2015; Dougill et al., 2017; Westengen et al., 2018	Burney and Naylor, 2012; Esteve et al., 2015	NE	Buckeridge et al., 2012; Mbow et al., 2014b; Jacobi et al., 2017	NA	
	Legal and regulatory acceptability	NE	NA	NE	Place et al., 2012; Mbow et al., 2014a, b; Jacobi et al., 2017; Hernández-Morcillo et al., 2018	NA	
	Institutional capacity and administrative feasibility	Bhan and Behera, 2014; Harvey et al., 2014; Kassam et al., 2014; Adenle et al., 2015; Baudron et al., 2015; Ndah et al., 2015; Li et al., 2016; Dougill et al., 2017; H. Smith et al., 2017	Burney and Naylor, 2012; Burney et al., 2014; Levidow et al., 2014; Venot et al., 2014; Kahil et al., 2015; Azhoni et al., 2017; Mdemu et al., 2017	Herrero et al., 2015; Descheemaeker et al., 2016	Buckeridge et al., 2012; Place et al., 2012; Jacobi et al., 2017; Hernández-Morcillo et al., 2018	Mannke, 2011; Archer et al., 2014; Ayers et al., 2014; H. Wright et al., 2014; Reid and Huq, 2014; Sovacool et al., 2015; Fernández-Giménez et al., 2015; Scolobig et al., 2015; Ensor et al., 2016, 2018; Reid, 2016; Ford et al., 2018	
	Transparency and accountability potential	LE	Brouder and Gomez-Macpherson, 2014; Palm et al., 2014; Challinor et al., 2018	Levidow et al., 2014; Azhoni et al., 2017	NA	NE	Archer et al., 2014; Reid and Huq, 2014; Fernández-Giménez et al., 2015; Sovacool et al., 2015
Socio-cultural	Social co-benefits (health, education)	Pittelkow et al., 2014; H. Smith et al., 2017; Pradhan et al., 2018	LE	Venot et al., 2014; Mdemu et al., 2017	Herrero et al., 2015; Thornton and Herrero, 2015; Thornton et al., 2018	Clark and Tilman 2017b; Thierfelder et al. 2017; Varela-Ortega et al. 2016; Hernández-Morcillo et al. 2018; Coq-Huelva et al. 2017; Coulibaly et al. 2017; Quandt et al. 2017; Jacobi et al. 2017; Brockington et al. 2016	Mannke, 2011; Archer et al., 2014; Ayers et al., 2014; Wise et al., 2014; H. Wright et al., 2014; Fernández-Giménez et al., 2015; Sovacool et al., 2015; Ensor et al., 2016, 2018; Ford et al., 2018
	Socio-cultural acceptability	Giller et al., 2015; Ndah et al., 2015; Thierfelder et al., 2015	Roco et al., 2014; Venot et al., 2014; Girard et al., 2015; Mdemu et al., 2017	Herrero et al., 2015; Ghahramani and Bowran, 2018; Thornton et al., 2018	Jarvis et al., 2008; Valdivia et al., 2012; Coq-Huelva et al., 2017; Iiyama et al., 2017; Jacobi et al., 2017; Hernández-Morcillo et al., 2018	Mannke, 2011; Green et al., 2014; Reid and Huq, 2014; Wise et al., 2014; H. Wright et al., 2014; Fernández-Giménez et al., 2015; Ensor et al., 2016, 2018; Ford et al., 2018	
	Social and regional inclusiveness	Brouder and Gomez-Macpherson, 2014; Pittelkow et al., 2014; Ndah et al., 2015; H. Smith et al., 2017	Burney and Naylor, 2012; Jägermeyr et al., 2015	Briske et al., 2015; García de Jalón et al., 2017; Thornton et al., 2018	Valdivia et al., 2012; Iiyama et al., 2017; Jacobi et al., 2017	Archer et al., 2014; H. Wright et al., 2014; Fernández-Giménez et al., 2015; Sovacool et al., 2015; Ensor et al., 2016, 2018; Ford et al., 2018	
	Intergenerational equity	NA	NA	NA	NE	H. Wright et al., 2014; Fernández-Giménez et al., 2015	
Environmental/ecological	Ecological capacity	Bhan and Behera, 2014; Palm et al., 2014; Thierfelder et al., 2015; Prosdociimi et al., 2016	Kirby et al., 2014; Pfeiffer and Lin, 2014; Fishman et al., 2015; Jägermeyr et al., 2015	Lemaire et al., 2014; Herrero et al., 2015; Thornton et al., 2018	Lusiana et al., 2012; K Murthy, 2013; Lasco et al., 2014; Barral et al., 2015; Coq-Huelva et al., 2017; Quandt et al., 2017; Hernández-Morcillo et al., 2018; Sida et al., 2018	LE	H. Wright et al., 2014; Fernández-Giménez et al., 2015

Table 4.SM.17 (continued)

		Conservation Agriculture	Efficient Irrigation	Efficient Livestock Systems	Agroforestry	Community-based Adaptation
Evidence		Medium	Medium	Limited	Medium	Medium
Agreement		Medium	Medium	High	High	High
Environmental/ecological	Adaptive capacity/resilience	Aleksandrova et al., 2014; Grabowski and Kerr, 2014; Kirkegaard et al., 2014; Pittelkow et al., 2014; Stevenson et al., 2014; Thierfelder et al., 2015; Li et al., 2016; H. Smith et al., 2017; Pradhan et al., 2018	Burney and Naylor, 2012; Burney et al., 2014; Levidow et al., 2014; Jägermeyr et al., 2015; Fader et al., 2016; Varela-Ortega et al., 2016; Ashofteh et al., 2017; Hong and Yabe, 2017	Bell et al., 2014; Havet et al., 2014; Lemaire et al., 2014; Thornton and Herrero, 2014; Briske et al., 2015; Herrero et al., 2015; Weindl et al., 2015; Ghahramani and Bowran, 2018	Sendzimir et al., 2011; Lusiana et al., 2012; K Murthy, 2013; Lasco et al., 2014; Mbow et al., 2014a; Varela-Ortega et al., 2016; Clark and Tilman, 2017; Coq-Huelva et al., 2017; Thierfelder et al., 2017; Coulibaly et al., 2017; Quandt et al., 2017; Hernández-Morcillo et al., 2018	Mannke, 2011; Archer et al., 2014; Ayers et al., 2014; H. Wright et al., 2014; Reid and Huq, 2014; Wise et al., 2014; Fernández-Giménez et al., 2015; Ensor et al., 2016, 2018; Ford et al., 2018; Singh, 2018
	Physical feasibility	Stevenson et al., 2014; Giller et al., 2015; Thierfelder et al., 2017	Levidow et al., 2014; Fishman et al., 2015; Jägermeyr et al., 2015	Weindl et al., 2015; Thornton et al., 2018	Coulibaly et al., 2017; Hernández-Morcillo et al., 2018	NA
	Land use change enhancement potential	Grabowski and Kerr, 2014; Stevenson et al., 2014; Giller et al., 2015; Prosdociimi et al., 2016; Cui et al., 2018; Pradhan et al., 2018	Fader et al., 2016	Briske et al., 2015; Weindl et al., 2015	Lasco et al., 2014; Mbow et al., 2014a; Coulibaly et al., 2017; Hernández-Morcillo et al., 2018	LE H. Wright et al., 2014
Geophysical	Hazard risk reduction potential	NE	NA	NA	Lasco et al., 2014; Mbow et al., 2014a; Coulibaly et al., 2017; Abdulai et al., 2018; Hernández-Morcillo et al., 2018	Mannke, 2011; Archer et al., 2014; H. Wright et al., 2014; Fernández-Giménez et al., 2015; Ensor et al., 2016, 2018; Ford et al., 2018

Table 4.SM.18 | Feasibility assessment of land and ecosystem transition adaptation options: ecosystem restoration and avoided deforestation, biodiversity management, coastal defence and hardening, and sustainable aquaculture. For methodology, see 4.SM.4.1.

		Ecosystem Restoration and Avoided Deforestation	Biodiversity Management	Coastal Defence and Hardening	Sustainable Aquaculture
Evidence		Robust	Medium	Robust	Limited
Agreement		Medium	Medium	Medium	Medium
Economic	Microeconomic viability	Dang Phan et al., 2014; Ingalls and Dwyer, 2016; Rakatama et al., 2017; Spencer et al., 2017	Rodrigues et al., 2009; Alagador et al., 2014; Mantyka-Pringle et al., 2016; Gómez-Aíza et al., 2017; Reside et al., 2017b; Monahan and Theobald, 2018	Firth et al., 2014; Barbier, 2015a; Elliott and Wolanski, 2015; Diaz, 2016; Betzold and Mohamed, 2017	Boonstra and Hanh, 2015; Joffre et al., 2015; FAO, 2016; FAO et al., 2017; Pérez-Escamilla, 2017
	Macroeconomic viability	Dang Phan et al., 2014; Rakatama et al., 2017; Spencer et al., 2017; Turnhout et al., 2017; Well and Carrapatoso, 2017	NE	LE Hinkel et al., 2014; Estrada et al., 2017	LE UNEP, 2013; Edwards, 2015; Moffat, 2017
	Socio-economic vulnerability reduction potential	Atela et al., 2015; Elmqvist et al., 2015; Camps-Calvet et al., 2016; Ingalls and Dwyer, 2016; McPhearson et al., 2016; Collas et al., 2017; Ngendakumana et al., 2017; Spencer et al., 2017	Rodrigues et al., 2009; Berrang-Ford et al., 2012; Pullin et al., 2013; Brockington and Wilkie, 2015; Newbold et al., 2015; Oldekop et al., 2016; Griscom et al., 2017; Milman and Jagannathan, 2017; Terraube et al., 2017; Essl and Mauerhofer, 2018	Rabbani et al., 2010a, b; Gutiérrez et al., 2012; Arkema et al., 2013, 2017; Neumann et al., 2015; Sovacool et al., 2015; Sutton-Grier et al., 2015; Betzold and Mohamed, 2017	Bell et al., 2011; Smith et al., 2013; Orchard et al., 2015; Béné et al., 2016; Jennings et al., 2016; Mycoo, 2017; Ahmed et al., 2018

Table 4.SM.18 (continued)

	Evidence	Ecosystem Restoration and Avoided Deforestation	Biodiversity Management	Coastal Defence and Hardening	Sustainable Aquaculture
		Robust	Medium	Robust	Limited
		Medium	Medium	Medium	Medium
Economic	Employment and productivity enhancement potential	Ingalls and Dwyer, 2016; Spencer et al., 2017; Turnhout et al., 2017	NE	NE	Sánchez et al., 2002; De Silva and Davy, 2010; Ahmed et al., 2014; Boonstra and Hanh, 2015; Lacoue-Labarthe et al., 2016; Asiedu et al., 2017a
	Technical resource availability	Ingalls and Dwyer, 2016; Spencer et al., 2017; Turnhout et al., 2017	Nadeau et al., 2015; Schmitz et al., 2015; Thomas and Gillingham, 2015; K.R. Jones et al., 2016; Urban et al., 2016; Milman and Jagannathan, 2017; Reside et al., 2017b	Arkema et al., 2013; Bosello and De Cian, 2014; Smajgl et al., 2015; Hauer et al., 2016; Betzold and Mohamed, 2017; Williams et al., 2018	UNEP, 2013; Ahmed et al., 2014, 2018; Brilliant, 2014; Edwards, 2015; Lucas, 2015; Fidelman et al., 2017
Technological	Risks mitigation potential	LE Spencer et al., 2017; Turnhout et al., 2017	LE	Firth et al., 2014; Sovacool et al., 2015; André et al., 2016; Cashman and Nagdee, 2017; Brown et al., 2018; Storlazzi et al., 2018; Williams et al., 2018	Boonstra and Hanh, 2015; Blanchard et al., 2017
	Political acceptability	Sunderlin et al., 2014; Ingalls and Dwyer, 2016; Ngendakumana et al., 2017	LE	Milman and Jagannathan, 2017; Essl and Mauerhofer, 2018	Duvat, 2013; Nordstrom, 2014; Sovacool et al., 2015; Betzold and Mohamed, 2017
Institutional	Legal and administrative acceptability	LE Sunderlin et al., 2014; Turnhout et al., 2017	Dallimer and Strange, 2015; K.R. Jones et al., 2016; Drielsma et al., 2017; Essl and Mauerhofer, 2018; Monahan and Theobald, 2018; Triviño et al., 2018	NE	LE Broitman et al., 2017; Fidelman et al., 2017
	Institutional capacity and administrative feasibility	Jagger et al., 2014; Sunderlin et al., 2014; Wallbott, 2014; Atela et al., 2015; Ingalls and Dwyer, 2016; Ngendakumana et al., 2017; Spencer et al., 2017; Turnhout et al., 2017; Well and Carrapatoso, 2017; Wehkamp et al., 2018a	Dallimer and Strange, 2015; Thomas and Gillingham, 2015; K.R. Jones et al., 2016; Essl and Mauerhofer, 2018; Monahan and Theobald, 2018	Hallegatte et al., 2013; Spalding et al., 2014; Mills et al., 2016; Estrada et al., 2017	LE Ahmed et al., 2014; Broitman et al., 2017; Fidelman et al., 2017
	Transparency and accountability potential	Jagger et al., 2014; Sunderlin et al., 2014; Atela et al., 2015; Ingalls and Dwyer, 2016; Ngendakumana et al., 2017; Turnhout et al., 2017; Well and Carrapatoso, 2017; Wehkamp et al., 2018a	LE	NE	NE
	Microeconomic viability	Sunderlin et al., 2014; Jagger et al., 2014; Atela et al., 2015; Elmqvist et al., 2015; Camps-Calvet et al., 2016; Ingalls and Dwyer, 2016; McPhearson et al., 2016; Turnhout et al., 2017; Collas et al., 2017; Li et al., 2017; Ngendakumana et al., 2017; Spencer et al., 2017	Rodrigues et al., 2009; Berrang-Ford et al., 2012; Pullin et al., 2013; Brockington and Wilkie, 2015; Oldekop et al., 2016; Clark and Tilman, 2017; Terraube et al., 2017; Essl and Mauerhofer, 2018	Sovacool et al., 2015; Sutton-Grier et al., 2015; Arkema et al., 2017; Betzold and Mohamed, 2017	LE Weatherdon et al., 2016; Fidelman et al., 2017
Socio-cultural	Macroeconomic viability	Sunderlin et al., 2014; Wallbott, 2014; Atela et al., 2015; Ingalls and Dwyer, 2016; Ngendakumana et al., 2017; Spencer et al., 2017	Pullin et al., 2013; Brockington and Wilkie, 2015; Oldekop et al., 2016; Milman and Jagannathan, 2017	Sovacool et al., 2015; Gibbs, 2016; Morris et al., 2016; Betzold and Mohamed, 2017; Marengo et al., 2017	LE Asiedu et al., 2017a; Fidelman et al., 2017

Table 4.SM.18 (continued)

		Ecosystem Restoration and Avoided Deforestation		Biodiversity Management		Coastal Defence and Hardening		Sustainable Aquaculture	
Evidence		Robust		Medium		Robust		Limited	
Agreement		Medium		Medium		Medium		Medium	
Socio-cultural	Socio-economic vulnerability reduction potential	LE	Ingalls and Dwyer, 2016; Spencer et al., 2017		Pullin et al., 2013; Brockington and Wilkie, 2015; Oldekop et al., 2016; Milman and Jagannathan, 2017; Terraube et al., 2017	NA		NE	
	Employment and productivity enhancement potential		Ingalls and Dwyer, 2016; Ngendakumana et al., 2017; Spencer et al., 2017	NE		NE		NA	
Environmental/ecological	Ecological capacity		Sunderlin et al., 2014; Spencer et al., 2017; Turnhout et al., 2017		Rodrigues et al., 2009; Virkkala et al., 2014; Thomas and Gillingham, 2015; Gillingham et al., 2015; Nadeau et al., 2015; Schmitz et al., 2015; Feeley and Silman, 2016; Gaüzère et al., 2016; Greenwood et al., 2016; Gómez-Aíza et al., 2017; Mingarro and Lobo, 2018; Monahan and Theobald, 2018		Bilkovic and Mitchell, 2013; Spalding et al., 2014; Joffre et al., 2015; Sutton-Grier et al., 2015		David et al., 2015; Joffre et al., 2015; Blanchard et al., 2017; Broitman et al., 2017; Ahmed et al., 2018
	Adaptive capacity/resilience		Sunderlin et al., 2014; Ingalls and Dwyer, 2016; Ngendakumana et al., 2017; Spencer et al., 2017; Turnhout et al., 2017		Rodrigues et al., 2009; Pullin et al., 2013; Oldekop et al., 2016; Gómez-Aíza et al., 2017; Monahan and Theobald, 2018	LE	Spalding et al., 2014; Orchard et al., 2015; Fidelman et al., 2017		Boonstra and Hanh, 2015; Orchard et al., 2015; Blanchard et al., 2017; Fidelman et al., 2017; Cinner et al., 2018
Geophysical	Political acceptability		Dang Phan et al., 2014; Sunderlin et al., 2014; Ngendakumana et al., 2017; Spencer et al., 2017; Turnhout et al., 2017	NE			Duvat, 2013; Hinkel et al., 2014; Smith et al., 2015; André et al., 2016; Cooper et al., 2016; Vousdoukas et al., 2016; Arkema et al., 2017		David et al., 2015; S. Adhikari et al., 2018; Ahmed et al., 2018
	Land use change enhancement potential		Dang Phan et al., 2014; Sunderlin et al., 2014; Ingalls and Dwyer, 2016; Ngendakumana et al., 2017; Turnhout et al., 2017; Houghton and Nassikas, 2018; Wehkamp et al., 2018a	LE	Schmitz et al., 2015; Reside et al., 2017a, b	LE	Sutton-Grier et al., 2015	LE	Mialhe et al., 2016
	Hazard risk reduction potential		Ingalls and Dwyer, 2016; Spencer et al., 2017	NE			Luisetti et al., 2013; Firth et al., 2014; Spalding et al., 2014; Barbier, 2015b; Sutton-Grier et al., 2015; André et al., 2016; Narayan et al., 2016; Arkema et al., 2017; Fu and Song, 2017		Joffre et al., 2015; Blanchard et al., 2017; Daly et al., 2017; Hung et al., 2018



4.SM.4.3.3 Feasibility Assessment of Adaptation Options in Urban and Infrastructure System Transitions

Table 4.SM.19 | Feasibility assessment of urban and infrastructure transition adaptation options: sustainable land use and urban planning, and sustainable water management. For methodology, see 4.SM.4.1.

	Sustainable Land Use and Urban Planning		Sustainable Water Management	
	Evidence	Medium	Robust	
	Agreement	Medium	Medium	
Economic	Microeconomic viability	Eberhard et al., 2011, 2016; Kiunsi, 2013; Watkins, 2015; Archer, 2016; Eisenberg, 2016; Ewing et al., 2016; Ziervogel et al., 2016a, 2017; Hess and Kelman, 2017; Mavhura et al., 2017		Liu et al., 2014; Lamond et al., 2015; Voskamp and Van de Ven, 2015; Xue et al., 2015; Costa et al., 2016; Mguni et al., 2016; Poff et al., 2016; Ossa-Moreno et al., 2017; Vincent et al., 2017; Xie et al., 2017
	Macroeconomic viability	Eberhard et al., 2011, 2016; Measham et al., 2011; Aerts et al., 2014; Jaglin, 2014; Beccali et al., 2015; Boughedir, 2015; Watkins, 2015; Ziervogel et al., 2016a, 2017; Chu et al., 2017; Hess and Kelman, 2017	NE	
	Socio-economic vulnerability reduction potential	Measham et al., 2011; Eberhard et al., 2011, 2016; Kiunsi, 2013; Aerts et al., 2014; Jaglin, 2014; Boughedir, 2015; Broto et al., 2015; Carter et al., 2015; Archer, 2016; Shi et al., 2016; Ziervogel et al., 2016a, 2017; Hetz, 2016; Mavhura et al., 2017		Villarroel Walker et al., 2014; Ziervogel and Joubert, 2014; Brown and McGranahan, 2016; Chu et al., 2016; Chant et al., 2017; Dodman et al., 2017a, b; Ossa-Moreno et al., 2017; Gunasekara et al., 2018
	Employment and productivity enhancement potential	Eberhard et al., 2011, 2016; Measham et al., 2011; Watkins, 2015; Archer, 2016; Ziervogel et al., 2016a	NE	
Technological	Technical resource availability	Aerts et al., 2014; Kettle et al., 2014; Beccali et al., 2015; Boughedir, 2015; Archer, 2016; Woodruff and Stults, 2016; Mavhura et al., 2017; Siders, 2017; Stults and Woodruff, 2017		Liu et al., 2014; Lamond et al., 2015; Voskamp and Van de Ven, 2015; Costa et al., 2016; Mguni et al., 2016; Soz et al., 2016; Xie et al., 2017
	Risks mitigation potential	Measham et al., 2011; Kiunsi, 2013; Aerts et al., 2014; Boughedir, 2015; Eisenberg, 2016; Siders, 2017; Stults and Woodruff, 2017		Liu et al., 2014; Lamond et al., 2015; Voskamp and Van de Ven, 2015; Costa et al., 2016; Mguni et al., 2016; Xie et al., 2017; Gunasekara et al., 2018
Institutional	Political acceptability	Measham et al., 2011; Aerts et al., 2014; Rivera and Wamsler, 2014; Boughedir, 2015; Carter et al., 2015; Landauer et al., 2015; Araos et al., 2016b; Woodruff and Stults, 2016; Hetz, 2016; Siders, 2017; Chu et al., 2017; Di Gregorio et al., 2017b; Mahlkow and Donner, 2017		Leck et al., 2015; Padawangi and Douglass, 2015; Chen and Chen, 2016; Mguni et al., 2016
	Legal and regulatory acceptability	Measham et al., 2011; Eberhard et al., 2011, 2016; Aerts et al., 2014; Rivera and Wamsler, 2014; Boughedir, 2015; Landauer et al., 2015; Carter et al., 2015; King et al., 2016; Eisenberg, 2016; Dhar and Khirfan, 2017; Di Gregorio et al., 2017b; Francesch-Huidobro et al., 2017; Hess and Kelman, 2017		Bettini et al., 2015; Deng and Zhao, 2015; Hill Clarvis and Engle, 2015; Leck et al., 2015; Lemos, 2015; Margerum and Robinson, 2015; Padawangi and Douglass, 2015; Chen and Chen, 2016
	Institutional capacity and administrative feasibility	Eberhard et al., 2011, 2016; Measham et al., 2011; Kiunsi, 2013; Aerts et al., 2014; Jaglin, 2014; Rivera and Wamsler, 2014; Archer et al., 2014; Landauer et al., 2015; Boughedir, 2015; Broto et al., 2015; Carter et al., 2015; Araos et al., 2016b; Hetz, 2016; Archer, 2016; Shi et al., 2016; Woodruff and Stults, 2016; Ziervogel et al., 2016a; Campos et al., 2016; Di Gregorio et al., 2017b; Francesch-Huidobro et al., 2017; Mahlkow and Donner, 2017; Mavhura et al., 2017; Siders, 2017; Tait and Euston-Brown, 2017; Chu et al., 2017; Dhar and Khirfan, 2017		Ziervogel and Joubert, 2014; Bettini et al., 2015; Deng and Zhao, 2015; Hill Clarvis and Engle, 2015; Lamond et al., 2015; Lemos, 2015; Margerum and Robinson, 2015
	Transparency and accountability potential	Eberhard et al., 2011, 2016; Measham et al., 2011; Kettle et al., 2014; Broto et al., 2015; Landauer et al., 2015; Shi et al., 2016; Woodruff and Stults, 2016; Chu et al., 2017; Stults and Woodruff, 2017	NE	
Socio-cultural	Social co-benefits (health, education)	Eberhard et al., 2011, 2016; Archer et al., 2014; Kettle et al., 2014; Parnell, 2015; Watkins, 2015; Beccali et al., 2015; Landauer et al., 2015; Archer, 2016; Ziervogel et al., 2016a, 2017; Campos et al., 2016; Hess and Kelman, 2017; Chu et al., 2018		Liu et al., 2014; Lamond et al., 2015; Leck et al., 2015; Padawangi and Douglass, 2015; Voskamp and Van de Ven, 2015; Costa et al., 2016; Mguni et al., 2016; Nur and Shrestha, 2017; Xie et al., 2017; Gunasekara et al., 2018
	Socio-cultural acceptability	Kiunsi, 2013; Aerts et al., 2014; Jaglin, 2014; Kettle et al., 2014; Archer et al., 2014; Parnell, 2015; Watkins, 2015; Broto et al., 2015; Carter et al., 2015; Archer, 2016; Newman et al., 2016; Shi et al., 2016; Ziervogel et al., 2016a, 2017; Campos et al., 2016; Eberhard et al., 2016; Ewing et al., 2016; Siders, 2017; Stults and Woodruff, 2017; Chu et al., 2017, 2018		Lamond et al., 2015; Leck et al., 2015; Padawangi and Douglass, 2015; Nur and Shrestha, 2017; Xie et al., 2017
	Social and regional inclusiveness	Eberhard et al., 2011, 2016; Jaglin, 2014; Kettle et al., 2014; Archer et al., 2014; Parnell, 2015; Watkins, 2015; Broto et al., 2015; Araos et al., 2016b; Archer, 2016; King et al., 2016; Shi et al., 2016; Ziervogel et al., 2016a, 2017; Campos et al., 2016; Mahlkow and Donner, 2017; Mavhura et al., 2017; Chu et al., 2017, 2018; Dhar and Khirfan, 2017		Rasul and Sharma, 2016

Table 4.SM.19 (continued)

		Sustainable Land Use and Urban Planning	Sustainable Water Management
Evidence		Medium	Robust
Agreement		Medium	Medium
Socio-cultural	Intergenerational equity	Parnell, 2015; King et al., 2016; Shi et al., 2016; Chu et al., 2017; Ziervogel et al., 2017	Tacoli et al., 2013; Xue et al., 2015; Poff et al., 2016
Environmental/ecological	Ecological capacity	Kiunsi, 2013; Aerts et al., 2014; Kettle et al., 2014; King et al., 2016; Ziervogel et al., 2016a; Mavhura et al., 2017	Ziervogel and Joubert, 2014; Lamond et al., 2015; Soz et al., 2016
	Adaptive capacity/resilience	Eberhard et al., 2011, 2016; Kiunsi, 2013; Aerts et al., 2014; Kettle et al., 2014; Rivera and Wamsler, 2014; Archer et al., 2014; Jaglin, 2014; Parnell, 2015; Watkins, 2015; Carter et al., 2015; Archer, 2016; King et al., 2016; Shi et al., 2016; Ziervogel et al., 2016a, 2017; Hetz, 2016; Stults and Woodruff, 2017; Chu et al., 2017; Hess and Kelman, 2017	Angotti, 2015; Bell et al., 2015; Biggs et al., 2015; Gwedla and Shackleton, 2015; Lwasa et al., 2015; Chen and Chen, 2016; Yang et al., 2016; Sanesi et al., 2017; Gunasekara et al., 2018
Geophysical	Physical feasibility	Aerts et al., 2014; Boughedir, 2015; Hetz, 2016; King et al., 2016; Newman et al., 2016; Woodruff and Stults, 2016; Ziervogel et al., 2016a; Stults and Woodruff, 2017	Ziervogel and Joubert, 2014; Lamond et al., 2015; Soz et al., 2016
	Land use change enhancement potential	Kiunsi, 2013; Landauer et al., 2015; Parnell, 2015; Hetz, 2016; Newman et al., 2016; Mavhura et al., 2017	Lamond et al., 2015; Leck et al., 2015; Padawangi and Douglass, 2015; Rasul and Sharma, 2016; Soz et al., 2016
	Hazard risk reduction potential	Kiunsi, 2013; Aerts et al., 2014; Watkins, 2015; Boughedir, 2015; Archer, 2016; Woodruff and Stults, 2016; Eisenberg, 2016; Hetz, 2016; King et al., 2016; Mahlkow and Donner, 2017; Mavhura et al., 2017; Stults and Woodruff, 2017	Liu et al., 2014; Angotti, 2015; Bell et al., 2015; Voskamp and Van de Ven, 2015; Biggs et al., 2015; Gwedla and Shackleton, 2015; Lamond et al., 2015; Lwasa et al., 2015; Mguni et al., 2016; Yang et al., 2016; Chen and Chen, 2016; Costa et al., 2016; Sanesi et al., 2017; Xie et al., 2017; Gunasekara et al., 2018

Table 4.SM.20 | Feasibility assessment of urban and infrastructure transition adaptation options: green infrastructure and ecosystem services, and building codes and standards. For methodology, see 4.SM.4.1.

		Green Infrastructure and Ecosystem Services	Building Codes and Standards
Evidence		Medium	Limited
Agreement		High	Medium
Economic	Microeconomic viability	Elmqvist et al., 2015; Soderlund and Newman, 2015; McPhearson et al., 2016; Zinia and McShane, 2018	Steenhof and Sparling, 2011; Bendito and Barrios, 2016; Ruparathna et al., 2016; Mavhura et al., 2017; Wells et al., 2018
	Macroeconomic viability	LE Culwick and Bobbins, 2016	Steenhof and Sparling, 2011; Aerts et al., 2014; Späth and Rohrer, 2015; Chandel et al., 2016; Shapiro, 2016; Hess and Kelman, 2017; Wells et al., 2018
	Socio-economic vulnerability reduction potential	Tallis et al., 2011; Elmqvist et al., 2015; Soderlund and Newman, 2015; Camps-Calvet et al., 2016; McPhearson et al., 2016; Panagopoulos et al., 2016; Stevenson et al., 2016; Li et al., 2017; R. White et al., 2017; Zinia and McShane, 2018	Steenhof and Sparling, 2011; FEMA, 2014; Bendito and Barrios, 2016; Hess and Kelman, 2017; Reckien et al., 2017
	Employment and productivity enhancement potential	NE	NE
Technological	Technical resource availability	NA	Steenhof and Sparling, 2011; Aerts et al., 2014; Bendito and Barrios, 2016; Chandel et al., 2016; Ruparathna et al., 2016; Garsaball and Markov, 2017; Tait and Euston-Brown, 2017; Wells et al., 2018
	Risks mitigation potential (stranded assets, unforeseen impacts)	Tallis et al., 2011; Elmqvist et al., 2013b, 2015; Buckeridge, 2015; Soderlund and Newman, 2015; Camps-Calvet et al., 2016; McPhearson et al., 2016; Panagopoulos et al., 2016; Stevenson et al., 2016; R. White et al., 2017; Li et al., 2017; Zinia and McShane, 2018	Aerts et al., 2014; Ruparathna et al., 2016
Institutional	Political acceptability	LE Brown and McGranahan, 2016; Ziervogel et al., 2016b	Aerts et al., 2014; Späth and Rohrer, 2015; Chandel et al., 2016; Eisenberg, 2016; Shapiro, 2016; Tait and Euston-Brown, 2017; Wells et al., 2018
	Legal and regulatory acceptability	Brown and McGranahan, 2016; Ziervogel et al., 2016b; Collas et al., 2017; Li et al., 2017; Sirakaya et al., 2018	Steenhof and Sparling, 2011; Burch et al., 2014; Späth and Rohrer, 2015; Eisenberg, 2016; Ruparathna et al., 2016; Shapiro, 2016; Hess and Kelman, 2017; Stults and Woodruff, 2017



Table 4.SM.20 (continued)

	Evidence	Green Infrastructure and Ecosystem Services		Building Codes and Standards	
		Medium		Limited	
		High		Medium	
Agreement					
	Institutional capacity and administrative feasibility		Brown and McGranahan, 2016; Culwick and Bobbins, 2016; Ziervogel et al., 2016b; Collas et al., 2017; Li et al., 2017; Prudencio and Null, 2018		Aerts et al., 2014; Chandel et al., 2016; Eisenberg, 2016; Shapiro, 2016; Garsaball and Markov, 2017; Hess and Kelman, 2017; Mavhura et al., 2017; Stults and Woodruff, 2017; Tait and Euston-Brown, 2017
	Transparency and accountability potential	LE	Li et al., 2017		Steenhof and Sparling, 2011; Aerts et al., 2014; Späth and Rohrer, 2015; Chandel et al., 2016; Shapiro, 2016
Socio-cultural	Social co-benefits (health, education)		Beatley, 2011; Tallis et al., 2011; Elmqvist et al., 2013b, 2015; Liu et al., 2014; Demuzere et al., 2014; Lamond et al., 2015; Mullaney et al., 2015; Norton et al., 2015; Skougaard Kaspersen et al., 2015; Soderlund and Newman, 2015; Voskamp and Van de Ven, 2015; Buckeridge, 2015; Beaudoin and Gosselin, 2016; Green et al., 2016; McPhearson et al., 2016; Mguni et al., 2016; Brown and McGranahan, 2016; Panagopoulos et al., 2016; Stevenson et al., 2016; Camps-Calvet et al., 2016; Costa et al., 2016; Culwick and Bobbins, 2016; Li et al., 2017; Lin et al., 2017; Xie et al., 2017; Collas et al., 2017; Zinia and McShane, 2018	NE	
	Socio-cultural acceptability		Beatley, 2011; Elmqvist et al., 2015; Beaudoin and Gosselin, 2016; Brown and McGranahan, 2016; Camps-Calvet et al., 2016; McPhearson et al., 2016; Ziervogel et al., 2016b; Collas et al., 2017; Li et al., 2017; Zinia and McShane, 2018		Späth and Rohrer, 2015; Bendito and Barrios, 2016; Eisenberg, 2016; Tait and Euston-Brown, 2017
	Social and regional inclusiveness		Tallis et al., 2011; Elmqvist et al., 2013b, 2015; Buckeridge, 2015; Beaudoin and Gosselin, 2016; Brown and McGranahan, 2016; Panagopoulos et al., 2016; Stevenson et al., 2016; Ziervogel et al., 2016b; Camps-Calvet et al., 2016; Culwick and Bobbins, 2016; McPhearson et al., 2016; R. White et al., 2017; Collas et al., 2017; Li et al., 2017; Prudencio and Null, 2018		Parnell, 2015; Shapiro, 2016; Mavhura et al., 2017; Reckien et al., 2017
	Intergenerational equity		Elmqvist et al., 2013b, 2015; Liu et al., 2014; Lamond et al., 2015; Skougaard Kaspersen et al., 2015; Voskamp and Van de Ven, 2015; Costa et al., 2016; McPhearson et al., 2016; Mguni et al., 2016; Xie et al., 2017	NE	
Environmental/ecological	Ecological capacity		Liu et al., 2014; Lamond et al., 2015; Skougaard Kaspersen et al., 2015; Costa et al., 2016; Mguni et al., 2016; Xie et al., 2017	NE	
	Adaptive capacity/resilience		Beatley, 2011; Elmqvist et al., 2013b, 2015; Voskamp and Van de Ven, 2015; Beaudoin and Gosselin, 2016; Brown and McGranahan, 2016; Camps-Calvet et al., 2016; McPhearson et al., 2016; Panagopoulos et al., 2016; Collas et al., 2017; Li et al., 2017; Zinia and McShane, 2018		Steenhof and Sparling, 2011; Aerts et al., 2014; Bendito and Barrios, 2016
Geophysical	Physical feasibility		Liu et al., 2014; Lamond et al., 2015; Skougaard Kaspersen et al., 2015; Voskamp and Van de Ven, 2015; Costa et al., 2016; Mguni et al., 2016; Collas et al., 2017; Xie et al., 2017	NE	
	Land use change enhancement potential		Tallis et al., 2011; Elmqvist et al., 2013b; Buckeridge, 2015; Culwick and Bobbins, 2016; Panagopoulos et al., 2016; Stevenson et al., 2016; Collas et al., 2017; R. White et al., 2017		Bendito and Barrios, 2016; Reckien et al., 2017
	Hazard risk reduction potential		Nowak et al., 2006; Tallis et al., 2011; Elmqvist et al., 2013b, 2015; Buckeridge, 2015; Soderlund and Newman, 2015; Brown and McGranahan, 2016; Panagopoulos et al., 2016; Stevenson et al., 2016; Ziervogel et al., 2016b; Camps-Calvet et al., 2016; Culwick and Bobbins, 2016; McPhearson et al., 2016; R. White et al., 2017; Collas et al., 2017; Li et al., 2017; Zinia and McShane, 2018		Steenhof and Sparling, 2011; FEMA, 2014; Bendito and Barrios, 2016; Garsaball and Markov, 2017; Reckien et al., 2017

4.SM.4.3.4 Feasibility Assessment of Adaptation Options in Industrial System Transitions

Table 4.SM.21 | Feasibility assessment of industrial system transition adaptation option: intensive industry infrastructure resilience and water management. For methodology, see 4.SM.4.1.

		Intensive Industry Infrastructure Resilience and Water Management	
		Evidence	Limited
		Agreement	High
Economic	Microeconomic viability	NE	
	Macroeconomic viability	NE	
	Socio-economic vulnerability reduction potential		
	Employment and productivity enhancement potential	NE	
Technological	Technical resource availability		Koch and Vögele, 2009; Jahandideh-Tehrani et al., 2014; Murrant et al., 2015; Parkinson and Djilali, 2015
	Risks mitigation potential		Jahandideh-Tehrani et al., 2014; Murrant et al., 2015; Parkinson and Djilali, 2015
Institutional	Political acceptability	LE	Murrant et al., 2015
	Legal and regulatory acceptability	NE	
	Institutional capacity and administrative feasibility	LE	Eisenack and Stecker, 2012; Murrant et al., 2015
	Transparency and accountability potential	NE	
Socio-cultural	Social co-benefits (health, education)	NA	
	Socio-cultural acceptability	NE	
	Social and regional inclusiveness	NA	
	Social and regional inclusiveness	NA	
Environmental	Ecological capacity		Jahandideh-Tehrani et al., 2014; Murrant et al., 2015; Parkinson and Djilali, 2015
	Adaptive capacity/resilience		Jahandideh-Tehrani et al., 2014; Murrant et al., 2015; Parkinson and Djilali, 2015
Geophysical	Physical feasibility		Eisenack and Stecker, 2012; Jahandideh-Tehrani et al., 2014; Murrant et al., 2015; Parkinson and Djilali, 2015
	Land use change enhancement potential	LE	Jahandideh-Tehrani et al., 2014; Parkinson and Djilali, 2015
	Hazard risk reduction potential		Jahandideh-Tehrani et al., 2014; Murrant et al., 2015; Parkinson and Djilali, 2015



4.SM.4.3.5 Feasibility Assessment of Overarching Adaptation Options

Table 4.SM.22 | Feasibility assessment of overarching adaptation options: disaster risk management, risk spreading and sharing; insurance, climate services and indigenous knowledge. For methodology, see 4.SM.4.1.

		Disaster Risk Management	Risk Spreading and Sharing: Insurance	Climate Services	Indigenous Knowledge
		Medium	Medium	Medium	Medium
		High	Medium	High	High
Economic	Microeconomic viability	IPCC, 2012; Mavhura et al., 2013; Yu and Gillis, 2014; Johnson and Abe, 2015; Mawere and Mubaya, 2015; Archer, 2016; Kull et al., 2016; Rose, 2016; Watanabe et al., 2016	Panda et al., 2013; Weinhofer and Busch, 2013; Thornton and Herrero, 2014; Falco et al., 2014; Lashley and Warner, 2015; Linnerooth-Bayer and Hochrainer-Stigler, 2015; Nicola, 2015; Annan and Schlenker, 2015; Bogale, 2015; Garcia Romero and Molina, 2015; Greatrex et al., 2015; Akter et al., 2016, 2017; Jin et al., 2016; Surminski et al., 2016; Patel et al., 2017; Shively, 2017; Farzaneh et al., 2017; Glaas et al., 2017; Jensen and Barrett, 2017	Vaughan and Dessai, 2014; Snow et al., 2016; Lechthaler and Vinogradova, 2017; Webber, 2017; Ouédraogo et al., 2018	Berkes et al., 2000; Nakashima et al., 2012; Leonard et al., 2013; McNamara and Prasad, 2014; Pearce et al., 2015; Mapfumo et al., 2016; Altieri and Nicholls, 2017; Nunn et al., 2017; Ruiz-Mallén et al., 2017; Crate et al., 2017; Ingty, 2017; Kihila, 2017; Magni, 2017

Table 4.SM.22 (continued)

		Disaster Risk Management	Risk Spreading and Sharing: Insurance	Climate Services	Indigenous Knowledge
Evidence		Medium	Medium	Medium	Medium
Agreement		High	Medium	High	High
Economic	Macroeconomic viability	IPCC, 2012; Hinkel et al., 2014; Anaconda et al., 2015; Johnson and Abe, 2015; Boughedir, 2015; Howes et al., 2015; Archer, 2016; Kull et al., 2016; Rose, 2016; Diaz, 2016; Haerberli et al., 2016, 2017; Kelman, 2017; de Leon and Pittock, 2017	Cook and Dowlatabadi, 2011; Falco et al., 2014; García Romero and Molina, 2015; Joyette et al., 2015; Linnerooth-Bayer and Hochrainer-Stigler, 2015; Wolfrom and Yokoi-Arai, 2015; Surminski et al., 2016; Glaas et al., 2017; Jenkins et al., 2017; Jensen and Barrett, 2017	Brasseur and Gallardo, 2016; Rodrigues et al., 2016	Berkes et al., 2000; Leonard et al., 2013; Mapfumo et al., 2016; Ingty, 2017; Magni, 2017; Nunn et al., 2017; Ruiz-Mallén et al., 2017
	Socio-economic vulnerability reduction potential	IPCC, 2012; Mavhura et al., 2013; McNamara and Prasad, 2014; Boeckmann and Rohn, 2014; Anaconda et al., 2015; Howes et al., 2015; Johnson and Abe, 2015; Kelman et al., 2015; Mawere and Mubaya, 2015; Boughedir, 2015; Archer, 2016; Kull et al., 2016; Muñoz et al., 2016; Rose, 2016; Watanabe et al., 2016; Diaz, 2016; Haerberli et al., 2016, 2017; Wallace, 2017; de Leon and Pittock, 2017; Granderson, 2017; Nahayo et al., 2018; Brundiers, 2018	Mills, 2007; Panda et al., 2013; Thornton and Herrero, 2014; Falco et al., 2014; Annan and Schlenker, 2015; Lashley and Warner, 2015; Linnerooth-Bayer and Hochrainer-Stigler, 2015; Nicola, 2015; Bogale, 2015; Wolfrom and Yokoi-Arai, 2015; García Romero and Molina, 2015; Greatrex et al., 2015; Jin et al., 2016; O'Hare et al., 2016; Surminski et al., 2016; Akter et al., 2017; Patel et al., 2017; Surminski and Thieken, 2017; Farzaneh et al., 2017; Glaas et al., 2017; Hansen et al., 2017; Jensen and Barrett, 2017	Kadi et al., 2011; Jancloes et al., 2014; Vaughan and Dessai, 2014; Lobo et al., 2017	Berkes and Jolly, 2002; Forbes et al., 2009; Nakashima et al., 2012; Leonard et al., 2013; McNamara and Prasad, 2014; Ford et al., 2014; MacDonald et al., 2015b; Pearce et al., 2015; Harper et al., 2015; Mapfumo et al., 2016; Mistry and Berardi, 2016; Clark et al., 2016; Altieri and Nicholls, 2017; Archer et al., 2017; Magni, 2017; Nunn et al., 2017; Ruiz-Mallén et al., 2017; Russell-Smith et al., 2017; Thornton and Comberti, 2017; Williams et al., 2017; Ingty, 2017; Kihila, 2017
	Employment and productivity enhancement potential	Terrier et al., 2011, 2015; IPCC, 2012; Mavhura et al., 2013; Yu and Gillis, 2014; Johnson and Abe, 2015; Mawere and Mubaya, 2015; Archer, 2016; Haerberli et al., 2016, 2017; Kull et al., 2016; Rose, 2016	Panda et al., 2013; Falco et al., 2014; Thornton and Herrero, 2014; Bogale, 2015; Greatrex et al., 2015; Lashley and Warner, 2015; Linnerooth-Bayer and Hochrainer-Stigler, 2015; Nicola, 2015; Hansen et al., 2017; Jensen and Barrett, 2017	NE	Berkes et al., 2000; Nakashima et al., 2012; Leonard et al., 2013; Pearce et al., 2015; Harper et al., 2015; Clark et al., 2016; Altieri and Nicholls, 2017; Archer et al., 2017; Ruiz-Mallén et al., 2017; Russell-Smith et al., 2017; Ingty, 2017; Kihila, 2017; Magni, 2017
Technological	Technical resource availability	IPCC, 2012; Mavhura et al., 2013; McNamara and Prasad, 2014; Yu and Gillis, 2014; Boeckmann and Rohn, 2014; Anaconda et al., 2015; Johnson and Abe, 2015; Mawere and Mubaya, 2015; Boughedir, 2015; Howes et al., 2015; Allen et al., 2016; Kaya et al., 2016; Kull et al., 2016; Muñoz et al., 2016; Archer, 2016; Diaz, 2016; Haerberli et al., 2016, 2017; Wang et al., 2018	Falco et al., 2014; García Romero and Molina, 2015; Joyette et al., 2015; Linnerooth-Bayer and Hochrainer-Stigler, 2015; Akter et al., 2016; Surminski et al., 2016; Adiku et al., 2017; Jensen and Barrett, 2017	Dinku et al., 2014; Jancloes et al., 2014; Gebru et al., 2015; Weisse et al., 2015; Brasseur and Gallardo, 2016; Cortekar et al., 2016; Singh et al., 2016; Snow et al., 2016; Vaughan et al., 2016; Kihila, 2017	Berkes et al., 2000; Ford et al., 2010; Nakashima et al., 2012; Cunsolo Willox et al., 2013; Leonard et al., 2013; Pearce et al., 2015; Johnson et al., 2015; MacDonald et al., 2015a; Sherman et al., 2016; Altieri and Nicholls, 2017; Magni, 2017; Nunn et al., 2017; Russell-Smith et al., 2017; Inamara and Thomas, 2017; Ingty, 2017; Kihila, 2017

Table 4.SM.22 (continued)

		Disaster Risk Management	Risk Spreading and Sharing: Insurance	Climate Services	Indigenous Knowledge
Evidence		Medium	Medium	Medium	Medium
Agreement		High	Medium	High	High
Technological	Risks mitigation potential	IPCC, 2012; Mavhura et al., 2013; Yu and Gillis, 2014; Boughedir, 2015; Mawere and Mubaya, 2015; Howes et al., 2015; Johnson and Abe, 2015; Kelman et al., 2015; Archer, 2016; Muñoz et al., 2016; Rose, 2016; Haeberli et al., 2016, 2017; Kull et al., 2016; Wallace, 2017; Kita, 2017	Mills, 2007; Cook and Dowlatabadi, 2011; Panda et al., 2013; Weinhofer and Busch, 2013; Thornton and Herrero, 2014; Falco et al., 2014; Annan and Schlenker, 2015; Lashley and Warner, 2015; Linnerooth-Bayer and Hochrainer-Stigler, 2015; Nicola, 2015; Fabian, 2015; Wolfrom and Yokoi-Arai, 2015; García Romero and Molina, 2015; Greatrex et al., 2015; Surminski et al., 2016; Jin et al., 2016; Surminski and Eldridge, 2017; Surminski and Thieken, 2017; Farzaneh et al., 2017; Hansen et al., 2017; Jensen and Barrett, 2017	Rogers and Tsirkunov, 2010; WMO, 2015	Nakashima et al., 2012; McNamara and Prasad, 2014; Mapfumo et al., 2016; Kihila, 2017; Magni, 2017
Institutional	Political acceptability	Carey, 2005, 2008; IPCC, 2012; Boughedir, 2015; Johnson and Abe, 2015; Archer, 2016; Kull et al., 2016; Muñoz et al., 2016; Haeberli et al., 2016; Ruiz-Rivera and Lucatello, 2017; Granderson, 2017; Kelman, 2017; Kita, 2017; Rosendo et al., 2018	García Romero and Molina, 2015; Linnerooth-Bayer and Hochrainer-Stigler, 2015; Jenkins et al., 2017; Jensen and Barrett, 2017	Gebru et al., 2015; Vincent et al., 2015; Cortekar et al., 2016; Singh et al., 2016; Snow et al., 2016; Harjanne, 2017; Webber, 2017	Nakashima et al., 2012; Leonard et al., 2013; Ford et al., 2015; Hooli, 2016; Mistry and Berardi, 2016; Fernández-Llamazares et al., 2017; Russell-Smith et al., 2017; Williams et al., 2017; Ingty, 2017; Kihila, 2017; Magni, 2017; Ruiz-Mallén et al., 2017
	Legal and regulatory acceptability	IPCC, 2012; Boughedir, 2015; Howes et al., 2015; Johnson and Abe, 2015; Kelman et al., 2015; Kull et al., 2016; Muñoz et al., 2016; van der Keur et al., 2016; Haeberli et al., 2016, 2017; Kaya et al., 2016; de Leon and Pittock, 2017; Kita, 2017; Ruiz-Rivera and Lucatello, 2017; Serrao-Neumann et al., 2017; Wallace, 2017; Kelman, 2017; Rosendo et al., 2018	Falco et al., 2014; Thornton and Herrero, 2014; Wolfrom and Yokoi-Arai, 2015; García Romero and Molina, 2015; Joyette et al., 2015; Linnerooth-Bayer and Hochrainer-Stigler, 2015; Surminski et al., 2016; Adiku et al., 2017; Glaas et al., 2017; Hansen et al., 2017; Jenkins et al., 2017; Jensen and Barrett, 2017	Mantilla et al., 2014; Coulibaly et al., 2015; Lobo et al., 2017	Berkes et al., 2000; Nakashima et al., 2012; Leonard et al., 2013; Hiwasaki et al., 2014; Ford et al., 2015; Hooli, 2016; Ruiz-Mallén et al., 2017; Russell-Smith et al., 2017; Ingty, 2017; Kihila, 2017; Magni, 2017; Mccubbin et al., 2017
	Institutional capacity and administrative feasibility	Carey, 2008; IPCC, 2012; Mavhura et al., 2013; McNamara and Prasad, 2014; Boughedir, 2015; Kelman et al., 2015; Mawere and Mubaya, 2015; Howes et al., 2015; Johnson and Abe, 2015; Archer, 2016; Kull et al., 2016; Muñoz et al., 2016; Rose, 2016; van der Keur et al., 2016; Watanabe et al., 2016; Haeberli et al., 2016, 2017; Kita, 2017; Ruiz-Rivera and Lucatello, 2017; Serrao-Neumann et al., 2017; Wallace, 2017; Granderson, 2017; Kelman, 2017; Nahayo et al., 2018; Rosendo et al., 2018	Cook and Dowlatabadi, 2011; Weinhofer and Busch, 2013; Thornton and Herrero, 2014; Falco et al., 2014; Joyette et al., 2015; Lashley and Warner, 2015; Linnerooth-Bayer and Hochrainer-Stigler, 2015; Wolfrom and Yokoi-Arai, 2015; García Romero and Molina, 2015; Greatrex et al., 2015; Akter et al., 2016; Surminski et al., 2016; Adiku et al., 2017; Surminski and Eldridge, 2017; Glaas et al., 2017; Hansen et al., 2017; Jenkins et al., 2017; Jensen and Barrett, 2017	Dinku et al., 2014; Wood et al., 2014; Jancloes et al., 2014; Vaughan and Dessai, 2014; Vincent et al., 2015; Brasseur and Gallardo, 2016; Vaughan et al., 2016; Lourenço et al., 2016; Snow et al., 2016; Trenberth et al., 2016; Harjanne, 2017; Räsänen et al., 2017; Singh et al., 2017	Berkes et al., 2000; Nakashima et al., 2012; Hiwasaki et al., 2014, 2015; Oteros-Rozas et al., 2015; Ford et al., 2015; Johnson et al., 2015; Sherman et al., 2016; Mistry and Berardi, 2016; Fernández-Llamazares et al., 2017; Ruiz-Mallén et al., 2017; Russell-Smith et al., 2017; Williams et al., 2017; Granderson, 2017; Kihila, 2017; Magni, 2017



Table 4.SM.22 (continued)

	Evidence	Disaster Risk Management	Risk Spreading and Sharing: Insurance	Climate Services	Indigenous Knowledge
		Medium	Medium	Medium	Medium
		High	Medium	High	High
Institutional	Transparency and accountability Potential	Carey, 2005; IPCC, 2012; Howes et al., 2015; Johnson and Abe, 2015; Kaya et al., 2016; Kita, 2017; Ruiz-Rivera and Lucatello, 2017; Rosendo et al., 2018	Thornton and Herrero, 2014; García Romero and Molina, 2015; Greatrex et al., 2015; Joyette et al., 2015; Lashley and Warner, 2015; Linnerooth-Bayer and Hochrainer-Stigler, 2015; Jin et al., 2016; Adiku et al., 2017; Hansen et al., 2017; Jensen and Barrett, 2017	Vaughan and Dessai, 2014; Harjanne, 2017; Hewitson et al., 2017	Berkes et al., 2000; Nakashima et al., 2012; Leonard et al., 2013; Green and Minchin, 2014; Hiwasaki et al., 2014; Ford et al., 2015; Johnson et al., 2015; Oteros-Rozas et al., 2015; Mistry and Berardi, 2016; Russell-Smith et al., 2017; Magni, 2017; Rapinski et al., 2018
Socio-cultural	Social co-benefits (health,	IPCC, 2012; Mavhura et al., 2013; McNamara and Prasad, 2014; Samaddar et al., 2015; Mawere and Mubaya, 2015; Archer, 2016; Watanabe et al., 2016; Haerberli et al., 2016; Kull et al., 2016; Rose, 2016; Brundiers, 2018; Nahayo et al., 2018	Panda et al., 2013; Thornton and Herrero, 2014; Greatrex et al., 2015; Lashley and Warner, 2015; Linnerooth-Bayer and Hochrainer-Stigler, 2015; Adiku et al., 2017; Glaas et al., 2017; Hansen et al., 2017; Jensen and Barrett, 2017	Rogers and Tsirkunov, 2010; Kadi et al., 2011; Hunt et al., 2017	Ford, 2012; Leonard et al., 2013; McNamara and Prasad, 2014; Ford et al., 2014; Green and Minchin, 2014; Cunsolo Willox et al., 2015; Durkalec et al., 2015; MacDonald et al., 2015a, b; Harper et al., 2015; Hiwasaki et al., 2015; Mapfumo et al., 2016; Mistry and Berardi, 2016; Hooli, 2016; Magni, 2017; Kihila, 2017
	Socio-cultural acceptability	Carey, 2005; IPCC, 2012; Mavhura et al., 2013; McNamara and Prasad, 2014; Anaconda et al., 2015; Mawere and Mubaya, 2015; Samaddar et al., 2015; Archer, 2016; Muñoz et al., 2016; Rose, 2016; van der Keur et al., 2016; Watanabe et al., 2016; Kaya et al., 2016; Kull et al., 2016; Serrao-Neumann et al., 2017; de Leon and Pittock, 2017; Granderson, 2017; Kita, 2017	Lashley and Warner, 2015; Linnerooth-Bayer and Hochrainer-Stigler, 2015; Bogale, 2015; García Romero and Molina, 2015; Greatrex et al., 2015; Jin et al., 2016; Adiku et al., 2017; Akter et al., 2017; Farzaneh et al., 2017; Glaas et al., 2017; Hansen et al., 2017; Jensen and Barrett, 2017	Sivakumar et al., 2014; Vincent et al., 2015; Brasseur and Gallardo, 2016; Cortekar et al., 2016; Carr and Onzere, 2017; Singh et al., 2017; Webber and Donner, 2017; Guido et al., 2018	Natcher et al., 2007; Ford et al., 2010; Cunsolo Willox et al., 2012; Nakashima et al., 2012; Adger et al., 2013; Leonard et al., 2013; Green and Minchin, 2014; MacDonald et al., 2015a; Hiwasaki et al., 2015; Johnson et al., 2015; Mapfumo et al., 2016; Hooli, 2016; Tschakert et al., 2017; Kihila, 2017; Flynn et al., 2018
	Social and regional inclusiveness	Carey, 2005; IPCC, 2012; Mavhura et al., 2013; McNamara and Prasad, 2014; Samaddar et al., 2015; Mawere and Mubaya, 2015; Archer, 2016; Rose, 2016; Watanabe et al., 2016; Kaya et al., 2016; Kull et al., 2016; de Leon and Pittock, 2017; Granderson, 2017; Kita, 2017; Nahayo et al., 2018	Falco et al., 2014; Bogale, 2015; Linnerooth-Bayer and Hochrainer-Stigler, 2015; García Romero and Molina, 2015; Greatrex et al., 2015; Joyette et al., 2015; Akter et al., 2016; Surminski et al., 2016; Jin et al., 2016; Shively, 2017; Farzaneh et al., 2017; Hansen et al., 2017; Jensen and Barrett, 2017	Sivakumar et al., 2014; Carr and Onzere, 2017; Webber and Donner, 2017	Berkes et al., 2000; Nakashima et al., 2012; Adger et al., 2013; Leonard et al., 2013; Green and Minchin, 2014; McNamara and Prasad, 2014; MacDonald et al., 2015a; Mistry and Berardi, 2016; Hooli, 2016; Nunn et al., 2017; Ruiz-Mallén et al., 2017; Ingty, 2017; Magni, 2017; Flynn, 2018
	Intergenerational equity	IPCC, 2012; Mavhura et al., 2013; McNamara and Prasad, 2014; Mawere and Mubaya, 2015; Archer, 2016; Kaya et al., 2016; Granderson, 2017; Nahayo et al., 2018	Linnerooth-Bayer and Hochrainer-Stigler, 2015; O'Hare et al., 2016; Jensen and Barrett, 2017	NA	Berkes et al., 2000; Ford et al., 2010; Nakashima et al., 2012; Leonard et al., 2013; McNamara and Prasad, 2014; Hiwasaki et al., 2015; MacDonald et al., 2015a; Tschakert et al., 2017; Kihila, 2017; Magni, 2017; Nunn et al., 2017

Table 4.SM.22 (continued)

		Disaster Risk Management	Risk Spreading and Sharing: Insurance	Climate Services	Indigenous Knowledge
	Evidence	Medium	Medium	Medium	Medium
	Agreement	High	Medium	High	High
Environmental/ ecological	Ecological capacity	IPCC, 2012; Mavhura et al., 2013; McNamara and Prasad, 2014; Kelman et al., 2015; Mawere and Mubaya, 2015; Archer, 2016; Haeberli et al., 2016; Kull et al., 2016	NA	NA	Berkes et al., 2000; Forbes et al., 2009; Leonard et al., 2013; McNamara and Prasad, 2014; MacDonald et al., 2015b; Altieri and Nicholls, 2017; Russell-Smith et al., 2017; Tschakert et al., 2017; Ingty, 2017; Kihila, 2017; Magni, 2017; Nunn et al., 2017
	Adaptive capacity/ resilience	IPCC, 2012; Mavhura et al., 2013; McNamara and Prasad, 2014; Boeckmann and Rohn, 2014; Yu and Gillis, 2014; Anaconda et al., 2015; Johnson and Abe, 2015; Kelman et al., 2015; Mawere and Mubaya, 2015; Howes et al., 2015; Archer, 2016; Kaya et al., 2016; Kull et al., 2016; Muñoz et al., 2016; Rose, 2016; Watanabe et al., 2016; Haeberli et al., 2016, 2017; Kelman, 2017; Wallace, 2017; de Leon and Pittock, 2017; Granderson, 2017; Brundiers, 2018	Mills, 2007; Panda et al., 2013; Thornton and Herrero, 2014; Falco et al., 2014; Bogale, 2015; Linnerooth-Bayer and Hochrainer-Stigler, 2015; Nicola, 2015; Wolfrom and Yokoi-Arai, 2015; García Romero and Molina, 2015; Greatrex et al., 2015; Lashley and Warner, 2015; O'Hare et al., 2016; Surminski et al., 2016; Jin et al., 2016; Adiku et al., 2017; Hansen et al., 2017; Jenkins et al., 2017; Jensen and Barrett, 2017	L. Jones et al., 2016; Lourenço et al., 2016; Singh et al., 2017; C.J. White et al., 2017	Berkes et al., 2000; Forbes et al., 2009; Ford et al., 2010; Nakashima et al., 2012; Leonard et al., 2013; McNamara and Prasad, 2014; Pearce et al., 2015; Hiwasaki et al., 2015; Savo et al., 2016; Sherman et al., 2016; Mapfumo et al., 2016; Altieri and Nicholls, 2017; Nunn et al., 2017; Russell-Smith et al., 2017; Kihila, 2017; Magni, 2017; Mccubbin et al., 2017
Geophysical	Physical feasibility	IPCC, 2012; Yu and Gillis, 2014; McNamara and Prasad, 2014; Anaconda et al., 2015; Boughedir, 2015; Kelman et al., 2015; Archer, 2016; Muñoz et al., 2016; Diaz, 2016; Haeberli et al., 2016, 2017; Kull et al., 2016	NA	Sivakumar et al., 2014; Snow et al., 2016; C.J. White et al., 2017	NE
	Land use change enhancement potential	NA	Panda et al., 2013; Annan and Schlenker, 2015; Greatrex et al., 2015; Linnerooth-Bayer and Hochrainer-Stigler, 2015; Hansen et al., 2017; Jenkins et al., 2017; Jensen and Barrett, 2017	NA	Berkes et al., 2000; Nakashima et al., 2012; Leonard et al., 2013; McNamara and Prasad, 2014; Pearce et al., 2015; Hiwasaki et al., 2015; MacDonald et al., 2015b; Reyes-García et al., 2016; Mistry and Berardi, 2016; Altieri and Nicholls, 2017; Kihila, 2017; Magni, 2017
	Hazard risk reduction potential	Carey, 2005, 2008; IPCC, 2012; Mavhura et al., 2013; Boeckmann and Rohn, 2014; McNamara and Prasad, 2014; Yu and Gillis, 2014; Anaconda et al., 2015; Howes et al., 2015; Johnson and Abe, 2015; Kelman et al., 2015; Mawere and Mubaya, 2015; Boughedir, 2015; Archer, 2016; Kaya et al., 2016; Kull et al., 2016; Muñoz et al., 2016; Rose, 2016; Watanabe et al., 2016; Diaz, 2016; Haeberli et al., 2016, 2017; Kelman, 2017; Kita, 2017; Milner et al., 2017; Wallace, 2017; Brundiers, 2018	Mills, 2007; Falco et al., 2014; Annan and Schlenker, 2015; Linnerooth-Bayer and Hochrainer-Stigler, 2015; Wolfrom and Yokoi-Arai, 2015; García Romero and Molina, 2015; Greatrex et al., 2015; Lashley and Warner, 2015; Surminski et al., 2016; Jin et al., 2016; Patel et al., 2017; Surminski and Eldridge, 2017; Surminski and Thieken, 2017; Farzaneh et al., 2017; Glaas et al., 2017; Hansen et al., 2017; Jensen and Barrett, 2017	Rogers and Tsirkunov, 2010; Lourenço et al., 2016; Singh et al., 2017	Berkes et al., 2000; Nakashima et al., 2012; Leonard et al., 2013; Mistry and Berardi, 2016; Altieri and Nicholls, 2017; Magni, 2017; Nunn et al., 2017; Russell-Smith et al., 2017



Table 4.SM.23 | Feasibility assessment of overarching adaptation options: education and learning, population health and health system, social safety nets and human migration. For methodology, see 4.SM.4.1.

		Education and Learning	Population Health and Health System	Social Safety Nets	Human Migration
Evidence		Medium	Medium	Medium	Medium
Agreement		High	High	Medium	Low
Economic	Microeconomic viability	Rumore et al., 2016; Lutz and Muttarak, 2017	Toloo et al., 2013; Burton et al., 2014; Hoy et al., 2014; Paterson et al., 2014; K.R. Smith et al., 2014; Confalonieri et al., 2015; Araos et al., 2016a; Hess and Ebi, 2016; Ebi and del Barrio, 2017; Gilfillan et al., 2017; Paavola, 2017	Shiferaw et al., 2014; Devereux et al., 2015	Birk and Rasmussen, 2014; Betzold, 2015; Ionesco et al., 2016; Musah-Surugu et al., 2018
	Macroeconomic viability	Hoffmann and Muttarak, 2017; Lutz and Muttarak, 2017	Ebi et al., 2004; Hess et al., 2012; Hosking and Campbell-Lendrum, 2012; Lesnikowski et al., 2013; Toloo et al., 2013; Bowen et al., 2013; K.R. Smith et al., 2014; Hoy et al., 2014; Austin et al., 2015; Watts et al., 2015; WHO, 2015; Araos et al., 2016a; Paz et al., 2016; Hess and Ebi, 2016; Nitschke et al., 2017; Paavola, 2017; Ebi and del Barrio, 2017; Gilfillan et al., 2017	Devereux et al., 2015	Grecequet et al., 2017; Hino et al., 2017
	Socio-economic vulnerability reduction potential	Frankenberg et al., 2013; K.C., 2013; Striessnig et al., 2013; van der Land and Hummel, 2013; Muttarak and Lutz, 2014; Rumore et al., 2016; Hoffmann and Muttarak, 2017; Lutz and Muttarak, 2017	Ebi et al., 2004, 2016; Hess et al., 2012; Hosking and Campbell-Lendrum, 2012; Panic and Ford, 2013; Toloo et al., 2013; Bowen et al., 2013; K.R. Smith et al., 2014; Boeckmann and Rohn, 2014; Austin et al., 2015; Watts et al., 2015; WHO, 2015; Confalonieri et al., 2015; Araos et al., 2016a; Hess and Ebi, 2016; Paz et al., 2016; Benmarhnia et al., 2016; Gilfillan et al., 2017; Nitschke et al., 2017; Paavola, 2017; Sen et al., 2017; Ebi and del Barrio, 2017; Ebi and Hess, 2017	Davies et al., 2013; Weldegebriel and Prowse, 2013; Berhane et al., 2014; Eakin et al., 2014; Leichenko and Silva, 2014; Devereux, 2016; Lemos et al., 2016; Godfrey-Wood and Flower, 2017; Schwan and Yu, 2017	Birk and Rasmussen, 2014; Adger et al., 2015; Betzold, 2015; Grecequet et al., 2017; Melde et al., 2017; World Bank, 2017
	Employment and productivity enhancement potential	van der Land and Hummel, 2013; Muttarak and Lutz, 2014; Lutz and Muttarak, 2017	Bowen et al., 2013; Toloo et al., 2013; Burton et al., 2014; Hoy et al., 2014; K.R. Smith et al., 2014; Benmarhnia et al., 2016; Paz et al., 2016; Gilfillan et al., 2017; Nitschke et al., 2017	Davies et al., 2013; Berhane et al., 2014; Shiferaw et al., 2014	NA
Technological	Technical resource availability	Chaudhury et al., 2013; Baird et al., 2014; Cloutier et al., 2015; Rumore et al., 2016	Hess et al., 2012; Lesnikowski et al., 2013; Panic and Ford, 2013; Toloo et al., 2013; Bowen et al., 2013; Hoy et al., 2014; Paterson et al., 2014; Rumsey et al., 2014; K.R. Smith et al., 2014; Burton et al., 2014; Austin et al., 2015; WHO, 2015; Confalonieri et al., 2015; Araos et al., 2016a; Paz et al., 2016; Benmarhnia et al., 2016; Ebi et al., 2016; Hess and Ebi, 2016; Nitschke et al., 2017; Paavola, 2017; Sheehan et al., 2017; Ebi and del Barrio, 2017; Ebi and Hess, 2017	Kim and Yoo, 2015	Birk and Rasmussen, 2014; Gemeinne and Blocher, 2017; Melde et al., 2017

Table 4.SM.23 (continued)

		Education and Learning	Population Health and Health System	Social Safety Nets	Human Migration
Evidence		Medium	Medium	Medium	Medium
Agreement		High	High	Medium	Low
Technological	Risks mitigation potential	Wamsler et al., 2012; Frankenberg et al., 2013; K.C., 2013; Striessnig et al., 2013; van der Land and Hummel, 2013; Muttarak and Lutz, 2014; Hartevelde and Suarez, 2015; Lutz and Muttarak, 2017	Benmarhnia et al. 2016; Boeckmann and Rohn 2014; Hess and Ebi 2016; Nitschke et al. 2016; Paterson et al. 2014; Ebi and del Barrio 2017; Ebi and Hess 2017	Davies et al., 2013; Rurinda et al., 2014; Shiferaw et al., 2014; Devereux, 2016	Adger et al., 2015; Grecequet et al., 2017; Tadgell et al., 2017
Insttutional	Political acceptability	LE Butler et al., 2015, 2016b; Cloutier et al., 2015	Hess et al., 2012; Lesnikowski et al., 2013; Bowen et al., 2013; Hoy et al., 2014; Rumsey et al., 2014; K.R. Smith et al., 2014; Burton et al., 2014; Austin et al., 2015; Watts et al., 2015; WHO, 2015; Confalonieri et al., 2015; Araos et al., 2016a; Hess and Ebi, 2016; Benmarhnia et al., 2016; Ebi et al., 2016; Sen et al., 2017; Ebi and del Barrio, 2017; Gilfillan et al., 2017; Green et al., 2017	Porter et al., 2014; Rurinda et al., 2014; Wilhite et al., 2014; Brooks, 2015; Kim and Yoo, 2015; Ravi and Engler, 2015; Schwan and Yu, 2017	Kothari, 2014; Methmann and Oels, 2015; Brzoska and Fröhlich, 2016; Gemenne and Blocher, 2017; Grecequet et al., 2017; Yamamoto et al., 2017; Matthews and Potts, 2018
	Legal and regulatory acceptability	NE	Hess et al., 2012; Lesnikowski et al., 2013; Burton et al., 2014; Austin et al., 2015; Watts et al., 2015; WHO, 2015; Araos et al., 2016a; Ebi et al., 2016; Hess and Ebi, 2016; Paz et al., 2016; Shimamoto and McCormick, 2017; Ebi and del Barrio, 2017; Gilfillan et al., 2017	Rurinda et al., 2014; Devereux et al., 2015	Wilmsen and Webber, 2015; Tadgell et al., 2017; Ahmed, 2018; World Bank, 2018
	Institutional capacity and administrative feasibility	Wamsler et al., 2012; Chaudhury et al., 2013; Odemerho, 2014; Cloutier et al., 2015; Butler et al., 2016a, b	Ebi et al., 2004, 2016; Hess et al., 2012; Lesnikowski et al., 2013; Panic and Ford, 2013; Toloo et al., 2013; Bowen et al., 2013; Hoy et al., 2014; Nigatu et al., 2014; Paterson et al., 2014; Rumsey et al., 2014; Burton et al., 2014; Austin et al., 2015; Watts et al., 2015; WHO, 2015; Confalonieri et al., 2015; Araos et al., 2016a; Hess and Ebi, 2016; Benmarhnia et al., 2016; Paz et al., 2016; Xiao et al., 2016; Gilfillan et al., 2017; Green et al., 2017; Nitschke et al., 2017; Sheehan et al., 2017; Shimamoto and McCormick, 2017; Ebi and del Barrio, 2017; Ebi and Hess, 2017	Davies et al., 2013; Rurinda et al., 2014; Wilhite et al., 2014; Ravi and Engler, 2015; Schwan and Yu, 2017	Betzold, 2015; Methmann and Oels, 2015; Brzoska and Fröhlich, 2016; Gemenne and Blocher, 2017; Grecequet et al., 2017; Yamamoto et al., 2017; Matthews and Potts, 2018; Thomas and Benjamin, 2018
	Transparency and accountability potential	Chaudhury et al., 2013; Odemerho, 2014; Ensor and Harvey, 2015; Hartevelde and Suarez, 2015; Chung Tiam Fook, 2017; Myers et al., 2017; Flynn et al., 2018	Hess et al., 2012; Hosking and Campbell-Lendrum, 2012; Lesnikowski et al., 2013; Panic and Ford, 2013; Hoy et al., 2014; Boeckmann and Rohn, 2014; Austin et al., 2015; Araos et al., 2016a; Benmarhnia et al., 2016; Ebi et al., 2016; Sheehan et al., 2017; Ebi and del Barrio, 2017; Ebi and Hess, 2017; Gilfillan et al., 2017	Masud-All-Kamal and Saha, 2014; Devereux et al., 2015; Masiero, 2015; Ravi and Engler, 2015; Schwan and Yu, 2017	Methmann and Oels, 2015; Brzoska and Fröhlich, 2016; Tadgell et al., 2017



Table 4.SM.23 (continued)

		Education and Learning	Population Health and Health System	Social Safety Nets	Human Migration
	Evidence	Medium	Medium	Medium	Medium
	Agreement	High	High	Medium	Low
Socio-cultural	Social co-benefits (health, education)	Wamsler et al., 2012; Frankenberg et al., 2013; K.C., 2013; van der Land and Hummel, 2013; Muttarak and Lutz, 2014; Chung Tiam Fook, 2017; Hoffmann and Muttarak, 2017; Lutz and Muttarak, 2017	Bowen et al., 2013; K.R. Smith et al., 2014; Hoy et al., 2014; Austin et al., 2015; Watts et al., 2015; Confalonieri et al., 2015; Ebi et al., 2016; Hess and Ebi, 2016; Paz et al., 2016; Ebi and del Barrio, 2017; Paavola, 2017; Shimamoto and McCormick, 2017	Berhane et al., 2014; Leichenko and Silva, 2014; Rurinda et al., 2014; Shiferaw et al., 2014; Verguet et al., 2015; Devereux, 2016; Lemos et al., 2016	Kothari, 2014; Bettini et al., 2016; Gioli et al., 2016; Bhagat, 2017; Melde et al., 2017; Schwan and Yu, 2017; World Bank, 2018
	Socio-cultural acceptability	Chaudhury et al., 2013; Sharma et al., 2013; Demuzere et al., 2014; Odemerho, 2014; Ensor and Harvey, 2015; Butler et al., 2016a; Myers et al., 2017; Flynn et al., 2018	Hess et al., 2012; Bowen et al., 2013; Toloo et al., 2013; K.R. Smith et al., 2014; Hoy et al., 2014; Confalonieri et al., 2015; Watts et al., 2015; WHO, 2015; Ebi et al., 2016; Hess and Ebi, 2016; Paz et al., 2016; Ebi and del Barrio, 2017; Nitschke et al., 2017; Sen et al., 2017	LE Rurinda et al., 2014; Wilhite et al., 2014	Martin et al., 2014; Brzoska and Fröhlich, 2016; Jha et al., 2017; Kelman et al., 2017; Huntington et al., 2018
Socio-cultural	Social and regional inclusiveness	Wamsler et al., 2012; Muttarak and Lutz, 2014; Suarez et al., 2014; Ensor and Harvey, 2015; Ford et al., 2016, 2018	Hosking and Campbell-Lendrum, 2012; Bowen et al., 2013; Panic and Ford, 2013; Toloo et al., 2013; K.R. Smith et al., 2014; Burton et al., 2014; Hoy et al., 2014; Watts et al., 2015; WHO, 2015; Confalonieri et al., 2015; Benmarhnia et al., 2016; Paz et al., 2016; Ebi et al., 2016; Hess and Ebi, 2016; Sen et al., 2017; Ebi and del Barrio, 2017; Paavola, 2017	NA	Kothari, 2014; Kelman, 2015; Schwan and Yu, 2017; Matthews and Potts, 2018; World Bank, 2018
	Intergenerational equity	LE Striessnig et al., 2013	Ebi et al., 2004; Confalonieri et al., 2015; Benmarhnia et al., 2016; Ebi and del Barrio, 2017; Paavola, 2017	NA	Wilmsen and Webber, 2015
Environmental/ecological	Ecological capacity	NA	NA	NA	Niven and Bardsley, 2013; Birk and Rasmussen, 2014
	Adaptive capacity/resilience	K.C., 2013; Sharma et al., 2013; Striessnig et al., 2013; Frankenberg et al., 2013; Baird et al., 2014; Lutz et al., 2014; Muttarak and Lutz, 2014; Suarez et al., 2014; Tschakert et al., 2014; Butler and Adamowski, 2015; Oteros-Rozas et al., 2015; Pearce et al., 2015; Ensor and Harvey, 2015; Janif et al., 2016; Butler et al., 2016a, b; Star et al., 2016; Vinke-de Kruijff and Pahl-Wostl, 2016; Harvey et al., 2017; Hoffmann and Muttarak, 2017; Lutz and Muttarak, 2017; Myers et al., 2017; Chung Tiam Fook, 2017; Cochrane et al., 2017; Flynn et al., 2018; Ford et al., 2018	Hess et al., 2012; Toloo et al., 2013; K.R. Smith et al., 2014; Confalonieri et al., 2015; Watts et al., 2015; WHO, 2015; Benmarhnia et al., 2016; Hess and Ebi, 2016; Paz et al., 2016; Ebi and del Barrio, 2017; Nitschke et al., 2017; Paavola, 2017; Sen et al., 2017	Davies et al., 2013; Weldegebriel and Prowse, 2013; Eakin et al., 2014; Rurinda et al., 2014; Shiferaw et al., 2014; Lemos et al., 2016; Schwan and Yu, 2017	Birk and Rasmussen, 2014; Adger et al., 2015; Grecequet et al., 2017; Melde et al., 2017; Tadgell et al., 2017; World Bank, 2018

Table 4.SM.23 (continued)

	Education and Learning		Population Health and Health System		Social Safety Nets		Human Migration	
Evidence	Medium		Medium		Medium		Medium	
Agreement	High		High		Medium		Low	
Geophysical	Physical feasibility	NA		NA		NA		Niven and Bardsley, 2013; Hino et al., 2017; Matthews and Potts, 2018
	Land use change enhancement potential	NA		NA		NA	LE	Matthews and Potts, 2018
	Hazard risk reduction potential		Wamsler et al., 2012; Frankenberg et al., 2013; K.C., 2013; Striessnig et al., 2013; Muttarak and Lutz, 2014; Suarez et al., 2014; Hartevelde and Suarez, 2015; Hoffmann and Muttarak, 2017; Lutz and Muttarak, 2017	NA			Jones et al., 2010; Davies et al., 2013	

4.SM.5 Adaptation and Mitigation Synergies and Trade-offs as Discussed in Section 4.5.4

Mitigation options may affect the feasibility of adaptation options, and the other way around. Table 4.SM.24 provides examples of possible positive impacts (synergies) and negative impacts (trade-offs) of mitigation options for adaptation. Table 4.SM.25 lists examples of synergies and trade-offs of adaptation options for mitigation.

4.SM.5.1 Mitigation Options with Adaptation Synergies and Trade-offs

Table 4.SM.24 | Mitigation options with adaptation synergies and trade-offs identified.

System	Mitigation Option	Synergies	Trade-offs
Energy system transitions	Wind energy (on-shore and off-shore)	Resilience can be increased by wind, solar and bioenergy due to distributed grids (Parkinson and Djilali, 2015), given that energy security standards are in place (Almeida Prado et al., 2016). The use of residential batteries can increase resilience, especially after extreme weather events (Qazi and Young Jr., 2014; Liu et al., 2017).	Renewable energy infrastructure that does not follow security standards can increase vulnerability (Ley, 2017).
	Solar photovoltaic (PV)		
	Bioenergy		
	Electricity storage	A shift from coal-generated to natural gas-generated electricity could decrease water consumption (DeNooyer et al., 2016).	
	Power sector CCS	NE	
	Nuclear energy	Increased safety and protection standards can improve the climate risk profiles (Schneider et al., 2017).	Increased safety and protection standards will increase costs, making some electricity systems less reliable (Jacobson and Delucchi, 2009; Lovins et al., 2018).
Land and ecosystem transitions	Reduced food wastage and efficient food production	Reducing food loss and waste can decrease pressure of deforestation (FAO, 2013a), pressure on land use for agriculture (Foley et al., 2011; Hiç et al., 2016), and provide long-term food security (Bajželj et al., 2014).	NA
	Dietary shifts	Shift from animal- to plant-related diets can significantly decrease land use and biodiversity loss due to a decrease in pressure on land use by livestock production (Newbold et al., 2015; Ramankutty et al., 2018; Sparovek et al., 2018) along with health benefits (Tilman and Clark, 2014; Westhoek et al., 2014; Hallström et al., 2017; Song et al., 2017).	Shift from animal- to plant-related diets will require improvement of mixed crop-livestock systems, which are more difficult to manage well and need higher capital to be established (Ramankutty et al., 2018).



Table 4.SM.24 (continued)

System	Mitigation Option	Synergies	Trade-offs
Land and ecosystem transitions	Sustainable intensification of agriculture	<p>Agroforestry practices increase soil carbon stocks and above-ground biomass as well as diversify incomes, reducing financial risk, and provide shade for protection from rising temperatures (Harvey et al., 2014).</p> <p>Agroforestry can sustain or increase food production in some systems, increasing farmers' resilience to climate change (Jones et al., 2012).</p> <p>Mixed agroforestry systems may simultaneously meet the water, food, energy and income needs of densely populated rural and peri-urban areas (van Noordwijk et al., 2016).</p>	<p>Sustainable intensification can increase offsite impacts from fertilizer, herbicide and pesticide use (Stevens and Quinton 2009), increase costs and increase climate risk. No-tillage without pairing with other agronomic practices can reduce crop yields.</p> <p>No-till agriculture can reduce GHG emissions but increase pesticide concentrations (Stevens and Quinton, 2009).</p> <p>Adaptation gains made through improved irrigation efficiency can be undermined by shifts to water-intensive crops for mitigation (e.g., shifting to bioenergy crops) (Chaturvedi et al., 2015).</p> <p>Conservation agriculture reduces yields 3–5 years after adoption, but enhances productivity and carbon sequestration over longer periods (Harvey et al., 2014).</p> <p>Agroforestry can, in some dry environments, increase competition with crops and pastures, decreasing productivity, and reduce catchment water yield (Schroback et al., 2011).</p> <p>Fast-growing tree monocultures or biofuel crops may enhance carbon stocks but reduce downstream water availability and decrease availability of agricultural land (Harvey et al., 2014).</p> <p>Agricultural intensification that improves crop productivity can increase incomes but undermine local livelihoods and well-being as seen in shifts to intensified sugarcane production in Ethiopia or more intensive land use in Southeast Asia (Liao and Brown, 2018).</p>
	Ecosystem restoration	<p>Sustainable water management – restored/healthy ecosystems provide water storage and filtration services (Jones et al., 2012).</p> <p>Restoration of mangroves and coastal wetlands to sequester (blue) carbon increases carbon sinks, reduces coastal erosion and protects from storm surges, and otherwise mitigates impacts of sea level rise and extreme weather along the coast line (Alongi, 2008; Siikamäki et al., 2012; Romañach et al., 2018).</p> <p>Blue biofuels do not compete for land and water and are not global food staples (posing less of a food security issue). Most farms do not use fertilizer and could even remove excess nutrients, decreasing eutrophication (Turner et al., 2009; Duarte et al., 2013).</p> <p>Stabilization and support of fisheries can add value to marine biodiversity (Turner et al., 2009).</p> <p>Carbon offset funds provide opportunities for protection and restoration of native ecosystems, with corresponding gains for biodiversity and reductions in carbon (Reside et al., 2017).</p>	<p>A focus on mitigation, for example, through REDD+, can result in conservation-priority sites with lower carbon densities to end up without REDD+ protection (Phelps et al., 2012; Murray et al., 2015; Reside et al., 2017a; Turnhout et al., 2017).</p> <p>Potential conflict with biodiversity goals in habitat restoration and forest production efforts (Felton et al., 2016).</p> <p>Some projects worldwide do not target REDD+ projects on adaptation or resilience, nor local contexts, in some cases leaving negative livelihoods impacts (McElwee et al., 2016; Few et al., 2017).</p> <p>In some cases, there is a perception of the inability to reconcile development and environmental interests (Pham et al., 2017).</p> <p>Local benefits, especially for indigenous communities, will only be accrued if land tenure is respected and legally protected, which is not often the case for indigenous communities (Brugnach et al., 2017).</p>
	Ecosystem restoration	<p>Coupled with biodiversity and conservation interventions, ecosystem restoration and avoided deforestation can complement habitat provision (Felton et al., 2016).</p> <p>Forests (through REDD+) can support economies dependent on climate-sensitive sectors including agriculture, fisheries and energy (Somorin et al., 2016; Few et al., 2017).</p> <p>REDD+ has the potential to promote sustainable development activities through the cash-flow from donors/international funds to local forest stakeholders (West, 2016) .</p> <p>Tropical reforestation for climate change mitigation can help to protect rural economies from impacts of climate variation, reduce impacts of climatic variation on water cycle and associated human uses, reduce local impacts of extreme weather events and reduce climate impacts on biodiversity (Locatelli et al., 2015b).</p>	
	Novel technologies	<p>Breeding animals with lower emissions per unit of dry matter intake can reduce GHG emissions; when integrated within broader breeding programmes, this can offer synergies with breeding for improved adaptation to local conditions (Pickering et al., 2015; Nguyen et al., 2016).</p>	<p>May have consumer health concerns that need evaluation and addressing (Barrows et al., 2014; Fraser et al., 2016).</p>

Table 4.SM.24 (continued)

System	Mitigation Option	Synergies	Trade-offs
Urban and infrastructure system transitions	Land-use and urban planning	<p>Potential for synergies in urban planning at policy, organizational and practical levels (e.g., urban regeneration, retrofitting, urban greening) (Landauer et al., 2015).</p> <p>Spatial planning can enhance adaptation, mitigation and sustainable development (Hurlimann and March, 2012; Davidse et al., 2015; King et al., 2016; Francesch-Huidobro et al., 2017).</p> <p>Through the use of integrated approaches there is potential synergy in land-use planning (e.g., maintenance of urban forests, urban greening) (Newman et al., 2017).</p> <p>Urban densification to reduce emissions can go along with regenerative qualities for green spaces and reduced urban heat islands and flooding impacts by employing biophilic urbanism design (Beatley, 2011; Newman et al., 2017).</p>	<p>Potential conflicts include urban densification to reduce emissions which can intensify heat island effects and increase surface run-off, and may compete with a desire to expand green space and restore local ecosystems (Landauer et al., 2015; Di Gregorio et al., 2017b; Endo et al., 2017; Ürge-Vorsatz et al., 2018), though demonstrations of biophilic urbanism show this can be managed (Beatley, 2011; Newman et al., 2017).</p> <p>In water-scarce regions, there may be trade-offs between mitigation measures that require water – such as localized cooling – and the population’s water needs (Georgescu et al., 2015).</p>
	Sustainable and resilient transport systems	<p>Cities can re-urbanize in ways that promote transport sector adaptation and mitigation (Newman et al., 2017; Salvo et al., 2017; Gota et al., 2018).</p> <p>Cities that reduce the use of private cars and develop sustainable transport systems can simultaneously benefit from reduced air pollution, congestion and road fatalities while reducing overall energy intensity in the urban transport sector (Goodwin and Van Dender, 2013; Newman and Kenworthy, 2015; Wee, 2015).</p> <p>Non-motorized transport use is associated with lower emissions and better public health in cities. Urbanization and improved access to basic services correlate with lower short-term morbidity, such as fever, cough and diarrhea (Ahmad et al., 2017).</p> <p>Promoting energy-efficient mobility systems, for instance by a 10% increase in bicycling, could lower chronic conditions like diabetes and cardio-vascular diseases for 0.3 million people while also abating emissions (Ahmad et al., 2017).</p>	<p>In middle and low income countries urban density of informal settlements is typically associated with a range of water and vector-borne health risks that undermine benefits of energy efficiency; these may provide a notable exception to the adaptive advantages of urban density (Mitlin and Satterthwaite, 2013; Lilford et al., 2017) unless new approaches using leapfrog technology are used to upgrade slums in situ (Teferi and Newman, 2017).</p>
	Sharing schemes in transportation	<p>Greater use of sharing schemes can make transportation from vulnerable areas more equitable and ordered (Gomez et al., 2015; Ambrosino et al., 2016; Kent and Dowling, 2016).</p>	<p>Highly ICT-dependent sharing schemes may not be resilient during disasters, but this can be managed via local shared mobility systems related to local social capital (Mathbor, 2007; Bhakta Bhandari, 2014; McCloud et al., 2014).</p>
	Public transport	<p>Greater use of public transport enables more mass exit strategies from disasters (Wolshon et al., 2013).</p>	<p>Highly ICT-dependent public transport may not be resilient during disasters but this can be managed via local shared mobility systems related to local social capital (Mathbor, 2007; Bhakta Bhandari, 2014; McCloud et al., 2014).</p>
	Smart grids	<p>Greater resilience in electricity due to system feedback to damaged areas and other grid enhancements due to more localised data (Blaabjerg et al., 2004; IRENA, 2013; IEA, 2017c; Majzoobi and Khodaei, 2017).</p>	<p>NA</p>
	Efficient appliances	<p>Energy efficiency appliances (including lighting and ICT) reduce energy consumption and improve grid reliability (Chaturvedi and Shukla, 2014). They can provide demand response to absorb variation in the electricity supply due to disruption. In addition, when coupled with PV and storage, efficient appliances can secure energy supply when energy networks are down due to storms, hurricanes and other climate-induced events.</p>	<p>NA</p>
	Low/zero-energy buildings	<p>Building codes not only improve energy efficiency through insulation and air-tightness in buildings but also make them more capable of maintaining an indoor temperature during heat waves or power losses, to shelter people from heat waves and provide structural capability to withstand extreme weather and flooding (Houghton, 2011; King et al., 2016). Other examples of synergies are green roofs that provide insulation, cooling and rain water harvesting (Razzaghmanesh et al., 2016).</p>	<p>NE</p>



Table 4.SM.24 (continued)

System	Mitigation Option	Synergies	Trade-offs
Industrial system transitions	Energy efficiency	Reduced competition for resources (Hennessey et al., 2017).	Water-energy trade-offs exist in the production process adjustment, which is conventionally promoted as a key energy-saving measure in the iron and steel industry (C. Wang et al., 2017).
	Bio-based and circularity	Reduced competition for resources (Hennessey et al., 2017). Biomass production for industry, if well-managed, can diversify local livelihoods, enhance incomes and strengthen local institutions (Locatelli et al., 2015b).	NE
	Electrification and hydrogen	NA	Greater reliance on variable and weather-dependent sources of electricity (Philibert, 2017).
	Industrial CCUS	NA	Cooling requirements for carbon dioxide capture put pressure on adaptation (Magneschi et al., 2017).
Carbon dioxide removal	Bioenergy with CCS (BECCS)	Bioenergy, if well-managed, can diversify local livelihoods, enhance incomes and strengthen local institutions (Locatelli et al., 2015b). Combining BECCS with soil carbon management, agroforestry and afforestation can remove carbon dioxide, while limiting adverse impacts on water, food and biodiversity (Burns and Nicholson, 2017; Stoy et al., 2018).	Bioenergy plantations can decrease food security, compete for land and provide short-term benefits for only a few stakeholders (Locatelli et al., 2015a).
	Afforestation and reforestation	Reforestation connecting fragmented forests reduces exposure to forest edge disturbances (Pütz et al., 2014). Reforestation and coastal restoration are associated with improved water filtration, ground water recharge and flood control (Ellison et al., 2017; Griscom et al., 2017). Reduce flooding through decreased peak river flow, improved water quality and groundwater recharge (Berry et al., 2015). Increase diversity and habitat availability (when properly managed) (Berry et al., 2015). Tree planting led to more resilient livestock by providing shade and shelter (Hayman et al., 2012). Forestry, if well-managed, can diversify local livelihoods, enhance incomes and strengthen local institutions (Locatelli et al., 2015a). Afforestation of degraded areas can produce large synergies between mitigation and adaptation through their impact on farmer livelihoods (Rahn et al., 2014).	Water: increases water demand, reducing catchment yield (Berry et al., 2015). Biodiversity: species and habitat loss due to monocultures, chemical inputs or forest management (Berry et al., 2015). Loss of agricultural land (Berry et al., 2015). Forest plantations can decrease food security, compete for land and provide short-term benefits for only a few stakeholders (Locatelli et al., 2015a). Local benefits, especially for indigenous communities, will only be accrued if land tenure is respected and legally protected, which is not often the case for indigenous communities (Brugnach et al., 2017).
	Soil carbon sequestration and biochar	With agroforestry, carbon dioxide is sequestered through the additional trees 'planted' and tree products provide livelihood to communities (Verchot et al., 2007; Nair et al., 2009; Branca et al., 2013; Lasco et al., 2014; Mbow et al., 2014a; P. Smith et al., 2014). Soil organic carbon may foster crop resilience to climate change (Aguilera et al., 2013). Biochar application to soil sequesters carbon dioxide and at the same time increases crop productivity by up to 10% (Jeffery et al., 2011) and can improve the soil's water balance (Bamminger et al., 2016).	Biochar amendments lead to plant growth and thus may down-regulate plant defence genes, increasing the vulnerability against insects, pathogens and drought (Viger et al., 2015).
	Enhanced weathering	NE	Potential adverse health effects because of air particles (Taylor et al., 2016).

4.SM.5.2 Adaptation Options with Mitigation Synergies and Trade-Offs

Table 4.SM.25 | Adaptation options with mitigation synergies and trade-offs identified.

System	Adaptation Option	Synergies	Trade-offs
Energy system transitions	Power infrastructure, including water	Some adaptation options can help improve system efficiency and reliability (Cortekar and Groth, 2015; van Vliet et al., 2016). Synergies with Sustainable Development Goals, poverty and well-being (Dagnachew et al., 2018; Fuso Nerini et al., 2018; Gi et al., 2018).	A shift from open-loop to closed-loop cooling technologies could decrease withdrawals, with the trade-off of increasing water consumption for power generation (DeNooyer et al., 2016).
Land and ecosystem transitions	Conservation agriculture	Agroecological practices can reduce farm-scale carbon footprint significantly (Rakotavoao et al., 2017). Practices, such as improved soil conservation practices in coffee agroforestry systems and improved slash and mulch agroforestry in bean-maize cultivation, have low carbon footprint reduction potential and medium carbon sequestration potential (Rahn et al., 2014). Land and water management adaptation measures have mitigation co-benefits through soil/atmospheric carbon sequestration, reduced emissions, soil nitrification and reduced use of inorganic fertilisers (Chandra et al., 2016). Conservation agriculture reduces yields 3–5 years after adoption, but enhances productivity and carbon sequestration over longer periods (Harvey et al., 2014). For conservation agriculture and efficient irrigation, synergies are regionally differentiated (Lobell et al., 2013).	Technologies enhancing farm productivity (such as adding fertilizers) might improve adaptive capacity through higher incomes but at the same time drive GHG emissions (Harvey et al., 2014; Thornton et al., 2017). In some cases, conservation agriculture practices can increase emissions (Gupta et al., 2016).
	Efficient irrigation	Improving irrigation efficiency has adaptation and mitigation co-benefits (Zou et al., 2012; Adenle et al., 2015; Suckall et al., 2015; Win et al., 2015). Efficient irrigation practices such as drip irrigation have, on average, 80% lower N ₂ O emissions than sprinkler systems. Drip irrigation combined with optimized fertilization reduces direct N ₂ O emissions by up to 50% (Sanz-Cobena et al., 2017). Solar-powered drip irrigation significantly increases household income and nutritional intake, enables households to meet daily water needs and saves 0.86 tons of carbon emissions each year against a liquid fuel (e.g., kerosene) alternative (Suckall et al., 2015).	Micro-irrigation technologies such as drip and sprinkler irrigation increase irrigation efficiency but increase energy demand (Rasul and Sharma, 2016). Biomass production for biofuels may contribute to regional water shortages, salinization and water logging (Beringer et al., 2011).
	Efficient livestock systems	Strong synergies between climate change adaptation and mitigation in the livestock sector (Weindl et al., 2015; Rivera-Ferre et al., 2016) but these are differentiated by region and type of livestock system (Locatelli et al., 2015a; Thornton et al., 2017). For example, shifting from grazing to mixed livestock systems increase productivity while reducing GHG emissions, by gains in feed and forage productivity through more intensive inputs and management (Rivera-Ferre et al., 2016). Shifting towards mixed crop-livestock systems is a resource- and cost-efficient option (Herrero et al., 2015; Weindl et al., 2015; Thornton et al., 2018). Reducing livestock diseases can improve the productivity of livestock systems and increase their resilience to stresses while reducing the emissions intensity of livestock production (Bartley et al., 2016; FAO & NZAGRC, 2017). Adaptation through livestock supplementation and reducing stocking densities can reduce methane emissions (Locatelli et al., 2015a). Improved grassland management and appropriate stocking density can help to increase soil carbon stocks (Rivera-Ferre et al., 2016; Thornton et al., 2017).	Increased productivity of livestock systems generally increases overall food production and absolute GHG emissions, albeit at lower emissions per unit of food (Gerber et al., 2013; FAO & NZAGRC, 2017). Shifting to rangeland for feed can strongly increase tropical deforestation (Weindl et al., 2015). Shifting to mixed crop-livestock systems is expected to cause additional GHG emissions (Weindl et al., 2015). Providing cooling and ventilation systems for livestock (as an adaptation to higher temperatures) can increase GHG emissions (Locatelli et al., 2015a). Some adaptation options such as interregional livestock trading can increase carbon dioxide emissions through transportation (Rivera-Ferre et al., 2016).
	Agroforestry	Sequesters carbon through accumulation in woody biomass and soil (Lasco et al., 2014). Reduces GHG emissions through reduced deforestation and fossil fuel consumption (Lasco et al., 2014). Coupling native forest regeneration in concert with sugarcane bioethanol production can significantly increase carbon storage in the bioenergy production system and preserve biodiversity (Rodrigues et al., 2009; Buckeridge et al., 2012). The use of fertilizer-fixing trees can improve soil fertility through nitrogen fixation, by increasing supply of nutrients for crop production (Coulbaly et al., 2017).	Lower carbon sequestration potential compared with natural forest and secondary forest (Lasco et al., 2014).



Table 4.SM.25 (continued)

System	Adaptation Option	Synergies	Trade-offs
Land and ecosystem transitions	Agroforestry	Integrating crop, livestock and forestry systems, such as in Brazil (Gil et al., 2015), can come with significant benefits for local farmers and ecosystems, for example, by rehabilitation of degraded pasturelands, which can also decrease emissions.	
	Food loss and waste management	Waste materials can be transformed into products with marketable value (Papargyropoulou et al., 2014), improving economic gain and stimulating decrease of food waste and loss.	NA
	Community-based adaptation	NE. Most literature addresses synergies with sustainable development, poverty and equity.	NE. Most literature addresses trade-offs with sustainable development, poverty and equity.
	Ecosystem restoration and avoided deforestation	Tropical reforestation as an adaptation measure can also result in significant carbon storage under climate-smart strategies (Locatelli et al., 2015b). Habitat restoration, afforestation and reforestation and urban trees and greenspace all lead to carbon sequestration (Berry et al., 2015).	Failure to consider mitigation in adaptation initiatives may lead to adaptation measures that increase GHG emissions, which is one type of maladaptation (Porter and Xie, 2014; Kongsager et al., 2016).
	Biodiversity management	Biodiversity has value in terms of ecosystem services as well as protection/defence against invading species and disease organisms. Maintaining for high levels of biodiversity also recognises the fact that many species, biological processes and molecules in nature are as yet unexplored, yet have potential to provide enormous benefits to human beings (Knowlton et al., 2010; Pereira et al., 2010; Onaindia et al., 2013; Pistorious and Kiff, 2017; Price et al., 2018).	Areas with greatest potential for protecting biodiversity may not overlap with areas with most potential for carbon sequestration (Phelps et al., 2012; Essl and Mauerhofer, 2018).
	Coastal defence and hardening	NE	An alternative strategy is not to 'defend' using hardening structures along coastlines, but rather to retreat as sea levels rise and storm surges go further inland. The strategy of 'retreat' tends to make economic sense while at the same time accommodating the transition from terrestrial to marine systems (e.g., migration of salt marsh, mangroves and seagrass towards the land as sea levels rise) (C.J. Brown et al., 2016; Mills et al., 2016). There has been an increasing focus on natural barriers to storm surge and erosion, such as mangroves, oyster banks, coral reefs and seagrass meadows. Within these broad options, there are trade-offs that involve direct human intervention (e.g., coastal hardening, seawalls and artificial reefs) (Rinkevich, 2014, 2015; André et al., 2016; Cooper et al., 2016; Narayan et al., 2016), while there are others that exploit the opportunities for increasing coastal protection by involving naturally occurring oyster banks, coral reefs, mangroves, seagrass and other ecosystems (Wells et al., 2006; Scyphers et al., 2011; Zhang et al., 2012; Ferrario et al., 2014; Cooper et al., 2016). Protection using materials such as concrete to provide a barrier against the ocean. These structures can be installed quickly but the trade-off is that they have a range of negative consequences such as being expensive, interrupting natural ecosystems (Mills et al., 2016; Wernberg et al., 2016), being short-term solutions to the long-term problem of sea level rise and intensifying storm systems (Brooke et al., 1992; Wescott, 2010; Mills et al., 2016).
	Sustainable aquaculture	NE	Regulating and avoiding loss of coastal ecosystems such as mangroves and seagrass, while at the same time developing food materials that have much lower impact on the environment (Schlag, 2010; Asiedu et al., 2017a, b).
	Fisheries restoration	Development of more sustainable practices also has benefits for ocean ecosystems in general. Fish play a crucial role in everything from maintaining ecological balances through their feeding habits to playing important roles within nutrient cycles in a range of habitats (Holmlund and Hammer, 1999).	NE
	Coastal and marine biodiversity management	NE	Planning for multiple objectives (e.g., biodiversity protection and carbon sequestration) increases the complexity of planning processes and data needs, accompanied by an increase in technical capacity by planners.
Integrated coastal zone management	Mangroves serve as sinks for carbon, through accumulation of living biomass and through litter and dead wood deposition, including the trapping of sediments delivered from the uplands (Romañach et al., 2018).	NE	

Table 4.SM.25 (continued)

System	Adaptation Option	Synergies	Trade-offs
Urban and infrastructure system transitions	Sustainable land-use and urban planning	<p>Potential for synergies in urban planning at policy, organizational and practical levels, for example, urban regeneration or retrofitting policies and urban greening (Landauer et al., 2015; Ürge-Vorsatz et al., 2018), including generating a shared sense of risks and promoting local participation (Archer et al., 2014; Kettle et al., 2014; Campos et al., 2016; Siders, 2017).</p> <p>Urban planning can enhance adaptation, mitigation and sustainable development (Hurlimann and March, 2012; Davidse et al., 2015; King et al., 2016; Francesch-Huidobro et al., 2017).</p> <p>Land-use management for co-benefits can result in carbon sequestration (Duguma et al., 2014; Woolf et al., 2018).</p>	Promotion of green spaces to reduce flood risk and heat island effects may reduce potential for the promotion of urban densification (Landauer et al., 2015; Di Gregorio et al., 2017b; Endo et al., 2017; Ürge-Vorsatz et al., 2018).
	Sustainable water management	Strong co-benefits to the implementation of demand-side management measures, such as reducing leakages and water loss (Wang et al., 2011; Deng and Zhao, 2015), while minimizing the need to address the environmental and energy implications of supply measures such as desalination (Miller et al., 2015).	Increasing water quality is linked to increasing energy use in the water sector (Rothausen and Conway, 2011; Mamais et al., 2015).
	Green infrastructure and ecosystem services	Urban canopy is a cooling mechanism that can help decrease heat and water stress (Hines, 2017).	Not considering the role green cover and vegetation has within the heat-water-vegetation nexus can worsen heat and water stress (Hines, 2017).
	Building codes and standards	Sustainable construction materials, reduced building energy consumption and construction designed to reduce the urban heat island effects can have adaptation and mitigation benefits (Steenhof and Sparling, 2011; Aerts et al., 2014; Stewart, 2015; Shapiro, 2016; Ürge-Vorsatz et al., 2018).	NE
Industrial system transitions	Intensive industry infrastructure resilience and water management	Some adaptation options can help improve system efficiency when implementing water management and cooling practices.	NE
Overarching adaptation options	Disaster risk management	<p>Incorporating environmental considerations into recovery decision-making (Amin Hosseini et al., 2016), implementing disaster risk management plans and increasing ex-ante resilience to disasters are important to reduce the extent of rebuilding following disasters, and the emissions associated with recovery.</p> <p>Post-disaster recovery can help rebuild in a more resilient way with less GHG emissions, or to 'build back better', particularly where immediate impact is substantial but not overwhelming (Guarnacci, 2012; Mochizuki and Chang, 2017).</p> <p>Effective disaster risk management may reduce the need for international transport of materials and other forms of aid, which can be emissions-intensive (Abrahams, 2014).</p>	<p>The urgency of recovery and the surge in demand for construction materials have been observed to promote unsustainable behaviours, including deforestation (Nazara and Resosudarmo, 2007; Chang et al., 2010) or uncontrolled extraction of sand and gravel (Abrahams, 2014).</p> <p>'Build back better' requires capacity, time and mechanisms for balancing competing desires and perspectives that are not necessarily available after severe disasters, and may be challenged by both local and external influences in the rebuilding process (Abrahams, 2014; O'Hare et al., 2016; Paidakaki and Moulaert, 2017).</p>
	Risk spreading and sharing: insurance	In response to the substantial risk posed to the insurance industry by climate change (Bank of England, 2015; Glaas et al., 2017), insurance companies are mobilizing their role as investment managers to promote climate mitigation; for example, in 2014, insurance companies pledged to invest 420 billion USD over five years in renewable energy, energy efficiency and sustainable agriculture projects (Fabian, 2015; Webster and Clarke, 2017).	Agricultural insurance may have unintended impacts, promoting the intensification of land use in some cases (Annan and Schlenker, 2015; Müller and Kreuer, 2016; Müller et al., 2017).
	Social safety nets	Public work programmes structured to address climate risks; for example, Ethiopia's Productive Safety Net Programme has been used to employ locals suffering from food insecurity to work on watershed management interventions, sequestering carbon in the soil and reducing GHG emissions (Jirka et al., 2015).	Where cash transfers to households to build adaptive capacity are not conditional, limited increases in purchasing power can prompt families to invest in additional consumption, transport or agricultural equipment as part of a general risk reduction strategy (Lemos et al., 2016; Nelson et al., 2016); aggregated, these individual investments could lead to increased emissions.
	Indigenous knowledge	<p>Revitalization of traditional management of agriculture may simultaneously increase resilience, improve biodiversity and reduce emissions by eliminating agrochemical inputs production to food production (Nyong et al., 2007; Niggli et al., 2009; Altieri and Nicholls, 2017).</p> <p>Recognizing and supporting indigenous management of blue carbon habitats (Vierros, 2017) and grasslands (Dong, 2017; Russell-Smith et al., 2017) and utilizing new technologies to revitalize traditional forms of energy provision (Thornton and Comberti, 2017) can provide mitigation and adaptation benefits.</p>	Projects that use a single dimension of indigenous knowledge (e.g., savannah burning for carbon sequestration) without considering the full context of that knowledge risk limiting associated adaptation-mitigation synergies and losing the complexities of indigenous knowledge systems (Mistry et al., 2016).



Table 4.SM.25 (continued)

System	Adaptation Option	Synergies	Trade-offs
Overarching adaptation options	Climate services	Climate services aid adaptation decision-making and can help mitigate GHGs through improving farm practices (e.g., matching fertilizer use with existing weather conditions so that less GHGs are emitted) (Thornton et al., 2017)	NE
	Population health and health system	Forest retention and urban agricultural land are forms of urban green infrastructure that can simultaneously mediate floods, promote healthy lifestyles and reduce emissions and air pollution. (Nowak et al., 2006; Tallis et al., 2011; Elmqvist et al., 2013a; Buckeridge, 2015; Culwick and Bobbins, 2016; Panagopoulos et al., 2016; Stevenson et al., 2016; R. White et al., 2017).	The use of air conditioners to meet health standards could result in increased emissions (Úrge-Vorsatz et al., 2018).

References

- Abanades, J.C., M. Alonso, and N. Rodriguez, 2011: Biomass combustion with in situ CO₂ capture with CaO. I. process description and economics. *Industrial & Engineering Chemistry Research*, **50**(11), 6972–6981, doi:10.1021/ie102353s.
- Abanades, J.C. et al., 2015: Emerging CO₂ capture systems. *International Journal of Greenhouse Gas Control*, **40**, 126–166, doi:10.1016/j.ijggc.2015.04.018.
- Abdulai, I. et al., 2018: Cocoa agroforestry is less resilient to sub-optimal and extreme climate than cocoa in full sun. *Global Change Biology*, **24**(1), 273–286, doi:10.1111/gcb.13885.
- Abi Ghanem, D. and S. Mander, 2014: Designing consumer engagement with the smart grids of the future: bringing active demand technology to everyday life. *Technology Analysis & Strategic Management*, **26**(10), 1163–1175, doi:10.1080/09537325.2014.974531.
- Abrahams, D., 2014: The barriers to environmental sustainability in post-disaster settings: a case study of transitional shelter implementation in Haiti. *Disasters*, **38**(s1), S25–S49, doi:10.1111/disa.12054.
- ACOLA, 2017: *The Role of Energy Storage in Australia's Future Energy Supply Mix*. Australian Council of Learned Academics (ACOLA), Melbourne, Australia, 158 pp.
- Adenle, A.A., H. Azadi, and J. Arbiol, 2015: Global assessment of technological innovation for climate change adaptation and mitigation in developing world. *Journal of Environmental Management*, **161**, 261–275, doi:10.1016/j.jenvman.2015.05.040.
- Adger, W.N., J. Barnett, K. Brown, N. Marshall, and K. O'Brien, 2013: Cultural dimensions of climate change impacts and adaptation. *Nature Climate Change*, **3**(2), 112–117, doi:10.1038/nclimate1666.
- Adger, W.N. et al., 2015: Focus on environmental risks and migration: causes and consequences. *Environmental Research Letters*, **10**(6), 060201, doi:10.1088/1748-9326/10/6/060201.
- Adhikari, P. et al., 2018: System of crop intensification for more productive, resource-conserving, climate-resilient, and sustainable agriculture: experience with diverse crops in varying agroecologies. *International Journal of Agricultural Sustainability*, **16**(1), 1–28, doi:10.1080/14735903.2017.1402504.
- Adhikari, S. et al., 2018: Adaptation and Mitigation Strategies of Climate Change Impact in Freshwater Aquaculture in some states of India. *Journal of Fisheries Sciences*, **12**(1), 16–21.
- Adiku, S.G.K., E. Debrah-Afanyede, H. Greatrex, R.B. Zougmore, and D.S. MacCarthy, 2017: *Weather-index based crop insurance as a social adaptation to climate change and variability in the Upper West Region of Ghana: Developing a participatory approach*. CCAFS Working Paper no. 189, CGIAR Research Program on Climate Change, Agriculture and Food Security (CAAFS), Copenhagen, Denmark, 44 pp.
- Aerts, J.C.J.H. et al., 2014: Evaluating Flood Resilience Strategies for Coastal Megacities. *Science*, **344**(6183), 473–475, doi:10.1126/science.1248222.
- Agarwal, A., Davida Wood, and N.D. Rao, 2016: *Impacts of small-scale electricity systems: A study of rural communities in India and Nepal*. World Resources Institute (WRI), Washington DC, USA, 66 pp.
- Agee, E.M., A. Orton, E.M. Agee, and A. Orton, 2016: An Initial Laboratory Prototype Experiment for Sequestration of Atmospheric CO₂. *Journal of Applied Meteorology and Climatology*, **55**(8), 1763–1770, doi:10.1175/jamc-d-16-0135.1.
- Agoramoorthy, G., M.J. Hsu, S. Chaudhary, and P.-C. Shieh, 2009: Can biofuel crops alleviate tribal poverty in India's drylands? *Applied Energy*, **86**, S118–S124, doi:10.1016/j.apenergy.2009.04.008.
- Aguilera, E., L. Lassaletta, A. Gattinger, and B.S. Gimeno, 2013: Managing soil carbon for climate change mitigation and adaptation in Mediterranean cropping systems: A meta-analysis. *Agriculture, Ecosystems & Environment*, **168**, 25–36, doi:10.1016/j.agee.2013.02.003.
- Aha, B. and J.Z. Ayitey, 2017: Biofuels and the hazards of land grabbing: Tenure (in)security and indigenous farmers' investment decisions in Ghana. *Land Use Policy*, **60**, 48–59, doi:10.1016/j.landusepol.2016.10.012.
- Ahlfeldt, G. and E. Pietrostefani, 2017: *Demystifying Compact Urban Growth: Evidence From 300 Studies From Across the World*. Coalition for Urban Transitions, Paris, France, 84 pp.
- Ahmad, S., S. Pachauri, and F. Creutzig, 2017: Synergies and trade-offs between energy-efficient urbanization and health. *Environmental Research Letters*, **12**(11), 114017, doi:10.1088/1748-9326/aa9281.
- Ahmad, S., R. Avtar, M. Sethi, and A. Surjan, 2016: Delhi's land cover change in post transit era. *Cities*, **50**, 111–118, doi:10.1016/j.cities.2015.09.003.
- Åhman, M., L.J. Nilsson, and B. Johansson, 2016: Global climate policy and deep decarbonization of energy-intensive industries. *Climate Policy*, **17**(5), 634–649, doi:10.1080/14693062.2016.1167009.
- Ahmed, B., 2018: Who takes responsibility for the climate refugees? *International Journal of Climate Change Strategies and Management*, **10**(1), 5–26, doi:10.1108/ijccsm-10-2016-0149.
- Ahmed, N., S.W. Bunting, S. Rahman, and C.J. Garforth, 2014: Community-based climate change adaptation strategies for integrated prawn-fish-rice farming in Bangladesh to promote social-ecological resilience. *Reviews in Aquaculture*, **6**(1), 20–35, doi:10.1111/raq.12022.
- Ahmed, N., J.D. Ward, S. Thompson, C.P. Saint, and J.S. Diana, 2018: Blue-Green Water Nexus in Aquaculture for Resilience to Climate Change. *Reviews in Fisheries Science and Aquaculture*, **26**(2), 139–154, doi:10.1080/23308249.2017.1373743.
- Ahn, S.E., 2008: How Feasible is Carbon Sequestration in Korea? A Study on the Costs of Sequestering Carbon in Forest. *Environmental and Resource Economics*, **41**(1), 89–109, doi:10.1007/s10640-007-9182-8.
- Akgul, O., N. Mac Dowell, L.G. Papageorgiou, and N. Shah, 2014: A mixed integer nonlinear programming (MINLP) supply chain optimisation framework for carbon negative electricity generation using biomass to energy with CCS (BECCS) in the UK. *International Journal of Greenhouse Gas Control*, **28**, 189–202, doi:10.1016/j.ijggc.2014.06.017.
- Akter, S., T.J. Krupnik, and F. Khanam, 2017: Climate change skepticism and index versus standard crop insurance demand in coastal Bangladesh. *Regional Environmental Change*, **17**(8), 2455–2466, doi:10.1007/s10113-017-1174-9.
- Akter, S., T.J. Krupnik, F. Rossi, and F. Khanam, 2016: The influence of gender and product design on farmers' preferences for weather-indexed crop insurance. *Global Environmental Change*, **38**, 217–229, doi:10.1016/j.gloenvcha.2016.03.010.
- Alagador, D., J.O. Cerdeira, and M.B. Araújo, 2014: Shifting protected areas: Scheduling spatial priorities under climate change. *Journal of Applied Ecology*, **51**(3), 703–713, doi:10.1111/1365-2664.12230.
- Alcalde, J. et al., 2018: Estimating geological CO₂ storage security to deliver on climate mitigation. *Nature Communications*, **9**(1), 2201, doi:10.1038/s41467-018-04423-1.
- Aleksandrova, M., J.P.A. Lamers, C. Martius, and B. Tischbein, 2014: Rural vulnerability to environmental change in the irrigated lowlands of Central Asia and options for policy-makers: A review. *Environmental Science & Policy*, **41**, 77–88, doi:10.1016/j.envsci.2014.03.001.
- Alexander, P., C. Brown, A. Armeth, J. Finnigan, and M.D.A. Rounsevell, 2016: Human appropriation of land for food: The role of diet. *Global Environmental Change*, **41**, 88–98, doi:10.1016/j.gloenvcha.2016.09.005.
- Alexander, P. et al., 2017: Losses, inefficiencies and waste in the global food system. *Agricultural Systems*, **153**, 190–200, doi:10.1016/j.agsy.2017.01.014.
- Ali, S.H. et al., 2017: Mineral supply for sustainable development requires resource governance. *Nature*, **543**, 367–372, doi:10.1038/nature21359.
- Allen, S.K. et al., 2016: Glacial lake outburst flood risk in Himachal Pradesh, India: an integrative and anticipatory approach considering current and future threats. *Natural Hazards*, **84**(3), 1741–1763, doi:10.1007/s11069-016-2511-x.
- Al-Maghalseh, M.M. and E.M. Maharmeh, 2016: Economic and Technical Analysis of Distributed Generation Connection: A Wind Farm Case Study. *Procedia Computer Science*, **83**, 790–798, doi:10.1016/j.procs.2016.04.168.
- Almeida Prado, F. et al., 2016: How much is enough? An integrated examination of energy security, economic growth and climate change related to hydropower expansion in Brazil. *Renewable and Sustainable Energy Reviews*, **53**, 1132–1136, doi:10.1016/j.rser.2015.09.050.
- Alongi, D.M., 2008: Mangrove forests: Resilience, protection from tsunamis, and responses to global climate change. *Estuarine, Coastal and Shelf Science*, **76**(1), 1–13, doi:10.1016/j.ecss.2007.08.024.
- Al-Qayim, K., W. Nimmo, and M. Pourkashanian, 2015: Comparative techno-economic assessment of biomass and coal with CCS technologies in a pulverized combustion power plant in the United Kingdom. *International Journal of Greenhouse Gas Control*, **43**, 82–92, doi:10.1016/j.ijggc.2015.10.013.
- Altieri, M.A. and C.I. Nicholls, 2017: The adaptation and mitigation potential of traditional agriculture in a changing climate. *Climatic Change*, **140**(1), 33–45, doi:10.1007/s10584-013-0909-y.
- Ambrosino, G., J.D. Nelson, M. Boero, and I. Pettinelli, 2016: Enabling intermodal urban transport through complementary services: From Flexible Mobility Services to the Shared Use Mobility Agency: Workshop 4. Developing inter-modal transport systems: Workshop 4. Developing inter-modal transport systems. *Research in Transportation Economics*, **59**, 179–184, doi:10.1016/j.retrec.2016.07.015.
- Amin Hosseini, S.M., A. de la Fuente, and O. Pons, 2016: Multi-criteria decision-making method for assessing the sustainability of post-disaster temporary housing units technologies: A case study in Bam, 2003. *Sustainable Cities and Society*, **20**, 38–51, doi:10.1016/j.scs.2015.09.012.
- Aminu, M.D., S.A. Nabavi, C.A. Rochelle, and V. Manovic, 2017: A review of developments in carbon dioxide storage. *Applied Energy*, **208**, 1389–1419, doi:10.1016/j.apenergy.2017.09.015.

- Amos, R., 2016: Bioenergy Carbon Capture and Storage in Global Climate Policy: Examining the Issues. *Carbon & Climate Law Review*, 10, 187–193, doi:[10.2307/44134898](https://doi.org/10.2307/44134898).
- Anacona, P.I., A. Mackintosh, and K. Norton, 2015: Reconstruction of a glacial lake outburst flood (GLOF) in the Engaño Valley, Chilean Patagonia: Lessons for GLOF risk management. *Science of The Total Environment*, 527–528, 1–11, doi:[10.1016/j.scitotenv.2015.04.096](https://doi.org/10.1016/j.scitotenv.2015.04.096).
- Anderson, K. and G. Peters, 2016: The trouble with negative emissions. *Science*, 354(6309), 182–183, doi:[10.1126/science.aah4567](https://doi.org/10.1126/science.aah4567).
- Anderson, R.G. et al., 2011: Biophysical considerations in forestry for climate protection. *Frontiers in Ecology and the Environment*, 9, 174–182, doi:[10.1890/090179](https://doi.org/10.1890/090179).
- André, C., D. Boulet, H. Rey-Valette, and B. Rulleau, 2016: Protection by hard defence structures or relocation of assets exposed to coastal risks: Contributions and drawbacks of cost-benefit analysis for long-term adaptation choices to climate change. *Ocean and Coastal Management*, 134, 173–182, doi:[10.1016/j.ocecoaman.2016.10.003](https://doi.org/10.1016/j.ocecoaman.2016.10.003).
- Anenberg, S.C. et al., 2013: Cleaner cooking solutions to achieve health, climate, and economic cobenefits. *Environmental Science & Technology*, 47(9), 3944–3952, doi:[10.1021/es304942e](https://doi.org/10.1021/es304942e).
- Angotti, T., 2015: Urban agriculture: long-term strategy or impossible dream? *Public Health*, 129(4), 336–341, doi:[10.1016/j.puhe.2014.12.008](https://doi.org/10.1016/j.puhe.2014.12.008).
- Annan, F. and W. Schlenker, 2015: Federal Crop Insurance and the Disincentive to Adapt to Extreme Heat. *The American Economic Review*, 105(5), 262–266, doi:[10.1257/aer.p20151031](https://doi.org/10.1257/aer.p20151031).
- Araos, M., S.E. Austin, L. Berrang-Ford, and J.D. Ford, 2016a: Public health adaptation to climate change in large cities: A global baseline. *International Journal of Health Services*, 46(1), 53–78, doi:[10.1177/0020731415621458](https://doi.org/10.1177/0020731415621458).
- Araos, M. et al., 2016b: Climate change adaptation planning in large cities: A systematic global assessment. *Environmental Science & Policy*, 66, 375–382, doi:[10.1016/j.envsci.2016.06.009](https://doi.org/10.1016/j.envsci.2016.06.009).
- Arasto, A., K. Onarheim, E. Tsupari, and J. Kärki, 2014: Bio-CCS: Feasibility comparison of large scale carbon-negative solutions. *Energy Procedia*, 63, 6756–6769, doi:[10.1016/j.egypro.2014.11.711](https://doi.org/10.1016/j.egypro.2014.11.711).
- Archer, D., 2016: Building urban climate resilience through community-driven approaches to development. *International Journal of Climate Change Strategies and Management*, 8(5), 654–669, doi:[10.1108/ijccsm-03-2014-0035](https://doi.org/10.1108/ijccsm-03-2014-0035).
- Archer, D. et al., 2014: Moving towards inclusive urban adaptation: approaches to integrating community-based adaptation to climate change at city and national scale. *Climate and Development*, 6(4), 345–356, doi:[10.1080/17565529.2014.918868](https://doi.org/10.1080/17565529.2014.918868).
- Archer, L. et al., 2017: Longitudinal assessment of climate vulnerability: a case study from the Canadian Arctic. *Sustainability Science*, 12(1), 15–29, doi:[10.1007/s11625-016-0401-5](https://doi.org/10.1007/s11625-016-0401-5).
- Arkema, K.K. et al., 2013: Coastal habitats shield people and property from sea-level rise and storms. *Nature Climate Change*, 3(10), 913–918, doi:[10.1038/nclimate1944](https://doi.org/10.1038/nclimate1944).
- Arkema, K.K. et al., 2017: Linking social, ecological, and physical science to advance natural and nature-based protection for coastal communities. *Annals of the New York Academy of Sciences*, 1399(1), 5–26, doi:[10.1111/nyas.13322](https://doi.org/10.1111/nyas.13322).
- Arndt, C., S. Msangi, and J. Thurlow, 2011a: Are biofuels good for African development? An analytical framework with evidence from Mozambique and Tanzania. *Biofuels*, 2(2), 221–234, doi:[10.4155/bfs.11.1](https://doi.org/10.4155/bfs.11.1).
- Arora, V.K. and A. Montenegro, 2011: Small temperature benefits provided by realistic afforestation efforts. *Nature Geoscience*, 4(8), 514–518, doi:[10.1038/ngeo1182](https://doi.org/10.1038/ngeo1182).
- Asfaw, S. and B. Davis, 2018: Can Cash Transfer Programmes Promote Household Resilience? Cross-Country Evidence from Sub-Saharan Africa. In: *Climate Smart Agriculture: Building Resilience to Climate Change* [Lipper, L., N. McCarthy, D. Zilberman, S. Asfaw, and G. Branca (eds.)]. Springer International Publishing, Cham, Switzerland, pp. 227–250, doi:[10.1007/978-3-319-61194-5_11](https://doi.org/10.1007/978-3-319-61194-5_11).
- Asfaw, S., A. Carraro, B. Davis, S. Handa, and D. Seidenfeld, 2017: Cash transfer programmes, weather shocks and household welfare: evidence from a randomised experiment in Zambia. *Journal of Development Effectiveness*, 9(4), 419–442, doi:[10.1080/19439342.2017.1377751](https://doi.org/10.1080/19439342.2017.1377751).
- Ashofteh, P.-S., O. Bozorg-Haddad, and H.A. Loáiciga, 2017: Development of Adaptive Strategies for Irrigation Water Demand Management under Climate Change. *Journal of Irrigation and Drainage Engineering*, 143(2), 04016077, doi:[10.1061/\(asce\)ir.1943-4774.0001123](https://doi.org/10.1061/(asce)ir.1943-4774.0001123).
- Ashworth, P., S. Wade, D. Reiner, and X. Liang, 2015: Developments in public communications on CCS. *International Journal of Greenhouse Gas Control*, 40, 449–458, doi:[10.1016/j.ijggc.2015.06.002](https://doi.org/10.1016/j.ijggc.2015.06.002).
- Asiedu, B., J.-O. Adetola, and I. Odame Kissi, 2017a: Aquaculture in troubled climate: Farmer's perception of climate change and their adaptation. *Cogent Food & Agriculture*, 3(1), 1–16, doi:[10.1080/23311932.2017.1296400](https://doi.org/10.1080/23311932.2017.1296400).
- Asiedu, B., F.K.E. Nunoo, and S. Iddrisu, 2017b: Prospects and sustainability of aquaculture development in Ghana, West Africa. *Cogent Food & Agriculture*, 3(1), 1349531, doi:[10.1080/23311932.2017.1349531](https://doi.org/10.1080/23311932.2017.1349531).
- Atela, J.O., C.H. Quinn, and P.A. Minang, 2014: Are REDD projects pro-poor in their spatial targeting? Evidence from Kenya. *Applied Geography*, 52, 14–24, doi:[10.1016/j.apgeog.2014.04.009](https://doi.org/10.1016/j.apgeog.2014.04.009).
- Atela, J.O., C.H. Quinn, P.A. Minang, and L.A. Duguma, 2015: Implementing REDD+ in view of integrated conservation and development projects: Leveraging empirical lessons. *Land Use Policy*, 48, 329–340, doi:[10.1016/j.landusepol.2015.06.011](https://doi.org/10.1016/j.landusepol.2015.06.011).
- Austin, S.E. et al., 2015: Public Health Adaptation to Climate Change in Canadian Jurisdictions. *International Journal of Environmental Research and Public Health*, 12(1), 623–651, doi:[10.3390/ijerph120100623](https://doi.org/10.3390/ijerph120100623).
- Austin, S.E. et al., 2016: Public health adaptation to climate change in OECD countries. *International Journal of Environmental Research and Public Health*, 13(9), 889, doi:[10.3390/ijerph13090889](https://doi.org/10.3390/ijerph13090889).
- Ayers, J.M., S. Huq, A.M. Faisal, and S.T. Hussain, 2014: Mainstreaming climate change adaptation into development: a case study of Bangladesh. *Wiley Interdisciplinary Reviews: Climate Change*, 5(1), 37–51, doi:[10.1002/wcc.226](https://doi.org/10.1002/wcc.226).
- Azar, C., D.J. Johansson, and N. Mattsson, 2013: Meeting global temperature targets – the role of bioenergy with carbon capture and storage. *Environmental Research Letters*, 8(3), 1–8, doi:[10.1088/1748-9326/8/3/034004](https://doi.org/10.1088/1748-9326/8/3/034004).
- Azar, C., K. Lindgren, E. Larson, and K. Möllersten, 2006: Carbon Capture and Storage From Fossil Fuels and Biomass – Costs and Potential Role in Stabilizing the Atmosphere. *Climatic Change*, 74(1–3), 47–79, doi:[10.1007/s10584-005-3484-7](https://doi.org/10.1007/s10584-005-3484-7).
- Azar, C. et al., 2010: The feasibility of low CO₂ concentration targets and the role of bio-energy with carbon capture and storage (BECCS). *Climatic Change*, 100(1), 195–202, doi:[10.1007/s10584-010-9832-7](https://doi.org/10.1007/s10584-010-9832-7).
- Azhoni, A., I. Holman, and S. Jude, 2017: Adapting water management to climate change: Institutional involvement, inter-institutional networks and barriers in India. *Global Environmental Change*, 44, 144–157, doi:[10.1016/j.gloenvcha.2017.04.005](https://doi.org/10.1016/j.gloenvcha.2017.04.005).
- Bahill, A.T. and A. Chaves, 2013: Risk Analysis of Solar Photovoltaic Systems. *INCOSI International Symposium*, 23(1), 785–802, doi:[10.1002/j.2334-5837.2013.tb03054.x](https://doi.org/10.1002/j.2334-5837.2013.tb03054.x).
- Bailly du Bois, P. et al., 2012: Estimation of marine source-term following Fukushima Dai-ichi accident. *Journal of Environmental Radioactivity*, 114, 2–9, doi:[10.1016/j.jenvrad.2011.11.015](https://doi.org/10.1016/j.jenvrad.2011.11.015).
- Baird, J., R. Plummer, and K. Pickering, 2014: Priming the Governance System for Climate Change Adaptation: The Application of a Social-Ecological Inventory to Engage Actors in Niagara, Canada. *Ecology and Society*, 19(1), 3, doi:[10.5751/es-06152-190103](https://doi.org/10.5751/es-06152-190103).
- Bajželj, B. et al., 2014: Importance of food-demand management for climate mitigation. *Nature Climate Change*, 4(10), 924–929, doi:[10.1038/nclimate2353](https://doi.org/10.1038/nclimate2353).
- Baker, L., 2015: The evolving role of finance in South Africa's renewable energy sector. *Geoforum*, 64, 146–156, doi:[10.1016/j.geoforum.2015.06.017](https://doi.org/10.1016/j.geoforum.2015.06.017).
- Bakker, S. and J. Trip, 2013: Policy options to support the adoption of electric vehicles in the urban environment. *Transportation Research Part D: Transport and Environment*, 25, 18–23, doi:[10.1016/j.trd.2013.07.005](https://doi.org/10.1016/j.trd.2013.07.005).
- Balaban, O. and J.A. Puppim de Oliveira, 2017: Sustainable buildings for healthier cities: assessing the co-benefits of green buildings in Japan. *Journal of Cleaner Production*, 163, 568–578, doi:[10.1016/j.jclepro.2016.01.086](https://doi.org/10.1016/j.jclepro.2016.01.086).
- Ballarini, I., V. Corrado, F. Madonna, S. Paduos, and F. Ravasio, 2017: Energy refurbishment of the Italian residential building stock: energy and cost analysis through the application of the building typology. *Energy Policy*, 105, 148–160, doi:[10.1016/j.enpol.2017.02.026](https://doi.org/10.1016/j.enpol.2017.02.026).
- Baltenweck, I. et al., 2003: *Crop-Livestock Intensification and Interactions Across Three Continents: Main Report*. International Livestock Research Institute (ILRI), 118 pp.
- Bamminger, C. et al., 2016: Short-term response of soil microorganisms to biochar addition in a temperate agroecosystem under soil warming. *Agriculture, Ecosystems & Environment*, 233, 308–317, doi:[10.1016/j.agee.2016.09.016](https://doi.org/10.1016/j.agee.2016.09.016).
- Bank of England, 2015: *The impact of climate change on the UK insurance sector: A Climate Change Adaptation Report by the Prudential Regulation Authority*. Prudential Regulation Authority, London, UK, 85 pp.
- Baral, A. and G.S. Guha, 2004: Trees for carbon sequestration or fossil fuel substitution: the issue of cost vs. carbon benefit. *Biomass and Bioenergy*, 27(1), 41–55, doi:[10.1016/j.biombioe.2003.11.004](https://doi.org/10.1016/j.biombioe.2003.11.004).
- Barbier, E.B., 2015a: Climate change impacts on rural poverty in low-elevation coastal zones. *Estuarine, Coastal and Shelf Science*, 165, A1–A13, doi:[10.1016/j.ecss.2015.05.035](https://doi.org/10.1016/j.ecss.2015.05.035).
- Barbier, E.B., 2015b: Valuing the storm protection service of estuarine and coastal ecosystems. *Ecosystem Services*, 11, 32–38, doi:[10.1016/j.ecoser.2014.06.010](https://doi.org/10.1016/j.ecoser.2014.06.010).

- Barlow, J. et al., 2007: Quantifying the biodiversity value of tropical primary, secondary, and plantation forests. *Proceedings of the National Academy of Sciences*, **104**(47), 18555–60, doi:[10.1073/pnas.0703333104](https://doi.org/10.1073/pnas.0703333104).
- Barral, M.P., J.M. Rey Benayas, P. Meli, and N.O. Maceira, 2015: Quantifying the impacts of ecological restoration on biodiversity and ecosystem services in agroecosystems: A global meta-analysis. *Agriculture, Ecosystems & Environment*, **202**, 223–231, doi:[10.1016/j.agee.2015.01.009](https://doi.org/10.1016/j.agee.2015.01.009).
- Barrows, G., S. Sexton, and D. Zilberman, 2014: Agricultural Biotechnology: The Promise and Prospects of Genetically Modified Crops. *Journal of Economic Perspectives*, **28**(1), 99–120, doi:[10.1257/jep.28.1.99](https://doi.org/10.1257/jep.28.1.99).
- Bartley, D.J., P.J. Skuce, R.N. Zadoks, and M. MacLeod, 2016: Endemic sheep and cattle diseases and greenhouse gas emissions. *Advances in Animal Biosciences*, **7**(03), 253–255, doi:[10.1017/s2040470016000327](https://doi.org/10.1017/s2040470016000327).
- Bataille, C. et al., 2018: A review of technology and policy deep decarbonization pathway options for making energy-intensive industry production consistent with the Paris Agreement. *Journal of Cleaner Production*, **187**, 960–973, doi:[10.1016/j.jclepro.2018.03.107](https://doi.org/10.1016/j.jclepro.2018.03.107).
- Batjes, N.H., 1998: Mitigation of atmospheric CO₂ concentrations by increased carbon sequestration in the soil. *Biology and Fertility of Soils*, **27**(3), 230–235, doi:[10.1007/s003740050425](https://doi.org/10.1007/s003740050425).
- Baudron, F., C. Thierfelder, I. Nyagumbo, and B. Gérard, 2015: Where to Target Conservation Agriculture for African Smallholders? How to Overcome Challenges Associated with its Implementation? Experience from Eastern and Southern Africa. *Environments*, **2**(3), 338–357, doi:[10.3390/environments2030338](https://doi.org/10.3390/environments2030338).
- Baul, T.K., A. Alam, H. Strandman, and A. Kilpeläinen, 2017: Net climate impacts and economic profitability of forest biomass production and utilization in fossil fuel and fossil-based material substitution under alternative forest management. *Biomass and Bioenergy*, **98**, 291–305, doi:[10.1016/j.biombioe.2017.02.007](https://doi.org/10.1016/j.biombioe.2017.02.007).
- Beatley, T., 2011: *Biophilic Cities: Integrating Nature into Urban Design and Planning*. Island Press, Washington DC, USA, 208 pp.
- Beaudoin, M. and P. Gosselin, 2016: An effective public health program to reduce urban heat islands in Québec, Canada. *Revista Panamericana de Salud Pública*, **40**(3), 160–166.
- Beccali, M., M. Bonomolo, G. Ciulla, A. Galatioto, and V. Lo Brano, 2015: Improvement of energy efficiency and quality of street lighting in South Italy as an action of Sustainable Energy Action Plans. The case study of Comiso (RG). *Energy*, **92**(3), 394–408, doi:[10.1016/j.energy.2015.05.003](https://doi.org/10.1016/j.energy.2015.05.003).
- Bell, J.D. and M. Taylor, 2015: *Building Climate-Resilient Food Systems for Pacific Islands*. Program Report: 2015–15, WorldFish, Penang, Malaysia, 72 pp.
- Bell, J.D., J.E. Johnson, and A.J. Hobday (eds.), 2011: *Vulnerability of tropical Pacific fisheries and aquaculture to climate change*. Secretariat of the Pacific Community (SPC), Noumea, New Caledonia, 925 pp.
- Bell, L.W., A.D. Moore, and J.A. Kirkegaard, 2014: Evolution in crop-livestock integration systems that improve farm productivity and environmental performance in Australia. *European Journal of Agronomy*, **57**, 10–20, doi:[10.1016/j.eja.2013.04.007](https://doi.org/10.1016/j.eja.2013.04.007).
- Bell, T., R. Briggs, R. Bachmayer, and S. Li, 2015: Augmenting Inuit knowledge for safe sea-ice travel – The SmartICE information system. In: *2014 Oceans – St. John's*. pp. 1–9, doi:[10.1109/oceans.2014.7003290](https://doi.org/10.1109/oceans.2014.7003290).
- Benbi, D.K., 2013: Greenhouse Gas Emissions from Agricultural Soils: Sources and Mitigation Potential. *Journal of Crop Improvement*, **27**(6), 752–772, doi:[10.1080/15427528.2013.845054](https://doi.org/10.1080/15427528.2013.845054).
- Bendito, A. and E. Barrios, 2016: Convergent Agency: Encouraging Transdisciplinary Approaches for Effective Climate Change Adaptation and Disaster Risk Reduction. *International Journal of Disaster Risk Science*, **7**(4), 430–435, doi:[10.1007/s13753-016-0102-9](https://doi.org/10.1007/s13753-016-0102-9).
- Béné, C. et al., 2016: Contribution of Fisheries and Aquaculture to Food Security and Poverty Reduction: Assessing the Current Evidence. *World Development*, **79**, 177–196, doi:[10.1016/j.worlddev.2015.11.007](https://doi.org/10.1016/j.worlddev.2015.11.007).
- Benítez, P.C. and M. Obersteiner, 2006: Site identification for carbon sequestration in Latin America: A grid-based economic approach. *Forest Policy and Economics*, **8**(6), 636–651, doi:[10.1016/j.forpol.2004.12.003](https://doi.org/10.1016/j.forpol.2004.12.003).
- Benmarhnia, T. et al., 2016: A Difference-in-Differences Approach to Assess the Effect of a Heat Action Plan on Heat-Related Mortality, and Differences in Effectiveness According to Sex, Age, and Socioeconomic Status (Montreal, Quebec). *Environmental Health Perspectives*, **124**(11), 1694–1699, doi:[10.1289/ehp203](https://doi.org/10.1289/ehp203).
- Benson, R.D., 2018: Reviewing reservoir operations in the North American West: an opportunity for adaptation. *Regional Environmental Change*, 1–11, doi:[10.1007/s10113-018-1330-x](https://doi.org/10.1007/s10113-018-1330-x).
- Benton, T.G. et al., 2018: Designing sustainable landuse in a 1.5°C world: the complexities of projecting multiple ecosystem services from land. *Current Opinion in Environmental Sustainability*, **31**, 88–95, doi:[10.1016/j.cosust.2018.01.011](https://doi.org/10.1016/j.cosust.2018.01.011).
- Beresford, N.A. et al., 2016: Thirty years after the Chernobyl accident: What lessons have we learnt? *Journal of Environmental Radioactivity*, **157**, 77–89, doi:[10.1016/j.jenvrad.2016.02.003](https://doi.org/10.1016/j.jenvrad.2016.02.003).
- Berhane, G., 2014: Can Social Protection Work in Africa? The Impact of Ethiopia's Productive Safety Net Programme. *Economic Development and Cultural Change*, **63**(1), 1–26, doi:[10.1086/677753](https://doi.org/10.1086/677753).
- Beringer, T., W. Lucht, and S. Schaphoff, 2011: Bioenergy production potential of global biomass plantations under environmental and agricultural constraints. *GCB Bioenergy*, **3**(4), 299–312, doi:[10.1111/j.1757-1707.2010.01088.x](https://doi.org/10.1111/j.1757-1707.2010.01088.x).
- Berkes, F. and D. Jolly, 2002: Adapting to climate change: Social-ecological resilience in a Canadian western arctic community. *Ecology and Society*, **5**(2), 18, www.consecol.org/vol5/iss2/art18/.
- Berkes, F., J. Colding, and C. Folke, 2000: Rediscovery of Traditional Ecological Knowledge as adaptive management. *Ecological Applications*, **10**(5), 1251–1262, doi:[10.1890/1051-0761\(2000\)010\[1251:roteka\]2.0.co;2](https://doi.org/10.1890/1051-0761(2000)010[1251:roteka]2.0.co;2).
- Berrang-Ford, L. et al., 2012: Vulnerability of indigenous health to climate change: A case study of Uganda's Batwa Pygmies. *Social Science & Medicine*, **75**(6), 1067–1077, doi:[10.1016/j.socscimed.2012.04.016](https://doi.org/10.1016/j.socscimed.2012.04.016).
- Berry, P. and G.R.A. Richardson, 2016: Approaches for Building Community Resilience to Extreme Heat. In: *Extreme Weather, Health, and Communities: Interdisciplinary Engagement Strategies* [Steinberg, S.L. and W.A. Sprigg (eds.)]. Springer International Publishing, Cham, pp. 351–388, doi:[10.1007/978-3-319-30626-1_15](https://doi.org/10.1007/978-3-319-30626-1_15).
- Berry, P.M. et al., 2015: Cross-sectoral interactions of adaptation and mitigation measures. *Climatic Change*, **128**(3–4), 381–393, doi:[10.1007/s10584-014-1214-0](https://doi.org/10.1007/s10584-014-1214-0).
- Berti, G. and C. Mulligan, 2016: Competitiveness of Small Farms and Innovative Food Supply Chains: The Role of Food Hubs in Creating Sustainable Regional and Local Food Systems. *Sustainability*, **8**(7), 616, doi:[10.3390/su8070616](https://doi.org/10.3390/su8070616).
- Bettini, G., S.L. Nash, and G. Gioli, 2017: One step forward, two steps back? The fading contours of (in)justice in competing discourses on climate migration. *The Geographical Journal*, **183**(4), 348–358, doi:[10.1111/geoj.12192](https://doi.org/10.1111/geoj.12192).
- Bettini, Y., R.R. Brown, and F.J. de Haan, 2015: Exploring institutional adaptive capacity in practice: examining water governance adaptation in Australia. *Ecology and Society*, **20**(1), art47, doi:[10.5751/es-07291-200147](https://doi.org/10.5751/es-07291-200147).
- Betzold, C., 2015: Adapting to climate change in small island developing states. *Climatic Change*, **133**(3), 481–489, doi:[10.1007/s10584-015-1408-0](https://doi.org/10.1007/s10584-015-1408-0).
- Betzold, C. and I. Mohamed, 2017: Seawalls as a response to coastal erosion and flooding: a case study from Grande Comore, Comoros (West Indian Ocean). *Regional Environmental Change*, **17**(4), 1077–1087, doi:[10.1007/s10113-016-1044-x](https://doi.org/10.1007/s10113-016-1044-x).
- Bhagat, R., 2017: Migration, Gender and Right to the City. *Economic & Political Weekly*, **52**(32), 35–40, www.epw.in/journal/2017/32/perspectives/migration-gender-and-right-city.html.
- Bhakta Bhandari, R., 2014: Social capital in disaster risk management; a case study of social capital mobilization following the 1934 Kathmandu Valley earthquake in Nepal. *Disaster Prevention and Management: An International Journal*, **23**(4), 314–328, doi:[10.1108/dpm-06-2013-0105](https://doi.org/10.1108/dpm-06-2013-0105).
- Bhan, S. and U.K. Behera, 2014: Conservation agriculture in India – Problems, prospects and policy issues. *International Soil and Water Conservation Research*, **2**(4), 1–12, doi:[10.1016/s2095-6339\(15\)30053-8](https://doi.org/10.1016/s2095-6339(15)30053-8).
- Bhave, A. et al., 2017: Screening and techno-economic assessment of biomass-based power generation with CCS technologies to meet 2050 CO₂ targets. *Applied Energy*, **190**, 481–489, doi:[10.1016/j.apenergy.2016.12.120](https://doi.org/10.1016/j.apenergy.2016.12.120).
- Bigerna, S., C.A. Bollino, and S. Micheli, 2016: Socio-economic acceptability for smart grid development – a comprehensive review. *Journal of Cleaner Production*, **131**, 399–409, doi:[10.1016/j.jclepro.2016.05.010](https://doi.org/10.1016/j.jclepro.2016.05.010).
- Biggs, E.M. et al., 2015: Sustainable development and the water-energy-food nexus: A perspective on livelihoods. *Environmental Science & Policy*, **54**, 389–397, doi:[10.1016/j.envsci.2015.08.002](https://doi.org/10.1016/j.envsci.2015.08.002).
- Bilkovic, D.M. and M.M. Mitchell, 2013: Ecological tradeoffs of stabilized salt marshes as a shoreline protection strategy: Effects of artificial structures on macrobenthic assemblages. *Ecological Engineering*, **61**, 469–481, doi:[10.1016/j.ecoleng.2013.10.011](https://doi.org/10.1016/j.ecoleng.2013.10.011).
- Birk, T. and K. Rasmussen, 2014: Migration from atolls as climate change adaptation: Current practices, barriers and options in Solomon Islands. *Natural Resources Forum*, **38**(1), 1–13, doi:[10.1111/1477-8947.12038](https://doi.org/10.1111/1477-8947.12038).
- Bistline, J.E., 2017: Economic and technical challenges of flexible operations under large-scale variable renewable deployment. *Energy Economics*, **64**, 363–372, doi:[10.1016/j.eneco.2017.04.012](https://doi.org/10.1016/j.eneco.2017.04.012).
- Bjornlund, H., A. van Rooyen, and R. Stirzaker, 2017: Profitability and productivity barriers and opportunities in small-scale irrigation schemes. *International Journal of Water Resources Development*, **33**(5), 690–704, doi:[10.1080/07900627.2016.1263552](https://doi.org/10.1080/07900627.2016.1263552).
- Blaabjerg, F., Z. Chen, and S.B. Kjaer, 2004: Power Electronics as Efficient Interface in Dispersed Power Generation Systems. *IEEE Transactions on Power Electronics*, **19**(5), 1184–1194, doi:[10.1109/tpe.2004.833453](https://doi.org/10.1109/tpe.2004.833453).
- Blackman, A. and J. Rivera, 2011: Producer-Level Benefits of Sustainability Certification. *Conservation Biology*, **25**(6), 1176–1185, doi:[10.1111/j.1523-1739.2011.01774.x](https://doi.org/10.1111/j.1523-1739.2011.01774.x).

- Blanc, E., J. Caron, C. Fant, and E. Monier, 2017: Is current irrigation sustainable in the United States? An integrated assessment of climate change impact on water resources and irrigated crop yields. *Earth's Future*, 5(8), 877–892, doi:10.1002/2016ef000473.
- Blanchard, J.L. et al., 2017: Linked sustainability challenges and trade-offs among fisheries, aquaculture and agriculture. *Nature Ecology and Evolution*, 1(9), 1240–1249, doi:10.1038/s41559-017-0258-8.
- Blay-Palmer, A., R. Sonnino, and J. Custot, 2016: A food politics of the possible? Growing sustainable food systems through networks of knowledge. *Agriculture and Human Values*, 33(1), 27–43, doi:10.1007/s10460-015-9592-0.
- Boardman, B., 2004: New directions for household energy efficiency: evidence from the UK. *Energy Policy*, 32(17), 1921–1933, doi:10.1016/j.enpol.2004.03.021.
- Bockarjova, M. and L. Steg, 2014: Can Protection Motivation Theory predict pro-environmental behavior? Explaining the adoption of electric vehicles in the Netherlands. *Global Environmental Change*, 28, 276–288, doi:10.1016/j.gloenvcha.2014.06.010.
- Boeckmann, M. and I. Rohn, 2014: Is planned adaptation to heat reducing heat-related mortality and illness? A systematic review. *BMC public health*, 14(1), 1112, doi:10.1186/1471-2458-14-1112.
- Bogale, A., 2015: Weather-indexed insurance: an elusive or achievable adaptation strategy to climate variability and change for smallholder farmers in Ethiopia. *Climate and Development*, 5529, 37–41, doi:10.1080/17565529.2014.934769.
- Bonsch, M. et al., 2016: Trade-offs between land and water requirements for large-scale bioenergy production. *GCB Bioenergy*, 8(1), 11–24, doi:10.1111/gcbb.12226.
- Boonstra, W.J. and T.T.H. Hanh, 2015: Adaptation to climate change as socio-ecological trap: a case study of fishing and aquaculture in the Tam Giang Lagoon, Vietnam. *Environment, Development and Sustainability*, 17(6), 1527–1544, doi:10.1007/s10668-014-9612-z.
- Booth, M.S., 2018: Not carbon neutral: Assessing the net emissions impact of residues burned for bioenergy. *Environmental Research Letters*, 13(3), 035001, doi:10.1088/1748-9326/aaac88.
- Boot-Handford, M.E. et al., 2014: Carbon capture and storage update. *Energy & Environmental Science*, 7(1), 130–189, doi:10.1039/c3ee42350f.
- Borch, K., N.-E. Clausen, and G. Ellis, 2014: Environmental and social impacts of wind energy. In: *DTU International Energy Report 2014: Wind energy – drivers and barriers for higher shares of wind in the global power generation mix* [Larsen, H.H. and L.S. Petersen (eds.)]. Technical University of Denmark (DTU), Kogens Lyngby, Denmark, pp. 86–90.
- Bosello, F. and E. De Cian, 2014: Climate change, sea level rise, and coastal disasters. A review of modeling practices. *Energy Economics*, 46, 593–605, doi:10.1016/j.eneco.2013.09.002.
- Boucher, O. et al., 2014: Rethinking climate engineering categorization in the context of climate change mitigation and adaptation. *Wiley Interdisciplinary Reviews: Climate Change*, 5(1), 23–35, doi:10.1002/wcc.261.
- Bouf, D. and B. Fairve D'arcier, 2015: The looming crisis in French public transit. *Transport Policy*, 42, 34–41, doi:10.1016/j.tranpol.2015.04.004.
- Boughedir, S., 2015: Case study: disaster risk management and climate change adaptation in Greater Algiers: overview on a study assessing urban vulnerabilities to disaster risk and proposing measures for adaptation. *Current Opinion in Environmental Sustainability*, 13, 103–108, doi:10.1016/j.cosust.2015.03.001.
- Bouman, E.A., E. Lindstad, A.I. Rialland, and A.H. Strømman, 2017: State-of-the-art technologies, measures, and potential for reducing GHG emissions from shipping – A review. *Transportation Research Part D: Transport and Environment*, 52(Part A), 408–421, doi:10.1016/j.trd.2017.03.022.
- Bowen, K.J., K. Ebi, S. Friel, and A.J. McMichael, 2013: A multi-layered governance framework for incorporating social science insights into adapting to the health impacts of climate change. *Global Health Action*, 6(1), 21820, doi:10.3402/gha.v6i0.21820.
- Bows-Larkin, A., 2015: All adrift: aviation, shipping, and climate change policy. *Climate Policy*, 15(6), 681–702, doi:10.1080/14693062.2014.965125.
- Boysen, L.R., W. Lucht, and D. Gerten, 2017a: Trade-offs for food production, nature conservation and climate limit the terrestrial carbon dioxide removal potential. *Global Change Biology*, 23(10), 4303–4317, doi:10.1111/gcb.13745.
- Boysen, L.R. et al., 2017b: The limits to global-warming mitigation by terrestrial carbon removal. *Earth's Future*, 5(5), 463–474, doi:10.1002/2016ef000469.
- Branca, G., L. Lipper, N. McCarthy, and M.C. Jolejole, 2013: Food security, climate change, and sustainable land management. A review. *Agronomy for Sustainable Development*, 33(4), 635–650, doi:10.1007/s13593-013-0133-1.
- Brander, K.M., 2007: Global fish production and climate change. *Proceedings of the National Academy of Sciences*, 104(50), 19709–19714, doi:10.1073/pnas.0702059104.
- Brander, L., R. Brouwer, and A. Wagtenonk, 2013: Economic valuation of regulating services provided by wetlands in agricultural landscapes: A meta-analysis. *Ecological Engineering*, 56, 89–96, doi:10.1016/j.ecoleng.2012.12.104.
- Brasseur, G.P. and L. Gallardo, 2016: Climate services: Lessons learned and future prospects. *Earth's Future*, 4(3), 79–89, doi:10.1002/2015ef000338.
- Braun, C., C. Merk, G. Pönitzsch, K. Rehdanz, and U. Schmidt, 2017: Public perception of climate engineering and carbon capture and storage in Germany: survey evidence. *Climate Policy*, 30(62), 1–14, doi:10.1080/14693062.2017.1304888.
- Brennan, N., T.M. Van Rensburg, and C. Morris, 2017: Public acceptance of large-scale wind energy generation for export from Ireland to the UK: evidence from Ireland. *Journal of Environmental Planning and Management*, 60(11), 1967–1992, doi:10.1080/09640568.2016.1268109.
- Bright, R.M., K. Zhao, R.B. Jackson, and F. Cherubini, 2015: Quantifying surface albedo and other direct biogeophysical climate forcings of forestry activities. *Global Change Biology*, 21(9), 3246–3266, doi:10.1111/gcb.12951.
- Briley, L., D. Brown, and S.E. Kalafatis, 2015: Overcoming barriers during the co-production of climate information for decision-making. *Climate Risk Management*, 9, 41–49, doi:10.1016/j.crm.2015.04.004.
- Brillant, S., 2014: Aquaculture. , 33.
- Brimont, L., D. Ezzine-de-Blas, A. Karsenty, and A. Toulon, 2015: Achieving Conservation and Equity amidst Extreme Poverty and Climate Risk: The Makira REDD+ Project in Madagascar. *Forests*, 6(12), 748–768, doi:10.3390/f6030748.
- Briske, D.D. et al., 2015: Climate-change adaptation on rangelands: linking regional exposure with diverse adaptive capacity. *Frontiers in Ecology and the Environment*, 13(5), 249–256, doi:10.1890/140266.
- Broch, A., S.K. Hoekman, and S. Unnasch, 2013: A review of variability in indirect land use change assessment and modeling in biofuel policy. *Environmental Science & Policy*, 29, 147–157, doi:10.1016/j.envsci.2013.02.002.
- Brockington, D. and D. Wilkie, 2015: Protected areas and poverty. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 370(1681), doi:10.1098/rstb.2014.0271.
- Brockington, J.D., I.M. Harris, and R.M. Brook, 2016: Beyond the project cycle: a medium-term evaluation of agroforestry adoption and diffusion in a south Indian village. *Agroforestry Systems*, 90(3), 489–508, doi:10.1007/s10457-015-9872-0.
- Broekhoff, D., G. Piggot, and P. Erickson, 2018: *Building Thriving, Low-Carbon Cities: An Overview of Policy Options for National Governments*. Coalition for Urban Transitions, London, UK and Washington DC, USA, 124 pp.
- Broitman, B.R. et al., 2017: Dynamic Interactions among Boundaries and the Expansion of Sustainable Aquaculture. *Frontiers in Marine Science*, 4, 15, doi:10.3389/fmars.2017.00015.
- Brooke, J.S. et al., 1992: Coastal Defense – the Retreat Option. *Journal of the Institution of Water and Environmental Management*, 6(2), 151–157.
- Brooks, S.M., 2015: Social Protection for the Poorest. *Politics & Society*, 43(4), 551–582, doi:10.1177/0032329215602894.
- Broto, V.C., 2017: Energy landscapes and urban trajectories towards sustainability. *Energy Policy*, 108, 755–764, doi:10.1016/j.enpol.2017.01.009.
- Broto, V.C., E. Boyd, and J. Ensor, 2015: Participatory urban planning for climate change adaptation in coastal cities: Lessons from a pilot experience in Maputo, Mozambique. *Current Opinion in Environmental Sustainability*, 13, 11–18, doi:10.1016/j.cosust.2014.12.005.
- Brouder, S.M. and H. Gomez-Macpherson, 2014: The impact of conservation agriculture on smallholder agricultural yields: A scoping review of the evidence. *Agriculture, Ecosystems & Environment*, 187, 11–32, doi:10.1016/j.agee.2013.08.010.
- Brouwer, A.S., M. van den Broek, A. Seebregts, and A. Faaij, 2015: Operational flexibility and economics of power plants in future low-carbon power systems. *Applied Energy*, 156, 107–128, doi:10.1016/j.apenergy.2015.06.065.
- Brown, C.J. et al., 2016: Ecological and methodological drivers of species' distribution and phenology responses to climate change. *Global change biology*, 22(4), 1548–1560, doi:10.1111/gcb.13184.
- Brown, D. and G. McGranahan, 2016: The urban informal economy, local inclusion and achieving a global green transformation. *Habitat International*, 53, 97–105, doi:10.1016/j.habitatint.2015.11.002.
- Brown, S., D. Pyke, and P. Steenhof, 2010: Electric vehicles: The role and importance of standards in an emerging market. *Energy Policy*, 38(7), 3797–3806, doi:10.1016/j.enpol.2010.02.059.
- Brown, S., J. Sathaye, M. Cannell, and P.E. Kauppi, 1995: Management of forests for mitigation of greenhouse gas emissions. *The Commonwealth Forestry Review*, 75(1).
- Brown, S. et al., 2018: Quantifying Land and People Exposed to Sea-Level Rise with No Mitigation and 1.5°C and 2.0°C Rise in Global Temperatures to Year 2300. *Earth's Future*, 6(3), 583–600, doi:10.1002/2017ef000738.
- Brown, T.R., 2015: A techno-economic review of thermochemical cellulosic biofuel pathways. *Bioresource Technology*, 178, 166–176, doi:10.1016/j.biortech.2014.09.053.
- Brown, V., B.Z. Diomed, M. Moodie, J.L. Veerman, and R. Carter, 2016: A systematic review of economic analyses of active transport interventions that include physical activity benefits. *Transport Policy*, 45, 190–208, doi:10.1016/j.tranpol.2015.10.003.

- Bruckner, T. et al., 2014: Energy Systems. In: *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel, and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 511–597.
- Bruognach, M., M. Craps, and A. Dewulf, 2017: Including indigenous peoples in climate change mitigation: addressing issues of scale, knowledge and power. *Climatic Change*, **140**(1), 19–32, doi:10.1007/s10584-014-1280-3.
- Brundiers, K., 2018: Educating for post-disaster sustainability efforts. *International Journal of Disaster Risk Reduction*, **27**, 406–414, doi:10.1016/j.ijdrr.2017.11.002.
- Brunke, J.-C., M. Johansson, and P. Thollander, 2014: Empirical investigation of barriers and drivers to the adoption of energy conservation measures, energy management practices and energy services in the Swedish iron and steel industry. *Journal of Cleaner Production*, **84**, 509–525, doi:10.1016/j.jclepro.2014.04.078.
- Brzoska, M. and C. Fröhlich, 2016: Climate change, migration and violent conflict: vulnerabilities, pathways and adaptation strategies. *Migration and Development*, **5**(2), 190–210, doi:10.1080/21632324.2015.1022973.
- Buchholz, T., M.D. Hurteau, J. Gunn, and D. Saah, 2016: A global meta-analysis of forest bioenergy greenhouse gas emission accounting studies. *GCB Bioenergy*, **8**(2), 281–289, doi:10.1111/gcbb.12245.
- Buchholz, T., S. Pringley, G. Marland, C. Canham, and N. Sampson, 2014: Uncertainty in projecting GHG emissions from bioenergy. *Nature Climate Change*, **4**(12), 1045–1047, doi:10.1038/nclimate2418.
- Buck, H.J., 2016: Rapid scale-up of negative emissions technologies: social barriers and social implications. *Climatic Change*, **139**(2), 155–167, doi:10.1007/s10584-016-1770-6.
- Buckeridge, M.S., 2015: Árvores urbanas em São Paulo: planejamento, economia e água (in Portuguese). *Estudos Avançados*, **29**(84), 85–101, doi:10.1590/s0103-40142015000200006.
- Buckeridge, M.S., A.P. de Souza, R.A. Arundale, K.J. Anderson-Teixeira, and E. Delucia, 2012: Ethanol from sugarcane in Brazil: A 'midway' strategy for increasing ethanol production while maximizing environmental benefits. *GCB Bioenergy*, **4**(2), 119–126, doi:10.1111/j.1757-1707.2011.01122.x.
- Bui, M. et al., 2018: Carbon capture and storage (CCS): the way forward. *Energy & Environmental Science*, **11**(5), 1062–1176, doi:10.1039/c7ee02342a.
- Building Futures and ICE, 2010: *Facing up to Rising Sea-Levels: Retreat? Defend? Attack?* Building Futures and the Institution of Civil Engineers (ICE), UK, 27 pp.
- Bulkeley, H., P.M. McGuirk, and R. Dowling, 2016: Making a smart city for the smart grid? The urban material politics of actualising smart electricity networks. *Environment and Planning A: Economy and Space*, **48**(9), 1709–1726, doi:10.1177/0308518x16648152.
- Bullock, J.M., J. Aronson, A.C. Newton, R.F. Pywell, and J.M. Rey-Benayas, 2011: Restoration of ecosystem services and biodiversity: conflicts and opportunities. *Trends in Ecology & Evolution*, **26**(10), 541–549, doi:10.1016/j.tree.2011.06.011.
- Burch, S., A. Shaw, A. Dale, and J. Robinson, 2014: Triggering transformative change: a development path approach to climate change response in communities. *Climate Policy*, **14**(4), 467–487, doi:10.1080/14693062.2014.876342.
- Burney, J.A. and R.L. Naylor, 2012: Smallholder Irrigation as a Poverty Alleviation Tool in Sub-Saharan Africa. *World Development*, **40**(1), 110–123, doi:10.1016/j.worlddev.2011.05.007.
- Burney, J.A. et al., 2014: Climate change adaptation strategies for smallholder farmers in the Brazilian Sertão. *Climatic Change*, **126**(1–2), 45–59, doi:10.1007/s10584-014-1186-0.
- Burns, W. and S. Nicholson, 2017: Bioenergy and carbon capture with storage (BECCS): the prospects and challenges of an emerging climate policy response. *Journal of Environmental Studies and Sciences*, **15**(2), 527–534, doi:10.1007/s13412-017-0445-6.
- Burton, A.J., H.J. Bambrick, and S. Friel, 2014: Is enough attention given to climate change in health service planning? An Australian perspective. *Global Health Action*, **7**(1), doi:10.3402/gha.v7.23903.
- Butler, C. and J. Adamowski, 2015: Empowering marginalized communities in water resources management: Addressing inequitable practices in Participatory Model Building. *Journal of Environmental Management*, **153**, 153–162, doi:10.1016/j.jenvman.2015.02.010.
- Butler, J.R.A. et al., 2015: Integrating Top-Down and Bottom-Up Adaptation Planning to Build Adaptive Capacity: A Structured Learning Approach. *Coastal Management*, **43**(4), 346–364, doi:10.1080/08920753.2015.1046802.
- Butler, J.R.A. et al., 2016a: Scenario planning to leap-frog the Sustainable Development Goals: An adaptation pathways approach. *Climate Risk Management*, **12**, 83–99, doi:10.1016/j.crm.2015.11.003.
- Butler, J.R.A. et al., 2016b: Priming adaptation pathways through adaptive co-management: Design and evaluation for developing countries. *Climate Risk Management*, **12**, 1–16, doi:10.1016/j.crm.2016.01.001.
- Cagno, E., E. Worrell, A. Trianni, and G. Pugliese, 2013: A novel approach for barriers to industrial energy efficiency. *Renewable and Sustainable Energy Reviews*, **19**, 290–308, doi:10.1016/j.rser.2012.11.007.
- Caldecott, B., G. Lomax, and M. Workman, 2015: *Stranded Carbon Assets and Negative Emissions Technologies*. Smith School of Enterprise and the Environment, University of Oxford, Oxford, UK, 37 pp.
- Calvin, K. et al., 2016: Implications of uncertain future fossil energy resources on bioenergy use and terrestrial carbon emissions. *Climatic Change*, **136**(1), 57–68, doi:10.1007/s10584-013-0923-0.
- Cambridge Econometrics, 2015: *Assessing the Employment and Social Impact of Energy Efficiency*. Cambridge Econometrics, Cambridge, UK, 139 pp.
- Cames, M., J. Graichen, A. Siemons, and V. Cook, 2015a: *Emission Reduction Targets for International Aviation and Shipping*. Öko-Institut on behalf of the European Parliament, Berlin, Germany, 52 pp.
- Cames, M., V. Graichen, J. Faber, and D. Nelissen, 2015b: *Greenhouse gas emission reduction targets for international shipping: Discussion paper*. Prepared by Öko-Institut and CE Defit on behalf of the German Federal Environment Agency (UBA), Berlin, Germany, 17 pp.
- Campos, I.S. et al., 2016: Climate adaptation, transitions, and socially innovative action-research approaches. *Ecology and Society*, **21**(1), art13, doi:10.5751/es-08059-210113.
- Camps-Calvet, M., J. Langemeyer, L. Calvet-Mir, and E. Gómez-Baggethun, 2016: Ecosystem services provided by urban gardens in Barcelona, Spain: Insights for policy and planning. *Environmental Science & Policy*, **62**, 14–23, doi:10.1016/j.envsci.2016.01.007.
- Canadell, J.G. and M.R. Raupach, 2008: Managing Forests for Climate Change Mitigation. *Science*, **320**(5882), 1456–1457, doi:10.1126/science.1155458.
- Canadell, J.G. and E.D. Schulze, 2014: Global potential of biospheric carbon management for climate mitigation. *Nature Communications*, **5**, 1–12, doi:10.1038/ncomms6282.
- Cannell, M.G.R., 2003: Carbon sequestration and biomass energy offset: theoretical, potential and achievable capacities globally, in Europe and the UK. *Biomass and Bioenergy*, **24**(2), 97–116, doi:10.1016/s0961-9534(02)00103-4.
- Cannon, S. and L. Summers, 2014: How Uber and the Sharing Economy Can Win Over Regulators. *Harvard Business Review*, **13**(10), 24–28.
- Caplow, S., P. Jagger, K. Lawlor, and E. Silis, 2011: Evaluating land use and livelihood impacts of early forest carbon projects: Lessons for learning about REDD+. *Environmental Science & Policy*, **14**(2), 152–167, doi:10.1016/j.envsci.2010.10.003.
- Carbo, M.C., R. Smit, B. Van Der Drift, and D. Jansen, 2011: Bio energy with CCS (BECCS): Large potential for BioSNG at low CO₂ avoidance cost. *Energy Procedia*, **4**, 2950–2954, doi:10.1016/j.egypro.2011.02.203.
- Carey, M., 2005: Living and dying with glaciers: People's historical vulnerability to avalanches and outburst floods in Peru. *Global and Planetary Change*, **47**(2–4), 122–134, doi:10.1016/j.gloplacha.2004.10.007.
- Carey, M., 2008: Disasters, Development, and Glacial Lake Control in Twentieth-Century Peru. In: *Mountains: Sources of Water, Sources of Knowledge* [Wiegandt, E. (ed.)]. Springer Netherlands, Dordrecht, The Netherlands, pp. 181–196, doi:10.1007/978-1-4020-6748-8_11.
- Carlson, K. and D.K.D. Pressnail, 2018: Value impacts of energy efficiency retrofits on commercial office buildings in Toronto, Canada. *Energy and Buildings*, **162**, 154–162, doi:10.1016/j.enbuild.2017.12.013.
- Carr, E.R. and S.N. Onzere, 2018: Really effective (for 15% of the men): Lessons in understanding and addressing user needs in climate services from Mali. *Climate Risk Management*, **22**, 82–95, doi:10.1016/j.crm.2017.03.002.
- Carter, J.G. et al., 2015: Climate change and the city: Building capacity for urban adaptation. *Progress in Planning*, **95**, 1–66, doi:10.1016/j.progress.2013.08.001.
- Carwardine, J. et al., 2015: Spatial Priorities for Restoring Biodiverse Carbon Forests. *BioScience*, **65**(4), 372–382, doi:10.1093/biosci/biv008.
- Cashman, A. and M.R. Nagdee, 2017: Impacts of Climate Change on Settlements and Infrastructure in the Coastal and Marine Environments of Caribbean Small Island Developing States (SIDS). In: *Caribbean Marine Climate Change Report Card: Science Review 2017*. Commonwealth Marine Economies Programme, pp. 153–173.
- Castrejón, D., A.M. Zavala, J.A. Flores, M.P. Flores, and D. Barrón, 2018: Analysis of the contribution of CCS to achieve the objectives of Mexico to reduce GHG emissions. *International Journal of Greenhouse Gas Control*, **71**, 184–193, doi:10.1016/j.ijggc.2018.02.019.
- Cattaneo, C. and G. Peri, 2016: The migration response to increasing temperatures. *Journal of Development Economics*, **122**, 127–146, doi:10.1016/j.jdeveco.2016.05.004.
- CCRIF, 2017: *Annual Report 2016–2017*. The Caribbean Catastrophe Risk Insurance Facility Segregated Portfolio Company (CCRIF SPC), Grand Cayman, Cayman Islands, 107 pp.
- Cengiz, M.S. and M.S. Mamiş, 2015: Price-Efficiency Relationship for Photovoltaic Systems on a Global Basis. *International Journal of Photoenergy*, **2015**(256101), 1–12, doi:10.1155/2015/256101.

- Challinor, A.J. et al., 2014: A meta-analysis of crop yield under climate change and adaptation. *Nature Climate Change*, 4(4), 287–291, doi:10.1038/nclimate2153.
- Challinor, A.J. et al., 2018: Improving the use of crop models for risk assessment and climate change adaptation. *Agricultural Systems*, 159, 296–306, doi:10.1016/j.agsy.2017.07.010.
- Chambers, L.E. et al., 2017: A database for traditional knowledge of weather and climate in the Pacific. *Meteorological Applications*, 24(3), 491–502, doi:10.1002/met.1648.
- Chandel, S.S., A. Sharma, and B.M. Marwaha, 2016: Review of energy efficiency initiatives and regulations for residential buildings in India. *Renewable and Sustainable Energy Reviews*, 54, 1443–1458, doi:10.1016/j.rser.2015.10.060.
- Chandra, A., P. Dargusch, and K.E. McNamara, 2016: How might adaptation to climate change by smallholder farming communities contribute to climate change mitigation outcomes? A case study from Timor-Leste, Southeast Asia. *Sustainability Science*, 11(3), 477–492, doi:10.1007/s11625-016-0361-9.
- Chang, C.-C., 1999: Carbon sequestration cost by afforestation in Taiwan. *Environmental Economics and Policy Studies*, 2(3), 199–213, doi:10.1007/bf03353911.
- Chang, Y., S. Wilkinson, R. Potangaroa, and E. Seville, 2010: Resources and capacity: lessons learned from post-disaster reconstruction resourcing in Indonesia, China and Australia. In: *The Construction, Building and Real Estate Research Conference of the Royal Institution of Chartered Surveyors 2010*.
- Chant, S., M. Klett-davies, and J. Ramalho, 2017: *Challenges and potential solutions for adolescent girls in urban settings: a rapid evidence review*. Gender & Adolescence: Global Evidence (GAGE), 47 pp.
- Chaturvedi, V. and P.R. Shukla, 2014: Role of energy efficiency in climate change mitigation policy for India: assessment of co-benefits and opportunities within an integrated assessment modeling framework. *Climatic Change*, 123(3–4), 597–609, doi:10.1007/s10584-013-0898-x.
- Chaturvedi, V. et al., 2015: Climate mitigation policy implications for global irrigation water demand. *Mitigation and Adaptation Strategies for Global Change*, 20(3), 389–407, doi:10.1007/s11027-013-9497-4.
- Chau, K.W., L.H.T. Choy, and C.J. Webster, 2018: Institutional innovations in land development and planning in the 20th and 21st centuries. *Habitat International*, 75, 90–95, doi:10.1016/j.habitatint.2018.03.011.
- Chaudhury, M., J. Vervoort, P. Kristjanson, P. Ericksen, and A. Ainslie, 2013: Participatory scenarios as a tool to link science and policy on food security under climate change in East Africa. *Regional Environmental Change*, 13(2), 389–398, doi:10.1007/s10113-012-0350-1.
- Chava, J. and P. Newman, 2016: Stakeholder Deliberation on Developing Affordable Housing Strategies: Towards Inclusive and Sustainable Transit-Oriented Developments. *Sustainability*, 8(10), 1024, doi:10.3390/su8101024.
- Chava, J., P. Newman, and R. Tiwari, 2018a: Gentrification in new-build and old-build transit-oriented developments: the case of Bengaluru. *Urban Research & Practice*, 1–17, doi:10.1080/17535069.2018.1437214.
- Chava, J., P. Newman, and R. Tiwari, 2018b: Gentrification of station areas and its impact on transit ridership. *Case Studies on Transport Policy*, 6(1), 1–10, doi:10.1016/j.cstp.2018.01.007.
- Chen, S. and B. Chen, 2016: Urban energy–water nexus: A network perspective. *Applied Energy*, 184, 905–914, doi:10.1016/j.apenergy.2016.03.042.
- Cheng, V.K.M. and G.P. Hammond, 2017: Life-cycle energy densities and land-take requirements of various power generators: A UK perspective. *Journal of the Energy Institute*, 90(2), 201–213, doi:10.1016/j.joei.2016.02.003.
- Cherubin, M.R. et al., 2015: Sugarcane expansion in Brazilian tropical soils-Effects of land use change on soil chemical attributes. *Agriculture, Ecosystems & Environment*, 211, 173–184, doi:10.1016/j.agee.2015.06.006.
- Cheyne, C. and M. Imran, 2016: Shared transport: Reducing energy demand and enhancing transport options for residents of small towns. *Energy Research & Social Science*, 18, 139–150, doi:10.1016/j.erss.2016.04.012.
- Chu, E., I. Anguelovski, and J.A. Carmin, 2016: Inclusive approaches to urban climate adaptation planning and implementation in the Global South. *Climate Policy*, 16(3), 372–392, doi:10.1080/14693062.2015.1019822.
- Chu, E., I. Anguelovski, and D. Roberts, 2017: Climate adaptation as strategic urbanism: assessing opportunities and uncertainties for equity and inclusive development in cities. *Cities*, 60, 378–387, doi:10.1016/j.cities.2016.10.016.
- Chu, E., T. Schenk, and J. Patterson, 2018: The Dilemmas of Citizen Inclusion in Urban Planning and Governance to Enable a 1.5°C Climate Change Scenario. *Urban Planning*, 3(2), 128–140, doi:10.17645/up.v3i2.1292.
- Chung Tiam Fook, T., 2017: Transformational processes for community-focused adaptation and social change: a synthesis. *Climate and Development*, 9(1), 5–21, doi:10.1080/17565529.2015.1086294.
- Cinner, J.E. et al., 2018: Building adaptive capacity to climate change in tropical coastal communities. *Nature Climate Change*, 8(2), 117–123, doi:10.1038/s41558-017-0065-x.
- Clark, D.G., J.D. Ford, T.C.L. Pearce, and L. Berrang-Ford, 2016: Vulnerability to unintentional injuries associated with land-use activities and search and rescue in Nunavut, Canada. *Social Science & Medicine*, 169, 18–26, doi:10.1016/j.socscimed.2016.09.026.
- Clark, M. and D. Tilman, 2017: Comparative analysis of environmental impacts of agricultural production systems, agricultural input efficiency, and food choice. *Environmental Research Letters*, 12(6), 064016, doi:10.1088/1748-9326/aa6cd5.
- Clarke, L. et al., 2014: Assessing transformation pathways. In: *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel, and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 413–510.
- Clean Energy Council, 2012: *Wind Farm Investment and Employment And Carbon Abatement in Australia*. Clean Energy Council, Melbourne, Australia, 45 pp.
- Clemens, M., J. Rijke, A. Pathirana, J. Evers, and N. Hong Quan, 2015: Social learning for adaptation to climate change in developing countries: insights from Vietnam. *Journal of Water and Climate Change*, 8(4), 365–378, doi:10.2166/wcc.2015.004.
- Clements, J., A. Ray, and G. Anderson, 2013: *The Value of Climate Services Across Economic and Public Sectors: A Review of Relevant Literature*. United States Agency for International Development (USAID), Washington DC, USA, 43 pp.
- Clerici, A., B. Cova, and G. Callegari, 2015: Decarbonization of the Electrical Power Sector in Europe: An Asset, An Opportunity or a Problem? *Energy & Environment*, 26(1–2), 127–142, doi:10.1260/0958-305x.26.1-2.127.
- Climate Council, 2016: *Renewable Energy Jobs: Future Growth in Australia*. Climate Council of Australia, Potts Point, Australia, 60 pp.
- Climate Council, 2017a: *Energy Storage: Poll of Australians August 2017*. Climate Council of Australia, Potts Point, Australia, 10 pp.
- Climate Council, 2017b: *State of Solar 2016: Globally and in Australia*. Climate Council of Australia, Potts Point, Australia, 24 pp.
- Cloutier, G. et al., 2015: Planning adaptation based on local actors' knowledge and participation: a climate governance experiment. *Climate Policy*, 15(4), 458–474, doi:10.1080/14693062.2014.937388.
- Cochrane, L. et al., 2017: A reflection on collaborative adaptation research in Africa and Asia. *Regional Environmental Change*, 17(5), 1553–1561, doi:10.1007/s10113-017-1140-6.
- Cogley, J.G., 2017: Climate science: The future of Asia's glaciers. *Nature*, 549(7671), 166–167, doi:10.1038/549166a.
- Colenbrander, S., A. Gouldson, A.H. Sudmant, and E. Papargyropoulou, 2015: The economic case for low-carbon development in rapidly growing developing world cities: A case study of Palembang, Indonesia. *Energy Policy*, 80, 24–35, doi:10.1016/j.enpol.2015.01.020.
- Colenbrander, S. et al., 2017: Can low-carbon urban development be pro-poor? The case of Kolkata, India. *Environment and Urbanization*, 29(1), 139–158, doi:10.1177/0956247816677775.
- Collas, L., R.E. Green, A. Ross, J.H. Wastell, and A. Balmford, 2017: Urban development, land sharing and land sparing: the importance of considering restoration. *Journal of Applied Ecology*, 54(6), 1865–1873, doi:10.1111/1365-2664.12908.
- Comello, S.D., S.J. Reichelstein, A. Sahoo, and T.S. Schmidt, 2017: Enabling Mini-Grid Development in Rural India. *World Development*, 93, 94–107, doi:10.1016/j.worlddev.2016.12.029.
- Conant, R.T., 2011: Sequestration through forestry and agriculture. *Wiley Interdisciplinary Reviews: Climate Change*, 2(2), 238–254, doi:10.1002/wcc.101.
- Confalonieri, U.E.C., J.A. Menezes, and C.M. de Souza, 2015: Climate change and adaptation of the health sector: the case of infectious diseases. *Virulence*, 6(6), 554–557, doi:10.1080/21505594.2015.1023985.
- Connor, P.M. et al., 2014: Policy and regulation for smart grids in the United Kingdom. *Renewable and Sustainable Energy Reviews*, 40, 269–286, doi:10.1016/j.rser.2014.07.065.
- Cook, C.L. and H. Dowlatabadi, 2011: Learning Adaptation: Climate-Related Risk Management in the Insurance Industry. In: *Climate Change Adaptation in Developed Nations: From Theory to Practice* [Ford, J.D. and L. Berrang-Ford (eds.)]. Advances in Global Change Research, Springer, Dordrecht, The Netherlands, pp. 255–265, doi:10.1007/978-94-007-0567-8_18.
- Cooney, G., J. Littlefield, J. Marriott, and T.J. Skone, 2015: Evaluating the Climate Benefits of CO₂-Enhanced Oil Recovery Using Life Cycle Analysis. *Environmental Science & Technology*, 49(12), 7491–7500, doi:10.1021/acs.est.5b00700.
- Cooper, J.A.G., M.C. O'Connor, and S. McIvor, 2016: Coastal defences versus coastal ecosystems: A regional appraisal. *Marine Policy*, doi:10.1016/j.marpol.2016.02.021.
- Coq-Huelva, D., A. Higuchi, R. Alfalla-Luque, R. Burgos-Morán, and R. Arias-Gutiérrez, 2017: Co-Evolution and Bio-Social Construction: The Kichwa Agroforestry Systems (Chakras) in the Ecuadorian Amazonia. *Sustainability*, 9(11), 1920, doi:10.3390/su9101920.

- Corbett, J.J., H. Wang, and J.J. Winebrake, 2009: The effectiveness and costs of speed reductions on emissions from international shipping. *Transportation Research Part D: Transport and Environment*, **14**(8), 593–598, doi:10.1016/j.trd.2009.08.005.
- Corfee-Morlot, J. et al., 2012: *Towards a Green Investment Policy Framework: The Case Of Low-Carbon, Climate- Resilient Infrastructure*. OCED Environment Working Papers No. 48, Organisation for Economic Co-operation and Development (OECD), Paris, France, 60 pp., doi:10.1787/5k8zth7s6s6d-en.
- Cornelissen, S., M. Koper, and Y.Y. Deng, 2012: The role of bioenergy in a fully sustainable global energy system. *Biomass and Bioenergy*, **41**, 21–33, doi:10.1016/j.biombioe.2011.12.049.
- Corsatea, T.D., 2014: Technological capabilities for innovation activities across Europe: Evidence from wind, solar and bioenergy technologies. *Renewable and Sustainable Energy Reviews*, **37**, 469–479, doi:10.1016/j.rser.2014.04.067.
- Corsten, M., A. Ramirez, L. Shen, J. Koorneef, and A. Faaij, 2013: Environmental impact assessment of CCS chains - Lessons learned and limitations from LCA literature. *International Journal of Greenhouse Gas Control*, **13**, 59–71, doi:10.1016/j.ijggc.2012.12.003.
- Cortekar, J. and M. Groth, 2015: Adapting energy infrastructure to climate change – Is there a need for government interventions and legal obligations within the German “energiewende”? *Energy Procedia*, **73**, 12–17, doi:10.1016/j.egypro.2015.07.552.
- Cortekar, J., S. Bender, M. Brune, and M. Groth, 2016: Why climate change adaptation in cities needs customised and flexible climate services. *Climate Services*, **4**, 42–51, doi:10.1016/j.cliser.2016.11.002.
- Costa, D., P. Burlando, and C. Priadi, 2016: The importance of integrated solutions to flooding and water quality problems in the tropical megacity of Jakarta. *Sustainable Cities and Society*, **20**, 199–209, doi:10.1016/j.scs.2015.09.009.
- Coulbaly, J.Y., B. Chiputwa, T. Nakelse, and G. Kundhlande, 2017: Adoption of agroforestry and the impact on household food security among farmers in Malawi. *Agricultural Systems*, **155**, 52–69, doi:10.1016/j.agsy.2017.03.017.
- Coulbaly, J.Y., G. Kundhlande, A. Tall, H. Kaur, and J. Hansen, 2015: *Which climate services do farmers and pastoralists need in Malawi? Baseline Study for the GFCS Adaptation Program in Africa*. CCAFS Working Paper 112, CGIAR Research Program on Climate Change, Agriculture and Food Security (CAAFS), Copenhagen, Denmark, 45 pp.
- Crate, S. et al., 2017: Permafrost livelihoods: A transdisciplinary review and analysis of thermokarst-based systems of indigenous land use. *Anthropocene*, **18**, 89–104, doi:10.1016/j.ancene.2017.06.001.
- Creutzig, F., E. Corbera, S. Bolwig, and C. Hunsberger, 2013: Integrating place-specific livelihood and equity outcomes into global assessments of bioenergy deployment. *Environmental Research Letters*, **8**(3), 035047, doi:10.1088/1748-9326/8/3/035047.
- Creutzig, F. et al., 2015: Bioenergy and climate change mitigation: an assessment. *GCB Bioenergy*, **7**(5), 916–944, doi:10.1111/gcbb.12205.
- Crispim, J., J. Braz, R. Castro, and J. Esteves, 2014: Smart Grids in the EU with smart regulation: Experiences from the UK, Italy and Portugal. *Utilities Policy*, **31**, 85–93, doi:10.1016/j.jup.2014.09.006.
- Crnčević, T. and V. Orlović Lovren, 2018: Displacement and climate change: improving planning policy and increasing community resilience. *International Journal of Climate Change Strategies and Management*, **10**(1), 105–120, doi:10.1108/ijccsm-05-2017-0103.
- Cronin, T. et al., 2016: Moving consensus and managing expectations: media and REDD+ in Indonesia. *Climatic Change*, **137**(1–2), 57–70, doi:10.1007/s10584-015-1563-3.
- Cuéllar-Franca, R.M. and A. Azapagic, 2015: Carbon capture, storage and utilisation technologies: A critical analysis and comparison of their life cycle environmental impacts. *Journal of CO₂ Utilization*, **9**, 82–102, doi:10.1016/j.jcou.2014.12.001.
- Cui, Z. et al., 2018: Pursuing sustainable productivity with millions of smallholder farmers. *Nature*, **555**(7696), 363–366, doi:10.1038/nature25785.
- Culwick, C. and K. Bobbins, 2016: *A Framework for a Green Infrastructure Planning Approach in the Gauteng City-Region*. GCRO Research Report No. 04, Gauteng City-Region Observatory (GCRO), Johannesburg, South Africa, 132 pp.
- Cunningham, S.C. et al., 2015: Balancing the environmental benefits of reforestation in agricultural regions. *Perspectives in Plant Ecology, Evolution and Systematics*, **17**(4), 301–317, doi:10.1016/j.ppees.2015.06.001.
- Cunsolo Willox, A., S.L. Harper, and V.L. Edge, 2013: Storytelling in a digital age: digital storytelling as an emerging narrative method for preserving and promoting indigenous oral wisdom. *Qualitative Research*, **13**(2), 127–147, doi:10.1177/1468794112446105.
- Cunsolo Willox, A. et al., 2012: “From this place and of this place.” Climate change, sense of place, and health in Nunatsiavut, Canada. *Social Science & Medicine*, **75**(3), 538–547, doi:10.1016/j.socscimed.2012.03.043.
- Cunsolo Willox, A. et al., 2015: Examining relationships between climate change and mental health in the Circumpolar North. *Regional Environmental Change*, **15**(1), 169–182, doi:10.1007/s10113-014-0630-z.
- Dagnachew, A.G., P.L. Lucas, A.F. Hof, and D.P. van Vuuren, 2018: Trade-offs and synergies between universal electricity access and climate change mitigation in Sub-Saharan Africa. *Energy Policy*, **114**, 355–366, doi:10.1016/j.enpol.2017.12.023.
- Daigloglu, V. et al., 2017: Greenhouse gas emission curves for advanced biofuel supply chains. *Nature Climate Change*, **7**(12), 920–924, doi:10.1038/s41558-017-0006-8.
- Dale, V.H., E.S. Parish, and K.L. Kline, 2015: Risks to global biodiversity from fossil-fuel production exceed those from biofuel production. *Biofuels, Bioproducts and Biorefining*, **9**(2), 177–189, doi:10.1002/bbb.1528.
- Dallimer, M. and N. Strange, 2015: Why socio-political borders and boundaries matter in conservation. *Trends in Ecology and Evolution*, **30**(3), 132–139, doi:10.1016/j.tree.2014.12.004.
- Daly, P. et al., 2017: Rehabilitating coastal agriculture and aquaculture after inundation events: Spatial analysis of livelihood recovery in post-tsunami Aceh, Indonesia. *Ocean and Coastal Management*, **142**, 218–232, doi:10.1016/j.ocecoaman.2017.03.027.
- DaMatta, F.M., A. Grandis, B.C. Arenque, and M.S. Buckeridge, 2010: Impacts of climate changes on crop physiology and food quality. *Food Research International*, **43**(7), 1814–1823, doi:10.1016/j.foodres.2009.11.001.
- Dang Phan, T.-H., R. Brouwer, and M. Davidson, 2014: The economic costs of avoided deforestation in the developing world: A meta-analysis. *Journal of Forest Economics*, **20**(1), 1–16, doi:10.1016/j.jfe.2013.06.004.
- David, G.S., E.D. Carvalho, D. Lemos, A.N. Silveira, and M. Dall’Aglio-Sobrinho, 2015: Ecological carrying capacity for intensive tilapia (*Oreochromis niloticus*) cage aquaculture in a large hydroelectrical reservoir in Southeastern Brazil. *Aquacultural Engineering*, **66**, 30–40, doi:10.1016/j.aquaeng.2015.02.003.
- Davide, B.J., M. Othengrafen, and S. Deppisch, 2015: Spatial planning practices of adapting to climate change. *European Journal of Spatial Development*, **57**, 1–21.
- Davies, M., C. Béné, A. Arnall, A. Newsham, and C. Coirolo, 2013: Promoting Resilient Livelihoods through Adaptive Social Protection: Lessons from 124 programmes in South Asia. *Development Policy Review*, **31**(1), 27–58, doi:10.1111/j.1467-7679.2013.00600.x.
- de Besi, M. and K. McCormick, 2015: Towards a Bioeconomy in Europe: National, Regional and Industrial Strategies. *Sustainability*, **7**(8), 10461–10478, doi:10.3390/su70810461.
- de Coninck, H.C. and S.M. Benson, 2014: Carbon Dioxide Capture and Storage: Issues and Prospects. *Annual Review of Environment and Resources*, **39**, 243–70, doi:10.1146/annurev-environ-032112-095222.
- de Groot, J. and L. Steg, 2007: General Beliefs and the Theory of Planned Behavior: The Role of Environmental Concerns in the TPB. *Journal of Applied Social Psychology*, **37**(8), 1817–1836, doi:10.1111/j.1559-1816.2007.00239.x.
- de Jong, S. et al., 2017: Life-cycle analysis of greenhouse gas emissions from renewable jet fuel production. *Biotechnology for Biofuels*, **10**(1), 64, doi:10.1186/s13068-017-0739-7.
- de Leon, E.G. and J. Pittcock, 2017: Integrating climate change adaptation and climate-related disaster risk-reduction policy in developing countries: A case study in the Philippines. *Climate and Development*, **9**(5), 471–478, doi:10.1080/17565529.2016.1174659.
- de Nicola, F., 2015: The impact of weather insurance on consumption, investment, and welfare. *Quantitative Economics*, **6**(3), 637–661, doi:10.3982/qe300.
- de Oliveira Garcia, W., T. Amann, and J. Hartmann, 2018: Increasing biomass demand enlarges negative forest nutrient budget areas in wood export regions. *Scientific Reports*, **8**(1), 5280, doi:10.1038/s41598-018-22728-5.
- De Silva, S.S. and F.B. Davy (eds.), 2010: *Success stories in asian aquaculture*. Springer, Dordrecht, The Netherlands, 214 pp., doi:10.1007/978-90-481-3087-0.
- De Souza, A.P., J.-C. Cocuron, A.C. Garcia, A.P. Alonso, and M.S. Buckeridge, 2015: Changes in Whole-Plant Metabolism during the Grain-Filling Stage in Sorghum Grown under Elevated CO₂ and Drought. *Plant Physiology*, **169**(3), 1755–65, doi:10.1104/pp.15.01054.
- De Visser, E. et al., 2011: PlantaCap: A ligno-cellulose bio-ethanol plant with CCS. *Energy Procedia*, **4**, 2941–2949, doi:10.1016/j.egypro.2011.02.202.
- DeCicco, J.M. et al., 2016: Carbon balance effects of U.S. biofuel production and use. *Climatic Change*, **138**(3–4), 667–680, doi:10.1007/s10584-016-1764-4.
- Deenihan, G. and B. Caulfield, 2014: Estimating the health economic benefits of cycling. *Journal of Transport & Health*, **1**(2), 141–149, doi:10.1016/j.jth.2014.02.001.
- del Ninno, C., S. Coll-Black, and P. Fallavier, 2016: Social Protection: Building Resilience Among the Poor and Protecting the Most Vulnerable. In: *Confronting Drought in Africa’s Drylands: Opportunities for Enhancing Resilience*. The World Bank, Washington DC, USA, pp. 165–184, doi:10.1596/978-1-4648-0817-3_ch10.
- Delshad, A. and L. Raymond, 2013: Media Framing and Public Attitudes Toward Biofuels. *Review of Policy Research*, **30**(2), 190–210, doi:10.1111/ropr.12009.
- Demirbas, A.H. and I. Demirbas, 2007: Importance of rural bioenergy for developing countries. *Energy Conversion and Management*, **48**(8), 2386–2398, doi:10.1016/j.enconman.2007.03.005.

- Demuzere, M. et al., 2014: Mitigating and adapting to climate change: Multi-functional and multi-scale assessment of green urban infrastructure. *Journal of Environmental Management*, **146**, 107–115, doi:[10.1016/j.jenvman.2014.07.025](https://doi.org/10.1016/j.jenvman.2014.07.025).
- Deng, Q. et al., 2017: A global meta-analysis of soil phosphorus dynamics after afforestation. *New Phytologist*, **213**(1), 181–192, doi:[10.1111/nph.14119](https://doi.org/10.1111/nph.14119).
- Deng, X. and C. Zhao, 2015: Identification of Water Scarcity and Providing Solutions for Adapting to Climate Changes in the Heihe River Basin of China. *Advances in Meteorology*, **2015**, 1–13, doi:[10.1155/2015/279173](https://doi.org/10.1155/2015/279173).
- Deng, Y.Y., M. Koper, M. Haigh, and V. Dornburg, 2015: Country-level assessment of long-term global bioenergy potential. *Biomass and Bioenergy*, **74**, 253–267, doi:[10.1016/j.biombioe.2014.12.003](https://doi.org/10.1016/j.biombioe.2014.12.003).
- DeNooyer, T.A., J.M. Peschel, Z. Zhang, and A.S. Stillwell, 2016: Integrating water resources and power generation: The energy-water nexus in Illinois. *Applied Energy*, **162**, 363–371, doi:[10.1016/j.apenergy.2015.10.071](https://doi.org/10.1016/j.apenergy.2015.10.071).
- Derakhshan, G., H.A. Shayanfar, and A. Kazemi, 2016: The optimization of demand response programs in smart grids. *Energy Policy*, **94**, 295–306, doi:[10.1016/j.enpol.2016.04.009](https://doi.org/10.1016/j.enpol.2016.04.009).
- Descheemaeker, K. et al., 2016: Climate change adaptation and mitigation in smallholder crop-livestock systems in sub-Saharan Africa: a call for integrated impact assessments. *Regional Environmental Change*, **16**(8), 2331–2343, doi:[10.1007/s10113-016-0957-8](https://doi.org/10.1007/s10113-016-0957-8).
- Despotou, E., 2012: Vision for Photovoltaics in the Future. *Comprehensive Renewable Energy*, **1**(10), 179–198, doi:[10.1016/b978-0-08-087872-0.00109-8](https://doi.org/10.1016/b978-0-08-087872-0.00109-8).
- Dessens, O., A. Anger, T. Barker, and J. Pyle, 2014: Effects of decarbonising international shipping and aviation on climate mitigation and air pollution. *Environmental Science & Policy*, **44**, 1–10, doi:[10.1016/j.envsci.2014.07.007](https://doi.org/10.1016/j.envsci.2014.07.007).
- Devaraju, N., G. Bala, and A. Modak, 2015: Effects of large-scale deforestation on precipitation in the monsoon regions: remote versus local effects. *Proceedings of the National Academy of Sciences*, **112**(11), 3257–62, doi:[10.1073/pnas.1423439112](https://doi.org/10.1073/pnas.1423439112).
- Devereux, S., 2016: Social protection for enhanced food security in sub-Saharan Africa. *Food Policy*, **60**, 52–62, doi:[10.1016/j.foodpol.2015.03.009](https://doi.org/10.1016/j.foodpol.2015.03.009).
- Devereux, S. et al., 2015: *Evaluating the targeting effectiveness of social transfers: A literature review*. IDS Working Paper 460, Institute of Development Studies (IDS), Brighton, UK, 67 pp.
- Dhar, S., M. Pathak, and P.R. Shukla, 2017: Electric vehicles and India's low carbon passenger transport: a long-term co-benefits assessment. *Journal of Cleaner Production*, **146**, 139–148, doi:[10.1016/j.jclepro.2016.05.111](https://doi.org/10.1016/j.jclepro.2016.05.111).
- Dhar, S., M. Pathak, and P.R. Shukla, 2018: Transformation of India's transport sector under global warming of 2°C and 1.5°C scenario. *Journal of Cleaner Production*, **172**, 417–427, doi:[10.1016/j.jclepro.2017.10.076](https://doi.org/10.1016/j.jclepro.2017.10.076).
- Dhar, T.K. and L. Khirfan, 2017: Climate change adaptation in the urban planning and design research: missing links and research agenda. *Journal of Environmental Planning and Management*, **60**(4), 602–627, doi:[10.1080/09640568.2016.1178107](https://doi.org/10.1080/09640568.2016.1178107).
- Di Gregorio, M., C.T. Gallemore, M. Brockhaus, L. Fatorelli, and E. Muharrom, 2017a: How institutions and beliefs affect environmental discourse: Evidence from an eight-country survey on REDD+. *Global Environmental Change*, **45**, 133–150, doi:[10.1016/j.gloenvcha.2017.05.006](https://doi.org/10.1016/j.gloenvcha.2017.05.006).
- Di Gregorio, M. et al., 2017b: Climate policy integration in the land use sector: Mitigation, adaptation and sustainable development linkages. *Environmental Science & Policy*, **67**, 35–43, doi:[10.1016/j.envsci.2016.11.004](https://doi.org/10.1016/j.envsci.2016.11.004).
- Diaz, D.B., 2016: Estimating global damages from sea level rise with the Coastal Impact and Adaptation Model (CIAM). *Climatic Change*, **137**(1), 143–156, doi:[10.1007/s10584-016-1675-4](https://doi.org/10.1007/s10584-016-1675-4).
- Díaz, S., D.A. Wardle, and A. Hector, 2009: Incorporating biodiversity in climate change mitigation initiatives. In: *Biodiversity, Ecosystem Functioning, and Human Wellbeing*. Oxford University Press, Oxford, UK, doi:[10.1093/acprof:oso/9780199547951.003.0011](https://doi.org/10.1093/acprof:oso/9780199547951.003.0011).
- Diaz-Maurin, F. and Z. Kovacic, 2015: The unresolved controversy over nuclear power: A new approach from complexity theory. *Global Environmental Change*, **31**, 207–216, doi:[10.1016/j.gloenvcha.2015.01.014](https://doi.org/10.1016/j.gloenvcha.2015.01.014).
- Diczfalusy, B. and P. Taylor, 2011: *Technology roadmap. Energy-efficient Buildings: Heating and Cooling Equipment*. International Energy Agency (IEA), Paris, France, 51 pp.
- Dilling, L. and E. Failey, 2013: Managing carbon in a multiple use world: The implications of land-use decision context for carbon management. *Global Environmental Change*, **23**(1), 291–300, doi:[10.1016/j.gloenvcha.2012.10.012](https://doi.org/10.1016/j.gloenvcha.2012.10.012).
- Dinku, T. et al., 2014: Bridging critical gaps in climate services and applications in africa. *Earth Perspectives*, **1**(1), 15, doi:[10.1186/2194-6434-1-15](https://doi.org/10.1186/2194-6434-1-15).
- Dixon, R.K., J.K. Winjum, and P.E. Schroeder, 1993: Conservation and sequestration of carbon: The potential of forest and agroforest management practices. *Global Environmental Change*, **3**(2), 159–173, doi:[10.1016/0959-3780\(93\)90004-5](https://doi.org/10.1016/0959-3780(93)90004-5).
- Dixon, R.K., J.K. Winjum, K.J. Andrasko, J.J. Lee, and P.E. Schroeder, 1994: Integrated land-use systems: Assessment of promising agroforest and alternative land-use practices to enhance carbon conservation and sequestration. *Climatic Change*, **27**(1), 71–92, doi:[10.1007/bf01098474](https://doi.org/10.1007/bf01098474).
- Dixon, T., S.T. McCoy, and I. Havercroft, 2015: Legal and Regulatory Developments on CCS. *International Journal of Greenhouse Gas Control*, **40**, 431–448, doi:[10.1016/j.ijggc.2015.05.024](https://doi.org/10.1016/j.ijggc.2015.05.024).
- Dodman, D., S. Colenbrander, and D. Archer, 2017a: Conclusion: towards adaptive urban governance. In: *Responding to climate change in Asian cities: Governance for a more resilient urban future* [Archer, D., S. Colenbrander, and D. Dodman (eds.)]. Routledge Earthscan, Abingdon, UK and New York, NY, USA, pp. 200–217.
- Dodman, D., H. Leck, M. Rusca, and S. Colenbrander, 2017b: African Urbanisation and Urbanism: Implications for risk accumulation and reduction. *International Journal of Disaster Risk Reduction*, **26**, 7–15, doi:[10.1016/j.ijdrr.2017.06.029](https://doi.org/10.1016/j.ijdrr.2017.06.029).
- Dominy, S.W.J. et al., 2010: A retrospective and lessons learned from Natural Resources Canada's Forest 2020 afforestation initiative. *The Forestry Chronicle*, **86**(3), 339–347, doi:[10.5558/tfc86339-3](https://doi.org/10.5558/tfc86339-3).
- Dong, S., 2017: Himalayan Grasslands: Indigenous Knowledge and Institutions for Social Innovation. In: *Environmental Sustainability from the Himalayas to the Oceans* [Dong, S., J. Bandyopadhyay, and S. Chaturvedi (eds.)]. Springer International Publishing, Cham, Switzerland, pp. 99–126, doi:[10.1007/978-3-319-44037-8_5](https://doi.org/10.1007/978-3-319-44037-8_5).
- Dooley, J.J., 2013: Estimating the Supply and Demand for Deep Geologic CO₂ Storage Capacity over the Course of the 21st Century: A Meta-analysis of the Literature. *Energy Procedia*, **37**, 5141–5150, doi:[10.1016/j.egypro.2013.06.429](https://doi.org/10.1016/j.egypro.2013.06.429).
- Dornburg, V. et al., 2010: Bioenergy revisited: Key factors in global potentials of bioenergy. *Energy & Environmental Science*, **3**(3), 258–267, doi:[10.1039/b922422j](https://doi.org/10.1039/b922422j).
- Dorward, P., G. Clarkson, and R. Stern, 2015: *Participatory integrated climate services for agriculture (PICSA): Field manual*. Walker Institute, University of Reading, Reading, UK, 65 pp.
- Dougill, A.J. et al., 2017: Mainstreaming conservation agriculture in Malawi: Knowledge gaps and institutional barriers. *Journal of Environmental Management*, **195**, 25–34, doi:[10.1016/j.jenvman.2016.09.076](https://doi.org/10.1016/j.jenvman.2016.09.076).
- Dowd, A.-M., M. Rodriguez, and T. Jeanneret, 2015: Social Science Insights for the BioCCS Industry. *Energies*, **8**(5), 4024–4042, doi:[10.3390/en8054024](https://doi.org/10.3390/en8054024).
- Downie, A., D. Lau, A. Cowie, and P. Munroe, 2014: Approaches to greenhouse gas accounting methods for biomass carbon. *Biomass and Bioenergy*, **60**, 18–31, doi:[10.1016/j.biombioe.2013.11.009](https://doi.org/10.1016/j.biombioe.2013.11.009).
- Dragojlovic, N. and E. Einsiedel, 2015: What drives public acceptance of second-generation biofuels? Evidence from Canada. *Biomass and Bioenergy*, **75**, 201–212, doi:[10.1016/j.biombioe.2015.02.020](https://doi.org/10.1016/j.biombioe.2015.02.020).
- Trielsma, M.J. et al., 2017: Bridging the gap between climate science and regional-scale biodiversity conservation in south-eastern Australia. *Ecological Modelling*, **360**, 343–362, doi:[10.1016/j.ecolmodel.2017.06.022](https://doi.org/10.1016/j.ecolmodel.2017.06.022).
- Duarte, C.M., I.J. Losada, I.E. Hendriks, I. Mazarrasa, and N. Marbà, 2013: The role of coastal plant communities for climate change mitigation and adaptation. *Nature Climate Change*, **3**(11), 961–968, doi:[10.1038/nclimate1970](https://doi.org/10.1038/nclimate1970).
- Duguma, L.A., P.A. Minang, and M. Van Noordwijk, 2014: Climate change mitigation and adaptation in the land use sector: From complementarity to synergy. *Environmental Management*, **54**(3), 420–432, doi:[10.1007/s00267-014-0331-x](https://doi.org/10.1007/s00267-014-0331-x).
- Durkalec, A., C. Furgal, M.W. Skinner, and T. Sheldon, 2015: Climate change influences on environment as a determinant of Indigenous health: Relationships to place, sea ice, and health in an Inuit community. *Social Science & Medicine*, **136**–137, 17–26, doi:[10.1016/j.socscimed.2015.04.026](https://doi.org/10.1016/j.socscimed.2015.04.026).
- Duvat, V., 2013: Coastal protection structures in Tarawa Atoll, Republic of Kiribati. *Sustainability Science*, **8**(3), 363–379, doi:[10.1007/s11625-013-0205-9](https://doi.org/10.1007/s11625-013-0205-9).
- Eakin, H.C.C., M.C.C. Lemos, and D.R.R. Nelson, 2014: Differentiating capacities as a means to sustainable climate change adaptation. *Global Environmental Change*, **27**(1), 1–8, doi:[10.1016/j.gloenvcha.2014.04.013](https://doi.org/10.1016/j.gloenvcha.2014.04.013).
- Eberhard, A., J. Kolker, and J. Leigland, 2014: *South Africa's Renewable Energy IPP Procurement Program: Success Factors and Lessons*. Public-Private Infrastructure Advisory Facility (PIIAF), Washington DC, USA, 47 pp.
- Eberhard, A., O. Rosnes, M. Shkaratan, and H. Vennemo, 2011: *Africa's Power Infrastructure: Investment, Integration, Efficiency*. The World Bank, Washington DC, USA, 352 pp., doi:[10.1596/978-0-8213-8455-8](https://doi.org/10.1596/978-0-8213-8455-8).
- Eberhard, A., K. Gratwick, E. Morella, and P. Antmann, 2016: *Independent Power Projects in Sub-Saharan Africa: Lessons from Five Key Countries*. The World Bank, Washington DC, USA, 382 pp., doi:[10.1596/978-1-4648-0800-5](https://doi.org/10.1596/978-1-4648-0800-5).
- Ebi, K.L. and J.J. Hess, 2017: The past and future in understanding the health risks of and responses to climate variability and change. *International Journal of Biometeorology*, **61**, 71–80, doi:[10.1007/s00484-017-1406-1](https://doi.org/10.1007/s00484-017-1406-1).

- Ebi, K.L. and M. Otmani del Barrio, 2017: Lessons Learned on Health Adaptation to Climate Variability and Change: Experiences Across Low- and Middle-Income Countries. *Environmental Health Perspectives*, **125**(6), 065001, doi:10.1289/ehp405.
- Ebi, K.L., J.C. Semenza, and J. Rocklöv, 2016: Current medical research funding and frameworks are insufficient to address the health risks of global environmental change. *Environmental Health*, **15**(1), 108, doi:10.1186/s12940-016-0183-3.
- Ebi, K.L., T.J. Teisberg, L.S. Kalkstein, L. Robinson, and R.F. Weiher, 2004: Heat Watch/ Warning Systems Save Lives: Estimated Costs and Benefits for Philadelphia 1995–98. *Bulletin of the American Meteorological Society*, **85**(8), 1067–1074, doi:10.1175/bams-85-8-1067.
- Edwards, D.P. et al., 2017: Climate change mitigation: potential benefits and pitfalls of enhanced rock weathering in tropical agriculture. *Biology Letters*, **13**(4), doi:10.1098/rsbl.2016.0715.
- Edwards, P., 2015: Aquaculture environment interactions: Past, present and likely future trends. *Aquaculture*, **447**, 2–14, doi:10.1016/j.aquaculture.2015.02.001.
- EEA, 2017: *Aviation and shipping – impacts on Europe's environment*. EEA Report No 22/2017, TERM 2017: Transport and Environment Reporting Mechanism (TERM) report. European Environment Agency (EEA), Copenhagen, Denmark, 70 pp., doi:10.2800/181890.
- Eisenack, K. and R. Stecker, 2012: A framework for analyzing climate change adaptations as actions. *Mitigation and Adaptation Strategies for Global Change*, **17**(3), 243–260, doi:10.1007/s11027-011-9323-9.
- Eisenberg, D.A., 2016: Transforming building regulatory systems to address climate change. *Building Research & Information*, **44**(5–6), 468–473, doi:10.1080/09613218.2016.1126943.
- Elliott, J. et al., 2014: Constraints and potentials of future irrigation water availability on agricultural production under climate change. *Proceedings of the National Academy of Sciences*, **111**(9), 3239–3244, doi:10.1073/pnas.1222474110.
- Elliott, M. and E. Wolanski, 2015: Editorial - Climate change impacts on rural poverty in low-elevation coastal zones, Edward B. Barbier. *Estuarine, Coastal and Shelf Science*, **165**, ii–iii, doi:10.1016/s0272-7714(15)00287-5.
- Ellison, D. et al., 2017: Trees, forests and water: Cool insights for a hot world. *Global Environmental Change*, **43**, 51–61, doi:10.1016/j.gloenvcha.2017.01.002.
- Elmqvist, T. et al., 2013: *Urbanization, Biodiversity and Ecosystem Services: Challenges and Opportunities: A Global Assessment*. Springer Netherlands, Dordrecht, The Netherlands, 755 pp.
- Elmqvist, T. et al., 2015: Benefits of restoring ecosystem services in urban areas. *Current Opinion in Environmental Sustainability*, **14**, 101–108, doi:10.1016/j.cosust.2015.05.001.
- Emmer, A., J. Klimeš, M. Mergili, V. Vilimek, and A. Cochachin, 2016: 882 lakes of the Cordillera Blanca: An inventory, classification, evolution and assessment of susceptibility to outburst floods. *CATENA*, **147**, 269–279, doi:10.1016/j.catena.2016.07.032.
- Endo, I. et al., 2017: Participatory land-use approach for integrating climate change adaptation and mitigation into basin-scale local planning. *Sustainable Cities and Society*, **35**, 47–56, doi:10.1016/j.scs.2017.07.014.
- Endo, S. et al., 2012: Measurement of soil contamination by radionuclides due to the Fukushima Dai-ichi Nuclear Power Plant accident and associated estimated cumulative external dose estimation. *Journal of Environmental Radioactivity*, **111**, 18–27, doi:10.1016/j.jenvrad.2011.11.006.
- Ensor, J. and B. Harvey, 2015: Social learning and climate change adaptation: evidence for international development practice. *Wiley Interdisciplinary Reviews: Climate Change*, **6**(5), 509–522, doi:10.1002/wcc.348.
- Ensor, J.E., S.E. Park, S.J. Attwood, A.M. Kaminski, and J.E. Johnson, 2016: Can community-based adaptation increase resilience? *Climate and Development*, **1**–18, doi:10.1080/17565529.2016.1223595.
- Ensor, J.E. et al., 2018: Variation in perception of environmental change in nine Solomon Islands communities: implications for securing fairness in community-based adaptation. *Regional Environmental Change*, **18**(4), 1131–1143, doi:10.1007/s10113-017-1242-1.
- Erb, K.-H., H. Haberl, and C. Plutzer, 2012: Dependency of global primary bioenergy crop potentials in 2050 on food systems, yields, biodiversity conservation and political stability. *Energy Policy*, **47**, 260–269, doi:10.1016/j.enpol.2012.04.066.
- Erb, K.-H. et al., 2016: Exploring the biophysical option space for feeding the world without deforestation. *Nature Communications*, **7**, 11382, doi:10.1038/ncomms11382.
- Erb, K.-H. et al., 2017: Unexpectedly large impact of forest management and grazing on global vegetation biomass. *Nature*, **553**(7686), 73–76, doi:10.1038/nature25138.
- Ertör, I. and M. Ortega-Cerdà, 2017: Unpacking the objectives and assumptions underpinning European aquaculture. *Environmental Politics*, **26**(5), 893–914, doi:10.1080/09644016.2017.1306908.
- Essl, I. and V. Mauerhofer, 2018: Opportunities for mutual implementation of nature conservation and climate change policies: A multilevel case study based on local stakeholder perceptions. *Journal of Cleaner Production*, **183**, 898–907, doi:10.1016/j.jclepro.2018.01.210.
- Esteban, M. and J. Portugal-Pereira, 2014: Post-disaster resilience of a 100% renewable energy system in Japan. *Energy*, **68**, 756–764, doi:10.1016/j.energy.2014.02.045.
- Esteve, P., C. Varela-Ortega, I. Blanco-Gutiérrez, and T.E. Downing, 2015: A hydro-economic model for the assessment of climate change impacts and adaptation in irrigated agriculture. *Ecological Economics*, **120**, 49–58, doi:10.1016/j.ecolecon.2015.09.017.
- Estrada, F., R. Tol, and W. Botzen, 2017: A global economic assessment of city policies to reduce climate change impacts. *Nature Climate Change*, **7**, 403–406, doi:10.1038/nclimate3301.
- Evans, M.C. et al., 2015: Carbon farming via assisted natural regeneration as a cost-effective mechanism for restoring biodiversity in agricultural landscapes. *Environmental Science & Policy*, **50**, 114–129, doi:10.1016/j.envsci.2015.02.003.
- Ewing, M. and S. Msangi, 2009: Biofuels production in developing countries: assessing tradeoffs in welfare and food security. *Environmental Science & Policy*, **12**(4), 520–528, doi:10.1016/j.envsci.2008.10.002.
- Ewing, R., S. Hamidi, and J.B. Grace, 2016: Compact development and VMT-Environmental determinism, self-selection, or some of both? *Environment and Planning B: Planning and Design*, **43**(4), 737–755, doi:10.1177/0265813515594811.
- Fabbri, A. et al., 2011: From geology to economics: Technico-economic feasibility of a biofuel-CCS system. *Energy Procedia*, **4**, 2901–2908, doi:10.1016/j.egypro.2011.02.197.
- Fabian, N., 2015: Economics: Support low-carbon investment. *Nature*, **519**(7541), 27–29, doi:10.1038/519027a.
- Fader, M., S. Shi, W. von Bloh, A. Bondeau, and W. Cramer, 2016: Mediterranean irrigation under climate change: more efficient irrigation needed to compensate for increases in irrigation water requirements. *Hydrology and Earth System Sciences*, **20**(2), 953–973, doi:10.5194/hess-20-953-2016.
- Fajardy, M. and N. Mac Dowell, 2017: Can BECCS deliver sustainable and resource efficient negative emissions? *Energy & Environmental Science*, **10**(6), 1389–1426, doi:10.1039/c7ee00465f.
- Falco, S., F. Adinolfi, M. Bozzola, and F. Capitanio, 2014: Crop Insurance as a Strategy for Adapting to Climate Change. *Journal of Agricultural Economics*, **65**(2), 485–504, doi:10.1111/1477-9552.12053.
- Falconner, G.N., K. Descheemaeker, B. Traore, A. Bayoko, and K.E. Giller, 2018: Agricultural intensification and policy interventions: Exploring plausible futures for smallholder farmers in Southern Mali. *Land Use Policy*, **70**, 623–634, doi:10.1016/j.landusepol.2017.10.044.
- FAO, 2013a: *Food wastage footprint. Impacts on natural resources. Summary Report*. Food and Agriculture Organisation of the United Nations (FAO), Rome, Italy, 63 pp.
- FAO, 2013b: *The state of Food and Agriculture: Food systems for better nutrition*. Food and Agriculture Organization of the United Nations (FAO), Rome, Italy, 99 pp.
- FAO, 2016: *The State of World Fisheries and Aquaculture 2016. Contributing to food security and nutrition for all*. Food and Agricultural Organization of the United Nations (FAO), Rome, Italy, 200 pp.
- FAO and NZAGRC, 2017: *Options for low emission development in the Kenya dairy sector – reducing enteric methane for food security and livelihoods*. Food and Agriculture Organization of the United Nations (FAO), Rome, Italy and New Zealand Agricultural Greenhouse Gas Research Centre (NZAGRC), 43 pp.
- FAO, IFAD, UNICEF, WFP, and WHO, 2017: *The state of food security and nutrition in the world: Building resilience for peace and food security*. Food and Agricultural Organization of the United Nations (FAO), Rome, Italy, 117 pp.
- Färe, R., S. Grosskopf, C.A. Pasurka, and R. Shadbegian, 2018: Pollution abatement and employment. *Empirical Economics*, **54**(1), 259–285, doi:10.1007/s00181-016-1205-2.
- Farzaneh, M., M.S. Allahyari, C.A. Damalas, and A. Seidavi, 2017: Crop insurance as a risk management tool in agriculture: The case of silk farmers in northern Iran. *Land Use Policy*, **64**, 225–232, doi:10.1016/j.landusepol.2017.02.018.
- Favretto, N., L.C. Stringer, M.S. Buckeridge, and S. Afionis, 2017: Policy and Diplomacy in the Production of Second Generation Ethanol in Brazil: International Relations with the EU, the USA and Africa. In: *Advances of Basic Science for Second Generation from Sugarcane* [Buckeridge, M.S. and A.P. De Souza (eds.)]. Springer International Publishing, New York, pp. 197–212, doi:10.1007/978-3-319-49826-3_11.
- Feeley, K.J. and M.R. Silman, 2016: Disappearing climates will limit the efficacy of Amazonian protected areas. *Diversity and Distributions*, **22**(11), 1081–1084, doi:10.1111/ddi.12475.
- Felton, A. et al., 2016: How climate change adaptation and mitigation strategies can threaten or enhance the biodiversity of production forests: Insights from Sweden. *Biological Conservation*, **194**, 11–20, doi:10.1016/j.biocon.2015.11.030.

- FEMA, 2014: *Building Science Support and Code Changes Aiding Sandy Recovery. Hurricane Sandy Recovery Fact Sheet No. 3*. FEMA, Washington DC, USA, 4 pp.
- Fenger, A.N., A. Skovmand Bosselmann, R. Asare, and A. de Neergaard, 2017: The impact of certification on the natural and financial capitals of Ghanaian cocoa farmers. *Agroecology and Sustainable Food Systems*, **41**(2), 143–166, doi:10.1080/21683565.2016.1258606.
- Fernández-Giménez, M.E., B. Batkhisig, B. Batbuyan, and T. Ulambayar, 2015: Lessons from the Dzud: Community-Based Rangeland Management Increases the Adaptive Capacity of Mongolian Herders to Winter Disasters. *World Development*, **68**, 48–65, doi:10.1016/j.worlddev.2014.11.015.
- Fernández-Llamazares et al., 2017: An empirically tested overlap between indigenous and scientific knowledge of a changing climate in Bolivian Amazonia. *Regional Environmental Change*, **17**(6), 1673–1685, doi:10.1007/s10113-017-1125-5.
- Fernández-Viñé, M.B., T. Gómez-Navarro, and S.F. Capuz-Rizo, 2010: Eco-efficiency in the SMEs of Venezuela. Current status and future perspectives. *Journal of Cleaner Production*, **18**(8), 736–746, doi:10.1016/j.jclepro.2009.12.005.
- Ferrario, F. et al., 2014: The effectiveness of coral reefs for coastal hazard risk reduction and adaptation. *Nature Communications*, **5**, 1–9, doi:10.1038/ncomms4794.
- Few, R., A. Martin, and N. Gross-Camp, 2017: Trade-offs in linking adaptation and mitigation in the forests of the Congo Basin. *Regional Environmental Change*, **17**(3), 851–863, doi:10.1007/s10113-016-1080-6.
- Fidelman, P., T. Van Tuyen, K. Nong, and M. Nursey-Bray, 2017: The institutions-adaptive capacity nexus: Insights from coastal resources co-management in Cambodia and Vietnam. *Environmental Science & Policy*, **76**, 103–112, doi:10.1016/j.envsci.2017.06.018.
- Figueroa, P., 2016: Nuclear Risk Governance in Japan and the Fukushima Triple Disaster: Lessons Unlearned. In: *Disaster Governance in Urbanising Asia* [Miller, M.A. and M. Douglass (eds.)]. Springer Singapore, Singapore, pp. 263–282, doi:10.1007/978-981-287-649-2_13.
- Figus, G., K. Turner, P. McGregor, and A. Katris, 2017: Making the case for supporting broad energy efficiency programmes: Impacts on household incomes and other economic benefits. *Energy Policy*, **111**, 157–165, doi:10.1016/j.enpol.2017.09.028.
- Finon, D. and F. Roques, 2013: European Electricity Market Reforms: The “Visible Hand” of Public Coordination. *Economics of Energy & Environmental Policy*, **2**(2), doi:10.5547/2160-5890.2.2.6.
- Fioresse, G., M. Catenacci, V. Bosetti, and E. Verdolini, 2014: The power of biomass: Experts disclose the potential for success of bioenergy technologies. *Energy Policy*, **65**, 94–114, doi:10.1016/j.enpol.2013.10.015.
- Firth, L.B. et al., 2014: Between a rock and a hard place: Environmental and engineering considerations when designing coastal defence structures. *Coastal Engineering*, **87**, 122–135, doi:10.1016/j.coastaleng.2013.10.015.
- Fischedick, M. et al., 2014: Industry. In: *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel, and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 739–810.
- Fischer, G. and L. Schrattenholzer, 2001: Global bioenergy potentials through 2050. *Biomass and Bioenergy*, **20**(3), 151–159, doi:10.1016/S0961-9534(00)00074-X.
- Fishman, R., N. Devineni, and S. Raman, 2015: Can improved agricultural water use efficiency save India’s groundwater? *Environmental Research Letters*, **10**(8), 084022, doi:10.1088/1748-9326/10/8/084022.
- Flynn, M., J. Ford, T. Pearce, S. Harper, and IHACC Research Team, 2018: Participatory scenario planning and climate change impacts, adaptation, and vulnerability research in the Arctic. *Environmental Science & Policy*, **79**, 45–53, doi:10.1016/j.envsci.2017.10.012.
- Foley, J.A. et al., 2011: Solutions for a cultivated planet. *Nature*, **478**(7369), 337–342, doi:10.1038/nature10452.
- Forbes, B.C. et al., 2009: High resilience in the Yamal-Nenets social-ecological system, West Siberian Arctic, Russia. *Proceedings of the National Academy of Sciences*, **106**(52), 22041–22048, doi:10.1073/pnas.0908286106.
- Ford, J.D., 2012: Indigenous health and climate change. *American Journal of Public Health*, **102**(7), 1260–1266, doi:10.2105/ajph.2012.300752.
- Ford, J.D., G. McDowell, and T. Pearce, 2015: The adaptation challenge in the Arctic. *Nature Climate Change*, **5**(12), 1046–1053, doi:10.1038/nclimate2723.
- Ford, J.D., T. Pearce, F. Duerden, C. Furgal, and B. Smit, 2010: Climate change policy responses for Canada’s Inuit population: The importance of and opportunities for adaptation. *Global Environmental Change*, **20**(1), 177–191, doi:10.1016/j.gloenvcha.2009.10.008.
- Ford, J.D. et al., 2014: Adapting to the Effects of Climate Change on Inuit Health. *American Journal of Public Health*, **104**(S3), e9–e17, doi:10.2105/ajph.2013.301724.
- Ford, J.D. et al., 2016: Community-based adaptation research in the Canadian Arctic. *Wiley Interdisciplinary Reviews: Climate Change*, **7**(2), 175–191, doi:10.1002/wcc.376.
- Ford, J.D. et al., 2018: Preparing for the health impacts of climate change in Indigenous communities: The role of community-based adaptation. *Global Environmental Change*, **49**, 129–139, doi:10.1016/j.gloenvcha.2018.02.006.
- Forman, C., I.K. Muritala, R. Pardemann, and B. Meyer, 2016: Estimating the global waste heat potential. *Renewable and Sustainable Energy Reviews*, **57**, 1568–1579, doi:10.1016/j.rser.2015.12.192.
- Fornell, R., T. Bernström, and A. Åsblad, 2013: Techno-economic analysis of a kraft pulp-mill-based biorefinery producing both ethanol and dimethyl ether. *Energy*, **50**(1), 83–92, doi:10.1016/j.energy.2012.11.041.
- Foxon, T. et al., 2015: Low carbon infrastructure investment: extending business models for sustainability. *Infrastructure Complexity*, **2**(1), 1–13, doi:10.1186/s40551-015-0009-4.
- Francesch-Huidobro, M., M. Dabrowski, Y. Tai, F. Chan, and D. Stead, 2017: Governance challenges of flood-prone delta cities: Integrating flood risk management and climate change in spatial planning. *Progress in Planning*, **114**, 1–27, doi:10.1016/j.progress.2015.11.001.
- Frank, S. et al., 2013: How effective are the sustainability criteria accompanying the European Union 2020 biofuel targets? *GCB Bioenergy*, **5**(3), 306–314, doi:10.1111/j.1757-1707.2012.01188.x.
- Franke, A.C., G.J. van den Brand, and K.E. Giller, 2014: Which farmers benefit most from sustainable intensification? An ex-ante impact assessment of expanding grain legume production in Malawi. *European Journal of Agronomy*, **58**, 28–38, doi:10.1016/j.eja.2014.04.002.
- Frankenberg, E., B. Sikoki, C. Sumantri, W. Suriastini, and D. Thomas, 2013: Education, Vulnerability, and Resilience after a Natural Disaster. *Ecology and Society*, **18**(2), 16, doi:10.5751/es-05377-180216.
- Fraser, E. et al., 2016: Biotechnology or organic? Extensive or intensive? Global or local? A critical review of potential pathways to resolve the global food crisis. *Trends in Food Science & Technology*, **48**, 78–87, doi:10.1016/j.tifs.2015.11.006.
- Fricko, O. et al., 2016: Energy sector water use implications of a 2°C climate policy. *Environmental Research Letters*, **11**(3), 034011, doi:10.1088/1748-9326/11/3/034011.
- Fridahl, M., 2017: Socio-political prioritization of bioenergy with carbon capture and storage. *Energy Policy*, **104**, 89–99, doi:10.1016/j.enpol.2017.01.050.
- Fridman, M., A.K.- Lam, and O. Krasko, 2016: Characteristics of young adults of Belarus with post-Chernobyl papillary thyroid carcinoma: a long-term follow-up of patients with early exposure to radiation at the 30th anniversary of the accident. *Clinical Endocrinology*, **85**(6), 971–978, doi:10.1111/cen.13137.
- Fu, X. and J. Song, 2017: Assessing the Economic Costs of Sea Level Rise and Benefits of Coastal Protection: A Spatiotemporal Approach. *Sustainability*, **9**(8), 1495, doi:10.3390/su9081495.
- Fuentes-Saguar, P.D., A.J. Mainar-Causapé, and E. Ferrari, 2017: The Role of Bioeconomy Sectors and Natural Resources in EU Economies: A Social Accounting Matrix-Based Analysis Approach. *Sustainability*, **9**(12), 2383, doi:10.3390/su9122383.
- Furtado, A.T. and R. Perrot, 2015: Innovation dynamics of the wind energy industry in South Africa and Brazil: technological and institutional lock-ins. *Innovation and Development*, **5**(2), 263–278, doi:10.1080/2157930x.2015.1057978.
- Fuso Nerini, F. et al., 2018: Mapping synergies and trade-offs between energy and the Sustainable Development Goals. *Nature Energy*, **3**(1), 10–15, doi:10.1038/s41560-017-0036-5.
- Fuss, S. et al., 2014: Betting on negative emissions. *Nature Climate Change*, **4**(10), 850–853, doi:10.1038/nclimate2392.
- Fuss, S. et al., 2018: Negative emissions – Part 2: Costs, potentials and side effects. *Environmental Research Letters*, **13**(6), 063002, doi:10.1088/1748-9326/aabf9f.
- Fytily, D. and A. Zabanotou, 2017: Social acceptance of bioenergy in the context of climate change and sustainability – A review. *Current Opinion in Green and Sustainable Chemistry*, **8**, 5–9, doi:10.1016/j.cogsc.2017.07.006.
- Gajjar, S.P., C. Singh, and T. Deshpande, 2018: Tracing back to move ahead: a review of development pathways that constrain adaptation futures. *Climate and Development*, 1–15, doi:10.1080/17565529.2018.1442793.
- Gamborg, C., H.T. Anker, and P. Sandøe, 2014: Ethical and legal challenges in bioenergy governance: Coping with value disagreement and regulatory complexity. *Energy Policy*, **69**, 326–333, doi:10.1016/j.enpol.2014.02.013.
- Gao, Y. and P. Newman, 2018: Beijing’s Peak Car Transition: Hope for Emerging Cities in the 1.5°C Agenda. *Urban Planning*, **3**(2), 82–93, doi:10.17645/up.v3i2.1246.
- García de Jalón, S., S. Silvestri, and A.P. Barnes, 2017: The potential for adoption of climate smart agricultural practices in Sub-Saharan livestock systems. *Regional Environmental Change*, **17**(2), 399–410, doi:10.1007/s10113-016-1026-z.

- García Romero, H. and A. Molina, 2015: *Agriculture and Adaptation to Climate Change: The Role of Insurance in Risk Management: The Case of Colombia*. Inter-American Development Bank (IDB), Washington DC, USA, 49 pp., doi:10.18235/0000053.
- Garg, A., J. Maheshwari, P.R. Shukla, and R. Rawal, 2017: Energy appliance transformation in commercial buildings in India under alternate policy scenarios. *Energy*, **140**, 952–965, doi:10.1016/j.energy.2017.09.004.
- Garrett-Peltier, H., 2017: Green versus brown: Comparing the employment impacts of energy efficiency, renewable energy, and fossil fuels using an input-output model. *Economic Modelling*, **61**, 439–447, doi:10.1016/j.econmod.2016.11.012.
- Garsaball, E.C. and H. Markov, 2017: Climate change: are building codes keeping up? A case study on hurricanes in the Caribbean. *Proceedings of the Institution of Civil Engineers – Forensic Engineering*, **170**(2), 67–71, doi:10.1680/jfoen.16.00034.
- Gasc, F., D. Guerrier, S. Barrett, and S. Anderson, 2014: *Assessing the effectiveness of investments in climate information services*. International Institute for Environment and Development (IIED), London, UK, 4 pp.
- Gatersleben, B. and D. Uzzell, 2007: Affective Appraisals of the Daily Commute. *Environment and Behavior*, **39**(3), 416–431, doi:10.1177/0013916506294032.
- Gaüzère, P., F. Jiguet, and V. Devictor, 2016: Can protected areas mitigate the impacts of climate change on bird's species and communities? *Diversity and Distributions*, **22**(6), 625–637, doi:10.1111/ddi.12426.
- Geburu, B., P. Kibaya, T. Ramahaleo, K. Kwena, and P. Mapfumo, 2015: *Improving access to climate-related information for adaptation*. International Development Research Centre (IDRC), Ottawa, ON, Canada, 4 pp.
- Geels, F.W., B.K. Sovacool, T. Schwanen, and S. Sorrell, 2017: Sociotechnical transitions for deep decarbonization. *Science*, **357**(6357), 1242–1244, doi:10.1126/science.aao3760.
- Gemenne, F. and J. Blocher, 2017: How can migration serve adaptation to climate change? Challenges to fleshing out a policy ideal. *Geographical Journal*, **183**, 336–347, doi:10.1111/geoj.12205.
- Gencsü, I. and M. Hino, 2015: *Raising Ambition to Reduce International Aviation and Maritime Emissions. Contributing paper for Seizing the Global Opportunity: Partnerships for Better Growth and a Better Climate*. New Climate Economy, London, UK and Washington DC, USA, 24 pp.
- Geneletti, D., D. La Rosa, M. Spyra, and C. Cortinovis, 2017: A review of approaches and challenges for sustainable planning in urban peripheries. *Landscape and Urban Planning*, **165**, 231–243, doi:10.1016/j.landurbplan.2017.01.013.
- Genesio, L., F.P. Vaccari, and F. Miglietta, 2016: Black carbon aerosol from biochar threatens its negative emission potential. *Global Change Biology*, **22**(7), 2313–2314, doi:10.1111/gcb.13254.
- Geng, Y. et al., 2016: Cost analysis of air capture driven by wind energy under different scenarios. *Journal of Modern Power Systems and Clean Energy*, **4**(2), 275–281, doi:10.1007/s40565-015-0150-y.
- Gentile, N. et al., 2015: Monitoring Protocol to Assess the Overall Performance of Lighting and Daylighting Retrofit Projects. *Energy Procedia*, **78**, 2681–2686, doi:10.1016/j.egypro.2015.11.347.
- Georgescu, M. et al., 2015: Prioritizing urban sustainability solutions: Coordinated approaches must incorporate scale-dependent built environment induced effects. *Environmental Research Letters*, **10**(6), 061001, doi:10.1088/1748-9326/10/6/061001.
- Geraint, E. and F. Gianluca, 2016: *The social acceptance of wind energy: JRC Science for Policy Report*. European Commission, Joint Research Centre (JRC), Brussels, Belgium, 77 pp., doi:10.2789/696070.
- Gerbens-Leenes, W., A.Y. Hoekstra, and T.H. van der Meer, 2009: The water footprint of bioenergy. *Proceedings of the National Academy of Sciences*, **106**(25), 10219–10223, doi:10.1073/pnas.0812619106.
- Gerber, P.J. et al., 2013: *Tackling climate change through livestock – A global assessment of emissions and mitigation opportunities*. Food and Agriculture Organization of the United Nations (FAO), Rome, Italy, 133 pp.
- Gerke, B.F., M.A. McNeil, and T. Tu, 2017: The International Database of Efficient Appliances (IDEA): A new tool to support appliance energy-efficiency deployment. *Applied Energy*, **205**, 453–464, doi:10.1016/j.apenergy.2017.07.093.
- German, L. and G. Schoneveld, 2012: A review of social sustainability considerations among EU-approved voluntary schemes for biofuels, with implications for rural livelihoods. *Energy Policy*, **51**, 765–778, doi:10.1016/j.enpol.2012.09.022.
- Ghahramani, A. and D. Bowran, 2018: Transformative and systemic climate change adaptations in mixed crop-livestock farming systems. *Agricultural Systems*, **164**, 236–251, doi:10.1016/j.agsy.2018.04.011.
- Gheewala, S.H., G. Berndes, and G. Jewitt, 2011: The bioenergy and water nexus. *Biofuels, Bioproducts and Biorefining*, **5**(4), 353–360, doi:10.1002/bbb.295.
- Gi, K., F. Sano, A. Hayashi, and K. Akimoto, 2018: A model-based analysis on energy systems transition for climate change mitigation and ambient particulate matter 2.5 concentration reduction. *Mitigation and Adaptation Strategies for Global Change*, 1–24, doi:10.1007/s11027-018-9806-z.
- Giannantonio, C., 2014: The Relevance of Emerging Solutions for Thinking, Decision Making and Acting. The case of Smart Grids. *Ecological Modelling*, **271**(C), 62–71, doi:10.1016/j.ecolmodel.2013.04.001.
- Gibbs, M.T., 2016: Why is coastal retreat so hard to implement? Understanding the political risk of coastal adaptation pathways. *Ocean and Coastal Management*, **130**, 107–114, doi:10.1016/j.ocecoaman.2016.06.002.
- Gibon, T., A. Arvesen, and E.G. Hertwich, 2017: Life cycle assessment demonstrates environmental co-benefits and trade-offs of low-carbon electricity supply options. *Renewable and Sustainable Energy Reviews*, **76**, 1283–1290, doi:10.1016/j.rser.2017.03.078.
- Gil, J., M. Siebold, and T. Berger, 2015: Adoption and development of integrated crop–livestock–forestry systems in Mato Grosso, Brazil. *Agriculture, Ecosystems & Environment*, **199**, 394–406, doi:10.1016/j.agee.2014.10.008.
- Gilderbloom, J.I., W.W. Riggs, and W.L. Meares, 2015: Does walkability matter? An examination of walkability's impact on housing values, foreclosures and crime. *Cities*, **42**, 13–24, doi:10.1016/j.cities.2014.08.001.
- Giles-Corti, B. et al., 2016: City planning and population health: a global challenge. *The Lancet*, **388**(10062), 2912–2924, doi:10.1016/s0140-6736(16)30066-6.
- Gilfillan, D., T.T. Nguyen, and H.T. Pham, 2017: Coordination and health sector adaptation to climate change in the Vietnamese Mekong Delta. *Ecology and Society*, **22**(3), 14, doi:10.5751/es-09235-220314.
- Giller, K.E. et al., 2015: Beyond conservation agriculture. *Frontiers in Plant Science*, **6**, 870, doi:10.3389/fpls.2015.00870.
- Gillingham, P.K. et al., 2015: The effectiveness of protected areas in the conservation of species with changing geographical ranges. *Biological Journal of the Linnean Society*, **115**(3), 707–717, doi:10.1111/bjij.12506.
- Gioli, G., G. Hugo, M.M. Costa, and J. Scheffran, 2016: Human mobility, climate adaptation, and development. *Migration and Development*, **5**(2), 165–170, doi:10.1080/21632324.2015.1096590.
- Girard, C., M. Pulido-Velazquez, J.-D. Rinaudo, C. Pagé, and Y. Caballero, 2015: Integrating top–down and bottom–up approaches to design global change adaptation at the river basin scale. *Global Environmental Change*, **34**, 132–146, doi:10.1016/j.gloenvcha.2015.07.002.
- Girvetz, E.H., E. Gray, T.H. Tear, and M.A. Brown, 2014: Bridging climate science to adaptation action in data sparse Tanzania. *Environmental Conservation*, **41**(02), 229–238, doi:10.1017/s0376892914000010.
- Giuliano, G. and S. Hanson (eds.), 2017: *The Geography of Urban Transportation (4th edition)*. Guilford Press, New York, USA, 400 pp.
- Glaas, E., E.C.H. Keskitalo, and M. Hjerpe, 2017: Insurance sector management of climate change adaptation in three Nordic countries: the influence of policy and market factors. *Journal of Environmental Planning and Management*, **60**(9), 1601–1621, doi:10.1080/09640568.2016.1245654.
- Glazebrook, G. and P. Newman, 2018: The City of the Future. *Urban Planning*, **3**(2), 1–20, doi:10.17645/up.v3i2.1247.
- Glenk, K. and S. Colombo, 2011: Designing policies to mitigate the agricultural contribution to climate change: an assessment of soil based carbon sequestration and its ancillary effects. *Climatic Change*, **105**(1–2), 43–66, doi:10.1007/s10584-010-9885-7.
- Global CCS Institute, 2017: *The Global Status of CCS 2016 Summary Report*. Global CCS Institute, Canberra, Australia, 28 pp.
- Godfray, H.C.J. and T. Garnett, 2014: Food security and sustainable intensification. *Philosophical Transactions of the Royal Society B: Biological Sciences*, **369**(1639).
- Godfrey-Wood, R. and B.C.R. Flower, 2017: Does Guaranteed Employment Promote Resilience to Climate Change? The Case of India's Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA). *Development Policy Review*, **38**(1), 42–49, doi:10.1111/dpr.12309.
- Goetz, A., L. German, C. Hunsberger, and O. Schmidt, 2017: Do no harm? Risk perceptions in national bioenergy policies and actual mitigation performance. *Energy Policy*, **108**, 776–790, doi:10.1016/j.enpol.2017.03.067.
- Goetz, S.J. et al., 2015: Measurement and monitoring needs, capabilities and potential for addressing reduced emissions from deforestation and forest degradation under REDD+. *Environmental Research Letters*, **10**(12), 123001, doi:10.1088/1748-9326/10/12/123001.
- Gohin, A., 2008: Impacts of the European Biofuel Policy on the Farm Sector: A General Equilibrium Assessment. *Review of Agricultural Economics*, **30**(4), 623–641, doi:10.1111/j.1467-9353.2008.00437.x.
- Gomez, L.F. et al., 2015: Urban environment interventions linked to the promotion of physical activity: A mixed methods study applied to the urban context of Latin America. *Social Science & Medicine*, **131**, 18–30, doi:10.1016/j.socscimed.2015.02.042.
- Gómez-Aiza, L. et al., 2017: Can wildlife management units reduce land use/land cover change and climate change vulnerability? Conditions to encourage this capacity in Mexican municipalities. *Land Use Policy*, **64**, 317–326, doi:10.1016/j.landusepol.2017.03.004.
- Gong, X. et al., 2013: Sub-tropic degraded red soil restoration: Is soil organic carbon build-up limited by nutrients supply. *Forest Ecology and Management*, **300**, 77–87, doi:10.1016/j.foreco.2012.12.002.

- González, A.G., M.G. Zotano, W. Swan, P. Bouillard, and H. Elkadi, 2017: Maturity Matrix Assessment: Evaluation of Energy Efficiency Strategies in Brussels Historic Residential Stock. *Energy Procedia*, **111**, 407–416, doi:10.1016/j.egypro.2017.03.202.
- González, M.F. and T. Ilyina, 2016: Impacts of artificial ocean alkalization on the carbon cycle and climate in Earth system simulations. *Geophysical Research Letters*, **43**(12), 6493–6502, doi:10.1002/2016gl068576.
- Goodale, M.W. and A. Milman, 2016: Cumulative adverse effects of offshore wind energy development on wildlife. *Journal of Environmental Planning and Management*, **59**(1), 1–21, doi:10.1080/09640568.2014.973483.
- Goodwin, P. and K. Van Dender, 2013: 'Peak Car' – Themes and Issues. *Transport Reviews*, **33**(3), 243–254, doi:10.1080/01441647.2013.804133.
- Goosen, H. et al., 2013: Climate Adaptation Services for the Netherlands: an operational approach to support spatial adaptation planning. *Regional Environmental Change*, **14**(3), 1035–1048, doi:10.1007/s10113-013-0513-8.
- Gössling, S. and A.S. Choi, 2015: Transport transitions in Copenhagen: Comparing the cost of cars and bicycles. *Ecological Economics*, **113**, 106–113, doi:10.1016/j.ecolecon.2015.03.006.
- Gota, S., C. Huizenga, K. Peet, N. Medimorec, and S. Bakker, 2018: Decarbonising transport to achieve Paris Agreement targets. *Energy Efficiency*, 1–24, doi:10.1007/s12053-018-9671-3.
- Gough, C. and P. Upham, 2011: Biomass energy with carbon capture and storage (BECCS or Bio-CCS). *Greenhouse Gases: Science and Technology*, **1**(4), 324–334, doi:10.1002/ghg.34.
- Gough, C., L. O'Keefe, and S. Mander, 2014: Public perceptions of CO₂ transportation in pipelines. *Energy Policy*, **70**, 106–114, doi:10.1016/j.enpol.2014.03.039.
- Grabowski, P.P. and J.M. Kerr, 2014: Resource constraints and partial adoption of conservation agriculture by hand-hoe farmers in Mozambique. *International Journal of Agricultural Sustainability*, **12**(1), 37–53, doi:10.1080/14735903.2013.782703.
- Granderson, A.A., 2017: The Role of Traditional Knowledge in Building Adaptive Capacity for Climate Change: Perspectives from Vanuatu. *Weather, Climate, and Society*, **9**(3), 545–561, doi:10.1175/wcas-d-16-0094.1.
- Grandin, J., H. Haarstad, K. Kjaeras, and S. Bouzarovski, 2018: The politics of rapid urban transformation. *Current opinion in Environmental Sustainability*, **31**, 16–22, doi:10.1016/j.cosust.2017.12.002.
- Greatrex, H. et al., 2015: *Scaling up index insurance for smallholder farmers: Recent evidence and insights*. CCAFS Report No. 14, CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), 32 pp.
- Grecequet, M., J. DeWaard, J.J. Hellmann, and G.J. Abel, 2017: Climate Vulnerability and Human Migration in Global Perspective. *Sustainability*, **9**(5), 720, doi:10.3390/su9050720.
- Green, A.L. et al., 2014: Designing Marine Reserves for Fisheries Management, Biodiversity Conservation, and Climate Change Adaptation. *Coastal Management*, **42**(2), 143–159, doi:10.1080/08920753.2014.877763.
- Green, D. and L. Minchin, 2014: Living on climate-changed country: Indigenous health, well-being and climate change in remote Australian communities. *EcoHealth*, **11**(2), 263–272, doi:10.1007/s10393-013-0892-9.
- Green, D. et al., 2017: Advancing Australia's role in climate change and health research. *Nature Climate Change*, **7**(2), 103–106, doi:10.1038/nclimate3182.
- Green, J. and P. Newman, 2017: Disruptive innovation, stranded assets and forecasting: the rise and rise of renewable energy. *Journal of Sustainable Finance & Investment*, **7**(2), 169–187, doi:10.1080/20430795.2016.1265410.
- Green, O.O. et al., 2016: Adaptive governance to promote ecosystem services in urban green spaces. *Urban Ecosystems*, **19**(1), 77–93, doi:10.1007/s11252-015-0476-2.
- Greene, J.S. and M. Geisken, 2013: Socioeconomic impacts of wind farm development: a case study of Weatherford, Oklahoma. *Energy, Sustainability and Society*, **3**(1), 2, doi:10.1186/2192-0567-3-2.
- Greenwood, O., H.L. Mossman, A.J. Suggitt, R.J. Curtis, and I.M.D. Maclean, 2016: Using in situ management to conserve biodiversity under climate change. *Journal of Applied Ecology*, **53**(3), 885–894, doi:10.1111/1365-2664.12602.
- Gregg, J.S. and S.J. Smith, 2010: Global and regional potential for bioenergy from agricultural and forestry residue biomass. *Mitigation and Adaptation Strategies for Global Change*, **15**(3), 241–262, doi:10.1007/s11027-010-9215-4.
- Greve, M., B. Reyers, A. Mette Lykke, and J.-C. Svenning, 2013: Spatial optimization of carbon-stocking projects across Africa integrating stocking potential with co-benefits and feasibility. *Nature Communications*, **4**, 2975, doi:10.1038/ncomms3975.
- Griscom, B.W. et al., 2017: Natural climate solutions. *Proceedings of the National Academy of Sciences*, **114**(44), 11645–11650, doi:10.1073/pnas.1710465114.
- Gu, A., F. Teng, and Y. Wang, 2014: China energy-water nexus: Assessing the water-saving synergy effects of energy-saving policies during the eleventh Five-year Plan. *Energy Conversion and Management*, **85**, 630–637, doi:10.1016/j.enconman.2014.04.054.
- Guarnacci, U., 2012: Governance for sustainable reconstruction after disasters: Lessons from Nias, Indonesia. *Environmental Development*, **2**(1), 73–85, doi:10.1016/j.envdev.2012.03.010.
- Guido, Z. et al., 2018: The stresses and dynamics of smallholder coffee systems in Jamaica's Blue Mountains: a case for the potential role of climate services. *Climatic Change*, **147**(1–2), 253–266, doi:10.1007/s10584-017-2125-7.
- Gunasekara, R., G. Pecnik, M. Girvan, and T. de la Rosa, 2018: Delivering integrated water management benefits: the North West Bicester development, UK. *Proceedings of the Institution of Civil Engineers – Water Management*, **171**(2), 110–121, doi:10.1680/jwama.16.00119.
- Gupta, D.K. et al., 2016: Mitigation of greenhouse gas emission from rice–wheat system of the Indo-Gangetic plains: Through tillage, irrigation and fertilizer management. *Agriculture, Ecosystems & Environment*, **230**, 1–9, doi:10.1016/j.agee.2016.05.023.
- Gutiérrez, J.L. et al., 2012: Physical Ecosystem Engineers and the Functioning of Estuaries and Coasts. *Treatise on Estuarine and Coastal Science*, **7**, 53–81, doi:10.1016/b978-0-12-374711-2.00705-1.
- Gwedla, N. and C.M. Shackleton, 2015: The development visions and attitudes towards urban forestry of officials responsible for greening in South African towns. *Land Use Policy*, **42**, 17–26, doi:10.1016/j.landusepol.2014.07.004.
- Haberl, H. et al., 2011: Global bioenergy potentials from agricultural land in 2050: Sensitivity to climate change, diets and yields. *Biomass and Bioenergy*, **35**(12), 4753–4769, doi:10.1016/j.biombioe.2011.04.035.
- Haerberli, W., Y. Schaub, and C. Huggel, 2017: Increasing risks related to landslides from degrading permafrost into new lakes in de-glaciating mountain ranges. *Geomorphology*, **293**(Part B), 405–417, doi:10.1016/j.geomorph.2016.02.009.
- Haerberli, W. et al., 2016: New lakes in deglaciating high-mountain regions – opportunities and risks. *Climatic Change*, **139**(2), 201–214, doi:10.1007/s10584-016-1771-5.
- Haggblade, S. et al., 2015: Motivating and preparing African youth for successful careers in agribusiness: Insights from agricultural role models. *Journal of Agribusiness in Developing and Emerging Economies*, **5**(2), 170–189, doi:10.1108/jadee-01-2015-0001.
- Haim, D., E.M. White, and R.J. Alig, 2016: Agriculture Afforestation for Carbon Sequestration Under Carbon Markets in the United States: Leakage Behavior from Regional Allowance Programs. *Applied Economic Perspectives and Policy*, **38**(1), 132–151, doi:10.1093/aep/pvp010.
- Hakala, K., M. Kontturi, and K. Pahkala, 2008: Field biomass as global energy source. *Agricultural and Food Science*, **18**(3–4), 347–365, doi:10.23986/afsci.5950.
- Hall, J.M., T. Van Holt, A.E. Daniels, V. Balthazar, and E.F. Lambin, 2012: Trade-offs between tree cover, carbon storage and floristic biodiversity in reforesting landscapes. *Landscape Ecology*, **27**(8), 1135–1147, doi:10.1007/s10980-012-9755-y.
- Hall, S. and T.J. Foxon, 2014: Values in the Smart Grid: The co-evolving political economy of smart distribution. *Energy Policy*, **74**, 600–609, doi:10.1016/j.enpol.2014.08.018.
- Hallegatte, S., C. Green, R.J. Nicholls, and J. Corfee-Morlot, 2013: Future flood losses in major coastal cities. *Nature Climate Change*, **3**(9), 802–806, doi:10.1038/nclimate1979.
- Hallström, E., A. Carlsson-Kanyama, and P. Börjesson, 2015: Environmental impact of dietary change: A systematic review. *Journal of Cleaner Production*, **91**, 1–11, doi:10.1016/j.jclepro.2014.12.008.
- Hallström, E., Q. Gee, P. Scarborough, and D.A. Cleveland, 2017: A healthier US diet could reduce greenhouse gas emissions from both the food and health care systems. *Climatic Change*, **142**(1–2), 199–212, doi:10.1007/s10584-017-1912-5.
- Hamilton, L.C., J. Hartter, M. Lemcke-Stampono, D.W. Moore, and T.G. Safford, 2015: Tracking Public Beliefs About Anthropogenic Climate Change. *PLOS ONE*, **10**(9), e0138208, doi:10.1371/journal.pone.0138208.
- Hamilton, T.L. and C.J. Wichman, 2018: Bicycle infrastructure and traffic congestion: Evidence from DC's Capital Bikeshare. *Journal of Environmental Economics and Management*, **87**, 72–93, doi:10.1016/j.jeem.2017.03.007.
- Hammar, T., C.A. Ortiz, J. Stendahl, S. Ahlgren, and P.-A. Hansson, 2015: Time-Dynamic Effects on the Global Temperature When Harvesting Logging Residues for Bioenergy. *BioEnergy Research*, **8**(4), 1912–1924, doi:10.1007/s12155-015-9649-3.
- Hammond, G.P. and B. Li, 2016: Environmental and resource burdens associated with world biofuel production out to 2050: footprint components from carbon emissions and land use to waste arisings and water consumption. *GCB Bioenergy*, **8**(5), 894–908, doi:10.1111/gcbb.12300.
- Hampson, K.J. et al., 2014: *Delivering climate services for farmers and pastoralists through interactive radio: scoping report for the GFCS Adaptation Program in Africa*. CCAFS Working Paper 111, CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), Copenhagen, Denmark, 51 pp.

- Han, F., R. Xie, Y. Lu, J. Fang, and Y. Liu, 2018: The effects of urban agglomeration economies on carbon emissions: Evidence from Chinese cities. *Journal of Cleaner Production*, **172**, 1096–1110, doi:[10.1016/j.jclepro.2017.09.273](https://doi.org/10.1016/j.jclepro.2017.09.273).
- Han, F.X., J.S. Lindner, and C. Wang, 2007: Making carbon sequestration a paying proposition. *Naturwissenschaften*, **94**(3), 170–182, doi:[10.1007/s00114-006-0170-6](https://doi.org/10.1007/s00114-006-0170-6).
- Hangx, S.J.T. and C.J. Spiers, 2009: Coastal spreading of olivine to control atmospheric CO₂ concentrations: A critical analysis of viability. *International Journal of Greenhouse Gas Control*, **3**(6), 757–767, doi:[10.1016/j.ijggc.2009.07.001](https://doi.org/10.1016/j.ijggc.2009.07.001).
- Hansen, J., A. Rose, and J. Hellin, 2017: *Prospects for scaling up the contribution of index insurance to smallholder adaptation to climate risk: Harnessing innovations to protect and promote farmers' livelihoods*. CCAFS Info Note, CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), Copenhagen, Denmark, 4 pp.
- Hansen, M. and B. Hauge, 2017: Prosumers and smart grid technologies in Denmark: developing user competences in smart grid households. *Energy Efficiency*, **10**(5), 1215–1234, doi:[10.1007/s12053-017-9514-7](https://doi.org/10.1007/s12053-017-9514-7).
- Harjanne, A., 2017: Servitizing climate science-Institutional analysis of climate services discourse and its implications. *Global Environmental Change*, **46**, 1–16, doi:[10.1016/j.gloenvcha.2017.06.008](https://doi.org/10.1016/j.gloenvcha.2017.06.008).
- Harper, S.L. et al., 2015: Climate-sensitive health priorities in Nunatsiavut, Canada. *BMC Public Health*, **15**(1), 605, doi:[10.1186/s12889-015-1874-3](https://doi.org/10.1186/s12889-015-1874-3).
- Harris, Z.M., R. Spake, and G. Taylor, 2015: Land use change to bioenergy: A meta-analysis of soil carbon and GHG emissions. *Biomass and Bioenergy*, **82**, 27–39, doi:[10.1016/j.biombioe.2015.05.008](https://doi.org/10.1016/j.biombioe.2015.05.008).
- Harteveld, C. and P. Suarez, 2015: Guest editorial: games for learning and dialogue on humanitarian work. *Journal of Humanitarian Logistics and Supply Chain Management*, **5**(1), 61–72, doi:[10.1108/jhlscm-01-2015-0005](https://doi.org/10.1108/jhlscm-01-2015-0005).
- Hartmann, J. and S. Kempe, 2008: What is the maximum potential for CO₂ sequestration by “stimulated” weathering on the global scale? *Naturwissenschaften*, **95**(12), 1159–1164, doi:[10.1007/s00114-008-0434-4](https://doi.org/10.1007/s00114-008-0434-4).
- Hartmann, J. et al., 2013: Enhanced chemical weathering as a geoengineering strategy to reduce atmospheric carbon dioxide, supply nutrients, and mitigate ocean acidification: Enhanced weathering. *Reviews of Geophysics*, **51**(2), 113–149, doi:[10.1002/rog.20004](https://doi.org/10.1002/rog.20004).
- Hartwig, J., J. Kockat, W. Schade, and S. Braungardt, 2017: The macroeconomic effects of ambitious energy efficiency policy in Germany – Combining bottom-up energy modelling with a non-equilibrium macroeconomic model. *Energy*, **124**, 510–520, doi:[10.1016/j.energy.2017.02.077](https://doi.org/10.1016/j.energy.2017.02.077).
- Harvey, B., T. Pasanen, A. Pollard, and J. Raybould, 2017: Fostering Learning in Large Programmes and Portfolios: Emerging Lessons from Climate Change and Sustainable Development. *Sustainability*, **9**(3), 315, doi:[10.3390/su9020315](https://doi.org/10.3390/su9020315).
- Harvey, C.A. et al., 2014: Climate-Smart Landscapes: Opportunities and Challenges for Integrating Adaptation and Mitigation in Tropical Agriculture. *Conservation Letters*, **7**(2), 77–90, doi:[10.1111/conl.12066](https://doi.org/10.1111/conl.12066).
- Harvey, L.D.D., 2008: Mitigating the atmospheric CO₂ increase and ocean acidification by adding limestone powder to upwelling regions. *Journal of Geophysical Research: Oceans*, **113**(C4), C04028, doi:[10.1029/2007jc004373](https://doi.org/10.1029/2007jc004373).
- Hasanbeigi, A., M. Arens, and L. Price, 2014: Alternative emerging ironmaking technologies for energy-efficiency and carbon dioxide emissions reduction: A technical review. *Renewable and Sustainable Energy Reviews*, **33**, 645–658, doi:[10.1016/j.rser.2014.02.031](https://doi.org/10.1016/j.rser.2014.02.031).
- Hauck, J., P. Köhler, D. Wolf-Gladrow, and C. Völker, 2016: Iron fertilisation and century-scale effects of open ocean dissolution of olivine in a simulated CO₂ removal experiment. *Environmental Research Letters*, **11**(2), 024007, doi:[10.1088/1748-9326/11/2/024007](https://doi.org/10.1088/1748-9326/11/2/024007).
- Hauer, M.E., J.M. Evans, and D.R. Mishra, 2016: Millions projected to be at risk from sea-level rise in the continental United States. *Nature Climate Change*, **6**(7), 691–695, doi:[10.1038/nclimate2961](https://doi.org/10.1038/nclimate2961).
- Havet, A. et al., 2014: Review of livestock farmer adaptations to increase forages in crop rotations in western France. *Agriculture, Ecosystems & Environment*, **190**, 120–127, doi:[10.1016/j.agee.2014.01.009](https://doi.org/10.1016/j.agee.2014.01.009).
- Havlik, P. et al., 2014: Climate change mitigation through livestock system transitions. *Proceedings of the National Academy of Sciences*, **111**(10), 3709–3714, doi:[10.1073/pnas.1308044111](https://doi.org/10.1073/pnas.1308044111).
- Hawkins, T.R., B. Singh, G. Majeau-Bettez, and A.H. Strömman, 2013: Comparative Environmental Life Cycle Assessment of Conventional and Electric Vehicles. *Journal of Industrial Ecology*, **17**(1), 53–64, doi:[10.1111/j.1530-9290.2012.00532.x](https://doi.org/10.1111/j.1530-9290.2012.00532.x).
- Hayman, P., L. Rickards, R. Eckard, and D. Lemerle, 2012: Climate change through the farming systems lens: challenges and opportunities for farming in Australia. *Crop and Pasture Science*, **63**(3), 203–214, doi:[10.1071/cp11196](https://doi.org/10.1071/cp11196).
- Hazledine, T., S. Donovan, and C. Mak, 2017: Urban agglomeration benefits from public transit improvements: Extending and implementing the Venables model. *Research in Transportation Economics*, **66**, 36–45, doi:[10.1016/j.retrec.2017.09.002](https://doi.org/10.1016/j.retrec.2017.09.002).
- He, F., Q. Zhang, J. Lei, W. Fu, and X. Xu, 2013: Energy efficiency and productivity change of China's iron and steel industry: Accounting for undesirable outputs. *Energy Policy*, **54**, 204–213, doi:[10.1016/j.enpol.2012.11.020](https://doi.org/10.1016/j.enpol.2012.11.020).
- Hebrok, M. and C. Boks, 2017: Household food waste: Drivers and potential intervention points for design – An extensive review. *Journal of Cleaner Production*, **151**, 380–392, doi:[10.1016/j.jclepro.2017.03.069](https://doi.org/10.1016/j.jclepro.2017.03.069).
- Heck, V., D. Gersten, W. Lucht, and A. Popp, 2018: Biomass-based negative emissions difficult to reconcile with planetary boundaries. *Nature Climate Change*, **8**(2), 151–155, doi:[10.1038/s41558-017-0064-y](https://doi.org/10.1038/s41558-017-0064-y).
- Hedenus, F. and C. Azar, 2009: Bioenergy plantations or long-term carbon sinks? – A model based analysis. *Biomass and Bioenergy*, **33**(12), 1693–1702, doi:[10.1016/j.biombioe.2009.09.003](https://doi.org/10.1016/j.biombioe.2009.09.003).
- Heidari, M., D. Majcen, N. van der Lans, I. Floret, and M.K. Patel, 2018: Analysis of the energy efficiency potential of household lighting in Switzerland using a stock model. *Energy and Buildings*, **158**, 536–548, doi:[10.1016/j.enbuild.2017.08.091](https://doi.org/10.1016/j.enbuild.2017.08.091).
- Heidenreich, S., 2015: Sublime technology and object of fear: offshore wind scientists assessing publics. *Environment and Planning A: Economy and Space*, **47**(5), 1047–1062, doi:[10.1177/0308518x15592311](https://doi.org/10.1177/0308518x15592311).
- Henderson, B.B. et al., 2015: Greenhouse gas mitigation potential of the world's grazing lands: Modeling soil carbon and nitrogen fluxes of mitigation practices. *Agriculture, Ecosystems & Environment*, **207**, 91–100, doi:[10.1016/j.agee.2015.03.029](https://doi.org/10.1016/j.agee.2015.03.029).
- Henly-Shepard, S., S.A. Gray, and L.J. Cox, 2015: The use of participatory modeling to promote social learning and facilitate community disaster planning. *Environmental Science & Policy*, **45**, 109–122, doi:[10.1016/j.envsci.2014.10.004](https://doi.org/10.1016/j.envsci.2014.10.004).
- Hennessey, R., J. Pittman, A. Morand, and A. Douglas, 2017: Co-benefits of integrating climate change adaptation and mitigation in the Canadian energy sector. *Energy Policy*, **111**, 214–221, doi:[10.1016/j.enpol.2017.09.025](https://doi.org/10.1016/j.enpol.2017.09.025).
- Henriques, J. and J. Catarino, 2016: Motivating towards energy efficiency in small and medium enterprises. *Journal of Cleaner Production*, **139**, 42–50, doi:[10.1016/j.jclepro.2016.08.026](https://doi.org/10.1016/j.jclepro.2016.08.026).
- Henry, R.C. et al., 2018: Food supply and bioenergy production within the global cropland planetary boundary. *PLOS ONE*, **13**(3), e0194695, doi:[10.1371/journal.pone.0194695](https://doi.org/10.1371/journal.pone.0194695).
- Henry, R.K., Z. Yongsheng, and D. Jun, 2006: Municipal solid waste management challenges in developing countries – Kenyan case study. *Waste Management*, **26**(1), 92–100, doi:[10.1016/j.wasman.2005.03.007](https://doi.org/10.1016/j.wasman.2005.03.007).
- Hernández-Morcillo, M., P. Burgess, J. Mirck, A. Pantera, and T. Plieninger, 2018: Scanning agroforestry-based solutions for climate change mitigation and adaptation in Europe. *Environmental Science & Policy*, **80**, 44–52, doi:[10.1016/j.envsci.2017.11.013](https://doi.org/10.1016/j.envsci.2017.11.013).
- Herrero, M. et al., 2015: Livestock and the Environment: What Have We Learned in the Past Decade? *Annual Review of Environment and Resources*, **40**(1), 177–202, doi:[10.1146/annurev-enviro-031113-093503](https://doi.org/10.1146/annurev-enviro-031113-093503).
- Herwehe, L. and C.A. Scott, 2018: Drought adaptation and development: small-scale irrigated agriculture in northeast Brazil. *Climate and Development*, **10**(4), 337–346, doi:[10.1080/17565529.2017.1301862](https://doi.org/10.1080/17565529.2017.1301862).
- Hess, J.J. and K.L. Ebi, 2016: Iterative management of heat early warning systems in a changing climate. *Annals of the New York Academy of Sciences*, **1382**(1), 21–30, doi:[10.1111/nyas.13258](https://doi.org/10.1111/nyas.13258).
- Hess, J.J., J.Z. McDowell, and G. Luber, 2012: Integrating climate change adaptation into public health practice: Using adaptive management to increase adaptive capacity and build resilience. *Environmental Health Perspectives*, **120**(2), 171–179, doi:[10.1289/ehp.1103515](https://doi.org/10.1289/ehp.1103515).
- Hess, J.S. and I. Kelman, 2017: Tourism Industry Financing of Climate Change Adaptation: Exploring the Potential in Small Island Developing States. *Climate, Disaster and Development Journal*, **2**(2), 34–45, doi:[10.18783/cddj.v002.i02.a04](https://doi.org/10.18783/cddj.v002.i02.a04).
- Hetz, K., 2016: Contesting adaptation synergies: political realities in reconciling climate change adaptation with urban development in Johannesburg, South Africa. *Regional Environmental Change*, **16**(4), 1171–1182, doi:[10.1007/s10113-015-0840-z](https://doi.org/10.1007/s10113-015-0840-z).
- Hewitson, B., K. Waagsaether, J. Wohland, K. Kloppers, and T. Kara, 2017: Climate information websites: an evolving landscape. *Wiley Interdisciplinary Reviews: Climate Change*, **8**(5), 1–22, doi:[10.1002/wcc.470](https://doi.org/10.1002/wcc.470).
- Hig, C., P. Pradhan, D. Rybski, and J.P. Kropp, 2016: Food Surplus and Its Climate Burdens. *Environmental Science & Technology*, **50**(8), 4269–4277, doi:[10.1021/acs.est.5b05088](https://doi.org/10.1021/acs.est.5b05088).
- Hidayat, N.K., P. Glasbergen, and A. Offermans, 2015: Sustainability Certification and Palm Oil Smallholders' Livelihood: A Comparison between Scheme Smallholders and Independent Smallholders in Indonesia. *International Food and Agribusiness Management Review*, **18**(3), 25–48, www.ifama.org/resources/documents/v18i3/hidayat-glasbergen-offermans.pdf.
- Hill Clarvis, M. and N.L. Engle, 2015: Adaptive capacity of water governance arrangements: a comparative study of barriers and opportunities in Swiss and US states. *Regional Environmental Change*, **15**(3), 517–527, doi:[10.1007/s10113-013-0547-y](https://doi.org/10.1007/s10113-013-0547-y).

- Hines, E.J., 2017: Recognition of potential heat and water tradeoffs in vegetation-based city-level climate adaptation policies in arid and semi-arid environments., Boston University, Boston, MA, USA, 68 pp.
- Hinkel, J. et al., 2014: Coastal flood damage and adaptation costs under 21st century sea-level rise. *Proceedings of the National Academy of Sciences*, **111**(9), 3292–3297, doi:10.1073/pnas.1222469111.
- Hino, M., C.B. Field, and K.J. Mach, 2017: Managed retreat as a response to natural hazard risk. *Nature Climate Change*, **7**(5), 364–370, doi:10.1038/nclimate3252.
- Hirschberg, S. et al., 2016: Health effects of technologies for power generation: Contributions from normal operation, severe accidents and terrorist threat. *Reliability Engineering & System Safety*, **145**, 373–387, doi:10.1016/j.res.2015.09.013.
- Hiwasaki, L., E. Luna, Syamsidik, and R. Shaw, 2014: Process for integrating local and indigenous knowledge with science for hydro-meteorological disaster risk reduction and climate change adaptation in coastal and small island communities. *International Journal of Disaster Risk Reduction*, **10**, 15–27, doi:10.1016/j.ijdrr.2014.07.007.
- Hiwasaki, L., E. Luna, Syamsidik, and J.A. Marçal, 2015: Local and indigenous knowledge on climate-related hazards of coastal and small island communities in Southeast Asia. *Climatic Change*, **128**(1–2), 35–56, doi:10.1007/s10584-014-1288-8.
- Ho, S.S. et al., 2018: Science Literacy or Value Predisposition? A Meta-Analysis of Factors Predicting Public Perceptions of Benefits, Risks, and Acceptance of Nuclear Energy. *Environmental Communication*, 1–15, doi:10.1080/17524032.2017.1394891.
- Hoffmann, R. and R. Muttarak, 2017: Learn from the Past, Prepare for the Future: Impacts of Education and Experience on Disaster Preparedness in the Philippines and Thailand. *World Development*, **96**, 32–51, doi:10.1016/j.worlddev.2017.02.016.
- Högy, P. et al., 2009: Effects of elevated CO₂ on grain yield and quality of wheat: results from a 3-year free-air CO₂ enrichment experiment. *Plant Biology*, **11**(s1), 60–69, doi:10.1111/j.1438-8677.2009.00230.x.
- Holland, R.A. et al., 2015: A synthesis of the ecosystem services impact of second generation bioenergy crop production. *Renewable and Sustainable Energy Reviews*, **46**, 30–40, doi:10.1016/j.rser.2015.02.003.
- Holmes, G. and D.W. Keith, 2012: An air-liquid contactor for large-scale capture of CO₂ from air. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **370**(1974), 4380–403, doi:10.1098/rsta.2012.0137.
- Holmes, G. et al., 2013: Outdoor prototype results for direct atmospheric capture of carbon dioxide. *Energy Procedia*, **37**, 6079–6095, doi:10.1016/j.egypro.2013.06.537.
- Holmlund, C.M. and M. Hammer, 1999: Ecosystem services generated by fish populations. *Ecological Economics*, **29**(2), 253–268, doi:10.1016/s0921-8009(99)00015-4.
- Honegger, M. and D. Reiner, 2018: The political economy of negative emissions technologies: consequences for international policy design. *Climate Policy*, **18**(3), 306–321, doi:10.1080/14693062.2017.1413322.
- Hong, N.B. and M. Yabe, 2017: Improvement in irrigation water use efficiency: a strategy for climate change adaptation and sustainable development of Vietnamese tea production. *Environment, Development and Sustainability*, **19**(4), 1247–1263, doi:10.1007/s10668-016-9793-8.
- Hoogwijk, M., A. Faaij, B. de Vries, and W. Turkenburg, 2009: Exploration of regional and global cost-supply curves of biomass energy from short-rotation crops at abandoned cropland and rest land under four IPCC SRES land-use scenarios. *Biomass and Bioenergy*, **33**(1), 26–43, doi:10.1016/j.biombioe.2008.04.005.
- Hoogwijk, M., A. Faaij, B. Eickhout, B. De Vries, and W. Turkenburg, 2005: Potential of biomass energy out to 2100, for four IPCC SRES land-use scenarios. *Biomass and Bioenergy*, **29**(4), 225–257, doi:10.1016/j.biombioe.2005.05.002.
- Hooli, L.J., 2016: Resilience of the poorest: coping strategies and indigenous knowledge of living with the floods in Northern Namibia. *Regional Environmental Change*, **16**(3), 695–707, doi:10.1007/s10113-015-0782-5.
- Hosking, J. and D. Campbell-Lendrum, 2012: How well does climate change and human health research match the demands of policymakers? A scoping review. *Environmental Health Perspectives*, **120**(8), 1076–1082, doi:10.1289/ehp.1104093.
- Hou, C.-L. et al., 2017: Integrated direct air capture and CO₂ utilization of gas fertilizer based on moisture swing adsorption. *Journal of Zhejiang University-SCIENCE A*, **18**(10), 819–830, doi:10.1631/jzus.a1700351.
- Houghton, A., 2011: Health Impact Assessments A Tool for Designing Climate Change Resilience Into Green Building and Planning Projects. *Journal of Green Building*, **6**(2), 66–87, doi:10.3992/jgb.6.2.66.
- Houghton, R.A. and A.A. Nassikas, 2018: Negative emissions from stopping deforestation and forest degradation, globally. *Global Change Biology*, **24**(1), 350–359, doi:10.1111/gcb.13876.
- Houghton, R.A., B. Byers, and A.A. Nassikas, 2015: A role for tropical forests in stabilizing atmospheric CO₂. *Nature Climate Change*, **5**(12), 1022–1023, doi:10.1038/nclimate2869.
- House, K.Z., C.H. House, D.P. Schrag, and M.J. Aziz, 2007: Electrochemical acceleration of chemical weathering as an energetically feasible approach to mitigating anthropogenic climate change. *Environmental Science & Technology*, **41**(24), 8464–8470, doi:10.1021/es0701816.
- House, K.Z. et al., 2011: Economic and energetic analysis of capturing CO₂ from ambient air. *Proceedings of the National Academy of Sciences*, **108**(51), 20428–20433, doi:10.1073/pnas.1012253108.
- Howes, M. et al., 2015: Towards networked governance: improving interagency communication and collaboration for disaster risk management and climate change adaptation in Australia. *Journal of Environmental Planning and Management*, **58**(5), 757–776, doi:10.1080/09640568.2014.891974.
- Howson, P. and S. Kindon, 2015: Analysing access to the local REDD+ benefits of Sungai Lamandau, Central Kalimantan, Indonesia. *Asia Pacific Viewpoint*, **56**(1), 96–110, doi:10.1111/apv.12089.
- Hoy, D. et al., 2014: Adapting to the health impacts of climate change in a sustainable manner. *Globalization and Health*, **10**(1), 82, doi:10.1186/s12992-014-0082-8.
- Hsieh, S. et al., 2017: Defining density and land uses under energy performance targets at the early stage of urban planning processes. *Energy Procedia*, **122**, 301–306, doi:10.1016/j.egypro.2017.07.326.
- Huang, C.-W., R.I. McDonald, and K.C. Seto, 2018: The importance of land governance for biodiversity conservation in an era of global urban expansion. *Landscape and Urban Planning*, **173**, 44–50, doi:10.1016/j.landurbplan.2018.01.011.
- Huhtala, A. and P. Remes, 2017: Quantifying the social costs of nuclear energy: Perceived risk of accident at nuclear power plants. *Energy Policy*, **105**, 320–331, doi:10.1016/j.enpol.2017.02.052.
- Humpenöder, F. et al., 2014: Investigating afforestation and bioenergy CCS as climate change mitigation strategies. *Environmental Research Letters*, **9**(6), 064029, doi:10.1088/1748-9326/9/6/064029.
- Humpenöder, F. et al., 2015: Land-Use and Carbon Cycle Responses to Moderate Climate Change: Implications for Land-Based Mitigation? *Environmental Science & Technology*, **49**(11), 6731–6739, doi:10.1021/es506201r.
- Humpenöder, F. et al., 2017: Large-scale bioenergy production: How to resolve sustainability trade-offs? *Environmental Research Letters*, **13**(2), 024011, doi:10.1088/1748-9326/aa9e3b.
- Hung, H.-C., Y.-T. Lu, and C.-H. Hung, 2018: The determinants of integrating policy-based and community-based adaptation into coastal hazard risk management: a resilience approach. *Journal of Risk Research*, 1–19, doi:10.1080/13669877.2018.1454496.
- Hunsberger, C., S. Bolwig, E. Corbera, and F. Creutzig, 2014: Livelihood impacts of biofuel crop production: Implications for governance. *Geoforum*, **54**, 248–260, doi:10.1016/j.geoforum.2013.09.022.
- Hunt, A., J. Ferguson, M. Baccini, P. Watkiss, and V. Kendrovski, 2017: Climate and weather service provision: Economic appraisal of adaptation to health impacts. *Climate Services*, **7**, 78–86, doi:10.1016/j.cliser.2016.10.004.
- Huntington, H.P. et al., 2018: Staying in place during times of change in Arctic Alaska: the implications of attachment, alternatives, and buffering. *Regional Environmental Change*, **18**(2), 489–499, doi:10.1007/s10113-017-1221-6.
- Hurlimann, A.C. and A.P. March, 2012: The role of spatial planning in adapting to climate change. *Wiley Interdisciplinary Reviews: Climate Change*, **3**(5), 477–488, doi:10.1002/wcc.183.
- Hylkema, H. and A. Rand, 2014: Reduction of freshwater usage of a coal fired power plant with CCS by applying a high level of integration of all water streams. *Energy Procedia*, **63**, 7187–7197, doi:10.1016/j.egypro.2014.11.754.
- IAEA, 2017: *Nuclear Technology Review 2017*. GC(61)/INF/4, International Atomic Energy Agency (IAEA), Vienna, Austria, 45 pp.
- IAEA, 2018: Power Reactor Information System – Country Statistics: France. Retrieved from: www.iaea.org/pris/countrystatistics/countrydetails.aspx?current=fr.
- Ickowitz, A., E. Sills, and C. de Sassi, 2017: Estimating Smallholder Opportunity Costs of REDD+: A Pantropical Analysis from Households to Carbon and Back. *World Development*, **95**, 15–26, doi:10.1016/j.worlddev.2017.02.022.
- IEA, 2017a: *Energy Technology Perspectives 2017: Catalysing Energy Technology Transformations*. International Energy Agency (IEA), Paris, France, 443 pp.
- IEA, 2017b: *Global EV Outlook 2017: Two Million and Counting*. International Energy Agency (IEA), Paris, France, 71 pp.
- IEA, 2017c: *World Energy Outlook 2017*. International Energy Agency (IEA), Paris, France, 748 pp.
- IEA, 2017d: *World Energy Outlook 2017 – Executive Summary*. International Energy Agency (IEA), Paris, France, 13 pp.
- IEAGHG, 2012: *Barriers to implementation of CCS: Capacity constraints*. Report: 2012/09, International Energy Agency Greenhouse Gas R&D Programme (IEAGHG), Cheltenham, UK, 106 pp.

- Iiyama, M. et al., 2017: Understanding patterns of tree adoption on farms in semi-arid and sub-humid Ethiopia. *Agroforestry Systems*, **91**(2), 271–293, doi:[10.1007/s10457-016-9926-y](https://doi.org/10.1007/s10457-016-9926-y).
- Immerzeel, D.J., P.A. Verweij, F. van der Hilst, and A.P.C. Faaij, 2014: Biodiversity impacts of bioenergy crop production: a state-of-the-art review. *GCB Bioenergy*, **6**(3), 183–209, doi:[10.1111/gcbb.12067](https://doi.org/10.1111/gcbb.12067).
- Inamara, A. and V. Thomas, 2017: Pacific climate change adaptation: The use of participatory media to promote indigenous knowledge. *Pacific Journalism Review*, **23**(1), 113–132, doi:[10.24135/pjr.v23i1.210](https://doi.org/10.24135/pjr.v23i1.210).
- Inderberg, T.H. and L.A. Løchen, 2012: Adaptation to climate change among electricity distribution companies in Norway and Sweden: lessons from the field. *Local Environment*, **17**(6–7), 663–678, doi:[10.1080/13549839.2011.646971](https://doi.org/10.1080/13549839.2011.646971).
- Ingalls, M.L. and M.B. Dwyer, 2016: Missing the forest for the trees? Navigating the trade-offs between mitigation and adaptation under REDD. *Climatic Change*, **136**(2), 353–366, doi:[10.1007/s10584-016-1612-6](https://doi.org/10.1007/s10584-016-1612-6).
- Ingty, T., 2017: High mountain communities and climate change: adaptation, traditional ecological knowledge, and institutions. *Climatic Change*, **145**(1–2), 41–55, doi:[10.1007/s10584-017-2080-3](https://doi.org/10.1007/s10584-017-2080-3).
- Ionesco, D., D. Mokhnacheva, and F. Gemenne, 2016: *The Atlas of Environmental Migration*. Routledge, London, UK, 172 pp.
- IPCC, 2005: Special Report on Carbon Dioxide Capture and Storage. [Metz, B., O. Davidson, H.C. de Coninck, M. Loos, and L.A. Meyer (eds.)]. Prepared by Working Group III of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 442 pp.
- IPCC, 2012: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of IPCC Intergovernmental Panel on Climate Change. [Field, C.B., V. Barros, T.F. Stocker, Q. Dahe, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, and Others (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 594 pp.
- IRENA, 2013: *Smart Grids and Renewables: A Guide for Effective Deployment*. International Renewable Energy Agency (IRENA), Abu Dhabi, UAE, 47 pp.
- IRENA, 2015: *Renewable power generation costs in 2014*. International Renewable Energy Agency (IRENA), Abu Dhabi, United Arab Emirates, 164 pp.
- IRENA, 2016: *The Power to Change: Solar and Wind Cost Reduction Potential to 2025*. IRENAs Innovation and Technology Centre (IITC), Bonn, Germany, 112 pp.
- IRENA, 2017a: *Adapting Market Design to High Shares of Variable Renewable Energy*. International Renewable Energy Agency (IRENA), Abu Dhabi, UAE, 166 pp.
- IRENA, 2017b: *Renewable Energy and Jobs: Annual Review 2017*. International Renewable Energy Agency (IRENA), Abu Dhabi, United Arab Emirates, 24 pp.
- Irlam, L., 2017: *Global costs of carbon capture and storage – 2017 Update*. Global CCS Institute, Canberra, Australia, 14 pp.
- Ishikawa, T., 2014: A Brief Review of Dose Estimation Studies Conducted after the Fukushima Daiichi Nuclear Power Plant Accident. *Radiation Emergency Medicine*, **3**(1), 21–27.
- Ishimoto, Y. et al., 2017: *Putting Costs of Direct Air Capture in Context*. FCEA Working Paper Series: 002, Forum for Climate Engineering Assessment, Washington DC, USA, 21 pp.
- Ivy, S.L., C.N. Patson, N. Joyce, M. Wilkson, and T. Christian, 2017: Medium-term effects of conservation agriculture on soil quality. *African Journal of Agricultural Research*, **12**(29), 2412–2420, doi:[10.5897/ajar2016.11092](https://doi.org/10.5897/ajar2016.11092).
- Jackson, R.B. et al., 2005: Trading water for carbon with biological carbon sequestration. *Science*, **310**(5756), 1944–1947, doi:[10.1126/science.1119282](https://doi.org/10.1126/science.1119282).
- Jacobi, J., S. Rist, and M.A. Altieri, 2017: Incentives and disincentives for diversified agroforestry systems from different actors' perspectives in Bolivia. *International Journal of Agricultural Sustainability*, **15**(4), 365–379, doi:[10.1080/14735903.2017.1332140](https://doi.org/10.1080/14735903.2017.1332140).
- Jacobson, M.Z. and M.A. Delucchi, 2009: A Path to Sustainable Energy by 2030. *Scientific American*, **301**(5), 58–65, doi:[10.1038/scientificamerican1109-58](https://doi.org/10.1038/scientificamerican1109-58).
- Jägermeyr, J. et al., 2015: Water savings potentials of irrigation systems: global simulation of processes and linkages. *Hydrology and Earth System Sciences*, **19**(7), 3073–3091, doi:[10.5194/hess-19-3073-2015](https://doi.org/10.5194/hess-19-3073-2015).
- Jagger, P. et al., 2014: Multi-Level Policy Dialogues, Processes, and Actions: Challenges and Opportunities for National REDD+ Safeguards Measurement, Reporting, and Verification (MRV). *Forests*, **5**(9), 2136–2162, doi:[10.3390/f5092136](https://doi.org/10.3390/f5092136).
- Jaglin, S., 2014: Regulating Service Delivery in Southern Cities: Rethinking urban heterogeneity. In: *The Routledge Handbook on Cities of the Global South* [Parnell, S. and S. Oldfield (eds.)]. Routledge, Abingdon, UK, doi:[10.4324/9780203387832.ch37](https://doi.org/10.4324/9780203387832.ch37).
- Jahandideh-Tehrani, M., O. Bozorg Haddad, and H.A. Loáiciga, 2014: Hydropower Reservoir Management Under Climate Change: The Karoon Reservoir System. *Water Resources Management*, **29**(3), 749–770, doi:[10.1007/s11269-014-0840-7](https://doi.org/10.1007/s11269-014-0840-7).
- Jain, M., T. Hoppe, and H. Bressers, 2017a: A Governance Perspective on Net Zero Energy Building Niche Development in India: The Case of New Delhi. *Energies*, **10**(8), 1144, doi:[10.3390/en10081144](https://doi.org/10.3390/en10081144).
- Jain, M., T. Hoppe, and H. Bressers, 2017b: Analyzing sectoral niche formation: The case of net-zero energy buildings in India. *Environmental Innovation and Societal Transitions*, **25**, 47–63, doi:[10.1016/j.eist.2016.11.004](https://doi.org/10.1016/j.eist.2016.11.004).
- Jain, M., A.B. Rao, and A. Patwardhan, 2018: Consumer preference for labels in the purchase decisions of air conditioners in India. *Energy for Sustainable Development*, **42**, 24–31, doi:[10.1016/j.esd.2017.09.008](https://doi.org/10.1016/j.esd.2017.09.008).
- Jancloes, M. et al., 2014: Climate Services to Improve Public Health. *International Journal of Environmental Research and Public Health*, **11**(5), 4555–4559, doi:[10.3390/ijerph110504555](https://doi.org/10.3390/ijerph110504555).
- Jandl, R. et al., 2014: Current status, uncertainty and future needs in soil organic carbon monitoring. *Science of The Total Environment*, **468–469**, 376–383, doi:[10.1016/j.scitotenv.2013.08.026](https://doi.org/10.1016/j.scitotenv.2013.08.026).
- Janif, S.Z. et al., 2016: Value of traditional oral narratives in building climate-change resilience: insights from rural communities in Fiji. *Ecology and Society*, **21**(2), 7, doi:[10.5751/es-08100-210207](https://doi.org/10.5751/es-08100-210207).
- Jantke, K., J. Müller, N. Trapp, and B. Blanz, 2016: Is climate-smart conservation feasible in Europe? Spatial relations of protected areas, soil carbon, and land values. *Environmental Science & Policy*, **57**, 40–49, doi:[10.1016/j.envsci.2015.11.013](https://doi.org/10.1016/j.envsci.2015.11.013).
- Jantz, P., S. Goetz, and N. Laporte, 2014: Carbon stock corridors to mitigate climate change and promote biodiversity in the tropics. *Nature Climate Change*, **4**(2), 138–142, doi:[10.1038/nclimate2105](https://doi.org/10.1038/nclimate2105).
- Jarvis, D.I. et al., 2008: A global perspective of the richness and evenness of traditional crop-variety diversity maintained by farming communities. *Proceedings of the National Academy of Sciences*, **105**(14), 5326–5331, doi:[10.1073/pnas.0800607105](https://doi.org/10.1073/pnas.0800607105).
- Jat, R.K. et al., 2014: Seven years of conservation agriculture in a rice–wheat rotation of Eastern Gangetic Plains of South Asia: Yield trends and economic profitability. *Field Crops Research*, **164**, 199–210, doi:[10.1016/j.fcr.2014.04.015](https://doi.org/10.1016/j.fcr.2014.04.015).
- Jeffery, S., F.G.A. Verheijen, M. van der Velde, and A.C. Bastos, 2011: A quantitative review of the effects of biochar application to soils on crop productivity using meta-analysis. *Agriculture, Ecosystems & Environment*, **144**(1), 175–187, doi:[10.1016/j.agee.2011.08.015](https://doi.org/10.1016/j.agee.2011.08.015).
- Jena, P.R., T. Stellmacher, and U. Grote, 2017: Can coffee certification schemes increase incomes of smallholder farmers? Evidence from Jinotega, Nicaragua. *Environment, Development and Sustainability*, **19**(1), 45–66, doi:[10.1007/s10668-015-9732-0](https://doi.org/10.1007/s10668-015-9732-0).
- Jenkins, K., S. Surminski, J. Hall, and F. Crick, 2017: Assessing surface water flood risk and management strategies under future climate change: Insights from an Agent-Based Model. *Science of The Total Environment*, **595**, 159–168, doi:[10.1016/j.scitotenv.2017.03.242](https://doi.org/10.1016/j.scitotenv.2017.03.242).
- Jennings, S. et al., 2016: Aquatic food security: insights into challenges and solutions from an analysis of interactions between fisheries, aquaculture, food safety, human health, fish and human welfare, economy and environment. *Fish and Fisheries*, **17**(4), 893–938, doi:[10.1111/faf.12152](https://doi.org/10.1111/faf.12152).
- Jensen, N. and C. Barrett, 2017: Agricultural index insurance for development. *Applied Economic Perspectives and Policy*, **39**(2), 199–219, doi:[10.1093/aep/ppw022](https://doi.org/10.1093/aep/ppw022).
- Jensen, W., T. Stump, B. Brown, C. Werner, and K. Smith, 2017: Walkability, complete streets, and gender: Who benefits most? *Health & Place*, **48**, 80–89, doi:[10.1016/j.healthplace.2017.09.007](https://doi.org/10.1016/j.healthplace.2017.09.007).
- Jha, C.K., V. Gupta, U. Chattopadhyay, and B. Amarayil Sreeraman, 2017: Migration as adaptation strategy to cope with climate change: A study of farmers' migration in rural India. *International Journal of Climate Change Strategies and Management*, IJCCSM–03–2017–0059, doi:[10.1108/ijccsm-03-2017-0059](https://doi.org/10.1108/ijccsm-03-2017-0059).
- Jiang, G. et al., 2014: Soil organic carbon sequestration in upland soils of northern China under variable fertilizer management and climate change scenarios. *Global Biogeochemical Cycles*, **28**(3), 319–333, doi:[10.1002/2013gb004746](https://doi.org/10.1002/2013gb004746).
- Jillella, S., A. Matan, and P. Newman, 2015: Participatory Sustainability Approach to Value Capture-Based Urban Rail Financing in India through Deliberated Stakeholder Engagement. *Sustainability*, **7**(7), 8091–8115, doi:[10.3390/su7078091](https://doi.org/10.3390/su7078091).
- Jin, J., W. Wang, and X. Wang, 2016: Farmers' Risk Preferences and Agricultural Weather Index Insurance Uptake in Rural China. *International Journal of Disaster Risk Science*, **7**(4), 366–373, doi:[10.1007/s13753-016-0108-3](https://doi.org/10.1007/s13753-016-0108-3).
- Jirka, S., D. Woolf, D. Solomon, and J. Lehmann, 2015: *Climate finance and carbon markets for Ethiopia's Productive Safety Net Programme (PSNP): Executive Summary for Policymakers*. A World Bank Climate Smart Initiative (CSI) Report, Cornell University, Ithaca, NY, USA, 12 pp.
- Joffre, O.M. et al., 2015: What drives the adoption of integrated shrimp mangrove aquaculture in Vietnam? *Ocean and Coastal Management*, **114**, 53–63, doi:[10.1016/j.ocecoaman.2015.06.015](https://doi.org/10.1016/j.ocecoaman.2015.06.015).

- Johnson, D.A.K. and Y. Abe, 2015: Global Overview on the Role of the Private Sector in Disaster Risk Reduction: Scopes, Challenges, and Potentials. In: *Disaster Management and Private Sectors: Challenges and Potentials* [Izumi, T. and R. Shaw (eds.)]. Springer Japan, Tokyo, Japan, pp. 11–29, doi:10.1007/978-4-431-55414-1_2.
- Johnson, J.A., C.F. Runge, B. Senauer, J. Foley, and S. Polasky, 2014: Global agriculture and carbon trade-offs. *Proceedings of the National Academy of Sciences*, **111**(34), 12342–12347, doi:10.1073/pnas.1412835111.
- Johnson, N., N. Parker, and J. Ogden, 2014: How negative can biofuels with CCS take us and at what cost? Refining the economic potential of biofuel production with CCS using spatially-explicit modeling. *Energy Procedia*, **63**, 6770–6791, doi:10.1016/j.egypro.2014.11.712.
- Johnson, N. et al., 2015: The contributions of Community-Based monitoring and traditional knowledge to Arctic observing networks: Reflections on the state of the field. *Arctic*, **68**(5), 1–13, doi:10.14430/arctic4447.
- Jones, H.P., D.G. Hole, and E.S. Zavaleta, 2012: Harnessing nature to help people adapt to climate change. *Nature Climate Change*, **2**(7), 504–509, doi:10.1038/nclimate1463.
- Jones, K.R., J.E.M. Watson, H.P. Possingham, and C.J. Klein, 2016: Incorporating climate change into spatial conservation prioritisation: A review. *Biological Conservation*, **194**, 121–130, doi:10.1016/j.biocon.2015.12.008.
- Jones, L., B. Harvey, and R. Godfrey-Wood, 2016: *The changing role of NGOs in supporting climate services*. Building Resilience and Adaptation to Climate Extremes and Disasters (BRACED), London, UK, 24 pp.
- Jones, L. et al., 2010: *Responding to a changing climate: Exploring how disaster risk reduction, social protection and livelihoods approaches promote features of adaptive capacity*. Working Paper 319, Overseas Development Institute (ODI), London, UK, 26 pp.
- Jørgensen, S.L. and M. Termansen, 2016: Linking climate change perceptions to adaptation and mitigation action. *Climatic Change*, **138**(1–2), 283–296, doi:10.1007/s10584-016-1718-x.
- Joyette, A.R.T., L.A. Nurse, and R.S. Pulwarty, 2015: Disaster risk insurance and catastrophe models in risk-prone small Caribbean islands. *Disasters*, **39**(3), 467–492, doi:10.1111/disa.12118.
- Juraku, K., 2016: Deficits of Japanese Nuclear Risk Governance Remaining After the Fukushima Accident: Case of Contaminated Water Management. In: *Earthquakes, Tsunamis and Nuclear Risks* [Katsuhiro Kamae (ed.)]. Springer Japan, Tokyo, pp. 157–169, doi:10.1007/978-4-431-55822-4_12.
- K.C., S., 2013: Community Vulnerability to Floods and Landslides in Nepal. *Ecology and Society*, **18**(1), 8, doi:10.5751/es-05095-180108.
- Kadi, M., L.N. Njau, J. Mwikya, and A. Kamga, 2011: *The State of Climate Information Services for Agriculture and Food Security in East African Countries*.
- Kahil, M.T., J.D. Connor, and J. Albiac, 2015: Efficient water management policies for irrigation adaptation to climate change in Southern Europe. *Ecological Economics*, **120**, 226–233, doi:10.1016/j.ecolecon.2015.11.004.
- Kaiser-Bunbury, C.N. et al., 2017: Ecosystem restoration strengthens pollination network resilience and function. *Nature*, **542**(7640), 223–227, doi:10.1038/nature21071.
- Kammann, C. et al., 2017: Biochar as a tool to reduce the agricultural greenhouse-gas burden – knowns, unknowns and future research needs. *Journal of Environmental Engineering and Landscape Management*, **25**(2), 114–139, doi:10.3846/16486897.2017.1319375.
- Kantola, I.B., M.D. Masters, D.J. Beerling, S.P. Long, and E.H. DeLucia, 2017: Potential of global croplands and bioenergy crops for climate change mitigation through deployment for enhanced weathering. *Biology Letters*, **13**(4), doi:10.1098/rsbl.2016.0714.
- Kar, A. et al., 2012: Real-Time Assessment of Black Carbon Pollution in Indian Households Due to Traditional and Improved Biomass Cookstoves. *Environmental Science & Technology*, **46**(5), 2993–3000, doi:10.1021/es203388g.
- Kar, S.K. and A. Sharma, 2015: Wind power developments in India. *Renewable and Sustainable Energy Reviews*, **48**, 264–275, doi:10.1016/j.rser.2015.03.095.
- Kärki, J., E. Tsupari, and A. Arasto, 2013: CCS feasibility improvement in industrial and municipal applications by heat utilization. *Energy Procedia*, **37**, 2611–2621, doi:10.1016/j.egypro.2013.06.145.
- Kassam, A. et al., 2014: The spread of conservation agriculture: Policy and institutional support for adoption and uptake. *Field Actions Science Reports*, **7**.
- Kato, H., Y. Onda, and M. Teramage, 2012: Depth distribution of ¹³⁷Cs, ¹³⁴Cs, and ¹³¹I in soil profile after Fukushima Dai-ichi Nuclear Power Plant Accident. *Journal of Environmental Radioactivity*, **111**, 59–64, doi:10.1016/j.jenvrad.2011.10.003.
- Kawaguchi, D. and N. Yukutake, 2017: Estimating the residential land damage of the Fukushima nuclear accident. *Journal of Urban Economics*, **99**, 148–160, doi:10.1016/j.jue.2017.02.005.
- Kaya, H.O. and M. Koitsiwe, 2016: African Indigenous Knowledge Systems and Natural Disaster Management in North West Province, South Africa. *Journal of Human Ecology*, **53**(2), 101–105, doi:10.1080/09709274.2016.11906961.
- Keith, D.W., 2009: Why Capture CO₂ from the Atmosphere? *Science*, **325**(5948), 1654–1655, doi:10.1126/science.1175680.
- Keith, D.W., M. Ha-Duong, and J.K. Stolaroff, 2006: Climate Strategy with CO₂ Capture from the Air. *Climatic Change*, **74**(1–3), 17–45, doi:10.1007/s10584-005-9026-x.
- Kelman, I., 2015: Difficult decisions: Migration from Small Island Developing States under climate change. *Earth's Future*, **3**(4), 133–142, doi:10.1002/2014ef000278.
- Kelman, I., 2017: Linking disaster risk reduction, climate change, and the sustainable development goals. *Disaster Prevention and Management: An International Journal*, **26**(3), 254–258, doi:10.1108/dpm-02-2017-0043.
- Kelman, I., J.C. Gaillard, and J. Mercer, 2015: Climate Change's Role in Disaster Risk Reduction's Future: Beyond Vulnerability and Resilience. *International Journal of Disaster Risk Science*, **6**(1), 21–27, doi:10.1007/s13753-015-0038-5.
- Kelman, I. et al., 2017: Here and now: perceptions of Indian Ocean islanders on the climate change and migration nexus. *Geografiska Annaler: Series B, Human Geography*, **99**(3), 284–303, doi:10.1080/04353684.2017.1353888.
- Kemper, J., 2015: Biomass and carbon dioxide capture and storage: A review. *International Journal of Greenhouse Gas Control*, **40**, 401–430, doi:10.1016/j.ijggc.2015.06.012.
- Kenley, C.R. et al., 2009: Job creation due to nuclear power resurgence in the United States. *Energy Policy*, **37**(11), 4894–4900, doi:10.1016/j.enpol.2009.06.045.
- Kent, J.L. and R. Dowling, 2016: The Future of Paratransit and DRT: Introducing Cars on Demand. In: *Paratransit: Shaping the Flexible Transport Future (Transport and Sustainability, Volume 8)* [Mullely, C. and J.D. Nelson (eds.)]. Emerald Group Publishing Limited, Bingley, UK, pp. 391–412.
- Kettle, N.P. et al., 2014: Integrating scientific and local knowledge to inform risk-based management approaches for climate adaptation. *Climate Risk Management*, **4**, 17–31, doi:10.1016/j.crm.2014.07.001.
- Khanal, S.K. et al., 2010: *Bioenergy and Biofuel from Biowaste and Biomass*. American Society of Civil Engineers (ASCE), Reston, VA, USA, 505 pp.
- Kheshgi, H.S., 1995: Sequestering atmospheric carbon dioxide by increasing ocean alkalinity. *Energy*, **20**(9), 915–922, doi:10.1016/0360-5442(95)00035-f.
- Khoury, C.K. et al., 2014: Increasing homogeneity in global food supplies and the implications for food security. *Proceedings of the National Academy of Sciences*, **111**(11), 4001–4006, doi:10.1073/pnas.1313490111.
- Kihila, J.M., 2017: Indigenous coping and adaptation strategies to climate change of local communities in Tanzania: a review. *Climate and Development*, 1–11, doi:10.1080/17565529.2017.1318739.
- Kilpeläinen, A. et al., 2017: Effects of Initial Age Structure of Managed Norway Spruce Forest Area on Net Climate Impact of Using Forest Biomass for Energy. *BioEnergy Research*, **10**(2), 499–508, doi:10.1007/s12155-017-9821-z.
- Kim, E. and J. Yoo, 2015: Conditional Cash Transfer in the Philippines: How to Overcome Institutional Constraints for Implementing Social Protection. *Asia & the Pacific Policy Studies*, **2**(1), 75–89, doi:10.1002/app5.72.
- Kim, Y., W. Kim, and M. Kim, 2014: An international comparative analysis of public acceptance of nuclear energy. *Energy Policy*, **66**, 475–483, doi:10.1016/j.enpol.2013.11.039.
- Kindermann, G. et al., 2008: Global cost estimates of reducing carbon emissions through avoided deforestation. *Proceedings of the National Academy of Sciences*, **105**(30), 10302–7, doi:10.1073/pnas.0710616105.
- King, D., Y. Gurtner, A. Firdaus, S. Harwood, and A. Cottrell, 2016: Land use planning for disaster risk reduction and climate change adaptation: Operationalizing policy and legislation at local levels. *International Journal of Disaster Resilience in the Built Environment*, **7**(2), 158–172, doi:10.1108/ijdrbe-03-2015-0009.
- Kirby, M., R. Bark, J. Connor, M.E. Qureshi, and S. Keyworth, 2014: Sustainable irrigation: How did irrigated agriculture in Australia's Murray-Darling Basin adapt in the Millennium Drought? *Agricultural Water Management*, **145**, 154–162, doi:10.1016/j.agwat.2014.02.013.
- Kirchhoff, C.J., M.C. Lemos, and S. Dessai, 2013: Actionable Knowledge for Environmental Decision Making: Broadening the Usability of Climate Science. *Annual Review of Environment and Resources*, **38**(1), 393–414, doi:10.1146/annurev-environ-022112-112828.
- Kirkegaard, J.A. et al., 2014: Sense and nonsense in conservation agriculture: Principles, pragmatism and productivity in Australian mixed farming systems. *Agriculture, Ecosystems & Environment*, **187**, 133–145, doi:10.1016/j.agee.2013.08.011.
- Kita, S.M., 2017: "Government Doesn't Have the Muscle": State, NGOs, Local Politics, and Disaster Risk Governance in Malawi. *Risk, Hazards & Crisis in Public Policy*, **8**(3), 244–267, doi:10.1002/rhc3.12118.
- Kiunsi, R., 2013: The constraints on climate change adaptation in a city with a large development deficit: the case of Dar es Salaam. *Environment and Urbanization*, **25**(2), 321–337, doi:10.1177/0956247813489617.
- Klein, D. et al., 2014: The global economic long-term potential of modern biomass in a climate-constrained world. *Environmental Research Letters*, **9**(7), 074017, doi:10.1088/1748-9326/9/7/074017.
- Kline, K.L. et al., 2015: Bioenergy and Biodiversity: Key Lessons from the Pan American Region. *Environmental Management*, **56**(6), 1377–1396, doi:10.1007/s00267-015-0559-0.

- Kline, K.L. et al., 2017: Reconciling food security and bioenergy: priorities for action. *GCB Bioenergy*, 9(3), 557–576, doi:10.1111/gcbb.12366.
- Knoblauch, A. et al., 2014: Changing Patterns of Health in Communities Impacted by a Bioenergy Project in Northern Sierra Leone. *International Journal of Environmental Research and Public Health*, 11(12), 12997–13016, doi:10.3390/ijerph111212997.
- Knowlton, K. et al., 2014: Development and Implementation of South Asia's First Heat-Health Action Plan in Ahmedabad (Gujarat, India). *International Journal of Environmental Research and Public Health*, 11(4), 3473–3492, doi:10.3390/ijerph110403473.
- Knowlton, N. et al., 2014: Coral Reef Biodiversity. In: *Life in the World's Oceans: Diversity, Distribution, and Abundance*. Blackwell Publishing Ltd, Chichester, UK, pp. 65–78, doi:10.1002/97811444325508.ch4.
- Koch, H. and S. Vögele, 2009: Dynamic modelling of water demand, water availability and adaptation strategies for power plants to global change. *Ecological Economics*, 68(7), 2031–2039, doi:10.1016/j.ecolecon.2009.02.015.
- Koelbl, B.S. et al., 2016: Socio-economic impacts of low-carbon power generation portfolios: Strategies with and without CCS for the Netherlands. *Applied Energy*, 183, 257–277, doi:10.1016/j.apenergy.2016.08.068.
- Köhler, P., J. Hartmann, and D.A. Wolf-Gladrow, 2010: Geoengineering potential of artificially enhanced silicate weathering of olivine. *Proceedings of the National Academy of Sciences*, 107(47), 20228–20233, doi:10.1073/pnas.1000545107.
- Köhler, P., J.F. Abrams, C. Volker, J. Hauck, and D.A. Wolf-Gladrow, 2013: Geoengineering impact of open ocean dissolution of olivine on atmospheric CO₂, surface ocean pH and marine biology. *Environmental Research Letters*, 8(1), 014009, doi:10.1088/1748-9326/8/1/014009.
- Kondili, E. and J.K. Kaldellis, 2012: Environmental-Social Benefits/Impacts of Wind Power. *Comprehensive Renewable Energy*, 2, 503–539, doi:10.1016/b978-0-08-087872-0.00219-5.
- Kongsager, R., B. Locatelli, and F. Chazarin, 2016: Addressing climate change mitigation and adaptation together: a global assessment of agriculture and forestry projects. *Environmental Management*, 57(2), 271–282, doi:10.1007/s00267-015-0605-y.
- Koning, F. et al., 2005: The Ecological and Economic Potential of Carbon Sequestration in Forests: Examples from South America. *Ambio*, 34(3), 224–229, doi:10.1579/0044-7447-34.3.224.
- Koomey, J.G., N.E. Hultman, and A. Grubler, 2017: A reply to “Historical construction costs of global nuclear power reactors”. *Energy Policy*, 102, 640–643, doi:10.1016/j.enpol.2016.03.052.
- Koornneef, J., T. van Keulen, A. Faaij, and W. Turkenburg, 2008: Life cycle assessment of a pulverized coal power plant with post-combustion capture, transport and storage of CO₂. *International Journal of Greenhouse Gas Control*, 2(4), 448–467, doi:10.1016/j.ijggc.2008.06.008.
- Koornneef, J., A. Ramirez, W. Turkenburg, and A. Faaij, 2012a: The environmental impact and risk assessment of CO₂ capture, transport and storage – An evaluation of the knowledge base. *Progress in Energy and Combustion Science*, 38(1), 62–86, doi:10.1016/j.pecs.2011.05.002.
- Koornneef, J. et al., 2012b: Global potential for biomass and carbon dioxide capture, transport and storage up to 2050. *International Journal of Greenhouse Gas Control*, 11, 117–132, doi:10.1016/j.ijggc.2012.07.027.
- Kopytko, N. and J. Perkins, 2011: Climate change, nuclear power, and the adaptation-mitigation dilemma. *Energy Policy*, 39(1), 318–333, doi:10.1016/j.enpol.2010.09.046.
- Korre, A., Z. Nie, and S. Durucan, 2010: Life cycle modelling of fossil fuel power generation with post-combustion CO₂ capture. *International Journal of Greenhouse Gas Control*, 4(2), 289–300, doi:10.1016/j.ijggc.2009.08.005.
- Kothari, U., 2014: Political discourses of climate change and migration: resettlement policies in the Maldives. *The Geographical Journal*, 180(2), 130–140, doi:10.1111/geoj.12032.
- Kraaijenbrink, P.D.A., M.F.P. Bierkens, A.F. Lutz, and W.W. Immerzeel, 2017: Impact of a global temperature rise of 1.5 degrees Celsius on Asia's glaciers. *Nature*, 549(7671), 257–260, doi:10.1038/nature23878.
- Kragt, M.E., F.L. Gibson, F. Maseyk, and K.A. Wilson, 2016: Public willingness to pay for carbon farming and its co-benefits. *Ecological Economics*, 126, 125–131, doi:10.1016/j.ecolecon.2016.02.018.
- Krarti, M. and K. Dubey, 2018: Review analysis of economic and environmental benefits of improving energy efficiency for UAE building stock. *Renewable and Sustainable Energy Reviews*, 82, 14–24, doi:10.1016/j.rser.2017.09.013.
- Krarti, M., F. Ali, A. Alaidroos, and M. Houchati, 2017: Macro-economic benefit analysis of large scale building energy efficiency programs in Qatar. *International Journal of Sustainable Built Environment*, 6(2), 597–609, doi:10.1016/j.ijsbe.2017.12.006.
- Kraxner, F. and E.-M. Nordström, 2015: Bioenergy Futures: A Global Outlook on the Implications of Land Use for Forest-Based Feedstock Production. In: *The Future Use of Nordic Forests*. Springer International Publishing, Cham, pp. 63–81, doi:10.1007/978-3-319-14218-0_5.
- Kreidenweis, U. et al., 2016: Afforestation to mitigate climate change: impacts on food prices under consideration of albedo effects. *Environmental Research Letters*, 11(8), 085001, doi:10.1088/1748-9326/11/8/085001.
- Kubule, A., L. Zogla, and M. Rosa, 2016: Resource and Energy Efficiency in Small and Medium Breweries. *Energy Procedia*, 95, 223–229, doi:10.1016/j.egypro.2016.09.055.
- Kulkarni, A.R. and D.S. Sholl, 2012: Analysis of equilibrium-based TSA processes for direct capture of CO₂ from air. *Industrial & Engineering Chemistry Research*, 51(25), 8631–8645.
- Kull, D. et al., 2016: Building Resilience: World Bank Group Experience in Climate and Disaster Resilient Development. In: *Climate Change Adaptation Strategies – An Upstream-downstream Perspective* [Salzmann, N., C. Huggel, S.U. Nussbaumer, and G. Ziervogel (eds.)]. Springer International Publishing, Cham, Switzerland, pp. 255–270, doi:10.1007/978-3-319-40773-9_14.
- Kumari Rigaud, K. et al., 2018: *Groundswell: Preparing for Internal Climate Migration*. The World Bank, Washington DC, USA, 222 pp.
- Kuramochi, T., A. Ramirez, W. Turkenburg, and A. Faaij, 2012: Comparative assessment of CO₂ capture technologies for carbon-intensive industrial processes. *Progress in Energy and Combustion Science*, 38(1), 87–112, doi:10.1016/j.pecs.2011.05.001.
- Kuruppu, N. and R. Willie, 2015: Barriers to reducing climate enhanced disaster risks in Least Developed Country-Small Islands through anticipatory adaptation. *Weather and Climate Extremes*, 7, 72–83, doi:10.1016/j.wace.2014.06.001.
- Lackner, K.S., 2009: Capture of carbon dioxide from ambient air. *The European Physical Journal Special Topics*, 176(1), 93–106, doi:10.1140/epjst/e2009-01150-3.
- Lackner, K.S. and S. Brennan, 2009: Envisioning carbon capture and storage: expanded possibilities due to air capture, leakage insurance, and C-14 monitoring. *Climatic Change*, 96(3), 357–378, doi:10.1007/s10584-009-9632-0.
- Lackner, K.S. et al., 2012: The urgency of the development of CO₂ capture from ambient air. *Proceedings of the National Academy of Sciences*, 109(33), 13156–13162, doi:10.1073/pnas.1108765109.
- Lacoue-Labarthe, T. et al., 2016: Impacts of ocean acidification in a warming Mediterranean Sea: An overview. *Regional Studies in Marine Science*, 5, 1–11, doi:10.1016/j.rsma.2015.12.005.
- Lah, O., 2017: Sustainable development synergies and their ability to create coalitions for low-carbon transport measures. *Transportation Research Procedia*, 25, 5083–5093, doi:10.1016/j.trpro.2017.05.495.
- Laird, D.A., R.C. Brown, J.E. Amonette, and J. Lehmann, 2009: Review of the pyrolysis platform for coproducing bio-oil and biochar. *Biofuels, Bioproducts and Biorefining*, 3(5), 547–562, doi:10.1002/bbb.169.
- Laitner, J.A.S., 2013: An overview of the energy efficiency potential. *Environmental Innovation and Societal Transitions*, 9, 38–42, doi:10.1016/j.eist.2013.09.005.
- Lakyda, P.I., I.F. Buksha, and V.P. Pasternak, 2005: Opportunities for fulfilling Joint Implementation projects in forestry in Ukraine. *Unasylva*, 222(56), 32–34, www.fao.org/docrep/009/a0413e/a0413e00.htm.
- Lal, R., 2003a: Global Potential of Soil Carbon Sequestration to Mitigate the Greenhouse Effect. *Critical Reviews in Plant Sciences*, 22(2), 151–184, doi:10.1080/713610854.
- Lal, R., 2003b: Offsetting global CO₂ emissions by restoration of degraded soils and intensification of world agriculture and forestry. *Land Degradation and Development*, 14(3), 309–322, doi:10.1002/ldr.562.
- Lal, R., 2004a: Carbon Sequestration in Dryland Ecosystems. *Environmental Management*, 33(4), 528–544, doi:10.1002/s00267-003-9110-9.
- Lal, R., 2004b: Soil carbon sequestration impacts on global climate change and food security. *Science*, 304(5677), 1623–7, doi:10.1126/science.1097396.
- Lal, R., 2004c: Soil carbon sequestration to mitigate climate change. *Geoderma*, 123(1–2), 1–22, doi:10.1016/j.geoderma.2004.01.032.
- Lal, R., 2010: Beyond Copenhagen: mitigating climate change and achieving food security through soil carbon sequestration. *Food Security*, 2(2), 169–177, doi:10.1007/s12571-010-0060-9.
- Lal, R., 2011: Sequestering carbon in soils of agro-ecosystems. *Food Policy*, 36, S33–S39, doi:10.1016/j.foodpol.2010.12.001.
- Lal, R., 2013: Intensive Agriculture and the Soil Carbon Pool. *Journal of Crop Improvement*, 27(6), 735–751, doi:10.1080/15427528.2013.845053.
- Lal, R., R.F. Follett, B.A. Stewart, and J.M. Kimble, 2007: Soil Carbon Sequestration to Mitigate Climate Change and Advance Food Security. *Soil Science*, 172(12), 943–956, doi:10.1097/ss.0b013e31815cc498.
- Lamond, J.E., C.B. Rose, and C.A. Booth, 2015: Evidence for improved urban flood resilience by sustainable drainage retrofit. *Proceedings of the Institution of Civil Engineers – Urban Design and Planning*, 168(2), 101–111, doi:10.1680/udap.13.00022.
- Lampert, D.J., H. Cai, and A. Elgowainy, 2016: Wells to wheels: water consumption for transportation fuels in the United States. *Energy & Environmental Science*, 9(3), 787–802, doi:10.1039/c5ee03254g.

- Landauer, M., S. Juhola, and M. Söderholm, 2015: Inter-relationships between adaptation and mitigation: a systematic literature review. *Climatic Change*, **131**(4), 505–517, doi:[10.1007/s10584-015-1395-1](https://doi.org/10.1007/s10584-015-1395-1).
- Lasco, R.D., R.J.P. Delfino, and M.L.O. Espaldon, 2014: Agroforestry systems: helping smallholders adapt to climate risks while mitigating climate change. *Wiley Interdisciplinary Reviews: Climate Change*, **5**(6), 825–833, doi:[10.1002/wcc.301](https://doi.org/10.1002/wcc.301).
- Lashley, J.G. and K. Warner, 2015: Evidence of demand for microinsurance for coping and adaptation to weather extremes in the Caribbean. *Climatic Change*, **133**(1), 101–112, doi:[10.1007/s10584-013-0922-1](https://doi.org/10.1007/s10584-013-0922-1).
- Lassaletta, L. and E. Aguilera, 2015: Soil carbon sequestration is a climate stabilization wedge: Comments on Sommer and Bossio (2014). *Journal of Environmental Management*, **153**, 48–49, doi:[10.1016/j.jenvman.2015.01.038](https://doi.org/10.1016/j.jenvman.2015.01.038).
- Laude, A. and O. Ricci, 2011: Can carbon capture and storage on small sources be profitable? An application to the ethanol sector. *Energy Procedia*, **4**, 2909–2917, doi:[10.1016/j.egypro.2011.02.198](https://doi.org/10.1016/j.egypro.2011.02.198).
- Laude, A., O. Ricci, G. Bureau, J. Royer-Adnot, and A. Fabbri, 2011: CO₂ capture and storage from a bioethanol plant: Carbon and energy footprint and economic assessment. *International Journal of Greenhouse Gas Control*, **5**(5), 1220–1231, doi:[10.1016/j.ijggc.2011.06.004](https://doi.org/10.1016/j.ijggc.2011.06.004).
- Lauri, P. et al., 2014: Woody biomass energy potential in 2050. *Energy Policy*, **66**, 19–31, doi:[10.1016/j.enpol.2013.11.033](https://doi.org/10.1016/j.enpol.2013.11.033).
- Le Vine, S., A. Zolfaghari, and J. Polak, 2014: *Carsharing: Evolution, Challenges and Opportunities*. 22nd ACEA Scientific Advisory Group Report, European Automobile Manufacturers Association (ACEA), Brussels, Belgium.
- Lechthaler, F. and A. Vinogradova, 2017: The climate challenge for agriculture and the value of climate services: Application to coffee-farming in Peru. *European Economic Review*, **94**, 45–70, doi:[10.1016/j.eurocorev.2017.02.002](https://doi.org/10.1016/j.eurocorev.2017.02.002).
- Leck, H., D. Conway, M. Bradshaw, and J. Rees, 2015: Tracing the Water-Energy-Food Nexus: Description, Theory and Practice. *Geography Compass*, **9**(8), 445–460, doi:[10.1111/gec3.12222](https://doi.org/10.1111/gec3.12222).
- Lee, C.M. and P. Erickson, 2017: How does local economic development in cities affect global GHG emissions? *Sustainable Cities and Society*, **35**, 626–636, doi:[10.1016/j.scs.2017.08.027](https://doi.org/10.1016/j.scs.2017.08.027).
- Lee, H.-C., B.A. McCarl, and D. Gillig, 2005: The Dynamic Competitiveness of U.S. Agricultural and Forest Carbon Sequestration. *Canadian Journal of Agricultural Economics/Revue canadienne d'agroéconomie*, **53**(4), 343–357, doi:[10.1111/j.1744-7976.2005.00023.x](https://doi.org/10.1111/j.1744-7976.2005.00023.x).
- Lee, J.W., B. Hawkins, D.M. Day, and D.C. Reicosky, 2010: Sustainability: the capacity of smokeless biomass pyrolysis for energy production, global carbon capture and sequestration. *Energy & Environmental Science*, **3**(11), 1695–1705, doi:[10.1039/c004561f](https://doi.org/10.1039/c004561f).
- Lehmann, J., J. Gaunt, and M. Rondon, 2006: Bio-char Sequestration in Terrestrial Ecosystems – A Review. *Mitigation and Adaptation Strategies for Global Change*, **11**(2), 403–427, doi:[10.1007/s11027-005-9006-5](https://doi.org/10.1007/s11027-005-9006-5).
- Leichenko, R. and J.A. Silva, 2014: Climate change and poverty: vulnerability, impacts, and alleviation strategies. *Wiley Interdisciplinary Reviews: Climate Change*, **5**(4), 539–556, doi:[10.1002/wcc.287](https://doi.org/10.1002/wcc.287).
- Lemaire, G., A. Franzluebbers, P.C.F. Carvalho, and B. Dedieu, 2014: Integrated crop-livestock systems: Strategies to achieve synergy between agricultural production and environmental quality. *Agriculture, Ecosystems & Environment*, **190**, 4–8, doi:[10.1016/j.agee.2013.08.009](https://doi.org/10.1016/j.agee.2013.08.009).
- Lemos, M.C., 2015: Usable climate knowledge for adaptive and co-managed water governance. *Current Opinion in Environmental Sustainability*, **12**, 48–52, doi:[10.1016/j.cosust.2014.09.005](https://doi.org/10.1016/j.cosust.2014.09.005).
- Lemos, M.C., Y.J. Lo, D.R. Nelson, H. Eakin, and A.M. Bedran-Martins, 2016: Linking development to climate adaptation: Leveraging generic and specific capacities to reduce vulnerability to drought in NE Brazil. *Global Environmental Change*, **39**, 170–179, doi:[10.1016/j.gloenvcha.2016.05.001](https://doi.org/10.1016/j.gloenvcha.2016.05.001).
- Lenton, T.M., 2010: The potential for land-based biological CO₂ removal to lower future atmospheric CO₂ concentration. *Carbon Management*, **1**(1), 145–160, doi:[10.4155/cmt.10.12](https://doi.org/10.4155/cmt.10.12).
- Lenton, T.M., 2014: The Global Potential for Carbon Dioxide Removal. In: *Geoengineering of the Climate System* [Harrison, R.M. and R.E. Hester (eds.)]. The Royal Society of Chemistry (RSC), Cambridge, UK, pp. 52–79, doi:[10.1039/9781782621225-00052](https://doi.org/10.1039/9781782621225-00052).
- Leonard, S., M. Parsons, K. Olawsky, and F. Kofod, 2013: The role of culture and traditional knowledge in climate change adaptation: Insights from East Kimberley, Australia. *Global Environmental Change*, **23**(3), 623–632, doi:[10.1016/j.gloenvcha.2013.02.012](https://doi.org/10.1016/j.gloenvcha.2013.02.012).
- Lesnikowski, A.C. et al., 2013: National-level factors affecting planned, public adaptation to health impacts of climate change. *Global Environmental Change*, **23**(5), 1153–1163, doi:[10.1016/j.gloenvcha.2013.04.008](https://doi.org/10.1016/j.gloenvcha.2013.04.008).
- Levidow, L. et al., 2014: Improving water-efficient irrigation: Prospects and difficulties of innovative practices. *Agricultural Water Management*, **146**, 84–94, doi:[10.1016/j.agwat.2014.07.012](https://doi.org/10.1016/j.agwat.2014.07.012).
- Lewandowski, I., 2015: Securing a sustainable biomass supply in a growing bioeconomy. *Global Food Security*, **6**, 34–42, doi:[10.1016/j.gfs.2015.10.001](https://doi.org/10.1016/j.gfs.2015.10.001).
- Lewandowski, M., 2016: Designing the Business Models for Circular Economy – Towards the Conceptual Framework. *Sustainability*, **8**(1), 43, doi:[10.3390/su8010043](https://doi.org/10.3390/su8010043).
- Ley, D., 2017: Sustainable Development, Climate Change, and Renewable Energy in Rural Central America. In: *Evaluating Climate Change Action for Sustainable Development*. Springer International Publishing, Cham, pp. 187–212, doi:[10.1007/978-3-319-43702-6_11](https://doi.org/10.1007/978-3-319-43702-6_11).
- Li, F. et al., 2017: Urban ecological infrastructure: an integrated network for ecosystem services and sustainable urban systems. *Journal of Cleaner Production*, **163**(S1), S12–S18, doi:[10.1016/j.jclepro.2016.02.079](https://doi.org/10.1016/j.jclepro.2016.02.079).
- Li, H., J. He, Z.P. Bharucha, R. Lal, and J. Pretty, 2016: Improving China's food and environmental security with conservation agriculture. *International Journal of Agricultural Sustainability*, **14**(4), 377–391, doi:[10.1080/14735903.2016.1170330](https://doi.org/10.1080/14735903.2016.1170330).
- Liao, C. and D.G. Brown, 2018: Assessments of synergistic outcomes from sustainable intensification of agriculture need to include smallholder livelihoods with food production and ecosystem services. *Current Opinion in Environmental Sustainability*, **32**, 53–59, doi:[10.1016/j.cosust.2018.04.013](https://doi.org/10.1016/j.cosust.2018.04.013).
- Liao, F., E. Molin, and B. Van Wee, 2017: Consumer preferences for electric vehicles: a literature review. *Transport Reviews*, **37**(3), 252–275, doi:[10.1080/01441647.2016.1230794](https://doi.org/10.1080/01441647.2016.1230794).
- Lilford, R.J. et al., 2017: Improving the health and welfare of people who live in slums. *Lancet*, **389**(10068), 559–570, doi:[10.1016/s0140-6736\(16\)31848-7](https://doi.org/10.1016/s0140-6736(16)31848-7).
- Lin, B. and Z. Du, 2017: Can urban rail transit curb automobile energy consumption? *Energy Policy*, **105**, 120–127, doi:[10.1016/j.enpol.2017.02.038](https://doi.org/10.1016/j.enpol.2017.02.038).
- Lin, B.B. et al., 2017: How green is your garden?: Urban form and socio-demographic factors influence yard vegetation, visitation, and ecosystem service benefits. *Landscape and Urban Planning*, **157**, 239–246, doi:[10.1016/j.landurbplan.2016.07.007](https://doi.org/10.1016/j.landurbplan.2016.07.007).
- Lin, C.S.K. et al., 2013: Food waste as a valuable resource for the production of chemicals, materials and fuels. Current situation and global perspective. *Energy & Environmental Science*, **6**(2), 426–464, doi:[10.1039/c2ee23440h](https://doi.org/10.1039/c2ee23440h).
- Lin, J.-C., C.-S. Wu, W.-Y. Liu, and C.-C. Lee, 2012: Behavioral intentions toward afforestation and carbon reduction by the Taiwanese public. *Forest Policy and Economics*, **14**(1), 119–126, doi:[10.1016/j.forpol.2011.07.016](https://doi.org/10.1016/j.forpol.2011.07.016).
- Lindenmayer, D.B. and R.J. Hobbs, 2004: Fauna conservation in Australian plantation forests – a review. *Biological Conservation*, **119**(2), 151–168, doi:[10.1016/j.biocon.2003.10.028](https://doi.org/10.1016/j.biocon.2003.10.028).
- Linnerooth-Bayer, J. and S. Hochrainer-Stigler, 2015: Financial instruments for disaster risk management and climate change adaptation. *Climatic Change*, **133**(1), 85–100, doi:[10.1007/s10584-013-1035-6](https://doi.org/10.1007/s10584-013-1035-6).
- Linovski, O., D.M. Baker, and K. Manaugh, 2018: Equity in practice? Evaluations of equity in planning for bus rapid transit. *Transportation Research Part A*, **113**, 75–87, doi:[10.1016/j.tra.2018.03.030](https://doi.org/10.1016/j.tra.2018.03.030).
- Litman, T.A., 2017: *Economic Value of Walkability*. Victoria Transport Policy Institute, Victoria, BC, Canada, 33 pp.
- Litman, T.A., 2018: *Evaluating Active Transport Benefits and Costs: Guide to Valuing Walking and Cycling Improvements and Encouragement Programs*. Victoria Transport Policy Institute, Victoria, BC, Canada, 87 pp.
- Liu, W., W. Chen, and C. Peng, 2014: Assessing the effectiveness of green infrastructures on urban flooding reduction: A community scale study. *Ecological Modelling*, **291**, 6–14, doi:[10.1016/j.ecolmodel.2014.07.012](https://doi.org/10.1016/j.ecolmodel.2014.07.012).
- Liu, W., Z. Yu, X. Xie, K. von Gadow, and C. Peng, 2018: A critical analysis of the carbon neutrality assumption in life cycle assessment of forest bioenergy systems. *Environmental Reviews*, **26**(1), 93–101, doi:[10.1139/er-2017-0060](https://doi.org/10.1139/er-2017-0060).
- Liu, X. et al., 2017: Microgrids for Enhancing the Power Grid Resilience in Extreme Conditions. *IEEE Transactions on Smart Grid*, **8**(2), 589–597, doi:[10.1109/tsg.2016.2579999](https://doi.org/10.1109/tsg.2016.2579999).
- Loebell, D.B., U.L.C. Baldos, and T.W. Hertel, 2013: Climate adaptation as mitigation: the case of agricultural investments. *Environmental Research Letters*, **8**(1), 015012, doi:[10.1088/1748-9326/8/1/015012](https://doi.org/10.1088/1748-9326/8/1/015012).
- Lobo, C., N. Chattopadhyay, and K. Rao, 2017: Making smallholder farming climate-smart. *Economic and Political Weekly*, **52**(1), 53–58, www.epw.in/journal/2017/1/review-rural-affairs/making-smallholder-farming-climate-smart.html-0.
- Locatelli, B., C. Pavageau, E. Pramova, and M. Di Gregorio, 2015a: Integrating climate change mitigation and adaptation in agriculture and forestry: opportunities and trade-offs. *Wiley Interdisciplinary Reviews: Climate Change*, **6**(6), 585–598, doi:[10.1002/wcc.357](https://doi.org/10.1002/wcc.357).
- Locatelli, B. et al., 2015b: Tropical reforestation and climate change: beyond carbon. *Restoration Ecology*, **23**(4), 337–343, doi:[10.1111/rec.12209](https://doi.org/10.1111/rec.12209).
- Löffler, K. et al., 2017: Designing a model for the global energy system-GENeSYS-MOD: An application of the Open-Source Energy Modeling System (OSeMOSYS). *Energies*, **10**(10), 1–29, doi:[10.3390/en10101468](https://doi.org/10.3390/en10101468).
- Lohmann, U. and B. Gasparini, 2017: A cirrus cloud climate dial? *Science*, **357**(6348), 248–249, doi:[10.1126/science.aan3325](https://doi.org/10.1126/science.aan3325).

- Loiola, C., W. Mary, and L. Pimentel da Silva, 2018: Hydrological performance of modular-tray green roof systems for increasing the resilience of mega-cities to climate change. *Journal of Hydrology*, doi:10.1016/j.jhydrol.2018.01.004.
- Lomax, G., M. Workman, T. Lenton, and N. Shah, 2015: Reframing the policy approach to greenhouse gas removal technologies. *Energy Policy*, 78, 125–136, doi:10.1016/j.enpol.2014.10.002.
- Longstaff, H., D.M. Secko, G. Capurro, P. Hanney, and T. McIntyre, 2015: Fostering citizen deliberations on the social acceptability of renewable fuels policy: The case of advanced lignocellulosic biofuels in Canada. *Biomass and Bioenergy*, 74, 103–112, doi:10.1016/j.biombioe.2015.01.003.
- Lorenz, K. and R. Lal, 2014: Soil organic carbon sequestration in agroforestry systems. A review. *Agronomy for Sustainable Development*, 34(2), 443–454, doi:10.1007/s13593-014-0212-y.
- Lourenço, T.C., R. Swart, H. Goosen, and R. Street, 2016: The rise of demand-driven climate services. *Nature Climate Change*, 6(1), 13–14, doi:10.1038/nclimate2836.
- Loving, J.R., A. Yip, and T. Nordhaus, 2016: Historical construction costs of global nuclear power reactors. *Energy Policy*, 91, 371–382, doi:10.1016/j.enpol.2016.01.011.
- Lovins, A.B., T. Palazzi, R. Laemel, and E. Goldfield, 2018: Relative deployment rates of renewable and nuclear power: A cautionary tale of two metrics. *Energy Research & Social Science*, 38, 188–192, doi:10.1016/j.erss.2018.01.005.
- Lu, Y., D. Chadwick, D. Norse, D. Powlson, and W. Shi, 2015: Sustainable intensification of China's agriculture: the key role of nutrient management and climate change mitigation and adaptation. *Agriculture, Ecosystems & Environment*, 209, 1–4, doi:10.1016/j.agee.2015.05.012.
- Lucas, J., 2015: Aquaculture. *Current Biology*, 25(22), R1064–5, doi:10.1016/j.cub.2015.08.013.
- Luckow, P., M.A. Wise, J.J. Dooley, and S.H. Kim, 2010: Large-scale utilization of biomass energy and carbon dioxide capture and storage in the transport and electricity sectors under stringent CO₂ concentration limit scenarios. *International Journal of Greenhouse Gas Control*, 4(5), 865–877, doi:10.1016/j.ijggc.2010.06.002.
- Luisetti, T., E.L. Jackson, and R.K. Turner, 2013: Valuing the European 'coastal blue carbon' storage benefit. *Marine Pollution Bulletin*, 71(1–2), 101–106, doi:10.1016/j.marpolbul.2013.03.029.
- Lusiana, B., M. van Noordwijk, and G. Cadisch, 2012: Land sparing or sharing? Exploring livestock fodder options in combination with land use zoning and consequences for livelihoods and net carbon stocks using the FALLOW model. *Agriculture, Ecosystems & Environment*, 159, 145–160, doi:10.1016/j.agee.2012.07.006.
- Lutz, W. and R. Muttarak, 2017: Forecasting societies' adaptive capacities through a demographic metabolism model. *Nature Climate Change*, 7(3), 177–184, doi:10.1038/nclimate3222.
- Lutz, W., R. Muttarak, and E. Striessnig, 2014: Universal education is key to enhanced climate adaptation. *Science*, 346(6213), 1061–1062, doi:10.1126/science.1257975.
- Lwasa, S., 2017: Options for reduction of greenhouse gas emissions in the low-emitting city and metropolitan region of Kampala. *Carbon Management*, 8(3), 263–276, doi:10.1080/17583004.2017.1330592.
- Lwasa, S. et al., 2015: A meta-analysis of urban and peri-urban agriculture and forestry in mediating climate change. *Current Opinion in Environmental Sustainability*, 13, 68–73, doi:10.1016/j.cosust.2015.02.003.
- Lyons, K. and P. Westoby, 2014: Carbon colonialism and the new land grab: Plantation forestry in Uganda and its livelihood impacts. *Journal of Rural Studies*, 36, 13–21, doi:10.1016/j.jrurstud.2014.06.002.
- Mabon, L. et al., 2013: 'Tell me what you think about the Geological Storage of Carbon Dioxide': Towards a Fuller Understanding of Public Perceptions of CCS. *Energy Procedia*, 37, 7444–7453, doi:10.1016/j.egypro.2013.06.687.
- MacDonald, J.P., J. Ford, A.C. Willox, C. Mitchell, and K. Productions, 2015a: Youth-led participatory video as a strategy to enhance inuit youth adaptive capacities for dealing with climate change. *Arctic*, 68(4), 486–499, doi:10.14430/arctic4527.
- MacDonald, J.P. et al., 2015b: Protective factors for mental health and well-being in a changing climate: Perspectives from Inuit youth in Nunatsiavut, Labrador. *Social Science & Medicine*, 141, 133–141, doi:10.1016/j.socscimed.2015.07.017.
- MacDonald Gibson, J. et al., 2015: Predicting urban design effects on physical activity and public health: A case study. *Health & Place*, 35, 79–84, doi:10.1016/j.healthplace.2015.07.005.
- Magneschi, G., T. Zhang, and R. Munson, 2017: The Impact of CO₂ Capture on Water Requirements of Power Plants. *Energy Procedia*, 114, 6337–6347, doi:10.1016/j.egypro.2017.03.1770.
- Magni, G., 2017: Indigenous knowledge and implications for the sustainable development agenda. *European Journal of Education*, 52(4), 437–447, doi:10.1111/ejed.12238.
- Mahlkow, N. and J. Donner, 2017: From Planning to Implementation? The Role of Climate Change Adaptation Plans to Tackle Heat Stress: A Case Study of Berlin, Germany. *Journal of Planning Education and Research*, 37(4), 385–396, doi:10.1177/0739456x16664787.
- Maibach, E., L. Steg, and J. Anable, 2009: Promoting physical activity and reducing climate change: Opportunities to replace short car trips with active transportation. *Preventive Medicine*, 49(4), 326–327, doi:10.1016/j.ypmed.2009.06.028.
- Maizlish, N., N.J. Linesch, and J. Woodcock, 2017: Health and greenhouse gas mitigation benefits of ambitious expansion of cycling, walking, and transit in California. *Journal of Transport & Health*, 6, 490–500, doi:10.1016/j.jth.2017.04.011.
- Majzoubi, A. and A. Khodaei, 2017: Application of microgrids in providing ancillary services to the utility grid. *Energy*, 123, 555–563, doi:10.1016/j.energy.2017.01.113.
- Mamais, D., C. Noutsopoulos, A. Dimopoulou, A. Stasinakis, and T.D. Lekkas, 2015: Wastewater treatment process impact on energy savings and greenhouse gas emissions. *Water Science and Technology*, 71(2), 303–308, doi:10.2166/wst.2014.521.
- Manning, D.A. and P. Renforth, 2013: Passive sequestration of atmospheric CO₂ through coupled plant-mineral reactions in urban soils. *Environmental Science & Technology*, 47(1), 135–141, doi:10.1021/es301250j.
- Mannke, F., 2011: Key themes of local adaptation to climate change: results from mapping community-based initiatives in Africa. In: *Experiences of Climate Change Adaptation in Africa* [Walter Leal Filho (ed.)]. Springer, Berlin and Heidelberg, Germany, pp. 17–32, doi:10.1007/978-3-642-22315-0_2.
- Mansfield, T.J. and J.M. Gibson, 2015: Health Impacts of Increased Physical Activity from Changes in Transportation Infrastructure: Quantitative Estimates for Three Communities. *BioMed Research International*, 1–15, doi:10.1155/2015/812325.
- Mantilla, G., C. Thomson, J. Sharoff, A.G. Barnston, and A. Curtis, 2014: Capacity through the sharing of climate information with diverse user communities. *Earth Perspectives*, 1(1), 21, doi:10.1186/2194-6434-1-21.
- Mantyka-Pringle, C.S. et al., 2016: Prioritizing management actions for the conservation of freshwater biodiversity under changing climate and land-cover. *Biological Conservation*, 197, 80–89, doi:10.1016/j.biocon.2016.02.033.
- Mapfumo, P., F. Mtambanengwe, and R. Chikowo, 2016: Building on indigenous knowledge to strengthen the capacity of smallholder farming communities to adapt to climate change and variability in southern Africa. *Climate and Development*, 8(1), 72–82, doi:10.1080/17565529.2014.998604.
- Maragkogianni, A., S. Papaefthimiou, and C. Zopounidis, 2016: *Mitigating Shipping Emissions in European Ports: Social and Environmental Benefits*. Springer International Publishing, Cham, Switzerland, 76 pp., doi:10.1007/978-3-319-40150-8.
- Maraseni, T.N. and G. Cockfield, 2015: The financial implications of converting farmland to state-supported environmental plantings in the Darling Downs region, Queensland. *Agricultural Systems*, 135, 57–65, doi:10.1016/j.agsy.2014.12.004.
- Marengo, J.A. et al., 2017: A globally deployable strategy for co-development of adaptation preferences to sea-level rise: the public participation case of Santos, Brazil. *Natural Hazards*, 88(1), 39–53, doi:10.1007/s11069-017-2855-x.
- Margerum, R.D. and C.J. Robinson, 2015: Collaborative partnerships and the challenges for sustainable water management. *Current Opinion in Environmental Sustainability*, 12, 53–58, doi:10.1016/j.cosust.2014.09.003.
- Marion Suiseeya, K.R. and S. Caplow, 2013: In pursuit of procedural justice: Lessons from an analysis of 56 forest carbon project designs. *Global Environmental Change*, 23(5), 968–979, doi:10.1016/j.gloenvcha.2013.07.013.
- Marques, V., N. Bento, and P.M. Costa, 2014: The "Smart Paradox": Stimulate the deployment of smart grids with effective regulatory instruments. *Energy*, 69, 96–103, doi:10.1016/j.energy.2014.01.007.
- Martin, M. et al., 2014: Climate-related migration in rural Bangladesh: a behavioural model. *Population and Environment*, 36(1), 85–110, doi:10.1007/s11111-014-0207-2.
- Masiero, S., 2015: Redesigning the Indian Food Security System through E-Governance: The Case of Kerala. *World Development*, 67, 126–137, doi:10.1016/j.worlddev.2014.10.014.
- Masud-All-Kamal, M. and C.K. Saha, 2014: Targeting social policy and poverty reduction: The case of social safety nets in Bangladesh. *Poverty & Public Policy*, 6(2), 195–211, doi:10.1002/ppp4.67.
- Matan, A. and P. Newman, 2016: *People Cities: The Life and Legacy of Jan Gehl*. Island Press, Washington DC, USA, 192 pp.
- Matan, A., P. Newman, R. Trubka, C. Beattie, and L.A. Selvey, 2015: Health, transport and Urban Planning: Quantifying the Links between Urban Assessment Models and Human health. *Urban Policy and Research*, 33(2), 146–149, doi:10.1080/08111146.2014.990626.
- Mathbor, G.M., 2007: Enhancement of community preparedness for natural disasters. *International Social Work*, 50(3), 357–369, doi:10.1177/0020872807076049.

- Mathioudakis, V., P.W. Gerbens-Leenes, T.H. Van der Meer, and A.Y. Hoekstra, 2017: The water footprint of second-generation bioenergy: A comparison of biomass feedstocks and conversion techniques. *Journal of Cleaner Production*, **148**, 571–582, doi:10.1016/j.jclepro.2017.02.032.
- Matthews, T. and R. Potts, 2018: Planning for climigration: a framework for effective action. *Climatic Change*, **148**(4), 607–621, doi:10.1007/s10584-018-2205-3.
- Mavhura, E., A. Collins, and P.P. Bongo, 2017: Flood vulnerability and relocation readiness in Zimbabwe. *Disaster Prevention and Management: An International Journal*, **26**(1), 41–54, doi:10.1108/dpm-05-2016-0101.
- Mavhura, E., S.B. Manyena, A.E. Collins, and D. Manatsa, 2013: Indigenous knowledge, coping strategies and resilience to floods in Muzarabani, Zimbabwe. *International Journal of Disaster Risk Reduction*, **5**, 38–48, doi:10.1016/j.ijdrr.2013.07.001.
- Mawere, M. and T.R. Mubaya, 2015: Indigenous Mechanisms for Disaster Risk Reduction: How the Shona of Zimbabwe Managed Drought and Famine? In: *Harnessing Cultural Capital for Sustainability: A Pan Africanist Perspective* [Mawere, M. and S. Awuah-Nyamekye (eds.)]. Langaa Research and Publishing CIG, Mankon, Cameroon, pp. 1–32.
- Mazzotti, M., R. Bacocchi, M.J. Desmond, and R.H. Socolow, 2013: Direct air capture of CO₂ with chemicals: Optimization of a two-loop hydroxide carbonate system using a countercurrent air-liquid contactor. *Climatic Change*, **118**(1), 119–135, doi:10.1007/s10584-012-0679-y.
- Mbow, C., P. Smith, D. Skole, L. Duguma, and M. Bustamante, 2014a: Achieving mitigation and adaptation to climate change through sustainable agroforestry practices in Africa. *Current Opinion in Environmental Sustainability*, **6**(1), 8–14, doi:10.1016/j.cosust.2013.09.002.
- Mbow, C. et al., 2014b: Agroforestry solutions to address food security and climate change challenges in Africa. *Current Opinion in Environmental Sustainability*, **6**(1), 61–67, doi:10.1016/j.cosust.2013.10.014.
- McCarl, B.A., C. Peacocke, R. Chrisman, C.-C. Kung, and R.D. Sands, 2009: Economics of Biochar Production, Utilization and Greenhouse Gas Offsets. In: *Biochar for Environmental Management: Science and Technology*. Routledge, London, UK, pp. 341–358.
- McCloud, K., S. Blundell, R. Sutton, R. MacFie, D. Sheppard, and G. Franklin (eds.), 2014: *Once in a lifetime: city-building after disaster in Christchurch*. Freerange Press, Christchurch, New Zealand, 512 pp.
- McCollum, D.L. et al., 2013: Climate policies can help resolve energy security and air pollution challenges. *Climatic Change*, **119**(2), 479–494, doi:10.1007/s10584-013-0710-y.
- McCormack, G.R. and A. Shiell, 2011: In search of causality: a systematic review of the relationship between the built environment and physical activity among adults. *International Journal of Behavioral Nutrition and Physical Activity*, **8**, 125, doi:10.1186/1479-5868-8-125.
- McCosker, A., A. Matan, and D. Marinova, 2018: Implementing Healthy Planning and Active Living Initiatives: A Virtuous Cycle. *Urban Science*, **2**(2), 30–46, doi:10.3390/urbansci2020030.
- McCubbin, S.G., T. Pearce, J.D. Ford, and B. Smit, 2017: Social-ecological change and implications for food security in Funafuti, Tuvalu. *Ecology and Society*, **22**(1), 53–65, doi:10.5751/es-09129-220153.
- McElwee, P. et al., 2016: Using REDD+ Policy to Facilitate Climate Adaptation at the Local Level: Synergies and Challenges in Vietnam. *Forests*, **8**(1), 11, doi:10.3390/f8010011.
- McGlashan, N., N. Shah, B. Caldecott, and M. Workman, 2012: High-level techno-economic assessment of negative emissions technologies. *Process Safety and Environmental Protection*, **90**(6), 501–510, doi:10.1016/j.psep.2012.10.004.
- McInnes, G., 2017: *Understanding the distributional and household effects of the low-carbon transition in G20 countries*. Organisation for Economic Co-operation and Development (OECD), Paris, France, 29 pp.
- McKinley, D.C. et al., 2011: A synthesis of current knowledge on forests and carbon storage in the United States. *Ecological Applications*, **21**(6), 1902–1924, doi:10.1890/10-0697.1.
- McLaren, D., 2012: A comparative global assessment of potential negative emissions technologies. *Process Safety and Environmental Protection*, **90**(6), 489–500, doi:10.1016/j.psep.2012.10.005.
- McNamara, K.E. and S.S. Prasad, 2014: Coping with extreme weather: Communities in Fiji and Vanuatu share their experiences and knowledge. *Climatic Change*, **123**(2), 121–132, doi:10.1007/s10584-013-1047-2.
- McNeil, M.A. and N. Bojda, 2012: Cost-effectiveness of high-efficiency appliances in the U.S. residential sector: A case study. *Energy Policy*, **45**, 33–42, doi:10.1016/j.enpol.2011.12.050.
- McPhearson, T. et al., 2016: Scientists must have a say in the future of cities. *Nature*, **538**(7624), 165–166, doi:10.1038/538165a.
- Mdemu, M., N. Mziray, H. Bjornlund, and J.J. Kashaigili, 2017: Barriers to and opportunities for improving productivity and profitability of the Kiwera and Magozi irrigation schemes in Tanzania. *International Journal of Water Resources Development*, **33**(5), 725–739, doi:10.1080/07900627.2016.1188267.
- Meadowcroft, J., J.C. Stephens, E.J. Wilson, and I.H. Rowlands, 2018: Social dimensions of smart grid: Regional analysis in Canada and the United States. Introduction to special issue of Renewable and Sustainable Energy Reviews. *Renewable and Sustainable Energy Reviews*, **82**, 1909–1912, doi:10.1016/j.rser.2017.06.106.
- Measham, T.G. et al., 2011: Adapting to climate change through local municipal planning: barriers and challenges. *Mitigation and Adaptation Strategies for Global Change*, **16**(8), 889–909, doi:10.1007/s11027-011-9301-2.
- Melde, S., F. Laczko, and F. Gemenne, 2017: *Making mobility work for adaptation to environmental changes: Results from the MECLIP global research*. International Organization for Migration (IOM), Geneva, Switzerland, 122 pp.
- Mesquita, P.S. and M. Bursztyn, 2016: Integration of social protection and climate change adaptation in Brazil. *British Food Journal*, **118**(12), 3030–3043, doi:10.1108/bfj-02-2016-0082.
- Methmann, C. and A. Oels, 2015: From ‘fearing’ to ‘empowering’ climate refugees: Governing climate-induced migration in the name of resilience. *Security Dialogue*, **46**(1), 51–68, doi:10.1177/0967010614552548.
- Metting, F.B., J.L. Smith, J.S. Amthor, and R.C. Izaurralde, 2001: Science needs and new technology for increasing soil carbon sequestration. *Climatic Change*, **51**(1), 11–34, doi:10.1023/a:1017509224801.
- Meyers, S. and S. Kromer, 2008: Measurement and verification strategies for energy savings certificates: meeting the challenges of an uncertain world. *Energy Efficiency*, **1**(4), 313–321, doi:10.1007/s12053-008-9019-5.
- Mguni, P., L. Herslund, and M.B. Jensen, 2016: Sustainable urban drainage systems: examining the potential for green infrastructure-based stormwater management for Sub-Saharan cities. *Natural Hazards*, **82**(S2), 241–257, doi:10.1007/s11069-016-2309-x.
- Mialhe, F. et al., 2016: The development of aquaculture on the northern coast of Manila Bay (Philippines): an analysis of long-term land-use changes and their causes. *Journal of Land Use Science*, **11**(2), 236–256, doi:10.1080/1747423x.2015.1057245.
- Mikunda, T. et al., 2014: Designing policy for deployment of CCS in industry. *Climate Policy*, **14**(5), 665–676, doi:10.1080/14693062.2014.905441.
- Miller, S., H. Shemer, and R. Semiat, 2015: Energy and environmental issues in desalination. *Desalination*, **366**, 2–8, doi:10.1016/j.desal.2014.11.034.
- Mills, E., 2007: Synergisms between climate change mitigation and adaptation: An insurance perspective. *Mitigation and Adaptation Strategies for Global Change*, **12**(5), 809–842, doi:10.1007/s11027-007-9101-x.
- Mills, M. et al., 2016: Reconciling Development and Conservation under Coastal Squeeze from Rising Sea Level. *Conservation Letters*, **9**(5), 361–368, doi:10.1111/conl.12213.
- Milman, A. and K. Jagannathan, 2017: Conceptualization and implementation of ecosystems-based adaptation. *Climatic Change*, **142**(1–2), 113–127, doi:10.1007/s10584-017-1933-0.
- Milner, A.M. et al., 2017: Glacier shrinkage driving global changes in downstream systems. *Proceedings of the National Academy of Sciences*, **114**(37), 9770–9778, doi:10.1073/pnas.1619807114.
- Minasny, B. et al., 2017: Soil carbon 4 per mille. *Geoderma*, **292**, 59–86, doi:10.1016/j.geoderma.2017.01.002.
- Mingarro, M. and J.M. Lobo, 2018: Environmental representativeness and the role of emitter and recipient areas in the future trajectory of a protected area under climate change. *Animal Biodiversity and Conservation*, **41**(2), 333–344.
- Minx, J.C. et al., 2017: The fast-growing dependence on negative emissions (in press).
- Mirasgedis, S., C. Tourkolias, E. Pavlakis, and D. Diakoulaki, 2014: A methodological framework for assessing the employment effects associated with energy efficiency interventions in buildings. *Energy and Buildings*, **82**, 275–286, doi:10.1016/j.enbuild.2014.07.027.
- Mistry, J. and A. Berardi, 2016: Bridging indigenous and scientific knowledge. *Science*, **352**(6291), 1274–1275, doi:10.1126/science.aaf1160.
- Mistry, J., B.A. Bilbao, and A. Berardi, 2016: Community owned solutions for fire management in tropical ecosystems: case studies from Indigenous communities of South America. *Philosophical Transactions of the Royal Society B: Biological Sciences*, **371**(1696), doi:10.1098/rstb.2015.0174.
- Mitlin, D. and D. Satterthwaite, 2013: *Urban Poverty in the Global South: Scale and Nature*. Routledge, Abingdon, UK and New York, NY, USA, 368 pp.
- Mochizuki, J. and S.E. Chang, 2017: Disasters as opportunity for change: Tsunami recovery and energy transition in Japan. *International Journal of Disaster Risk Reduction*, **21**, 331–339, doi:10.1016/j.ijdrr.2017.01.009.
- Modahl, I.S., C. Askham, K.A. Lyng, and A. Brekke, 2012: Weighting of environmental trade-offs in CCS-an LCA case study of electricity from a fossil gas power plant with post-combustion CO₂ capture, transport and storage. *International Journal of Life Cycle Assessment*, **17**(7), 932–943, doi:10.1007/s11367-012-0421-z.
- Moffat, C.F., 2017: Aquaculture. *Issues in Environmental Science and Technology*, **2017–Janua**, 128–175, doi:10.1039/9781782626916-00128.
- Moglia, M. et al., 2018: Urban transformation stories for the 21st century: Insights from strategic conversations. *Global Environmental Change*, **50**, 222–237, doi:10.1016/j.gloenvcha.2018.04.009.

- Mohamed, M., M. Ferguson, and P. Kanaroglou, 2018: What hinders adoption of the electric bus in Canadian transit? Perspectives of transit providers. *Transportation Research Part D: Transport and Environment*, **64**, 134–149, doi:10.1016/j.trd.2017.09.019.
- Mohan, A., 2017: Whose land is it anyway? Energy futures & land use in India. *Energy Policy*, **110**, 257–262, doi:10.1016/j.enpol.2017.08.025.
- Möllersten, K., J. Yan, and J. R. Moreira, 2003: Potential market niches for biomass energy with CO₂ capture and storage-Opportunities for energy supply with negative CO₂ emissions. *Biomass and Bioenergy*, **25**(3), 273–285, doi:10.1016/s0961-9534(03)00013-8.
- Möllersten, K., L. Gao, and J. Yan, 2006: CO₂ Capture in Pulp and Paper Mills: CO₂ Balances and Preliminary Cost Assessment. *Mitigation and Adaptation Strategies for Global Change*, **11**(5–6), 1129–1150, doi:10.1007/s11027-006-9026-9.
- Möllersten, K., L. Gao, J. Yan, and M. Obersteiner, 2004: Efficient energy systems with CO₂ capture and storage from renewable biomass in pulp and paper mills. *Renewable Energy*, **29**(9), 1583–1598, doi:10.1016/j.renene.2004.01.003.
- Monahan, W.B. and D.M. Theobald, 2018: Climate change adaptation benefits of potential conservation partnerships. *PLOS ONE*, **13**(2), e0191468, doi:10.1371/journal.pone.0191468.
- Montefrio, M.J.F. and D.A. Sonnenfeld, 2013: Global-Local Tensions in Contract Farming of Biofuel Crops Involving Indigenous Communities in the Philippines. *Society & Natural Resources*, **26**(3), 239–253, doi:10.1080/08941920.2012.682114.
- Moore, J.C., S. Jevrejeva, and A. Grinsted, 2010: Efficacy of geoengineering to limit 21st century sea-level rise. *Proceedings of the National Academy of Sciences*, **107**(36), 15699–15703, doi:10.1073/pnas.1008153107.
- Moosdorf, N., P. Renforth, and J. Hartmann, 2014: Carbon Dioxide Efficiency of Terrestrial Enhanced Weathering. *Environmental Science & Technology*, **48**(9), 4809–4816, doi:10.1021/es405202z.
- Morales-Florez, V., A. Santos, A. Lemus, and L. Esquivias, 2011: Artificial weathering pools of calcium-rich industrial waste for CO₂ sequestration. *Chemical Engineering Journal*, **166**(1), 132–137, doi:10.1016/j.cej.2010.10.039.
- Moreira, J.R., 2006: Global Biomass Energy Potential. *Mitigation and Adaptation Strategies for Global Change*, **11**(2), 313–342, doi:10.1007/s11027-005-9003-8.
- Moreira, J.R., V. Romeiro, S. Fuss, F. Kraxner, and S.A. Pacca, 2016: BECCS potential in Brazil: Achieving negative emissions in ethanol and electricity production based on sugar cane bagasse and other residues. *Applied Energy*, **179**, 55–63, doi:10.1016/j.apenergy.2016.06.044.
- Morris, R.L., G. Deavin, S. Hemelryk Donald, and R.A. Coleman, 2016: Eco-engineering in urbanised coastal systems: Consideration of social values. *Ecological Management and Restoration*, **17**(1), 33–39, doi:10.1111/emr.12200.
- Moula, M.M.E., J. Nyári, and A. Bartel, 2017: Public acceptance of biofuels in the transport sector in Finland. *International Journal of Sustainable Built Environment*, **6**(2), 434–441, doi:10.1016/j.ijbsbe.2017.07.008.
- Mouratiadou, I. et al., 2016: The impact of climate change mitigation on water demand for energy and food: An integrated analysis based on the Shared Socioeconomic Pathways. *Environmental Science & Policy*, **64**, 48–58, doi:10.1016/j.envsci.2016.06.007.
- Muench, S., S. Thuss, and E. Guenther, 2014: What hampers energy system transformations? The case of smart grids. *Energy Policy*, **73**, 80–92, doi:10.1016/j.enpol.2014.05.051.
- Mullaney, J., T. Lucke, and S.J. Trueman, 2015: A review of benefits and challenges in growing street trees in paved urban environments. *Landscape and Urban Planning*, **134**, 157–166, doi:10.1016/j.landurbplan.2014.10.013.
- Müller, B. and D. Kreuer, 2016: Ecologists Should Care about Insurance, too. *Trends in Ecology & Evolution*, **31**(1), 1–2, doi:10.1016/j.tree.2015.10.006.
- Müller, B., L. Johnson, and D. Kreuer, 2017: Maladaptive outcomes of climate insurance in agriculture. *Global Environmental Change*, **46**, 23–33, doi:10.1016/j.gloenvcha.2017.06.010.
- Mungai, L.M. et al., 2016: Smallholder Farms and the Potential for Sustainable Intensification. *Frontiers in Plant Science*, **7**, 1720, doi:10.3389/fpls.2016.01720.
- Muñoz, R. et al., 2016: Managing Glacier Related Risks Disaster in the Chucún Catchment, Cordillera Blanca, Peru. In: *Climate Change Adaptation Strategies – An Upstream-downstream Perspective* [Salzmann, N., C. Huggel, S.U. Nussbaumer, and G. Ziervogel (eds.)]. Springer, Cham, Switzerland, pp. 59–78, doi:10.1007/978-3-319-40773-9_4.
- Murakami, K., T. Ida, M. Tanaka, and L. Friedman, 2015: Consumers' willingness to pay for renewable and nuclear energy: A comparative analysis between the US and Japan. *Energy Economics*, **50**, 178–189, doi:10.1016/j.eneco.2015.05.002.
- Murphy, A.G., J. Hartell, V. Cárdenas, and J.R. Skees, 2012: *Risk Management Instruments for Food Price Volatility and Weather Risk in Latin America and the Caribbean: The Use of Risk Management Instruments*. Discussion Paper, Inter-American Development Bank (IDB), Washington DC, USA, 110 pp.
- Murrant, D., A. Quinn, and L. Chapman, 2015: The water-energy nexus: Future water resource availability and its implications on UK thermal power generation. *Water and Environment Journal*, **29**(3), 307–319, doi:10.1111/wej.12126.
- Murray, J.P., R. Grenyer, S. Wunder, N. Raes, and J.P.G. Jones, 2015: Spatial patterns of carbon, biodiversity, deforestation threat, and REDD+ projects in Indonesia. *Conservation Biology*, **29**(5), 1434–1445, doi:10.1111/cobi.12500.
- Murthy, I.K., 2013: Carbon Sequestration Potential of Agroforestry Systems in India. *Journal of Earth Science & Climatic Change*, **04**(01), 1–7, doi:10.4172/2157-7617.1000131.
- Musah-Surugu, I.J., A. Ahenkan, J.N. Bawole, and S.A. Darkwah, 2018: Migrants' remittances: A complementary source of financing adaptation to climate change at the local level in Ghana. *International Journal of Climate Change Strategies and Management*, **10**(1), 178–196, doi:10.1108/ijccsm-03-2017-0054.
- Muttarak, R. and W. Lutz, 2014: Is Education a Key to Reducing Vulnerability to Natural Disasters and hence Unavoidable Climate Change? *Ecology and Society*, **19**(1), 42, doi:10.5751/es-06476-190142.
- Mycoo, M.A., 2017: Beyond 1.5°C: vulnerabilities and adaptation strategies for Caribbean Small Island Developing States. *Regional Environmental Change*, **18**(8), 2341–2353, doi:10.1007/s10113-017-1248-8.
- Myers, C.D., T. Ritter, and A. Rockway, 2017: Community Deliberation to Build Local Capacity for Climate Change Adaptation: The Rural Climate Dialogues Program. In: *Climate Change Adaptation in North America: Fostering Resilience and the Regional Capacity to Adapt* [Leal Filho, W. and J.M. Keenan (eds.)]. Springer International Publishing, Cham, Switzerland, pp. 9–26, doi:10.1007/978-3-319-53742-9_2.
- Myers, N. and T.J. Goreau, 1991: Tropical forests and the greenhouse effect: A management response. *Climatic Change*, **19**(1), 215–225, doi:10.1007/bf00142229.
- Nabernegg, S. et al., 2017: The Deployment of Low Carbon Technologies in Energy Intensive Industries: A Macroeconomic Analysis for Europe, China and India. *Energies*, **10**(3), 360, doi:10.3390/en10030360.
- Nadeau, C.P., A.K. Fuller, and D.L. Rosenblatt, 2015: Climate-smart management of biodiversity. *Ecosphere*, **6**(6), 91, doi:10.1890/es15-00069.1.
- Nagataki, S., N. Takamura, K. Kamiya, and M. Akashi, 2013: Measurements of Individual Radiation Doses in Residents Living Around the Fukushima Nuclear Power Plant. *Radiation Research*, **180**(5), 439–447, doi:10.1667/rr13351.1.
- Nahayo, L. et al., 2018: Extent of disaster courses delivery for the risk reduction in Rwanda. *International Journal of Disaster Risk Reduction*, **27**, 127–132, doi:10.1016/j.ijdrr.2017.09.046.
- Nahlíka, M.J. and M. Chester, 2014: Transit-orientated smart growth can reduce life cycle environmental impacts and household costs in Los Angeles. *Transport Policy*, **35**, 21–30, doi:10.1016/j.tranpol.2014.05.004.
- Naiki, Y., 2016: Trade and Bioenergy: Explaining and Assessing the Regime Complex for Sustainable Bioenergy. *European Journal of International Law*, **27**(1), 129–159, doi:10.1093/ejil/chw004.
- Nair, P.K., V.D. Nair, B.M. Kumar, and S.G. Haile, 2009: Soil carbon sequestration in tropical agroforestry systems: a feasibility appraisal. *Environmental Science & Policy*, **12**(8), 1099–1111, doi:10.1016/j.envsci.2009.01.010.
- Nakashima, D.J., K. Galloway McLean, H.D. Thulstrup, A. Ramos Castillo, and J.T. Rubis, 2012: *Weathering Uncertainty: Traditional Knowledge for Climate Change Assessment and Adaptation*. UNESCO, Paris, France and UNU, Darwin, Australia, 120 pp.
- Nakayachi, K., H.M. Yokoyama, and S. Oki, 2015: Public anxiety after the 2011 Tohoku earthquake: fluctuations in hazard perception after catastrophe. *Journal of Risk Research*, **18**(2), 156–169, doi:10.1080/13669877.2013.875936.
- Nantongo, M.G., 2017: Legitimacy of local REDD+ processes. A comparative analysis of pilot projects in Brazil and Tanzania. *Environmental Science & Policy*, **78**, 81–88, doi:10.1016/j.envsci.2017.09.005.
- Napp, T.A., A. Gambhir, T.P. Hills, N. Florin, and P.S. Fennell, 2014: A review of the technologies, economics and policy instruments for decarbonising energy-intensive manufacturing industries. *Renewable and Sustainable Energy Reviews*, **30**, 616–640, doi:10.1016/j.rser.2013.10.036.
- Narayan, S. et al., 2016: The effectiveness, costs and coastal protection benefits of natural and nature-based defences. *PLOS ONE*, **11**(5), e0154735, doi:10.1371/journal.pone.0154735.
- Natcher, D.C. et al., 2007: Notions of time and sentience: Methodological considerations for Arctic climate change research. *Arctic Anthropology*, **44**(2), 113–126, doi:10.1353/arc.2011.0099.
- Naus, J., G. Spaargaren, B.J.M. van Vliet, and H.M. van Der Horst, 2014: Smart grids, information flows and emerging domestic energy practices. *Energy Policy*, **68**, 436–446, doi:10.1016/j.enpol.2014.01.038.
- Nazara, S. and B.P. Resosudarmo, 2007: *Aceh-Nias Reconstruction and Rehabilitation: Progress and Challenges at the End of 2006, 2007*. ADB Institute Discussion Paper No. 70, Asian Development Bank (ADB), Institute, Tokyo, Japan, 56 pp.

- Ndah, H.T. et al., 2015: Adoption Potential for Conservation Agriculture in Africa: A Newly Developed Assessment Approach (QAToCA) Applied in Kenya and Tanzania. *Land Degradation & Development*, **26**(2), 133–141, doi:10.1002/ldr.2191.
- NEA and IAEA, 2016: *Uranium 2016: Resources, Production and Demand*. NEA No. 7301, Nuclear Energy Agency (NEA) and the International Atomic Energy Agency (IAEA), 546 pp.
- Needhidasan, S., M. Samuel, and R. Chidambaram, 2014: Electronic waste – an emerging threat to the environment of urban India. *Journal of Environmental Health Science and Engineering*, **12**(1), 36, doi:10.1186/2052-336x-12-36.
- Neimark, B., S. Mahanty, and W. Dressler, 2016: Mapping Value in a 'Green' Commodity Frontier: Revisiting Commodity Chain Analysis. *Development and Change*, **47**(2), 240–265, doi:10.1111/dech.12226.
- Nelson, D.R., M.C. Lemos, H. Eakin, and Y.-J. Lo, 2016: The limits of poverty reduction in support of climate change adaptation. *Environmental Research Letters*, **11**(9), 094011, doi:10.1088/1748-9326/11/9/094011.
- Nemet, G.F. and A.R. Brandt, 2012: Willingness to Pay for a Climate Backstop: Liquid Fuel Producers and Direct CO₂ Air Capture. *The Energy Journal*, **33**(1), 53–81, doi:10.5547/issn0195-6574-ej-vol33-no1-3.
- Nemet, G.F. et al., 2018: Negative emissions – Part 3: Innovation and upscaling. *Environmental Research Letters*, **13**(6), 063003, doi:10.1088/1748-9326/aabff4.
- Neroutsou, T.I. and B. Croxford, 2016: Lifecycle costing of low energy housing refurbishment: A case study of a 7 year retrofit in Chester Road, London. *Energy and Buildings*, **128**, 178–189, doi:10.1016/j.enbuild.2016.06.040.
- Neumann, B., A.T. Vafeidis, J. Zimmermann, and R.J. Nicholls, 2015: Future coastal population growth and exposure to sea-level rise and coastal flooding – A global assessment. *PLOS ONE*, **10**(3), e0118571, doi:10.1371/journal.pone.0118571.
- Neureiter, C., 2017: *A Domain-Specific, Model Driven Engineering Approach For Systems Engineering In The Smart Grid*. MBSE4U, 277 pp.
- Newbold, T. et al., 2015: Global effects of land use on local terrestrial biodiversity. *Nature*, **520**(7545), 45–50, doi:10.1038/nature14324.
- Newman, P. and J.R. Kenworthy, 2015: *The End of Automobile Dependence: How Cities are Moving Beyond Car-based Planning*. Island Press, Washington DC, USA, 320 pp., doi:10.5822/978-1-61091-613-4.
- Newman, P., A. Matan, and J. McIntosh, 2015: Urban Transport and Sustainable Development. In: *Routledge International Handbook of Sustainable Development* [Redclift, M. and D. Springett (eds.)]. Routledge, Melbourne, Australia, pp. 337–350, doi:10.4324/9780203785300.
- Newman, P., L. Kosonen, and J. Kenworthy, 2016: Theory of urban fabrics: planning the walking, transit/public transport and automobile/motor car cities for reduced car dependency. *Town Planning Review*, **87**(4), 429–458, doi:10.3828/tpr.2016.28.
- Newman, P., T. Beatty, and H. Boyer, 2017: *Resilient Cities: Overcoming Fossil Fuel Dependence (2nd edition)*. Island Press, Washington DC, USA, 264 pp.
- Ngendakumana, S. et al., 2017: Implementing REDD+: learning from forest conservation policy and social safeguards frameworks in Cameroon. *International Forestry Review*, **19**(2), 209–223, doi:10.1505/146554817821255187.
- Nguyen, T.-T., V. Martin, A. Malmquist, and C.A.S. Silva, 2017: A review on technology maturity of small scale energy storage technologies. *Renewable Energy and Environmental Sustainability*, **2**(36), 8, doi:10.1051/rees/201707039.
- Nguyen, T.T., P.J. Bowman, M. Haile-Mariam, J.E. Pryce, and B.J. Hayes, 2016: Genomic selection for tolerance to heat stress in Australian dairy cattle. *Journal of Dairy Science*, **99**(4), 2849–2862, doi:10.3168/jds.2015-9685.
- Nie, Z., A. Korre, and S. Durucan, 2011: Life cycle modelling and comparative assessment of the environmental impacts of oxy-fuel and post-combustion CO₂ capture, transport and injection processes. *Energy Procedia*, **4**, 2510–2517, doi:10.1016/j.egypro.2011.02.147.
- Nigatu, A.S., B.O. Asamoah, and H. Kloos, 2014: Knowledge and perceptions about the health impact of climate change among health sciences students in Ethiopia: a cross-sectional study. *BMC Public Health*, **14**(1), 587, doi:10.1186/1471-2458-14-587.
- Niggli, U., A. Flieβbach, P. Hepperly, and N. Scialabba, 2009: *Low greenhouse gas agriculture: Mitigation and adaptation potential of sustainable farming systems*. Food and Agricultural Organization of the United Nations (FAO), Rome, Italy, 26 pp.
- Nijland, H. and J. van Meerkerk, 2017: Mobility and environmental impacts of car sharing in the Netherlands. *Environmental Innovation and Societal Transitions*, **23**, 84–91, doi:10.1016/j.eist.2017.02.001.
- Nijnik, M. and P. Halder, 2013: Afforestation and reforestation projects in South and South-East Asia under the Clean Development Mechanism: Trends and development opportunities. *Land Use Policy*, **31**, 504–515, doi:10.1016/j.landusepol.2012.08.014.
- Nijnik, M., G. Pajot, A.J. Moffat, and B. Slee, 2013: An economic analysis of the establishment of forest plantations in the United Kingdom to mitigate climatic change. *Forest Policy and Economics*, **26**, 34–42, doi:10.1016/j.forpol.2012.10.002.
- Nikulshina, V., D. Hirsch, M. Mazzotti, and A. Steinfeld, 2006: CO₂ capture from air and co-production of H₂ via the Ca(OH)₂–CaCO₃ cycle using concentrated solar power—Thermodynamic analysis. *Energy*, **31**(12), 1715–1725, doi:10.1016/j.energy.2005.09.014.
- Nilsson, S. and W. Schopfhauser, 1995: The carbon-sequestration potential of a global afforestation program. *Climatic Change*, **30**(3), 267–293, doi:10.1007/bf01091928.
- Nishikawa, M., T. Kato, T. Homma, and S. Takahara, 2016: Changes in risk perceptions before and after nuclear accidents: Evidence from Japan. *Environmental Science & Policy*, **55**, 11–19, doi:10.1016/j.envsci.2015.08.015.
- Nitschke, M., A. Krackowizer, L.A. Hansen, P. Bi, and R.G. Tucker, 2017: Heat Health Messages: A Randomized Controlled Trial of a Preventative Messages Tool in the Older Population of South Australia. *International Journal of Environmental Research and Public Health*, **14**(9), 992, doi:10.3390/ijerph14090992.
- Nitschke, M. et al., 2016: Evaluation of a heat warning system in Adelaide, South Australia, using case-series analysis. *BMJ open*, **6**(7), e012125, doi:10.1136/bmjopen-2016-012125.
- Niven, R.J. and D.K. Bardsley, 2013: Planned retreat as a management response to coastal risk: a case study from the Fleurieu Peninsula, South Australia. *Regional Environmental Change*, **13**(1), 193–209, doi:10.1007/s10113-012-0315-4.
- Nogueira, L.A.H. and R. Silva Capaz, 2013: Biofuels in Brazil: Evolution, achievements and perspectives on food security. *Global Food Security*, **2**(2), 117–125, doi:10.1016/j.gfs.2013.04.001.
- Nordstrom, K.F., 2014: Living with shore protection structures: A review. *Estuarine, Coastal and Shelf Science*, **150**, 11–23, doi:10.1016/j.ecss.2013.11.003.
- Norton, B.A. et al., 2015: Planning for cooler cities: A framework to prioritise green infrastructure to mitigate high temperatures in urban landscapes. *Landscape and Urban Planning*, **134**, 127–138, doi:10.1016/j.landurbplan.2014.10.018.
- Novak, J.M. et al., 2016: Soil Health, Crop Productivity, Microbial Transport, and Mine Spoil Response to Biochars. *BioEnergy Research*, **9**(2), 454–464, doi:10.1007/s12155-016-9720-8.
- Nowak, D.J., D.E. Crane, and J.C. Stevens, 2006: Air pollution removal by urban trees and shrubs in the United States. *Urban Forestry & Urban Greening*, **4**(3–4), 115–123, doi:10.1016/j.ufug.2006.01.007.
- NRC, 2015: *Climate Intervention: Carbon Dioxide Removal and Reliable Sequestration*. National Research Council (NRC). The National Academies Press, Washington DC, USA, 154 pp., doi:10.17226/18805.
- Nunn, P.D., J. Runman, M. Falanruw, and R. Kumar, 2017: Culturally grounded responses to coastal change on islands in the Federated States of Micronesia, northwest Pacific Ocean. *Regional Environmental Change*, **17**(4), 959–971, doi:10.1007/s10113-016-0950-2.
- Nur, I. and K.K. Shrestha, 2017: An Integrative Perspective on Community Vulnerability to Flooding in Cities of Developing Countries. *Procedia Engineering*, **198**, 958–967, doi:10.1016/j.proeng.2017.07.141.
- Nyong, A., F. Adesina, and B. Osman Elasha, 2007: The value of indigenous knowledge in climate change mitigation and adaptation strategies in the African Sahel. *Mitigation and Adaptation Strategies for Global Change*, **12**(5), 787–797, doi:10.1007/s11027-007-9099-0.
- O'Hare, P., I. White, and A. Connelly, 2016: Insurance as maladaptation: Resilience and the 'business as usual' paradox. *Environment and Planning C: Government and Policy*, **34**(6), 1175–1193, doi:10.1177/0263774x15602022.
- Obersteiner, M. et al., 2006: Global supply of biomass for energy and carbon sequestration from afforestation/reforestation activities. *Mitigation and Adaptation Strategies for Global Change*, **11**(5–6), 1003–1021, doi:10.1007/s11027-006-9031-z.
- Odeh, N.A. and T.T. Cockerill, 2008: Life cycle GHG assessment of fossil fuel power plants with carbon capture and storage. *Energy Policy*, **36**(1), 367–380, doi:10.1016/j.enpol.2007.09.026.
- Odemerho, F.O., 2014: Building climate change resilience through bottom-up adaptation to flood risk in Warri, Nigeria. *Environment and Urbanization*, **27**(1), 139–160, doi:10.1177/0956247814558194.
- Oe, M. et al., 2016: Three-year trend survey of psychological distress, post-traumatic stress, and problem drinking among residents in the evacuation zone after the Fukushima Daiichi Nuclear Power Plant accident [The Fukushima Health Management Survey]. *Psychiatry and Clinical Neurosciences*, **70**(6), 245–252, doi:10.1111/pcn.12387.
- Oldekop, J.A., G. Holmes, W.E. Harris, and K.L. Evans, 2016: A global assessment of the social and conservation outcomes of protected areas. *Conservation Biology*, **30**(1), 133–141, doi:10.1111/cobi.12568.
- Olmstead, S.M., 2014: Climate change adaptation and water resource management: A review of the literature. *Energy Economics*, **46**, 500–509, doi:10.1016/j.eneco.2013.09.005.
- Olschewski, R. and P.C. Benítez, 2005: Secondary forests as temporary carbon sinks? The economic impact of accounting methods on reforestation projects in the tropics. *Ecological Economics*, **55**(3), 380–394, doi:10.1016/j.ecolecon.2004.09.021.

- Olson, K.R., 2013: Soil organic carbon sequestration, storage, retention and loss in U.S. croplands: Issues paper for protocol development. *Geoderma*, 195–196, 201–206, doi:10.1016/j.geoderma.2012.12.004.
- Olson, K.R., M.M. Al-Kaisi, R. Lal, and B. Lowery, 2014: Experimental Consideration, Treatments, and Methods in Determining Soil Organic Carbon Sequestration Rates. *Soil Science Society of America Journal*, 78(2), 348–360, doi:10.2136/sssaj2013.09.0412.
- Onaindia, M., B. Fernández de Manuel, I. Madariaga, and G. Rodríguez-Loiñaz, 2013: Co-benefits and trade-offs between biodiversity, carbon storage and water flow regulation. *Forest Ecology and Management*, 289, 1–9, doi:10.1016/j.foreco.2012.10.010.
- Onarheim, K., A. Mathisen, and A. Arasto, 2015: Barriers and opportunities for application of CCS in Nordic industry-A sectorial approach. *International Journal of Greenhouse Gas Control*, 36, 93–105, doi:10.1016/j.ijggc.2015.02.009.
- Orchard, S.E., L.C. Stringer, and C.H. Quinn, 2015: Impacts of aquaculture on social networks in the mangrove systems of northern Vietnam. *Ocean and Coastal Management*, 114, 1–10, doi:10.1016/j.ocecoaman.2015.05.019.
- Ossa-Moreno, J., K.M. Smith, and A. Mijic, 2017: Economic analysis of wider benefits to facilitate SuDS uptake in London, UK. *Sustainable Cities and Society*, 28, 411–419, doi:10.1016/j.scs.2016.10.002.
- Oteros-Rozas, E. et al., 2015: Participatory scenario planning in place-based social-ecological research: insights and experiences from 23 case studies. *Ecology and Society*, 20(4), 32, doi:10.5751/es-07985-200432.
- Otuoze, A.O., M.W. Mustafa, and R.M. Larik, 2018: Smart grids security challenges: Classification by sources of threats. *Journal of Electrical Systems and Information Technology*, doi:10.1016/j.jesit.2018.01.001.
- Ouédraogo, M. et al., 2018: Farmers' Willingness to Pay for Climate Information Services: Evidence from Cowpea and Sesame Producers in Northern Burkina Faso. *Sustainability*, 10(3), 611, doi:10.3390/su10030611.
- Overmars, K.P. et al., 2014: Estimating the opportunity costs of reducing carbon dioxide emissions via avoided deforestation, using integrated assessment modelling. *Land Use Policy*, 41, 45–60, doi:10.1016/j.landusepol.2014.04.015.
- Oya, C., F. Schaefer, D. Skalidou, C. Mccosker, and L. Langer, 2017: *Effects of certification schemes for agricultural production on socio-economic outcomes in low-and middle-income countries*. 3ie Systematic Review 34, International Initiative for Impact Evaluation (3ie), London, UK, 350 pp.
- Paavola, J., 2017: Health impacts of climate change and health and social inequalities in the UK. *Environmental Health*, 16(S1), 113, doi:10.1186/s12940-017-0328-z.
- Pacheco-Torres, R., J. Roldán, E. Gago, and J. Ordóñez, 2017: Assessing the relationship between urban planning options and carbon emissions at the use stage of new urbanized areas: A case study in a warm climate location. *Energy and Buildings*, 136, 73–85, doi:10.1016/j.enbuild.2016.11.055.
- Padawangi, R. and M. Douglass, 2015: Water, Water Everywhere: Toward Participatory Solutions to Chronic Urban Flooding in Jakarta. *Pacific Affairs*, 88(3), 517–550, doi:10.5509/2015883517.
- Paidakaki, A. and F. Moulart, 2017: Disaster Resilience into Which Direction(s)? Competing Discursive and Material Practices in Post-Katrina New Orleans. *Housing, Theory and Society*, 1–23, doi:10.1080/14036096.2017.1308434.
- Palm, C., H. Blanco-Canqui, F. DeClerck, L. Gatere, and P. Grace, 2014: Conservation agriculture and ecosystem services: An overview. *Agriculture, Ecosystems & Environment*, 187, 87–105, doi:10.1016/j.agee.2013.10.010.
- Pan, G., P. Smith, and W. Pan, 2009: The role of soil organic matter in maintaining the productivity and yield stability of cereals in China. *Agriculture, Ecosystems & Environment*, 129(1), 344–348, doi:10.1016/j.agee.2008.10.008.
- Panagopoulos, T., J.A. González Duque, and M. Bostenaru Dan, 2016: Urban planning with respect to environmental quality and human well-being. *Environmental Pollution*, 208, 137–144, doi:10.1016/j.envpol.2015.07.038.
- Panda, A., U. Sharma, K.N. Ninan, and A. Patt, 2013: Adaptive capacity contributing to improved agricultural productivity at the household level: Empirical findings highlighting the importance of crop insurance. *Global Environmental Change*, 23(4), 782–790, doi:10.1016/j.gloenvcha.2013.03.002.
- Pang, M. et al., 2017: Trade-off between carbon reduction benefits and ecological costs of biomass-based power plants with carbon capture and storage (CCS) in China. *Journal of Cleaner Production*, 144, 279–286, doi:10.1016/j.jclepro.2017.01.034.
- Panic, M. and J. Ford, 2013: A Review of National-Level Adaptation Planning with Regards to the Risks Posed by Climate Change on Infectious Diseases in 14 OECD Nations. *International Journal of Environmental Research and Public Health*, 10(12), 7083–7109, doi:10.3390/ijerph10127083.
- Panteli, M. and P. Mancarella, 2015: Influence of extreme weather and climate change on the resilience of power systems: Impacts and possible mitigation strategies. *Electric Power Systems Research*, 127, 259–270, doi:10.1016/j.epr.2015.06.012.
- Panter, J., E. Heinen, R. Mackett, and D. Ogilvie, 2016: Impact of New Transport Infrastructure on Walking, Cycling, and Physical Activity. *American Journal of Preventive Medicine*, 50(2), e45–e53, doi:10.1016/j.amepre.2015.09.021.
- Papargyropoulou, E., R. Lozano, J. K. Steinberger, N. Wright, and Z. Ujang, 2014: The food waste hierarchy as a framework for the management of food surplus and food waste. *Journal of Cleaner Production*, 76, 106–115, doi:10.1016/j.jclepro.2014.04.020.
- Paquay, F.S. and R.E. Zeebe, 2013: Assessing possible consequences of ocean liming on ocean pH, atmospheric CO₂ concentration and associated costs. *International Journal of Greenhouse Gas Control*, 17, 183–188, doi:10.1016/j.ijggc.2013.05.005.
- Parcell, J.L. and P. Westhoff, 2006: Economic Effects of Biofuel Production on States and Rural Communities. *Journal of Agricultural and Applied Economics*, 38(02), 377–387, doi:10.1017/s1074070800022422.
- Parikh, K.S. and J.K. Parikh, 2016: Realizing potential savings of energy and emissions from efficient household appliances in India. *Energy Policy*, 97, 102–111, doi:10.1016/j.enpol.2016.07.005.
- Parkinson, S.C. and N. Djalili, 2015: Robust response to hydro-climatic change in electricity generation planning. *Climatic Change*, 130(4), 475–489, doi:10.1007/s10584-015-1359-5.
- Parnell, S., 2015: Fostering Transformative Climate Adaptation and Mitigation in the African City: Opportunities and Constraints of Urban Planning. In: *Urban Vulnerability and Climate Change in Africa: A Multidisciplinary Approach*. Springer, Cham, Switzerland, pp. 349–367, doi:10.1007/978-3-319-03982-4_11.
- Pascuala, U., R. Muradian, L.C. Rodríguez, and A. Duraiappah, 2010: Exploring the links between equity and efficiency in payments for environmental services: A conceptual approach. *Ecological Economics*, 69(6), 1237–1244, doi:10.1016/j.ecolecon.2009.11.004.
- Patel, M., X. Zhang, and A. Kumar, 2016: Techno-economic and life cycle assessment on lignocellulosic biomass thermochemical conversion technologies: A review. *Renewable and Sustainable Energy Reviews*, 53, 1486–1499, doi:10.1016/j.rser.2015.09.070.
- Patel, R., G. Walker, M. Bhatt, and V. Pathak, 2017: The Demand for Disaster Microinsurance for Small Businesses in Urban Slums: The Results of Surveys in Three Indian Cities. *PLOS Currents Disasters*, 9.
- Paterson, J., P. Berry, K. Ebi, and L. Varangu, 2014: Health Care Facilities Resilient to Climate Change Impacts. *International Journal of Environmental Research and Public Health*, 11(12), 13097–13116, doi:10.3390/ijerph111213097.
- Paterson, S. and B.A. Bryan, 2012: Food-Carbon Trade-offs between Agriculture and Reforestation Land Uses under Alternate Market-based Policies. *Ecology and Society*, 17(3), 21, doi:10.5751/es-04959-170321.
- Paul, K.I., A. Reeson, P.J. Polglase, and P. Ritson, 2013: Economic and employment implications of a carbon market for industrial plantation forestry. *Land Use Policy*, 30(1), 528–540, doi:10.1016/j.landusepol.2012.04.015.
- Paul, K.I. et al., 2016: Managing reforestation to sequester carbon, increase biodiversity potential and minimize loss of agricultural land. *Land Use Policy*, 51, 135–149, doi:10.1016/j.landusepol.2015.10.027.
- Paustian, K. et al., 2016: Climate-smart soils. *Nature*, 532(7597), 49–57, doi:10.1038/nature17174.
- Payne, J., F. Downy, and D. Weatherall, 2015: Capturing the “multiple benefits” of energy efficiency in practice: the UK example. In: *Proceedings of ECEEE 2015 Summer Study – First Fuel Now*. pp. 229–238.
- Paz, S., M. Negev, A. Clermont, and M.S. Green, 2016: Health aspects of climate change in cities with Mediterranean climate, and local adaptation plans. *International Journal of Environmental Research and Public Health*, 13(4), 438, doi:10.3390/ijerph13040438.
- Pearce, T.C.L., J.D. Ford, A.C. Willox, and B. Smit, 2015: Inuit Traditional Ecological Knowledge (TEK), Subsistence Hunting and Adaptation to Climate Change in the Canadian Arctic. *Arctic*, 68(2), 233–245, www.jstor.org/stable/43871322.
- Pehnt, M. and J. Henkel, 2009: Life cycle assessment of carbon dioxide capture and storage from lignite power plants. *International Journal of Greenhouse Gas Control*, 3(1), 49–66, doi:10.1016/j.ijggc.2008.07.001.
- Pereira, G.I. and P.P. da Silva, 2017: Energy efficiency governance in the EU-28: analysis of institutional, human, financial, and political dimensions. *Energy Efficiency*, 10(5), 1279–1297, doi:10.1007/s12053-017-9520-9.
- Pereira, H.M. et al., 2010: Scenarios for Global Biodiversity in the 21st Century. *Science*, 330(6010), 1496–1501, doi:10.1126/science.1196624.
- Pérez-Escamilla, R., 2017: Food Security and the 2015–2030 Sustainable Development Goals: From Human to Planetary Health. *Current Developments in Nutrition*, 1(7), e000513, doi:10.3945/cdn.117.000513.
- Perrels, A., T. Frei, F. Espejo, L. Jamin, and A. Thomalla, 2013: Socio-economic benefits of weather and climate services in Europe. *Advances in Science and Research*, 10(1), 65–70, doi:10.5194/asr-10-65-2013.
- Persson, U.M., 2015: The impact of biofuel demand on agricultural commodity prices: a systematic review. *Wiley Interdisciplinary Reviews: Energy and Environment*, 4(5), 410–428, doi:10.1002/wene.155.
- Petersen, B. and S. Snapp, 2015: What is sustainable intensification? Views from experts. *Land Use Policy*, 46, 1–10, doi:10.1016/j.landusepol.2015.02.002.
- Peterson, S.B. and J.J. Michalek, 2013: Cost-effectiveness of plug-in hybrid electric vehicle battery capacity and charging infrastructure investment for reducing US gasoline consumption. *Energy Policy*, 52, 429–438, doi:10.1016/j.enpol.2012.09.059.

- Pfau, S.F., J.E. Hagens, B. Dankbaar, and A.J.M. Smits, 2014: Visions of Sustainability in Bioeconomy Research. *Sustainability*, 6(3), 1222–1249, doi:10.3390/su6031222.
- Pfeiffer, L. and C.-Y.C. Lin, 2014: Does efficient irrigation technology lead to reduced groundwater extraction? Empirical evidence. *Journal of Environmental Economics and Management*, 67(2), 189–208, doi:10.1016/j.jeem.2013.12.002.
- Pham, T.T., M. Moeliono, M. Brockhaus, N.D. LEa, and P. Katila, 2017: REDD+ and Green Growth: synergies or discord in Vietnam and Indonesia. *International Forestry Review*, 19(51), 56–68, www.cifor.org/library/6580/.
- Phan, T.-H.D., R. Brouwer, and M.D. Davidson, 2017: A Global Survey and Review of the Determinants of Transaction Costs of Forestry Carbon Projects. *Ecological Economics*, 133, 1–10, doi:10.1016/j.ecolecon.2016.11.011.
- Phelps, J., E.L. Webb, and W.M. Adams, 2012: Biodiversity co-benefits of policies to reduce forest-carbon emissions. *Nature Climate Change*, 2(7), 497–503, doi:10.1038/nclimate1462.
- Philibert, C., 2017: *Renewable Energy for Industry – From green energy to green materials and fuels*. International Energy Agency (IEA), Paris, France, 72 pp.
- Piccoli, I. et al., 2016: Disentangling the effects of conservation agriculture practices on the vertical distribution of soil organic carbon. Evidence of poor carbon sequestration in North-Eastern Italy. *Agriculture, Ecosystems & Environment*, 230, 68–78, doi:10.1016/j.agee.2016.05.035.
- Pickering, N.K. et al., 2015: Animal board invited review: genetic possibilities to reduce enteric methane emissions from ruminants. *Animal*, 9(09), 1431–1440, doi:10.1017/s1751731115000968.
- Pielke, R.A., 2009: An idealized assessment of the economics of air capture of carbon dioxide in mitigation policy. *Environmental Science & Policy*, 12(3), 216–225, doi:10.1016/j.envsci.2009.01.002.
- Pistorious, T. and L. Kiff, 2017: *From a biodiversity perspective: risks, trade-offs, and international guidance for Forest Landscape Restoration*. UNIQUE forestry and land use GmbH, Freiburg, Germany, 66 pp.
- Pittelkow, C.M. et al., 2014: Productivity limits and potentials of the principles of conservation agriculture. *Nature*, 517(7534), 365–368, doi:10.1038/nature13809.
- Place, F. et al., 2012: Improved Policies for Facilitating the Adoption of Agroforestry. In: *Agroforestry for Biodiversity and Ecosystem Services – Science and Practice* [Kaonga, M. (ed.)]. IntechOpen, London, UK, pp. 113–128, doi:10.5772/34524.
- Plantinga, A.J. and T. Mauldin, 2001: A Method for Estimating the Cost of CO₂ Mitigation through Afforestation. *Climatic Change*, 49(1/2), 21–40, doi:10.1023/a:1010749214244.
- Plantinga, A.J., T. Mauldin, and D.J. Miller, 1999: An Econometric Analysis of the Costs of Sequestering Carbon in Forests. *American Journal of Agricultural Economics*, 81(4), 812–814, doi:10.2307/1244326.
- Plevin, R.J., M. O'Hare, A.D. Jones, M.S. Torn, and H.K. Gibbs, 2010: Greenhouse Gas Emissions from Biofuels' Indirect Land Use Change Are Uncertain but May Be Much Greater than Previously Estimated. *Environmental Science & Technology*, 44(21), 8015–8021, doi:10.1021/es101946t.
- Poff, N.L.R. et al., 2016: Sustainable water management under future uncertainty with eco-engineering decision scaling. *Nature Climate Change*, 6(1), 25–34, doi:10.1038/nclimate2765.
- Polglase, P.J. et al., 2013: Potential for forest carbon plantings to offset greenhouse emissions in Australia: economics and constraints to implementation. *Climatic Change*, 121(2), 161–175, doi:10.1007/s10584-013-0882-5.
- Popp, A. et al., 2014: Land-use transition for bioenergy and climate stabilization: model comparison of drivers, impacts and interactions with other land use based mitigation options. *Climatic Change*, 123(3–4), 495–509, doi:10.1007/s10584-013-0926-x.
- Popp, A. et al., 2017: Land-use futures in the shared socio-economic pathways. *Global Environmental Change*, 42, 331–345, doi:10.1016/j.gloenvcha.2016.10.002.
- Porpino, G., J. Parente, and B. Wansink, 2015: Food waste paradox: antecedents of food disposal in low income households. *International Journal of Consumer Studies*, 39(6), 619–629, doi:10.1111/ijcs.12207.
- Porter, J.J., S. Dessai, and E.L. Tompkins, 2014: What do we know about UK household adaptation to climate change? A systematic review. *Climatic Change*, 127(2), 371–379, doi:10.1007/s10584-014-1252-7.
- Porter, J.R. et al., 2014: Food security and food production systems. In: *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Field, C.B., V.R. Barros, D.J. Dokken, K.J. March, M.D. Mastrandrea, T.E. Billir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White Field (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 485–533.
- Porter, W.C., T.N. Rosenstiel, A. Guenther, J.-F. Lamarque, and K. Barsanti, 2015: Reducing the negative human-health impacts of bioenergy crop emissions through region-specific crop selection. *Environmental Research Letters*, 10(5), 054004, doi:10.1088/1748-9326/10/5/054004.
- Poudyal, M. et al., 2016: Can REDD+ social safeguards reach the 'right' people? Lessons from Madagascar. *Global Environmental Change*, 37, 31–42, doi:10.1016/j.gloenvcha.2016.01.004.
- Powell, T.W.R. and T.M. Lenton, 2012: Future carbon dioxide removal via biomass energy constrained by agricultural efficiency and dietary trends. *Energy & Environmental Science*, 5(8), 8116–8133, doi:10.1039/c2ee21592f.
- Powlson, D.S. et al., 2014: Limited potential of no-till agriculture for climate change mitigation. *Nature Climate Change*, 4(8), 678–683, doi:10.1038/nclimate2292.
- Pradhan, A., C. Chan, P.K. Roul, J. Halbrendt, and B. Sipes, 2018: Potential of conservation agriculture (CA) for climate change adaptation and food security under rainfed uplands of India: A transdisciplinary approach. *Agricultural Systems*, 163, 27–35, doi:10.1016/j.agsy.2017.01.002.
- Pratt, K. and D. Moran, 2010: Evaluating the cost-effectiveness of global biochar mitigation potential. *Biomass and Bioenergy*, 34(8), 1149–1158, doi:10.1016/j.biombioe.2010.03.004.
- Pretty, J. and Z.P. Bharucha, 2014: Sustainable intensification in agricultural systems. *Annals of Botany*, 114(8), 1571–1596, doi:10.1093/aob/mcu205.
- Pretty, J., C. Toulmin, and S. Williams, 2011: Sustainable intensification in African agriculture. *International Journal of Agricultural Sustainability*, 9(1), 5–24, doi:10.3763/ijas.2010.0583.
- Price, J., R. Warren, J. VanDerWal, and E. Graham, 2018: Identifying climate refugia for biodiversity at 1.5° and 2°C of warming in relation to protected areas and land-use patterns (in press).
- Pritchard, C., A. Yang, P. Holmes, and M. Wilkinson, 2015: Thermodynamics, economics and systems thinking: What role for air capture of CO₂? *Process Safety and Environmental Protection*, 94, 188–195, doi:10.1016/j.psep.2014.06.011.
- Prosdoci, M. et al., 2016: The immediate effectiveness of barley straw mulch in reducing soil erodibility and surface runoff generation in Mediterranean vineyards. *Science of The Total Environment*, 547, 323–330, doi:10.1016/j.scitotenv.2015.12.076.
- Prudencio, L. and S.E. Null, 2018: Stormwater management and ecosystem services: a review. *Environmental Research Letters*, 13(3), 033002, doi:10.1088/1748-9326/aaa81a.
- Pullin, A.S. et al., 2013: Human well-being impacts of terrestrial protected areas. *Environmental Evidence*, 2(1), 19, doi:10.1186/2047-2382-2-19.
- Pütz, S. et al., 2014: Long-term carbon loss in fragmented Neotropical forests. *Nature Communications*, 5, 5037, doi:10.1038/ncomms6037.
- Pyörälä, P. et al., 2014: Effects of Management on Economic Profitability of Forest Biomass Production and Carbon Neutrality of Bioenergy Use in Norway Spruce Stands Under the Changing Climate. *Bioenergy Research*, 7(1), 279–294, doi:10.1007/s12155-013-9372-x.
- Qazi, S. and W. Young Jr., 2014: Disaster relief management and resilience using photovoltaic energy. In: *2014 International Conference on Collaboration Technologies and Systems (CTS)*. pp. 628–632, doi:10.1109/cts.2014.6867637.
- Qin, Z., J.B. Dunn, H. Kwon, S. Mueller, and M.M. Wander, 2016: Soil carbon sequestration and land use change associated with biofuel production: empirical evidence. *GCB Bioenergy*, 8(1), 66–80, doi:10.1111/gcbb.12237.
- Qiu, H.-H. and J. Yang, 2018: An Assessment of Technological Innovation Capabilities of Carbon Capture and Storage Technology Based on Patent Analysis: A Comparative Study between China and the United States. *Sustainability*, 10(3), 877, doi:10.3390/su10030877.
- Quader, M.A., S. Ahmed, S.Z. Dawal, and Y. Nukman, 2016: Present needs, recent progress and future trends of energy-efficient Ultra-Low Carbon Dioxide (CO₂) Steelmaking (ULCOS) program. *Renewable and Sustainable Energy Reviews*, 55, 537–549, doi:10.1016/j.rser.2015.10.101.
- Quandt, A., H. Neufeldt, and J.T. McCabe, 2017: The role of agroforestry in building livelihood resilience to floods and drought in semiarid Kenya. *Ecology and Society*, 22(3), 10, doi:10.5751/es-09461-220310.
- Quann, C., 2017: *Renewables Firming Using Grid-Scale Battery Storage in a Real-time Pricing Market*. Colorado State University, Fort Collins, CO, USA, 50 pp.
- Rabbani, G., A. Rahman, and N. Islam, 2010a: Coastal Zones and Climate Change. *Coastal Zones and Climate Change*, 15(3), 17–29.
- Rabbani, G., A.A. Rahman, and N. Islam, 2010b: Climate Change and Sea Level Rise: Issues and Challenges for Coastal Communities in the Indian Ocean Region. In: *Coastal Zones and Climate Change* [Michel, D. and A. Pandya (eds.)]. Stimson Center, Washington DC, USA, pp. 17–30.
- Rahn, E. et al., 2014: Climate change adaptation, mitigation and livelihood benefits in coffee production: where are the synergies? *Mitigation and Adaptation Strategies for Global Change*, 19(8), 1119–1137, doi:10.1007/s11027-013-9467-x.
- Rajé, F. and A. Saffrey, 2016: *The Value of Cycling*. Phil Jones Associates and the University of Birmingham on behalf of the United Kingdom Department for Transport, London, UK, 33 pp.
- Rakata, A., R. Pandit, C. Ma, and S. Iftekhhar, 2017: The costs and benefits of REDD+: A review of the literature. *Forest Policy and Economics*, 75, 103–111, doi:10.1016/j.forpol.2016.08.006.

- Rakotovo, N.H. et al., 2017: Carbon footprint of smallholder farms in Central Madagascar: The integration of agroecological practices. *Journal of Cleaner Production*, **140**, 1165–1175, doi:[10.1016/j.jclepro.2016.10.045](https://doi.org/10.1016/j.jclepro.2016.10.045).
- Ramankutty, N. et al., 2018: Trends in Global Agricultural Land Use: Implications for Environmental Health and Food Security. *Annual Review of Plant Biology*, **69**(1), 789–815, doi:[10.1146/annurev-arplant-042817-040256](https://doi.org/10.1146/annurev-arplant-042817-040256).
- Ramos, A., C. De Jonghe, V. Gómez, and R. Belmans, 2016: Realizing the smart grid's potential: Defining local markets for flexibility. *Utilities Policy*, **40**, 26–35, doi:[10.1016/j.jup.2016.03.006](https://doi.org/10.1016/j.jup.2016.03.006).
- Ranjan, M. and H.J. Herzog, 2011: Feasibility of air capture. *Energy Procedia*, **4**, 2869–2876, doi:[10.1016/j.egypro.2011.02.193](https://doi.org/10.1016/j.egypro.2011.02.193).
- Rao, N.D., 2013: Distributional impacts of climate change mitigation in Indian electricity: The influence of governance. *Energy Policy*, **61**, 1344–1356, doi:[10.1016/j.enpol.2013.05.103](https://doi.org/10.1016/j.enpol.2013.05.103).
- Rao, N.D. and S. Pachauri, 2017: Energy access and living standards: some observations on recent trends. *Environmental Research Letters*, **12**(2), 025011, doi:[10.1088/1748-9326/aa5b0d](https://doi.org/10.1088/1748-9326/aa5b0d).
- Rao, N.D. and K. Ummel, 2017: White goods for white people? Drivers of electric appliance growth in emerging economies. *Energy Research & Social Science*, **27**, 106–116, doi:[10.1016/j.erss.2017.03.005](https://doi.org/10.1016/j.erss.2017.03.005).
- Rapinski, M. et al., 2018: Listening to Inuit and Naskapi peoples in the eastern Canadian Subarctic: a quantitative comparison of local observations with gridded climate data. *Regional Environmental Change*, **18**(1), 189–203, doi:[10.1007/s10113-017-1188-3](https://doi.org/10.1007/s10113-017-1188-3).
- Räsänen, A. et al., 2017: The need for non-climate services – Empirical evidence from Finnish municipalities. *Climate Risk Management*, **16**, 29–42, doi:[10.1016/j.crm.2017.03.004](https://doi.org/10.1016/j.crm.2017.03.004).
- Rasmussen, J., 2017: The additional benefits of energy efficiency investments—a systematic literature review and a framework for categorisation. *Energy Efficiency*, **10**(6), 1401–1418, doi:[10.1007/s12053-017-9528-1](https://doi.org/10.1007/s12053-017-9528-1).
- Rasul, G. and B. Sharma, 2016: The nexus approach to water–energy–food security: an option for adaptation to climate change. *Climate Policy*, **16**(6), 682–702, doi:[10.1080/14693062.2015.1029865](https://doi.org/10.1080/14693062.2015.1029865).
- Rathmann, R., A. Szklo, and R. Schaeffer, 2012: Targets and results of the Brazilian Biodiesel Incentive Program – Has it reached the Promised Land? *Applied Energy*, **97**, 91–100, doi:[10.1016/j.apenergy.2011.11.021](https://doi.org/10.1016/j.apenergy.2011.11.021).
- Rau, G.H., 2008: Electrochemical splitting of calcium carbonate to increase solution alkalinity: implications for mitigation of carbon dioxide and ocean acidity. *Environmental science & technology*, **42**(23), 8935–8940, doi:[10.1021/es800366g](https://doi.org/10.1021/es800366g).
- Rau, G.H. and K. Caldeira, 1999: Enhanced carbonate dissolution: a means of sequestering waste CO₂ as ocean bicarbonate. *Energy Conversion and Management*, **40**(17), 1803–1813, doi:[10.1016/s0196-8904\(99\)00071-0](https://doi.org/10.1016/s0196-8904(99)00071-0).
- Rau, G.H., K.G. Knauss, W.H. Langer, and K. Caldeira, 2007: Reducing energy-related CO₂ emissions using accelerated weathering of limestone. *Energy*, **32**(8), 1471–1477, doi:[10.1016/j.energy.2006.10.011](https://doi.org/10.1016/j.energy.2006.10.011).
- Rau, G.H. et al., 2013: Direct electrolytic dissolution of silicate minerals for air CO₂ mitigation and carbon-negative H₂ production. *Proceedings of the National Academy of Sciences*, **110**(25), 10095–100, doi:[10.1073/pnas.1222358110](https://doi.org/10.1073/pnas.1222358110).
- Ravi, S. and M. Engler, 2015: Workfare as an Effective Way to Fight Poverty: The Case of India's NREGS. *World Development*, **67**, 57–71, doi:[10.1016/j.worlddev.2014.09.029](https://doi.org/10.1016/j.worlddev.2014.09.029).
- Ravi, S. et al., 2016: Particulate matter emissions from biochar-amended soils as a potential tradeoff to the negative emission potential. *Scientific Reports*, **6**(1), 35984, doi:[10.1038/srep35984](https://doi.org/10.1038/srep35984).
- Ravindranath, N.H., P. Sudha, and S. Rao, 2001: Forestry for sustainable biomass production and carbon sequestration in India. *Mitigation and Adaptation Strategies for Global Change*, **6**(3/4), 233–256, doi:[10.1023/a:1013331220083](https://doi.org/10.1023/a:1013331220083).
- Razzaghamanesh, M., S. Beecham, and T. Salemi, 2016: The role of green roofs in mitigating Urban Heat Island effects in the metropolitan area of Adelaide, South Australia. *Urban Forestry & Urban Greening*, **15**, 89–102, doi:[10.1016/j.ufug.2015.11.013](https://doi.org/10.1016/j.ufug.2015.11.013).
- Reckien, D. et al., 2017: Climate change, equity and the Sustainable Development Goals: an urban perspective. *Environment & Urbanization*, **29**(1), 159–182, doi:[10.1177/0956247816677778](https://doi.org/10.1177/0956247816677778).
- Refsgaard, K. and K. Magnussen, 2009: Household behaviour and attitudes with respect to recycling food waste – experiences from focus groups. *Journal of Environmental Management*, **90**(2), 760–771, doi:[10.1016/j.jenvman.2008.01.018](https://doi.org/10.1016/j.jenvman.2008.01.018).
- Reid, H., 2016: Ecosystem- and community-based adaptation: learning from community-based natural resource management. *Climate and Development*, **8**(1), 4–9, doi:[10.1080/17565529.2015.1034233](https://doi.org/10.1080/17565529.2015.1034233).
- Reid, H. and S. Huq, 2014: Mainstreaming community-based adaptation into national and local planning. *Climate and Development*, **6**(4), 291–292, doi:[10.1080/17565529.2014.973720](https://doi.org/10.1080/17565529.2014.973720).
- Reis, R.S. et al., 2016: Scaling up physical activity interventions worldwide: stepping up to larger and smarter approaches to get people moving. *The Lancet*, **388**(10051), 1337–1348, doi:[10.1016/s0140-6736\(16\)30728-0](https://doi.org/10.1016/s0140-6736(16)30728-0).
- REN21, 2017: *Renewables 2017 Global Status Report*. Renewable Energy Policy Network for the 21st Century, Paris, France, 302 pp.
- Renforth, P., 2012: The potential of enhanced weathering in the UK. *International Journal of Greenhouse Gas Control*, **10**, 229–243, doi:[10.1016/j.ijggc.2012.06.011](https://doi.org/10.1016/j.ijggc.2012.06.011).
- Renforth, P. and T. Kruger, 2013: Coupling Mineral Carbonation and Ocean Liming. *Energy & Fuels*, **27**(8), 4199–4207, doi:[10.1021/ef302030w](https://doi.org/10.1021/ef302030w).
- Renforth, P. and G. Henderson, 2017: Assessing ocean alkalinity for carbon sequestration. *Reviews of Geophysics*, **55**(3), 636–674, doi:[10.1002/2016rg000533](https://doi.org/10.1002/2016rg000533).
- Renforth, P., B.G. Jenkins, and T. Kruger, 2013: Engineering challenges of ocean liming. *Energy*, **60**, 442–452, doi:[10.1016/j.energy.2013.08.006](https://doi.org/10.1016/j.energy.2013.08.006).
- Renforth, P., C.L. Washbourne, J. Taylder, and D.A. Manning, 2011: Silicate production and availability for mineral carbonation. *Environmental Science & Technology*, **45**(6), 2035–2041, doi:[10.1021/es103241w](https://doi.org/10.1021/es103241w).
- Repo, A., J.-P. Tuovinen, and J. Liski, 2015: Can we produce carbon and climate neutral forest bioenergy? *GCB Bioenergy*, **7**(2), 253–262, doi:[10.1111/gcbb.12134](https://doi.org/10.1111/gcbb.12134).
- Reside, A.E., J. VanDerWal, and C. Moran, 2017: Trade-offs in carbon storage and biodiversity conservation under climate change reveal risk to endemic species. *Biological Conservation*, **207**, 9–16, doi:[10.1016/j.biocon.2017.01.004](https://doi.org/10.1016/j.biocon.2017.01.004).
- Reside, A.E., N. Butt, and V.M. Adams, 2018: Adapting systematic conservation planning for climate change. *Biodiversity and Conservation*, **27**(1), 1–29, doi:[10.1007/s10531-017-1442-5](https://doi.org/10.1007/s10531-017-1442-5).
- Rey Benayas, J.M. et al., 2009: Enhancement of biodiversity and ecosystem services by ecological restoration: a meta-analysis. *Science*, **325**(5944), 1121–4, doi:[10.1126/science.1172460](https://doi.org/10.1126/science.1172460).
- Reyes-García, V. et al., 2016: Local indicators of climate change: The potential contribution of local knowledge to climate research. *Wiley Interdisciplinary Reviews: Climate Change*, **7**(1), 109–124, doi:[10.1002/wcc.374](https://doi.org/10.1002/wcc.374).
- Reyna, J.L. and M. Chester, 2017: Energy efficiency to reduce residential electricity and natural gas use under climate change. *Nature Communications*, **8**, 14916, doi:[10.1038/ncomms14916](https://doi.org/10.1038/ncomms14916).
- Ribeiro, B.E., 2013: Beyond commonplace biofuels: Social aspects of ethanol. *Energy Policy*, **57**, 355–362, doi:[10.1016/j.enpol.2013.02.004](https://doi.org/10.1016/j.enpol.2013.02.004).
- Ribot, J. and A.M. Larson, 2012: Reducing REDD risks: affirmative policy on an uneven playing field. *International Journal of the Commons*, **6**(2), 233–254, doi:[10.18352/ijc.322](https://doi.org/10.18352/ijc.322).
- Richards, K.R. and C. Stokes, 2004: A Review of Forest Carbon Sequestration Cost Studies: A Dozen Years of Research. *Climatic Change*, **63**(1), 1–48, doi:[10.1023/b:clim.0000018503.10080.89](https://doi.org/10.1023/b:clim.0000018503.10080.89).
- Ringel, M., 2017: Energy efficiency policy governance in a multi-level administration structure – evidence from Germany. *Energy Efficiency*, **10**(3), 753–776, doi:[10.1007/s12053-016-9484-1](https://doi.org/10.1007/s12053-016-9484-1).
- Rinkevich, B., 2014: Rebuilding coral reefs: does active reef restoration lead to sustainable reefs? *Current Opinion in Environmental Sustainability*, **7**, 28–36, doi:[10.1016/j.cosust.2013.11.018](https://doi.org/10.1016/j.cosust.2013.11.018).
- Rinkevich, B., 2015: Climate Change and Active Reef Restoration-Ways of Constructing the “Reefs of Tomorrow”. *Journal of Marine Science and Engineering*, **3**(1), 111–127, doi:[10.3390/jmse3010111](https://doi.org/10.3390/jmse3010111).
- Ritchie, H., D.S. Reay, and P. Higgins, 2018: The impact of global dietary guidelines on climate change. *Global Environmental Change*, **49**, 46–55, doi:[10.1016/j.gloenvcha.2018.02.005](https://doi.org/10.1016/j.gloenvcha.2018.02.005).
- Rivera, C. and C. Wamsler, 2014: Integrating climate change adaptation, disaster risk reduction and urban planning: A review of Nicaraguan policies and regulations. *International Journal of Disaster Risk Reduction*, **7**, 78–90, doi:[10.1016/j.ijdrr.2013.12.008](https://doi.org/10.1016/j.ijdrr.2013.12.008).
- Rivera-Ferre, M.G. et al., 2016: Re-framing the climate change debate in the livestock sector: mitigation and adaptation options. *Wiley Interdisciplinary Reviews: Climate Change*, **7**(6), 869–892, doi:[10.1002/wcc.421](https://doi.org/10.1002/wcc.421).
- Roberts, K.G., B.A. Gloy, S. Joseph, N.R. Scott, and J. Lehmann, 2010: Life Cycle Assessment of Biochar Systems: Estimating the Energetic, Economic, and Climate Change Potential. *Environmental Science & Technology*, **44**(2), 827–833, doi:[10.1021/es902266r](https://doi.org/10.1021/es902266r).
- Robledo-Abad, C. et al., 2017: Bioenergy production and sustainable development: science base for policymaking remains limited. *GCB Bioenergy*, **9**(3), 541–556, doi:[10.1111/gcbb.12338](https://doi.org/10.1111/gcbb.12338).
- Rochedo, P.R.R. et al., 2016: Carbon capture potential and costs in Brazil. *Journal of Cleaner Production*, **131**, 280–295, doi:[10.1016/j.jclepro.2016.05.033](https://doi.org/10.1016/j.jclepro.2016.05.033).
- Roco, L., A. Engler, B. Bravo-Ureta, and R. Jara-Rojas, 2014: Farm level adaptation decisions to face climatic change and variability: Evidence from Central Chile. *Environmental Science & Policy*, **44**, 86–96, doi:[10.1016/j.envsci.2014.07.008](https://doi.org/10.1016/j.envsci.2014.07.008).
- Röder, M. and P. Thornley, 2016: Bioenergy as climate change mitigation option within a 2°C target – uncertainties and temporal challenges of bioenergy systems. *Energy, Sustainability and Society*, **6**(1), 6, doi:[10.1186/s13705-016-0070-3](https://doi.org/10.1186/s13705-016-0070-3).

- Röder, M., C. Whittaker, and P. Thornley, 2015: How certain are greenhouse gas reductions from bioenergy? Life cycle assessment and uncertainty analysis of wood pellet-to-electricity supply chains from forest residues. *Biomass and Bioenergy*, **79**, 50–63, doi:[10.1016/j.biombioe.2015.03.030](https://doi.org/10.1016/j.biombioe.2015.03.030).
- Rodrigues, J. et al., 2016: *The economic value of seasonal forecasts stochastic economywide analysis for East Africa*. IFPRI Discussion Paper, International Food Policy Research Institute (IFPRI), Washington D.C., 32 pp.
- Rodrigues, R.R., R.A.F. Lima, S. Gandolfi, and A.G. Nave, 2009: On the restoration of high diversity forests: 30 years of experience in the Brazilian Atlantic Forest. *Biological Conservation*, **142(6)**, 1242–1251, doi:[10.1016/j.biocon.2008.12.008](https://doi.org/10.1016/j.biocon.2008.12.008).
- Rogers, D. and V. Tsirkunov, 2010: *Costs and Benefits of Early Warning Systems*. The World Bank and The United Nations Office for Disaster Risk Reduction (UNISDR), 16 pp.
- Rogner, H.-H. et al., 2012: Energy Resources and Potentials. In: *Global Energy Assessment – Toward a Sustainable Future*. Cambridge University Press, Cambridge, UK and New York, NY, USA and the International Institute for Applied Systems Analysis, Laxenburg, Austria, pp. 423–512.
- Rohani, M. and G. Lawrence, 2017: *The Relationship between Pedestrian Connectivity and Economic Productivity in Auckland's City Centre*. Technical Report 2017/007, Auckland Council, Auckland, New Zealand.
- Rojas-Rueda, D., A. de Nazelle, O. Teixidó, and M.J. Nieuwenhuijsen, 2012: Replacing car trips by increasing bike and public transport in the greater Barcelona metropolitan area: A health impact assessment study. *Environment International*, **49**, 100–109, doi:[10.1016/j.envint.2012.08.009](https://doi.org/10.1016/j.envint.2012.08.009).
- Roland, L.R. and Wood, 2009: *Making the Business of Energy Efficiency Both Scalable and Sustainable*. Policy Brief 09-01, The Brookings Institution, Washington DC, USA, 18 pp.
- Romañach, S.S. et al., 2018: Conservation and restoration of mangroves: Global status, perspectives, and prognosis. *Ocean & Coastal Management*, **154**, 72–82, doi:[10.1016/j.ocecoaman.2018.01.009](https://doi.org/10.1016/j.ocecoaman.2018.01.009).
- Röös, E. et al., 2017: Protein futures for Western Europe: potential land use and climate impacts in 2050. *Regional Environmental Change*, **17(2)**, 367–377, doi:[10.1007/s10113-016-1013-4](https://doi.org/10.1007/s10113-016-1013-4).
- Rootzén, J.M. et al., 2010: Carbon sequestration versus bioenergy: A case study from South India exploring the relative land-use efficiency of two options for climate change mitigation. *Biomass and Bioenergy*, **34(1)**, 116–123, doi:[10.1016/j.biombioe.2009.10.008](https://doi.org/10.1016/j.biombioe.2009.10.008).
- Rose, A., 2016: *Capturing the co-benefits of disaster risk management on the private sector side*. Policy Research Working Paper No. 7634, World Bank, Washington DC, USA, 33 pp.
- Rose, T. and T. Sweeting, 2016: How safe is nuclear power? A statistical study suggests less than expected. *Bulletin of the Atomic Scientists*, **72(2)**, 112–115, doi:[10.1080/00963402.2016.1145910](https://doi.org/10.1080/00963402.2016.1145910).
- Rosendo, S., L. Celliers, and M. Mechisso, 2018: Doing more with the same: A reality-check on the ability of local government to implement Integrated Coastal Management for climate change adaptation. *Marine Policy*, **87**, 29–39, doi:[10.1016/j.marpol.2017.10.001](https://doi.org/10.1016/j.marpol.2017.10.001).
- Rothausen, S.G.S.A. and D. Conway, 2011: Greenhouse-gas emissions from energy use in the water sector. *Nature Climate Change*, **1(4)**, 210–219, doi:[10.1038/nclimate1147](https://doi.org/10.1038/nclimate1147).
- Roudier, P., A. Alhassane, C. Baron, S. Louvet, and B. Sultan, 2016: Assessing the benefits of weather and seasonal forecasts to millet growers in Niger. *Agricultural and Forest Meteorology*, **223**, 168–180, doi:[10.1016/j.agrformet.2016.04.010](https://doi.org/10.1016/j.agrformet.2016.04.010).
- Rubin, E.S., J.E. Davison, and H.J. Herzog, 2015: The cost of CO₂ capture and storage. *International Journal of Greenhouse Gas Control*, **40**, 378–400, doi:[10.1016/j.ijggc.2015.05.018](https://doi.org/10.1016/j.ijggc.2015.05.018).
- Ruiz-Mallén, I., Fernández-Llamazares, and V. Reyes-García, 2017: Unravelling local adaptive capacity to climate change in the Bolivian Amazon: the interlinkages between assets, conservation and markets. *Climatic Change*, **140(2)**, 227–242, doi:[10.1007/s10584-016-1831-x](https://doi.org/10.1007/s10584-016-1831-x).
- Ruiz-Rivera, N. and S. Lucatello, 2017: The interplay between climate change and disaster risk reduction policy: evidence from Mexico. *Environmental Hazards*, **16**, 193–209, doi:[10.1080/17477891.2016.1211506](https://doi.org/10.1080/17477891.2016.1211506).
- Rumore, D., T. Schenk, and L. Susskind, 2016: Role-play simulations for climate change adaptation education and engagement. *Nature Climate Change*, **6(8)**, 745–750, doi:[10.1038/nclimate3084](https://doi.org/10.1038/nclimate3084).
- Rumsey, M. et al., 2014: A qualitative examination of the health workforce needs during climate change disaster response in Pacific Island Countries. *Human Resources for Health*, **12(1)**, 9, doi:[10.1186/1478-4491-12-9](https://doi.org/10.1186/1478-4491-12-9).
- Ruparathna, R., K. Hewage, and R. Sadiq, 2016: Improving the energy efficiency of the existing building stock: A critical review of commercial and institutional buildings. *Renewable and Sustainable Energy Reviews*, **53**, 1032–1045, doi:[10.1016/j.rser.2015.09.084](https://doi.org/10.1016/j.rser.2015.09.084).
- Rurinda, J. et al., 2014: Sources of vulnerability to a variable and changing climate among smallholder households in Zimbabwe: A participatory analysis. *Climate Risk Management*, **3**, 65–78, doi:[10.1016/j.crm.2014.05.004](https://doi.org/10.1016/j.crm.2014.05.004).
- Russell-Smith, J. et al., 2017: Can savanna burning projects deliver measurable greenhouse emissions reductions and sustainable livelihood opportunities in fire-prone settings? *Climatic Change*, **140(1)**, 47–61, doi:[10.1007/s10584-013-0910-5](https://doi.org/10.1007/s10584-013-0910-5).
- Ryan, L. and N. Campbell, 2012: *Spreading the Net: The Multiple Benefits of Energy Efficiency Improvements*. OECD Publishing, Paris, France, 40 pp., doi:[10.1787/5k9crzjbpkcc-en](https://doi.org/10.1787/5k9crzjbpkcc-en).
- Ryan, M.G. et al., 2010: A synthesis of the science on forests and carbon for US forests., 16.
- Sakaguchi, A. et al., 2012: Isotopic determination of U, Pu and Cs in environmental waters following the Fukushima Daiichi Nuclear Power Plant accident. *Geochemical Journal*, **46(4)**, 355–360, doi:[10.2343/geochemj.2.0216](https://doi.org/10.2343/geochemj.2.0216).
- Sakwa-Novak, M.A., C.-J. Yoo, S. Tan, F. Rashidi, and C.W. Jones, 2016: Poly(ethyleneimine)-Functionalized Monolithic Alumina Honeycomb Adsorbents for CO₂ Capture from Air. *ChemSusChem*, **9(14)**, 1859–1868, doi:[10.1002/cssc.201600404](https://doi.org/10.1002/cssc.201600404).
- Salati, S., M. Spagnol, and F. Adani, 2010: *The impact of crop plant residues on carbon sequestration in soil: a useful strategy to balance the atmospheric CO₂*.
- Salleh, S.F., M.E. Roslan, A. Mohd Isa, M.F. Basri Nair, and S.S. Salleh, 2018: The Impact of Minimum Energy Performance Standards (MEPS) Regulation on Electricity Saving in Malaysia. *IOP Conference Series: Materials Science and Engineering*, **341**, 012022, doi:[10.1088/1757-899x/341/1/012022](https://doi.org/10.1088/1757-899x/341/1/012022).
- Salvalai, G., M.M. Sesana, and G. Iannaccone, 2017: Deep renovation of multi-storey multi-owner existing residential buildings: A pilot case study in Italy. *Energy and Buildings*, **148**, 23–36, doi:[10.1016/j.enbuild.2017.05.011](https://doi.org/10.1016/j.enbuild.2017.05.011).
- Salvo, A., J. Brito, P. Artaxo, and F.M. Geiger, 2017: Reduced ultrafine particle levels in São Paulo's atmosphere during shifts from gasoline to ethanol use. *Nature Communications*, **8(1)**, 77, doi:[10.1038/s41467-017-00041-5](https://doi.org/10.1038/s41467-017-00041-5).
- Samaddar, S. et al., 2015: Evaluating Effective Public Participation in Disaster Management and Climate Change Adaptation: Insights From Northern Ghana Through a User-Based Approach. *Risk, Hazards & Crisis in Public Policy*, **6(1)**, 117–143, doi:[10.1002/rhc3.12075](https://doi.org/10.1002/rhc3.12075).
- Sanchez, D.L. and D.S. Callaway, 2016: Optimal scale of carbon-negative energy facilities. *Applied Energy*, **170**, 437–444, doi:[10.1016/j.apenergy.2016.02.134](https://doi.org/10.1016/j.apenergy.2016.02.134).
- Sánchez, P., F. James, and G. Lindsay, 2002: Coastal Aquaculture Sustainable Livelihoods in Mecoacan, Tabasco, Mexico. *Universidad y Ciencia*, **35(18)**, 42–52.
- Sanderman, J. and J.A. Baldock, 2010: Accounting for soil carbon sequestration in national inventories: a soil scientist's perspective. *Environmental Research Letters*, **5(3)**, 034003, doi:[10.1088/1748-9326/5/3/034003](https://doi.org/10.1088/1748-9326/5/3/034003).
- Sanesi, G., G. Colangelo, R. Laforteza, E. Calvo, and C. Davies, 2017: Urban green infrastructure and urban forests: a case study of the Metropolitan Area of Milan. *Landscape Research*, **42(2)**, 164–175, doi:[10.1080/01426397.2016.1173658](https://doi.org/10.1080/01426397.2016.1173658).
- Santangeli, A. et al., 2016: Global change synergies and trade-offs between renewable energy and biodiversity. *GCB Bioenergy*, **8(5)**, 941–951, doi:[10.1111/gcbb.12299](https://doi.org/10.1111/gcbb.12299).
- Sanz-Cobena, A. et al., 2017: Strategies for greenhouse gas emissions mitigation in Mediterranean agriculture: A review. *Agriculture, Ecosystems & Environment*, **238**, 5–24, doi:[10.1016/j.agee.2016.09.038](https://doi.org/10.1016/j.agee.2016.09.038).
- Sanz-Pérez, E.S., C.R. Murdock, S.A. Didas, and C.W. Jones, 2016: Direct Capture of CO₂ from Ambient Air. *Chemical Reviews*, **116(19)**, 11840–11876, doi:[10.1021/acs.chemrev.6b00173](https://doi.org/10.1021/acs.chemrev.6b00173).
- Savo, V. et al., 2016: Observations of climate change among subsistence-oriented communities around the world. *Nature Climate Change*, **6(5)**, 462–473, doi:[10.1038/nclimate2958](https://doi.org/10.1038/nclimate2958).
- Schachter, J.A. and P. Mancarella, 2016: A critical review of Real Options thinking for valuing investment flexibility in Smart Grids and low carbon energy systems. *Renewable and Sustainable Energy Reviews*, **56(C)**, 261–271, doi:[10.1016/j.rser.2015.11.071](https://doi.org/10.1016/j.rser.2015.11.071).
- Schaeffer, R. et al., 2012: Energy sector vulnerability to climate change: A review. *Energy*, **38(1)**, 1–12, doi:[10.1016/j.energy.2011.11.056](https://doi.org/10.1016/j.energy.2011.11.056).
- Schiller, P.L. and J. Kenworthy, 2018: *An Introduction to Sustainable Transportation: Policy, Planning and Implementation (2nd edition)*. Routledge, London, UK, 442 pp.
- Schirmer, J. and L. Bull, 2014: Assessing the likelihood of widespread landholder adoption of afforestation and reforestation projects. *Global Environmental Change*, **24**, 306–320, doi:[10.1016/j.gloenvcha.2013.11.009](https://doi.org/10.1016/j.gloenvcha.2013.11.009).
- Schlag, A.K., 2010: Aquaculture: An emerging issue for public concern. *Journal of Risk Research*, **13(7)**, 829–844, doi:[10.1080/13669871003660742](https://doi.org/10.1080/13669871003660742).
- Schlör, H., W. Fischer, and J.-F. Hake, 2015: The system boundaries of sustainability. *Journal of Cleaner Production*, **88**, 52–60, doi:[10.1016/j.jclepro.2014.04.023](https://doi.org/10.1016/j.jclepro.2014.04.023).
- Schmidt, O., A. Hawkes, A. Gambhir, and I. Staffell, 2017: The future cost of electrical energy storage based on experience rates. *Nature Energy*, **2(8)**, 17110, doi:[10.1038/nenergy.2017.110](https://doi.org/10.1038/nenergy.2017.110).
- Schmitz, O.J. et al., 2015: Conserving Biodiversity: Practical Guidance about Climate Change Adaptation Approaches in Support of Land-use Planning. *Natural Areas Journal*, **35(1)**, 190–203, doi:[10.3375/043.035.0120](https://doi.org/10.3375/043.035.0120).

- Scholte, S.S.K., M. Todorova, A.J.A. van Teeffelen, and P.H. Verburg, 2016: Public Support for Wetland Restoration: What is the Link With Ecosystem Service Values? *Wetlands*, **36**(3), 467–481, doi:[10.1007/s13157-016-0755-6](https://doi.org/10.1007/s13157-016-0755-6).
- Schoneveld, G.C., L.A. German, and E. Nutakor, 2011: Land-based Investments for Rural Development? A Grounded Analysis of the Local Impacts of Biofuel Feedstock Plantations in Ghana. *Ecology and Society*, **16**(4), 10, doi:[10.5751/es-04242-160410](https://doi.org/10.5751/es-04242-160410).
- Schrobback, P., D. Adamson, and J. Quiggin, 2011: Turning Water into Carbon: Carbon Sequestration and Water Flow in the Murray–Darling Basin. *Environmental and Resource Economics*, **49**(1), 23–45, doi:[10.1007/s10640-010-9422-1](https://doi.org/10.1007/s10640-010-9422-1).
- Schilling, R.D. and P. Krijgsman, 2006: Enhanced Weathering: An Effective and Cheap Tool to Sequester CO₂. *Climatic Change*, **74**(1), 349–354, doi:[10.1007/s10584-005-3485-y](https://doi.org/10.1007/s10584-005-3485-y).
- Schulze, E.-D., C. Körner, B.E. Lav, H. Haberl, and S. Luysaert, 2012: Large-scale bioenergy from additional harvest of forest biomass is neither sustainable nor greenhouse gas neutral. *GCB Bioenergy*, **4**(6), 611–616, doi:[10.1111/j.1757-1707.2012.01169.x](https://doi.org/10.1111/j.1757-1707.2012.01169.x).
- Schwan, S. and X. Yu, 2017: Social protection as a strategy to address climate-induced migration. *International Journal of Climate Change Strategies and Management*, IJCCSM–01–2017–0019, doi:[10.1108/ijccsm-01-2017-0019](https://doi.org/10.1108/ijccsm-01-2017-0019).
- Schwanghart, W., R. Worni, C. Huggel, M. Stoffel, and O. Korup, 2016: Uncertainty in the Himalayan energy–water nexus: estimating regional exposure to glacial lake outburst floods. *Environmental Research Letters*, **11**(7), 074005, doi:[10.1088/1748-9326/11/7/074005](https://doi.org/10.1088/1748-9326/11/7/074005).
- Scoblog, A., T. Prior, D. Schröter, J. Jörin, and A. Patt, 2015: Towards people-centred approaches for effective disaster risk management: Balancing rhetoric with reality. *International Journal of Disaster Risk Reduction*, **12**, 202–212, doi:[10.1016/j.ijdrr.2015.01.006](https://doi.org/10.1016/j.ijdrr.2015.01.006).
- Scott, M.J., J.M. Roop, R.W. Schultz, D.M. Anderson, and K.A. Cort, 2008: The impact of DOE building technology energy efficiency programs on U.S. employment, income, and investment. *Energy Economics*, **30**(5), 2283–2301, doi:[10.1016/j.eneco.2007.09.001](https://doi.org/10.1016/j.eneco.2007.09.001).
- Scott, V., R.S. Haszeldine, S.F.B. Tett, and A. Oschlies, 2015: Fossil fuels in a trillion tonne world. *Nature Climate Change*, **5**(5), 419–423, doi:[10.1038/nclimate2578](https://doi.org/10.1038/nclimate2578).
- Scyphers, S.B., S.P. Powers, K.L. Heck, and D. Byron, 2011: Oyster reefs as natural breakwaters mitigate shoreline loss and facilitate fisheries. *PLOS ONE*, **6**(8), e22396, doi:[10.1371/journal.pone.0022396](https://doi.org/10.1371/journal.pone.0022396).
- SEAB CO₂ Utilization Task Force, 2016: *Task Force Report on CO₂ Utilization and Negative Emissions Technologies*. Secretary of Energy Advisory Board (SEAB) Task Force on CO₂ Utilization, 80 pp.
- Searchinger, T.D., T. Beringer, and A. Strong, 2017: Does the world have low-carbon bioenergy potential from the dedicated use of land? *Energy Policy*, **110**, 434–446, doi:[10.1016/j.enpol.2017.08.016](https://doi.org/10.1016/j.enpol.2017.08.016).
- Searle, S. and C. Malins, 2015: A reassessment of global bioenergy potential in 2050. *GCB Bioenergy*, **7**(2), 328–336, doi:[10.1111/gcbb.12141](https://doi.org/10.1111/gcbb.12141).
- Seigo, S.L.O., S. Dohle, and M. Siegrist, 2014: Public perception of carbon capture and storage (CCS): A review. *Renewable and Sustainable Energy Reviews*, **38**, 848–863, doi:[10.1016/j.rser.2014.07.017](https://doi.org/10.1016/j.rser.2014.07.017).
- Selosse, S. and O. Ricci, 2017: Carbon capture and storage: Lessons from a storage potential and localization analysis. *Applied Energy*, **188**, 32–44, doi:[10.1016/j.apenergy.2016.11.117](https://doi.org/10.1016/j.apenergy.2016.11.117).
- Sen, B., M. Dhimal, A.T. Latheef, and U. Ghosh, 2017: Climate change: health effects and response in South Asia. *BMJ*, **359**, j5117, doi:[10.1136/bmj.j5117](https://doi.org/10.1136/bmj.j5117).
- Sendzimir, J., C.P. Reija, and P. Magnuszewski, 2011: Rebuilding Resilience in the Sahel. *Ecology and Society*, **16**(3), 1–29, doi:[10.5751/es-04198-160301](https://doi.org/10.5751/es-04198-160301).
- Serrao-Neumann, S., M. Renouf, S.J. Kenway, and D. Low Choy, 2017: Connecting land-use and water planning: Prospects for an urban water metabolism approach. *Cities*, **60**(Part A), 13–27, doi:[10.1016/j.cities.2016.07.003](https://doi.org/10.1016/j.cities.2016.07.003).
- Serrao-Neumann, S., F. Crick, B. Harman, G. Schuch, and D.L. Choy, 2015: Maximising synergies between disaster risk reduction and climate change adaptation: Potential enablers for improved planning outcomes. *Environmental Science & Policy*, **50**, 46–61, doi:[10.1016/j.envsci.2015.01.017](https://doi.org/10.1016/j.envsci.2015.01.017).
- Shackley, S., J. Hammond, J. Gaunt, and R. Ibarrola, 2011: The feasibility and costs of biochar deployment in the UK. *Carbon Management*, **2**(3), 335–356, doi:[10.4155/cmt.11.22](https://doi.org/10.4155/cmt.11.22).
- Shackley, S. et al., 2009: The acceptability of CO₂ capture and storage (CCS) in Europe: An assessment of the key determining factors. Part 2. The social acceptability of CCS and the wider impacts and repercussions of its implementation. *International Journal of Greenhouse Gas Control*, **3**(3), 344–356, doi:[10.1016/j.ijggc.2008.09.004](https://doi.org/10.1016/j.ijggc.2008.09.004).
- Shafiee, M., F. Brennan, and I.A. Espinosa, 2016: A parametric whole life cost model for offshore wind farms. *The International Journal of Life Cycle Assessment*, **21**(7), 961–975, doi:[10.1007/s11367-016-1075-z](https://doi.org/10.1007/s11367-016-1075-z).
- Shah, N., N. Sathaye, A. Phadke, and V. Letschert, 2015: Efficiency improvement opportunities for ceiling fans. *Energy Efficiency*, **8**(1), 37–50, doi:[10.1007/s12053-014-9274-6](https://doi.org/10.1007/s12053-014-9274-6).
- Shapiro, S., 2016: The realpolitik of building codes: overcoming practical limitations to climate resilience. *Building Research & Information*, **44**(5–6), 490–506, doi:[10.1080/09613218.2016.1156957](https://doi.org/10.1080/09613218.2016.1156957).
- Sharma, R., 2018: Financing Indian Urban Rail through Land Development: Case Studies and Implications for the Accelerated Reduction in Oil Associated with 1.5°C. *Urban Planning*, **3**(2), 21–34, doi:[10.17645/up.v3i2.1158](https://doi.org/10.17645/up.v3i2.1158).
- Sharma, U., A. Patwardhan, and A.G. Patt, 2013: Education as a Determinant of Response to Cyclone Warnings: Evidence from Coastal Zones in India. *Ecology and Society*, **18**(2), 18, doi:[10.5751/es-05439-180218](https://doi.org/10.5751/es-05439-180218).
- Sheehan, M.C., M.A. Fox, C. Kaye, and B. Resnick, 2017: Integrating Health into Local Climate Response: Lessons from the U.S. CDC Climate-Ready States and Cities Initiative. *Environmental Health Perspectives*, **125**(9), 094501, doi:[10.1289/ehp1838](https://doi.org/10.1289/ehp1838).
- Sheng, Y., Y. Zhan, and L. Zhu, 2016: Reduced carbon sequestration potential of biochar in acidic soil. *Science of The Total Environment*, **572**, 129–137, doi:[10.1016/j.scitotenv.2016.07.140](https://doi.org/10.1016/j.scitotenv.2016.07.140).
- Shepon, A., G. Eshel, E. Noor, and R. Milo, 2016: Energy and protein feed-to-food conversion efficiencies in the US and potential food security gains from dietary changes. *Environmental Research Letters*, **11**(10), 105002, doi:[10.1088/1748-9326/11/10/105002](https://doi.org/10.1088/1748-9326/11/10/105002).
- Sherman, M., J. Ford, A. Llanos-Cuentas, and M.J. Valdivia, 2016: Food system vulnerability amidst the extreme 2010–2011 flooding in the Peruvian Amazon: a case study from the Ucayali region. *Food Security*, **8**(3), 551–570, doi:[10.1007/s12571-016-0583-9](https://doi.org/10.1007/s12571-016-0583-9).
- Shi, L. et al., 2016: Roadmap towards justice in urban climate adaptation research. *Nature Climate Change*, **6**(2), 131–137, doi:[10.1038/nclimate2841](https://doi.org/10.1038/nclimate2841).
- Shi, Y., 2016: Reducing greenhouse gas emissions from international shipping: Is it time to consider market-based measures? *Marine Policy*, **64**, 123–134, doi:[10.1016/j.marpol.2015.11.013](https://doi.org/10.1016/j.marpol.2015.11.013).
- Shiferaw, B. et al., 2014: Managing vulnerability to drought and enhancing livelihood resilience in sub-Saharan Africa: Technological, institutional and policy options. *Weather and Climate Extremes*, **3**, 67–79, doi:[10.1016/j.wace.2014.04.004](https://doi.org/10.1016/j.wace.2014.04.004).
- Shimamoto, M.M. and S. McCormick, 2017: The Role of Health in Urban Climate Adaptation: An Analysis of Six U.S. Cities. *Weather, Climate, and Society*, **9**(4), 777–785, doi:[10.1175/wcas-d-16-0142.1](https://doi.org/10.1175/wcas-d-16-0142.1).
- Shively, D., 2017: Flood risk management in the USA: implications of national flood insurance program changes for social justice. *Regional Environmental Change*, **17**(8), 2323, doi:[10.1007/s10113-017-1228-z](https://doi.org/10.1007/s10113-017-1228-z).
- Shomali, A. and J. Pinkse, 2016: The consequences of smart grids for the business model of electricity firms. *Journal of Cleaner Production*, **112**(P5), 3830–3841, doi:[10.1016/j.jclepro.2015.07.078](https://doi.org/10.1016/j.jclepro.2015.07.078).
- Shrimali, G. and S. Rohra, 2012: India's solar mission: A review. *Renewable and Sustainable Energy Reviews*, **16**(8), 6317–6332, doi:[10.1016/j.rser.2012.06.018](https://doi.org/10.1016/j.rser.2012.06.018).
- Shukla, A.K., K. Sudhakar, P. Baredar, and R. Mamat, 2018: Solar PV and BIPV system: Barrier, challenges and policy recommendation in India. *Renewable and Sustainable Energy Reviews*, **82**, 3314–3322, doi:[10.1016/j.rser.2017.10.013](https://doi.org/10.1016/j.rser.2017.10.013).
- Shvidenko, A., S. Nilsson, and V. Roshkov, 1997: Possibilities for Increased Carbon Sequestration through the Implementation of Rational Forest Management in Russia. *Water, Air, and Soil Pollution*, **94**(1), 137–162, doi:[10.1023/a:1026494514131](https://doi.org/10.1023/a:1026494514131).
- Sida, T.S., F. Baudron, H. Kim, and K.E. Giller, 2018: Climate-smart agroforestry: *Faidherbia albida* trees buffer wheat against climatic extremes in the Central Rift Valley of Ethiopia. *Agricultural and Forest Meteorology*, **248**, 339–347, doi:[10.1016/j.agrformet.2017.10.013](https://doi.org/10.1016/j.agrformet.2017.10.013).
- Siders, A.R., 2017: A role for strategies in urban climate change adaptation planning: Lessons from London. *Regional Environmental Change*, **17**(6), 1801–1810, doi:[10.1007/s10113-017-1153-1](https://doi.org/10.1007/s10113-017-1153-1).
- Siikamäki, J., J.N. Sanchirico, and S.L. Jardine, 2012: Global economic potential for reducing carbon dioxide emissions from mangrove loss. *Proceedings of the National Academy of Sciences*, **109**(36), 14369–74, doi:[10.1073/pnas.1200519109](https://doi.org/10.1073/pnas.1200519109).
- Sikorska, P.E., 2015: The need for legal regulation of global emissions from the aviation industry in the context of emerging aerospace vehicles. *International Comparative Jurisprudence*, **1**(2), 133–142, doi:[10.1016/j.icj.2015.12.004](https://doi.org/10.1016/j.icj.2015.12.004).
- Silalertruksa, T., S.H. Gheewala, K. Hüenecke, and U.R. Fritzsche, 2012: Biofuels and employment effects: Implications for socio-economic development in Thailand. *Biomass and Bioenergy*, **46**, 409–418, doi:[10.1016/j.biombioe.2012.07.019](https://doi.org/10.1016/j.biombioe.2012.07.019).
- Silva Herran, D., H. Dai, S. Fujimori, and T. Masui, 2016: Global assessment of onshore wind power resources considering the distance to urban areas. *Energy Policy*, **91**, 75–86, doi:[10.1016/j.enpol.2015.12.024](https://doi.org/10.1016/j.enpol.2015.12.024).
- Simon, A.J., N.B. Kaahaaina, S. Julio Friedmann, and R.D. Aines, 2011: Systems analysis and cost estimates for large scale capture of carbon dioxide from air. *Energy Procedia*, **4**, 2893–2900, doi:[10.1016/j.egypro.2011.02.196](https://doi.org/10.1016/j.egypro.2011.02.196).
- Singh, C., 2018: Is participatory watershed development building local adaptive capacity? Findings from a case study in Rajasthan, India. *Environmental Development*, **25**, 43–58, doi:[10.1016/j.envdev.2017.11.004](https://doi.org/10.1016/j.envdev.2017.11.004).

- Singh, C., P. Urquhart, and E. Kituyi, 2016: *From pilots to systems: Barriers and enablers to scaling up the use of climate information services in smallholder farming communities*. CARIIA Working Paper no. 3, Collaborative Adaptation Research Initiative in Africa and Asia, International Development Research Centre, Ottawa, ON, Canada, 56 pp.
- Singh, C. et al., 2017: The utility of weather and climate information for adaptation decision-making: current uses and future prospects in Africa and India. *Climate and Development*, 1–17, doi:10.1080/17565529.2017.1318744.
- Sinha, A., L.A. Darunte, C.W. Jones, M.J. Reaff, and Y. Kawajiri, 2017: Systems Design and Economic Analysis of Direct Air Capture of CO₂ through Temperature Vacuum Swing Adsorption Using MIL-101(Cr)-PEI-800 and mmen-Mg2 (dobpdc) MOF Adsorbents. *Industrial & Engineering Chemistry Research*, 56(3), 750–764, doi:10.1021/acs.iecr.6b03887.
- Sioshansi, R. and P. Denholm, 2009: Emissions Impacts and Benefits of Plug-In Hybrid Electric Vehicles and Vehicle-to-Grid Services. *Environmental Science & Technology*, 43(4), 1199–1204, doi:10.1021/es802324j.
- Sirakaya, A., A. Cliquet, and J. Harris, 2018: Ecosystem services in cities: Towards the international legal protection of ecosystem services in urban environments. *Ecosystem Services*, 29, 205–212, doi:10.1016/j.ecoser.2017.01.001.
- Sivak, M. and B. Schoettle, 2018: *Relative Costs of Driving Electric and Gasoline Vehicles in the Individual U.S. States*. Report No. SWT-2018-1, University of Michigan, Sustainable Worldwide Transportation, Ann Arbor, MI, USA, 7 pp.
- Sivakumar, M.V.K., C. Collins, A. Jay, and J. Hansen, 2014: *Regional priorities for strengthening climate services for farmers in Africa and South Asia*. CCAFS Working Paper no. 71, CGIAR Research Program on Climate Change, Agriculture and Food Security (CAAFS), Copenhagen, Denmark, 36 pp.
- Skougaard Kaspersen, P., N. Høegh Ravn, K. Arnbjerg-Nielsen, H. Madsen, and M. Drews, 2015: Influence of urban land cover changes and climate change for the exposure of European cities to flooding during high-intensity precipitation. *Proceedings of the International Association of Hydrological Sciences*, 370, 21–27, doi:10.5194/iahs-370-21-2015.
- Slade, R., A. Bauen, and R. Gross, 2014: Global bioenergy resources. *Nature Climate Change*, 4(2), 99–105, doi:10.1038/nclimate2097.
- Sleenhoff, S. and P. Osseweijer, 2016: How people feel their engagement can have efficacy for a bio-based society. *Public Understanding of Science*, 25(6), 719–736, doi:10.1177/0963662514566749.
- Smajgl, A. et al., 2015: Responding to rising sea levels in the Mekong Delta. *Nature Climate Change*, 5(2), 167–174, doi:10.1038/nclimate2469.
- Smale, R., M. Krahe, and T. Johnson, 2012: *Aviation Report: Market Based Mechanisms to Curb Greenhouse Gas Emissions from International Aviation*. Vivid Economics, Aviation Environment Trust and WWF Global and Energy initiative on behalf of World Wildlife Fund (WWF) International, Gland, Switzerland, 86 pp.
- Smeets, E.M.W. and A.P.C. Faaij, 2007: Bioenergy potentials from forestry in 2050: An assessment of the drivers that determine the potentials. *Climatic Change*, 81(3–4), 353–390, doi:10.1007/s10584-006-9163-x.
- Smeets, E.M.W., A.P.C. Faaij, I.M. Lewandowski, and W.C. Turkenburg, 2007: A bottom-up assessment and review of global bio-energy potentials to 2050. *Progress in Energy and Combustion Science*, 33(1), 56–106, doi:10.1016/j.pecs.2006.08.001.
- Smith, A. et al., 2017: Measuring sustainable intensification in smallholder agroecosystems: A review. *Global Food Security*, 12, 127–138, doi:10.1016/j.gfs.2016.11.002.
- Smith, H., E. Kruger, J. Knot, and J. Blignaut, 2017: Conservation Agriculture in South Africa: Lessons from Case Studies. In: *Conservation Agriculture for Africa: Building Resilient Farming Systems in a Changing Climate* [Kassam, A.H., S. Mkomwa, and T. Friedrich (eds.)]. Centre for Agriculture and Biosciences International (CABI), Wallingford, UK, pp. 214–245.
- Smith, K.R. et al., 2014: Human health: impacts, adaptation, and co-benefits. In: *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, and T.E. Bilir (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 709–754.
- Smith, L.J. and M.S. Torn, 2013: Ecological limits to terrestrial biological carbon dioxide removal. *Climatic Change*, 118(1), 89–103, doi:10.1007/s10584-012-0682-3.
- Smith, M.D. et al., 2015: Geoengineering Coastlines? From Accidental to Intentional. In: *Coastal Zones: Solutions for the 21st Century* [Baztan, J., O. Chouinard, B. Jorgensen, P. Tett, J.-P. Vanderlinden, and L. Vasseur (eds.)]. Elsevier, pp. 99–122, doi:10.1016/b978-0-12-802748-6.00007-3.
- Smith, P., 2012: Agricultural greenhouse gas mitigation potential globally, in Europe and in the UK: what have we learnt in the last 20 years? *Global Change Biology*, 18(1), 35–43, doi:10.1111/j.1365-2486.2011.02517.x.
- Smith, P., 2016: Soil carbon sequestration and biochar as negative emission technologies. *Global Change Biology*, 22(3), 1315–1324, doi:10.1111/gcb.13178.
- Smith, P. and P.J. Gregory, 2013: Climate change and sustainable food production. *Proceedings of the Nutrition Society*, 72(1), 21–28, doi:10.1017/s0029665112002832.
- Smith, P. et al., 2008: Greenhouse gas mitigation in agriculture. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 363(1492), 789–813, doi:10.1098/rstb.2007.2184.
- Smith, P. et al., 2012: Towards an integrated global framework to assess the impacts of land use and management change on soil carbon: current capability and future vision. *Global Change Biology*, 18(7), 2089–2101, doi:10.1111/j.1365-2486.2012.02689.x.
- Smith, P. et al., 2014: Agriculture, Forestry and Other Land Use (AFOLU). In: *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel, and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 811–922.
- Smith, P. et al., 2016: Biophysical and economic limits to negative CO₂ emissions. *Nature Climate Change*, 6(1), 42–50, doi:10.1038/nclimate2870.
- Smith, T., D. Thomsen, S. Gould, K. Schmitt, and B. Schlegel, 2013: Cumulative Pressures on Sustainable Livelihoods: Coastal Adaptation in the Mekong Delta. *Sustainability*, 5(1), 228–241, doi:10.3390/su5010228.
- Smith, W.K., M. Zhao, and S.W. Running, 2012: Global Bioenergy Capacity as Constrained by Observed Biospheric Productivity Rates. *BioScience*, 62(10), pp. 911–922, doi:10.1525/bio.2012.62.10.11.
- Snow, J.T. et al., 2016: *A New Vision for Weather and Climate Services in Africa*. United Nations Development Programme (UNDP), New York, NY, USA, 137 pp.
- Socol, C.R. et al., 2010: Bioethanol from lignocelluloses: Status and perspectives in Brazil. *Bioresource Technology*, 101(13), 4820–4825, doi:10.1016/j.biortech.2009.11.067.
- Socolow, R. et al., 2011: *Direct air capture of CO₂ with chemicals: A technology assessment for the APS Panel on Public Affairs*. American Physical Society (APS), 91 pp.
- Soderlund, J. and P. Newman, 2015: Biophilic architecture: a review of the rationale and outcomes. *AIMS Environmental Science*, 2(4), 950–969, doi:10.3934/environsci.2015.4.950.
- Sohngen, B. and R. Alig, 2000: Mitigation, adaptation, and climate change: results from recent research on US timber markets. *Environmental Science & Policy*, 3(5), 235–248, doi:10.1016/s1462-9011(00)00094-0.
- Sohngen, B. and R. Mendelsohn, 2003: An optimal control model of forest carbon sequestration. *American Journal of Agricultural Economics*, 85(2), 448–457.
- Soito, J.L.S. and M.A.V. Freitas, 2011: Amazon and the expansion of hydropower in Brazil: Vulnerability, impacts and possibilities for adaptation to global climate change. *Renewable and Sustainable Energy Reviews*, 15(6), 3165–3177, doi:10.1016/j.rser.2011.04.006.
- Sommer, R. and D. Bossio, 2014: Dynamics and climate change mitigation potential of soil organic carbon sequestration. *Journal of Environmental Management*, 144, 83–87, doi:10.1016/j.jenvman.2014.05.017.
- Somorini, O.A., I.J. Visseren-Hamakers, B. Arts, A.-M. Tiani, and D.J. Sonwa, 2016: Integration through interaction? Synergy between adaptation and mitigation (REDD+) in Cameroon. *Environment and Planning C: Government and Policy*, 34(3), 415–432, doi:10.1177/0263774x16645341.
- Song, G., M. Li, P. Fullana-i-Palmer, D. Williamson, and Y. Wang, 2017: Dietary changes to mitigate climate change and benefit public health in China. *Science of The Total Environment*, 577, 289–298, doi:10.1016/j.scitotenv.2016.10.184.
- Sonntag, S., J. Pongratz, C.H. Reick, and H. Schmidt, 2016: Reforestation in a high-CO₂ world - Higher mitigation potential than expected, lower adaptation potential than hoped for. *Geophysical Research Letters*, 43(12), 6546–6553, doi:10.1002/2016gl068824.
- Soussana, J.-F. and G. Lemaire, 2014: Coupling carbon and nitrogen cycles for environmentally sustainable intensification of grasslands and crop-livestock systems. *Agriculture, Ecosystems & Environment*, 190, 9–17, doi:10.1016/j.agee.2013.10.012.
- Sovacool, B.K., B.-O. Linnér, and M.E. Goodsite, 2015: The political economy of climate adaptation. *Nature Climate Change*, 5(7), 616–618, doi:10.1038/nclimate2665.
- Soz, S.A., Z. Stanton-Geddes, and J. Kryspin-Watson, 2016: *The role of green infrastructure solutions in urban flood risk management*. World Bank Group, Washington DC, USA, 18 pp.
- Spalding, M.D. et al., 2014: The role of ecosystems in coastal protection: Adapting to climate change and coastal hazards. *Ocean and Coastal Management*, 90, 50–57, doi:10.1016/j.ocecoaman.2013.09.007.
- Sparovek, G. et al., 2018: Asymmetries of cattle and crop productivity and efficiency during Brazil's agricultural expansion from 1975 to 2006. *Elem Sci Anth*, 6(1), 25, doi:10.1525/elementa.187.
- Späth, P. and H. Rohrer, 2015: Conflicting strategies towards sustainable heating at an urban junction of heat infrastructure and building standards. *Energy Policy*, 78, 273–280, doi:10.1016/j.enpol.2014.12.019.

- Spencer, B. et al., 2017: Case studies in co-benefits approaches to climate change mitigation and adaptation. *Journal of Environmental Planning and Management*, **60**(4), 647–667, doi:[10.1080/09640568.2016.1168287](https://doi.org/10.1080/09640568.2016.1168287).
- Star, J. et al., 2016: Supporting adaptation decisions through scenario planning: Enabling the effective use of multiple methods. *Climate Risk Management*, **13**, 88–94, doi:[10.1016/j.crm.2016.08.001](https://doi.org/10.1016/j.crm.2016.08.001).
- Stattman, S.L., O. Hospes, and A.P.J. Mol, 2013: Governing biofuels in Brazil: A comparison of ethanol and biodiesel policies. *Energy Policy*, **61**, 22–30, doi:[10.1016/j.enpol.2013.06.005](https://doi.org/10.1016/j.enpol.2013.06.005).
- Stavi, I. and R. Lal, 2013: Agriculture and greenhouse gases, a common tragedy. A review. *Agronomy for Sustainable Development*, **33**(2), 275–289, doi:[10.1007/s13593-012-0110-0](https://doi.org/10.1007/s13593-012-0110-0).
- Stavins, R.N. and K.R. Richards, 2005: *The Cost of U.S. Forest-Based Carbon Sequestration*. Pew Center on Global Climate Change, Arlington, VA, USA, 40 pp.
- Steenhof, P. and E. Sparling, 2011: The Role of Codes, Standards, and Related Instruments in Facilitating Adaptation to Climate Change. In: *Climate Change Adaptation in Developed Nations: From Theory to Practice* [Ford, J.D. and L. Berrang-Ford (eds.)]. Advances in Global Change Research, Springer, Dordrecht, The Netherlands, pp. 243–254, doi:[10.1007/978-94-007-0567-8_17](https://doi.org/10.1007/978-94-007-0567-8_17).
- Steg, L., 2003: Can Public Transport Compete With the Private Car? *IATSS Research*, **27**(2), 27–35, doi:[10.1016/s0386-1112\(14\)60141-2](https://doi.org/10.1016/s0386-1112(14)60141-2).
- Stephan, A. and R.H. Crawford, 2016: Total water requirements of passenger transport modes. *Transportation Research Part D: Transport and Environment*, **49**, 94–109, doi:[10.1016/j.trd.2016.09.007](https://doi.org/10.1016/j.trd.2016.09.007).
- Sterman, J.D., L. Siegel, and J.N. Rooney-Varga, 2018: Does replacing coal with wood lower CO₂ emissions? Dynamic lifecycle analysis of wood bioenergy. *Environmental Research Letters*, **13**(1), 015007, doi:[10.1088/1748-9326/aa512](https://doi.org/10.1088/1748-9326/aa512).
- Stevanović, M. et al., 2017: Mitigation Strategies for Greenhouse Gas Emissions from Agriculture and Land-Use Change: Consequences for Food Prices. *Environmental Science & Technology*, **51**(1), 365–374, doi:[10.1021/acs.est.6b04291](https://doi.org/10.1021/acs.est.6b04291).
- Stevens, C.J. and J.N. Quinton, 2009: Diffuse Pollution Swapping in Arable Agricultural Systems. *Critical Reviews in Environmental Science and Technology*, **39**(6), 478–520, doi:[10.1080/10643380801910017](https://doi.org/10.1080/10643380801910017).
- Stevenson, J.R., R. Serraj, and K.G. Cassman, 2014: Evaluating conservation agriculture for small-scale farmers in Sub-Saharan Africa and South Asia. *Agriculture, Ecosystems & Environment*, **187**, 1–10, doi:[10.1016/j.agee.2014.01.018](https://doi.org/10.1016/j.agee.2014.01.018).
- Stevenson, M. et al., 2016: Land use, transport, and population health: estimating the health benefits of compact cities. *The Lancet*, **388**(10062), 2925–2935, doi:[10.1016/s0140-6736\(16\)30067-8](https://doi.org/10.1016/s0140-6736(16)30067-8).
- Stewart, M.G., 2015: Risk and economic viability of housing climate adaptation strategies for wind hazards in southeast Australia. *Mitigation and Adaptation Strategies for Global Change*, **20**(4), 601–622, doi:[10.1007/s11027-013-9510-y](https://doi.org/10.1007/s11027-013-9510-y).
- Stocker, E. and D. Koch, 2017: Cost-Effective Energy Efficient Building Retrofitting: Materials, Technologies, Optimization and Case Studies. In: *Cost-Effective Energy Efficient Building Retrofitting* [Stocker, E. and D. Koch (eds.)]. Woodhead Publishing, Sawston, UK, pp. 489–513, doi:[10.1016/b978-0-08-101128-7.00017-4](https://doi.org/10.1016/b978-0-08-101128-7.00017-4).
- Stolaroff, J.K., D.W. Keith, and G. Lowry, 2008: Carbon Dioxide Capture from Atmospheric Air Using Sodium Hydroxide Spray. *Environmental Science & Technology*, **42**(8), 2728–2735, doi:[10.1021/es702607w](https://doi.org/10.1021/es702607w).
- Stoll-Kleemann, S. and U.J. Schmidt, 2017: Reducing meat consumption in developed and transition countries to counter climate change and biodiversity loss: a review of influence factors. *Regional Environmental Change*, **17**(5), 1261–1277, doi:[10.1007/s10113-016-1057-5](https://doi.org/10.1007/s10113-016-1057-5).
- Storlazzi, C.D. et al., 2018: Most atolls will be uninhabitable by the mid-21st century because of sea-level rise exacerbating wave-driven flooding. *Science Advances*, **4**(4), eaap9741, doi:[10.1126/sciadv.aap9741](https://doi.org/10.1126/sciadv.aap9741).
- Stoy, P.C. et al., 2018: Opportunities and Trade-offs among BECCS and the Food, Water, Energy, Biodiversity, and Social Systems Nexus at Regional Scales. *BioScience*, **68**(2), 100–111, doi:[10.1093/biosci/bix145](https://doi.org/10.1093/biosci/bix145).
- Strassburg, B.B.N. et al., 2014: Biophysical suitability, economic pressure and land-cover change: a global probabilistic approach and insights for REDD+. *Sustainability Science*, **9**(2), 129–141, doi:[10.1007/s11625-013-0209-5](https://doi.org/10.1007/s11625-013-0209-5).
- Strefler, J., T. Amann, N. Bauer, E. Krieger, and J. Hartmann, 2018a: Potential and costs of carbon dioxide removal by enhanced weathering of rocks. *Environmental Research Letters*, **13**(3), 034010, doi:[10.1088/1748-9326/aa9c4](https://doi.org/10.1088/1748-9326/aa9c4).
- Strefler, J. et al., 2018b: Between Scylla and Charybdis: Delayed mitigation narrows the passage between large-scale CDR and high costs. *Environmental Research Letters*, **13**(4), 044015, doi:[10.1088/1748-9326/aab2ba](https://doi.org/10.1088/1748-9326/aab2ba).
- Strengers, B.J., J.G. Van Minnen, and B. Eickhout, 2008: The role of carbon plantations in mitigating climate change: potentials and costs. *Climatic Change*, **88**(3), 343–366, doi:[10.1007/s10584-007-9334-4](https://doi.org/10.1007/s10584-007-9334-4).
- Striessnig, E., W. Lutz, and A.G. Patt, 2013: Effects of Educational Attainment on Climate Risk Vulnerability. *Ecology and Society*, **18**(1), 16, doi:[10.5751/es-05252-180116](https://doi.org/10.5751/es-05252-180116).
- Stringer, L.C. et al., 2012: Challenges and opportunities in linking carbon sequestration, livelihoods and ecosystem service provision in drylands. *Environmental Science & Policy*, **19**–20, 121–135, doi:[10.1016/j.envsci.2012.02.004](https://doi.org/10.1016/j.envsci.2012.02.004).
- Struijk, P.C. and T.W. Kuyper, 2017: Sustainable intensification in agriculture: the richer shade of green. A review. *Agronomy for Sustainable Development*, **37**(5), 39, doi:[10.1007/s13593-017-0445-7](https://doi.org/10.1007/s13593-017-0445-7).
- Strzalka, R., D. Schneider, and U. Eicker, 2017: Current status of bioenergy technologies in Germany. *Renewable and Sustainable Energy Reviews*, **72**, 801–820, doi:[10.1016/j.rser.2017.01.091](https://doi.org/10.1016/j.rser.2017.01.091).
- Stults, M. and S.C. Woodruff, 2017: Looking under the hood of local adaptation plans: shedding light on the actions prioritized to build local resilience to climate change. *Mitigation and Adaptation Strategies for Global Change*, **22**(8), 1249–1279, doi:[10.1007/s11027-016-9725-9](https://doi.org/10.1007/s11027-016-9725-9).
- Su, S., Q. Zhang, J. Pi, C. Wan, and M. Weng, 2016: Public health in linkage to land use: Theoretical framework, empirical evidence, and critical implications for reconnecting health promotion to land use policy. *Land Use Policy*, **57**, 605–618, doi:[10.1016/j.landusepol.2016.06.030](https://doi.org/10.1016/j.landusepol.2016.06.030).
- Suarez, P., J. de Suarez, B. Koelle, and M. Boykoff, 2014: Serious Fun: Scaling Up Community-Based Adaptation Through Experiential Learning. In: *Community-Based Adaptation to Climate Change: Scaling it up* [Schipper, E.L.F., J. Ayers, H. Reid, S. Huq, and A. Rahman (eds.)]. Routledge, London, UK, pp. 136–151.
- Suckall, N., L.C. Stringer, and E.L. Tompkins, 2015: Presenting Triple-Wins? Assessing Projects That Deliver Adaptation, Mitigation and Development Co-benefits in Rural Sub-Saharan Africa. *Ambio*, **44**(1), 34–41, doi:[10.1007/s13280-014-0520-0](https://doi.org/10.1007/s13280-014-0520-0).
- Sunderlin, W.D. et al., 2014: How are REDD+ Proponents Addressing Tenure Problems? Evidence from Brazil, Cameroon, Tanzania, Indonesia, and Vietnam. *World Development*, **55**, 37–52, doi:[10.1016/j.worlddev.2013.01.013](https://doi.org/10.1016/j.worlddev.2013.01.013).
- Surendra, K.C., D. Takara, A.G. Hashimoto, and S.K. Khanal, 2014: Biogas as a sustainable energy source for developing countries: Opportunities and challenges. *Renewable and Sustainable Energy Reviews*, **31**, 846–859, doi:[10.1016/j.rser.2013.12.015](https://doi.org/10.1016/j.rser.2013.12.015).
- Surminski, S. and J. Eldridge, 2017: Flood insurance in England – an assessment of the current and newly proposed insurance scheme in the context of rising flood risk. *Journal of Flood Risk Management*, **10**(4), 415–435, doi:[10.1111/jfr3.12127](https://doi.org/10.1111/jfr3.12127).
- Surminski, S. and A.H. Thieken, 2017: Promoting flood risk reduction: The role of insurance in Germany and England. *Earth's Future*, **5**(10), 979–1001, doi:[10.1002/2017ef000587](https://doi.org/10.1002/2017ef000587).
- Surminski, S., L.M. Bouwer, and J. Linnerooth-Bayer, 2016: How insurance can support climate resilience. *Nature Climate Change*, **6**(4), 333–334, doi:[10.1038/nclimate2979](https://doi.org/10.1038/nclimate2979).
- Sütterlin, B. and M. Siegrist, 2017: Public acceptance of renewable energy technologies from an abstract versus concrete perspective and the positive imagery of solar power. *Energy Policy*, **106**, 356–366, doi:[10.1016/j.enpol.2017.03.061](https://doi.org/10.1016/j.enpol.2017.03.061).
- Sutton-Grier, A.E., K. Wovk, and H. Bamford, 2015: Future of our coasts: The potential for natural and hybrid infrastructure to enhance the resilience of our coastal communities, economies and ecosystems. *Environmental Science & Policy*, **51**, 137–148, doi:[10.1016/j.envsci.2015.04.006](https://doi.org/10.1016/j.envsci.2015.04.006).
- Suzuki, S.S. et al., 2016: Comprehensive Survey Results of Childhood Thyroid Ultrasound Examinations in Fukushima in the First Four Years After the Fukushima Daiichi Nuclear Power Plant Accident. *Thyroid*, **26**(6), 843–851, doi:[10.1089/thy.2015.0564](https://doi.org/10.1089/thy.2015.0564).
- Sweet, M., 2014: Traffic Congestion's Economic Impacts: Evidence from US Metropolitan Regions. *Urban Studies*, **51**(10), 2088–2110, doi:[10.1177/0042098013505883](https://doi.org/10.1177/0042098013505883).
- Swilling, M., J. Musango, and J. Wakeford, 2016: Developmental States and Sustainability Transitions: Prospects of a Just Transition in South Africa. *Journal of Environmental Policy & Planning*, **18**(5), 650–672, doi:[10.1080/1523908x.2015.1107716](https://doi.org/10.1080/1523908x.2015.1107716).
- Swim, J.K., N. Geiger, and S.J. Zawadzki, 2014: Psychology and Energy-Use Reduction Policies. *Policy Insights from the Behavioral and Brain Sciences*, **1**(1), 180–188, doi:[10.1177/2372732214548591](https://doi.org/10.1177/2372732214548591).
- Swisher, J.N., 1994: Forestry and biomass energy projects: Bottom-up comparisons of CO₂ storage and costs. *Biomass and Bioenergy*, **6**(5), 359–368, doi:[10.1016/0961-9534\(94\)00061-w](https://doi.org/10.1016/0961-9534(94)00061-w).
- Tacoli, C., B. Bukhari, and S. Fisher, 2013: *Urban poverty, food security and climate change*. International Institute for Environment and Development (IIED) Human Settlements Group, London, UK, 29 pp.
- Tadgell, A., L. Mortsch, and B. Doberstein, 2017: Assessing the feasibility of resettlement as a climate change adaptation strategy for informal settlements in Metro Manila, Philippines. *International Journal of Disaster Risk Reduction*, **22**, 447–457, doi:[10.1016/j.ijdrr.2017.01.005](https://doi.org/10.1016/j.ijdrr.2017.01.005).

- Taebi, B. and M. Mayer, 2017: By accident or by design? Pushing global governance of nuclear safety. *Progress in Nuclear Energy*, **99**, 19–25, doi:[10.1016/j.pnucene.2017.04.014](https://doi.org/10.1016/j.pnucene.2017.04.014).
- Taibi, E., D. Gielen, and M. Bazilian, 2012: The potential for renewable energy in industrial applications. *Renewable and Sustainable Energy Reviews*, **16**(1), 735–744, doi:[10.1016/j.rser.2011.08.039](https://doi.org/10.1016/j.rser.2011.08.039).
- Tait, L. and M. Euston-Brown, 2017: What role can African cities play in low-carbon development? A multilevel governance perspective of Ghana, Uganda and South Africa. *Journal of Energy in Southern Africa*, **28**(3), 43–53, doi:[10.17159/2413-3051/2017/v28i3a1959](https://doi.org/10.17159/2413-3051/2017/v28i3a1959).
- Takahashi, N. et al., 2015: Community Trial on Heat Related-Illness Prevention Behaviors and Knowledge for the Elderly. *International Journal of Environmental Research and Public Health*, **12**(3), 3188–3214, doi:[10.3390/ijerph120303188](https://doi.org/10.3390/ijerph120303188).
- Tallis, M., G. Taylor, D. Sinnett, and P. Freer-Smith, 2011: Estimating the removal of atmospheric particulate pollution by the urban tree canopy of London, under current and future environments. *Landscape and Urban Planning*, **103**(2), 129–138, doi:[10.1016/j.landurbplan.2011.07.003](https://doi.org/10.1016/j.landurbplan.2011.07.003).
- Tarr, N.M. et al., 2017: Projected gains and losses of wildlife habitat from bioenergy-induced landscape change. *GCB Bioenergy*, **9**(5), 909–923, doi:[10.1111/gcbb.12383](https://doi.org/10.1111/gcbb.12383).
- Taylor, L.L. et al., 2016: Enhanced weathering strategies for stabilizing climate and averting ocean acidification. *Nature Climate Change*, **6**(4), 402–406, doi:[10.1038/nclimate2882](https://doi.org/10.1038/nclimate2882).
- Teferi, Z.A. and P. Newman, 2017: Slum Regeneration and Sustainability: Applying the Extended Metabolism Model and the SDGs. *Sustainability*, **9**(12), 2273, doi:[10.3390/su9122273](https://doi.org/10.3390/su9122273).
- Teferi, Z.A. and P. Newman, 2018: Slum Upgrading: Can the 1.5°C Carbon Reduction Work with SDGs in these Settlements? *Urban Planning*, **3**(2), 52–63, doi:[10.17645/up.v3i2.1239](https://doi.org/10.17645/up.v3i2.1239).
- Teh, T.-L., 2015: Sovereign disaster risk financing and insurance impact appraisal. *British Actuarial Journal*, **20**(2), 241–256, doi:[10.1017/s1357321715000033](https://doi.org/10.1017/s1357321715000033).
- Terraube, J., Fernández-Llamazares, and M. Cabeza, 2017: The role of protected areas in supporting human health: a call to broaden the assessment of conservation outcomes. *Current Opinion in Environmental Sustainability*, **25**, 50–58, doi:[10.1016/j.cosust.2017.08.005](https://doi.org/10.1016/j.cosust.2017.08.005).
- Terrier, S., M. Bieri, F. Jordan, and A.J. Schleiss, 2015: Impact du retrait glaciaire et adaptation du potentiel hydroélectrique dans les Alpes suisses. *La Houille Blanche*, 93–101, doi:[10.1051/lhb/2015012](https://doi.org/10.1051/lhb/2015012).
- Terrier, S. et al., 2011: Optimized and adapted hydropower management considering glacier shrinkage scenarios in the Swiss Alps. In: *Proceedings of the International Symposium on Dams and Reservoirs under Changing Challenges – 79th Annual Meeting of ICOLD, Swiss Committee on Dams, Lucerne, Switzerland* [Schleiss, A. and R.M. Boes (eds.)]. 497–508 pp.
- Thi Hong Phuong, L., G.R. Biesbroek, and A.E.J. Wals, 2017: The interplay between social learning and adaptive capacity in climate change adaptation: A systematic review. *NJAS – Wageningen Journal of Life Sciences*, **82**, 1–9, doi:[10.1016/j.njas.2017.05.001](https://doi.org/10.1016/j.njas.2017.05.001).
- Thierfelder, C. et al., 2015: Conservation agriculture in Southern Africa: Advances in knowledge. *Renewable Agriculture and Food Systems*, **30**(04), 328–348, doi:[10.1017/s1742170513000550](https://doi.org/10.1017/s1742170513000550).
- Thierfelder, C. et al., 2017: How climate-smart is conservation agriculture (CA)? – its potential to deliver on adaptation, mitigation and productivity on smallholder farms in southern Africa. *Food Security*, **9**(3), 537–560, doi:[10.1007/s12571-017-0665-3](https://doi.org/10.1007/s12571-017-0665-3).
- Thomas, A. and L. Benjamin, 2018: Policies and mechanisms to address climate-induced migration and displacement in Pacific and Caribbean small island developing states. *International Journal of Climate Change Strategies and Management*, **10**(1), 86–104, doi:[10.1108/ijccsm-03-2017-0055](https://doi.org/10.1108/ijccsm-03-2017-0055).
- Thomas, C.D. and P.K. Gillingham, 2015: The performance of protected areas for biodiversity under climate change. *Biological Journal of the Linnean Society*, **115**(3), 718–730, doi:[10.1111/bjij.12510](https://doi.org/10.1111/bjij.12510).
- Thompson, J.L. et al., 2016: Ecosystem – What? Public Understanding and Trust in Conservation Science and Ecosystem Services. *Frontiers in Communication*, **1**, 3, doi:[10.3389/fcomm.2016.00003](https://doi.org/10.3389/fcomm.2016.00003).
- Thomson, A.M., R. César Izaurralde, S.J. Smith, and L. Clarke, 2008: Integrated estimates of global terrestrial carbon sequestration. *Global Environmental Change*, **18**(1), 192–203, doi:[10.1016/j.gloenvcha.2007.10.002](https://doi.org/10.1016/j.gloenvcha.2007.10.002).
- Thomson, G. and P. Newman, 2018: Urban fabrics and urban metabolism – from sustainable to regenerative cities. *Resources, Conservation and Recycling*, **132**, 218–229, doi:[10.1016/j.resconrec.2017.01.010](https://doi.org/10.1016/j.resconrec.2017.01.010).
- Thornley, P., P. Upham, and J. Tomei, 2009: Sustainability constraints on UK bioenergy development. *Energy Policy*, **37**(12), 5623–5635, doi:[10.1016/j.enpol.2009.08.028](https://doi.org/10.1016/j.enpol.2009.08.028).
- Thornton, P.K. and M. Herrero, 2014: Climate change adaptation in mixed crop-livestock systems in developing countries. *Global Food Security*, **3**(2), 99–107, doi:[10.1016/j.gfs.2014.02.002](https://doi.org/10.1016/j.gfs.2014.02.002).
- Thornton, P.K. and M. Herrero, 2015: Adapting to climate change in the mixed crop and livestock farming systems in sub-Saharan Africa. *Nature Climate Change*, **5**(9), 830–836, doi:[10.1038/nclimate2754](https://doi.org/10.1038/nclimate2754).
- Thornton, P.K. et al., 2017: Climate-Smart Agriculture Options in Mixed Crop-Livestock Systems in Africa South of the Sahara. In: *Climate Smart Agriculture: Building Resilience to Climate Change* [Zilberman, D., N. McCarthy, S. Asfaw, and L. Lipper (eds.)]. Springer Science & Business Media, New York, NY, USA, pp. 40–53.
- Thornton, P.K. et al., 2018: A Qualitative Evaluation of CSA Options in Mixed Crop-Livestock Systems in Developing Countries. In: *Climate Smart Agriculture: Building Resilience to Climate Change* [Lipper, L., N. McCarthy, D. Zilberman, S. Asfaw, and G. Branca (eds.)]. Springer International Publishing, Cham, pp. 385–423, doi:[10.1007/978-3-319-61194-5_17](https://doi.org/10.1007/978-3-319-61194-5_17).
- Thornton, T.F. and N. Manafsi, 2010: Adaptation – Genuine and Spurious: Demystifying Adaptation Processes in Relation to Climate Change. *Environment and Society*, **1**(1), 132–155, doi:[10.3167/ares.2010.010107](https://doi.org/10.3167/ares.2010.010107).
- Thornton, T.F. and C. Comberti, 2017: Synergies and trade-offs between adaptation, mitigation and development. *Climatic Change*, **140**(1), 5–18, doi:[10.1007/s10584-013-0884-3](https://doi.org/10.1007/s10584-013-0884-3).
- Thrän, D., T. Seidenberger, J. Zeddies, and R. Offermann, 2010: Global biomass potentials - Resources, drivers and scenario results. *Energy for Sustainable Development*, **14**(3), 200–205, doi:[10.1016/j.esd.2010.07.004](https://doi.org/10.1016/j.esd.2010.07.004).
- Thyberg, K.L. and D.J. Tonjes, 2016: Drivers of food waste and their implications for sustainable policy development. *Resources, Conservation and Recycling*, **106**, 110–123, doi:[10.1016/j.resconrec.2015.11.016](https://doi.org/10.1016/j.resconrec.2015.11.016).
- Tilman, D. and M. Clark, 2014: Global diets link environmental sustainability and human health. *Nature*, **515**(7528), 518–522, doi:[10.1038/nature13959](https://doi.org/10.1038/nature13959).
- Tilman, D., C. Balzer, J. Hill, and B.L. Befort, 2011: Global food demand and the sustainable intensification of agriculture. *Proceedings of the National Academy of Sciences*, **108**(50), 20260–20264, doi:[10.1073/pnas.1116437108](https://doi.org/10.1073/pnas.1116437108).
- Timilsina, G.R., J.C. Beghin, D. van der Mensbrugghe, and S. Mevel, 2012: The impacts of biofuels targets on land-use change and food supply: A global CGE assessment. *Agricultural Economics*, **43**(3), 315–332, doi:[10.1111/j.1574-0862.2012.00585.x](https://doi.org/10.1111/j.1574-0862.2012.00585.x).
- Tokimatsu, K., R. Yasuoka, and M. Nishio, 2017: Global zero emissions scenarios: The role of biomass energy with carbon capture and storage by forested land use. *Applied Energy*, **185**, 1899–1906, doi:[10.1016/j.apenergy.2015.11.077](https://doi.org/10.1016/j.apenergy.2015.11.077).
- Toloo, G., G. FitzGerald, P. Aitken, K. Verrall, and S. Tong, 2013: Are heat warning systems effective? *Environmental Health*, **12**(1), 27, doi:[10.1186/1476-069x-12-27](https://doi.org/10.1186/1476-069x-12-27).
- Toovey, N. and N. Malin, 2016: *Solar Rates business case Phase 2 – Final Business Case Report*. Urban Elements & Practices Pty Ltd on behalf of the Eastern Alliance for Greenhouse Action (EAGA), Clifton Hill, Australia, 56 pp.
- Torres, A.B., R. Marchant, J.C. Lovett, J.C.R. Smart, and R. Tipper, 2010: Analysis of the carbon sequestration costs of afforestation and reforestation agroforestry practices and the use of cost curves to evaluate their potential for implementation of climate change mitigation. *Ecological Economics*, **69**(3), 469–477, doi:[10.1016/j.ecolecon.2009.09.007](https://doi.org/10.1016/j.ecolecon.2009.09.007).
- Torsson, P. et al., 2016: Effects of climate change and management on net climate impacts of production and utilization of energy biomass in Norway spruce with stable age-class distribution. *GCB Bioenergy*, **8**(2), 419–427, doi:[10.1111/gcbb.12258](https://doi.org/10.1111/gcbb.12258).
- Tosa, H., 2015: The failed risk governance – reflections on the boundary between misfortune and injustice in the case of the Fukushima Daiichi Nuclear Disaster. *ProtoSociology – An International Journal of Interdisciplinary Research*, **32**, 125–149.
- Townsend, P.V. et al., 2012: Multiple environmental services as an opportunity for watershed restoration. *Forest Policy and Economics*, **17**, 45–58, doi:[10.1016/j.forpol.2011.06.008](https://doi.org/10.1016/j.forpol.2011.06.008).
- Trenberth, K.E., M. Marquis, and S. Zebiak, 2016: The vital need for a climate information system. *Nature Climate Change*, **6**(12), 1057–1059, doi:[10.1038/nclimate3170](https://doi.org/10.1038/nclimate3170).
- Trevisan, A.C.D., A.L. Schmitt-Filho, J. Farley, A.C. Fantini, and C. Longo, 2016: Farmer perceptions, policy and reforestation in Santa Catarina, Brazil. *Ecological Economics*, **130**, 53–63, doi:[10.1016/j.ecolecon.2016.06.024](https://doi.org/10.1016/j.ecolecon.2016.06.024).
- Triberti, L., A. Nastro, and G. Baldoni, 2016: Long-term effects of crop rotation, manure and mineral fertilisation on carbon sequestration and soil fertility. *European Journal of Agronomy*, **74**, 47–55, doi:[10.1016/j.eja.2015.11.024](https://doi.org/10.1016/j.eja.2015.11.024).
- Triviño, M., H. Kujala, M.B. Araújo, and M. Cabeza, 2018: Planning for the future: identifying conservation priority areas for Iberian birds under climate change. *Landscape Ecology*, **33**(4), 659–673, doi:[10.1007/s10980-018-0626-z](https://doi.org/10.1007/s10980-018-0626-z).
- Trubka, R., P. Newman, and D. Bilsborough, 2010: Costs of Urban Sprawl – Infrastructure and Transport. *Environment Design Guide*, **83**, 1–6, www.jstor.org/stable/26150800.
- Tschakert, P. et al., 2014: Learning and Envisioning under Climatic Uncertainty: An African Experience. *Environment and Planning A: Economy and Space*, **46**(5), 1049–1068, doi:[10.1068/a46257](https://doi.org/10.1068/a46257).

- Tschakert, P. et al., 2017: Climate change and loss, as if people mattered: values, places, and experiences. *Wiley Interdisciplinary Reviews: Climate Change*, **8**(5), e476, doi:[10.1002/wcc.476](https://doi.org/10.1002/wcc.476).
- Tschirley, D.L. et al., 2015: Africa's unfolding diet transformation: implications for agrifood system employment. *Journal of Agribusiness in Developing and Emerging Economies*, **5**(2), 102–136, doi:[10.1108/jadee-01-2015-0003](https://doi.org/10.1108/jadee-01-2015-0003).
- Tsujikawa, N., S. Tsuchida, and T. Shiotani, 2016: Changes in the Factors Influencing Public Acceptance of Nuclear Power Generation in Japan Since the 2011 Fukushima Daiichi Nuclear Disaster. *Risk Analysis*, **36**(1), 98–113, doi:[10.1111/risa.12447](https://doi.org/10.1111/risa.12447).
- Tsumune, D., T. Tsubono, M. Aoyama, and K. Hirose, 2012: Distribution of oceanic ¹³⁷Cs from the Fukushima Dai-ichi Nuclear Power Plant simulated numerically by a regional ocean model. *Journal of Environmental Radioactivity*, **111**, 100–108, doi:[10.1016/j.jenvrad.2011.10.007](https://doi.org/10.1016/j.jenvrad.2011.10.007).
- Turner, W.R., M. Oppenheimer, and D.S. Wilcove, 2009: A force to fight global warming. *Nature*, **462**(7271), 278–279, doi:[10.1038/462278a](https://doi.org/10.1038/462278a).
- Turnhout, E. et al., 2017: Envisioning REDD+ in a post-Paris era: between evolving expectations and current practice. *Wiley Interdisciplinary Reviews: Climate Change*, **8**(1), e425, doi:[10.1002/wcc.425](https://doi.org/10.1002/wcc.425).
- Ueda, S. et al., 2013: Fluvial discharges of radiocaesium from watersheds contaminated by the Fukushima Dai-ichi Nuclear Power Plant accident, Japan. *Journal of Environmental Radioactivity*, **118**, 96–104, doi:[10.1016/j.jenvrad.2012.11.009](https://doi.org/10.1016/j.jenvrad.2012.11.009).
- UNEP, 2013: Fisheries & Aquaculture. In: *Green Economy and Trade: Trends, Challenges and Opportunities*. United Nations Environment Programme, Geneva, Switzerland, pp. 89–117.
- UNEP, 2017: *The Emissions Gap Report 2017*. United Nations Environment Programme (UNEP), Nairobi, Kenya, 116 pp., doi:[978-92-807-3673-1](https://doi.org/978-92-807-3673-1).
- UNEP-WCMC, 2006: *In the front line: shoreline protection and other ecosystem services from mangroves and coral reefs*. 33 pp.
- Unruh, J.D., 2011: Tree-Based Carbon Storage in Developing Countries: Neglect of the Social Sciences. *Society & Natural Resources*, **24**(2), 185–192, doi:[10.1080/08941920903410136](https://doi.org/10.1080/08941920903410136).
- Urban, M.C. et al., 2016: Improving the forecast for biodiversity under climate change. *Science*, **353**(6304), ead8466, doi:[10.1126/science.aad8466](https://doi.org/10.1126/science.aad8466).
- Urge-Vorsatz, D., E. Wójcik-Gront, and S. Tirado Herrero, 2012: *Employment Impacts of a Large-Scale Deep Building Energy Retrofit Programme in Poland*. European Climate Foundation, Den Haag, The Netherlands, 160 pp.
- Urge-Vorsatz, D. et al., 2018: Locking in positive climate responses in cities. *Nature Climate Change*, **8**(3), 174–177, doi:[10.1038/s41558-018-0100-6](https://doi.org/10.1038/s41558-018-0100-6).
- Valdivia, C., C. Barbieri, and M.A. Gold, 2012: Between Forestry and Farming: Policy and Environmental Implications of the Barriers to Agroforestry Adoption. *Canadian Journal of Agricultural Economics/Revue canadienne d'agroeconomie*, **60**(2), 155–175, doi:[10.1111/j.1744-7976.2012.01248.x](https://doi.org/10.1111/j.1744-7976.2012.01248.x).
- van der Giesen, C. et al., 2017: A Life Cycle Assessment Case Study of Coal-Fired Electricity Generation with Humidity Swing Direct Air Capture of CO₂ versus MEA-Based Postcombustion Capture. *Environmental Science & Technology*, **51**(2), 1024–1034, doi:[10.1021/acs.est.6b05028](https://doi.org/10.1021/acs.est.6b05028).
- van der Keur, P. et al., 2016: Identification and analysis of uncertainty in disaster risk reduction and climate change adaptation in South and Southeast Asia. *International Journal of Disaster Risk Reduction*, **16**, 208–214, doi:[10.1016/j.ijdr.2016.03.002](https://doi.org/10.1016/j.ijdr.2016.03.002).
- van der Land, V. and D. Hummel, 2013: Vulnerability and the Role of Education in Environmentally Induced Migration in Mali and Senegal. *Ecology and Society*, **18**(4), 14, doi:[10.5751/es-05830-180414](https://doi.org/10.5751/es-05830-180414).
- van Kooten, G.C., 2000: Economic Dynamics of Tree Planting for Carbon Uptake on Marginal Agricultural Lands. *Canadian Journal of Agricultural Economics/Revue canadienne d'agroeconomie*, **48**(1), 51–65, doi:[10.1111/j.1744-7976.2000.tb00265.x](https://doi.org/10.1111/j.1744-7976.2000.tb00265.x).
- van Kooten, G.C., L.M. Arthur, and W.R. Wilson, 1992: Potential to Sequester Carbon in Canadian Forests: Some Economic Considerations. *Canadian Public Policy / Analyse de Politiques*, **18**(2), 127–138, doi:[10.2307/3551419](https://doi.org/10.2307/3551419).
- van Kooten, G.C., E. Krcmar-Nozic, B. Stennes, and R. van Gorkom, 1999: Economics of fossil fuel substitution and wood product sinks when trees are planted to sequester carbon on agricultural lands in western Canada. *Canadian Journal of Forest Research*, **29**(11), 1669–1678, doi:[10.1139/x99-145](https://doi.org/10.1139/x99-145).
- van Loenhout, A.J., M.J. Rodriguez-Llanes, and D. Guha-Sapir, 2016: Stakeholders' Perception on National Heatwave Plans and Their Local Implementation in Belgium and The Netherlands. *International Journal of Environmental Research and Public Health*, **13**(11), 1120, doi:[10.3390/ijerph13111120](https://doi.org/10.3390/ijerph13111120).
- van Minnen, J.G., B.J. Strengers, B. Eickhout, R.J. Swart, and R. Leemans, 2008: Quantifying the effectiveness of climate change mitigation through forest plantations and carbon sequestration with an integrated land-use model. *Carbon Balance and Management*, **3**, 3, doi:[10.1186/1750-0680-3-3](https://doi.org/10.1186/1750-0680-3-3).
- van Noordwijk, M., Y.-S. Kim, B. Leimona, K. Hairiah, and L.A. Fisher, 2016: Metrics of water security, adaptive capacity, and agroforestry in Indonesia. *Current Opinion in Environmental Sustainability*, **21**, 1–8, doi:[10.1016/j.cosust.2016.10.004](https://doi.org/10.1016/j.cosust.2016.10.004).
- Van Straaten, P., 2006: Farming with rocks and minerals: challenges and opportunities. *Anais da Academia Brasileira de Ciências*, **78**(4), 731–747, doi:[10.1590/s0001-37652006000400009](https://doi.org/10.1590/s0001-37652006000400009).
- van Vliet, M.T.H., D. Wiberg, S. Leduc, and K. Riahi, 2016: Power-generation system vulnerability and adaptation to changes in climate and water resources. *Nature Climate Change*, **6**(4), 375–380, doi:[10.1038/nclimate2903](https://doi.org/10.1038/nclimate2903).
- van Vliet, O.P.R., A.P.C. Faaij, and C. Dieperink, 2003: Forestry Projects under the Clean Development Mechanism? *Climatic Change*, **61**(1/2), 123–156, doi:[10.1023/a:1026370624352](https://doi.org/10.1023/a:1026370624352).
- van Vuuren, D.P., J. van Vliet, and E. Stehfest, 2009: Future bio-energy potential under various natural constraints. *Energy Policy*, **37**(11), 4220–4230, doi:[10.1016/j.enpol.2009.05.029](https://doi.org/10.1016/j.enpol.2009.05.029).
- Varela-Ortega, C. et al., 2016: How can irrigated agriculture adapt to climate change? Insights from the Guadiana Basin in Spain. *Regional Environmental Change*, **16**(1), 59–70, doi:[10.1007/s10113-014-0720-y](https://doi.org/10.1007/s10113-014-0720-y).
- Vaughan, C. and S. Dessai, 2014: Climate services for society: Origins, institutional arrangements, and design elements for an evaluation framework. *Wiley Interdisciplinary Reviews: Climate Change*, **5**(5), 587–603, doi:[10.1002/wcc.290](https://doi.org/10.1002/wcc.290).
- Vaughan, C., S. Dessai, and C. Hewitt, 2018: Surveying Climate Services: What Can We Learn from a Bird's-Eye View? *Weather, Climate, and Society*, **10**(2), 373–395, doi:[10.1175/wcas-d-17-0030.1](https://doi.org/10.1175/wcas-d-17-0030.1).
- Vaughan, C., L. Buija, A. Kruczkiewicz, and L. Goddard, 2016: Identifying research priorities to advance climate services. *Climate Services*, **4**, 65–74, doi:[10.1016/j.ciser.2016.11.004](https://doi.org/10.1016/j.ciser.2016.11.004).
- Vaughan, N.E. and C. Gough, 2016: Expert assessment concludes negative emissions scenarios may not deliver. *Environmental Research Letters*, **11**(9), 095003, doi:[10.1088/1748-9326/11/9/095003](https://doi.org/10.1088/1748-9326/11/9/095003).
- Vaughan, N.E. et al., 2018: Evaluating the use of biomass energy with carbon capture and storage in low emission scenarios. *Environmental Research Letters*, **13**(4), 044014, doi:[10.1088/1748-9326/aaaa02](https://doi.org/10.1088/1748-9326/aaaa02).
- Veldman, J.W. et al., 2015: Where Tree Planting and Forest Expansion are Bad for Biodiversity and Ecosystem Services. *BioScience*, **65**(10), 1011–1018, doi:[10.1093/biosci/biv118](https://doi.org/10.1093/biosci/biv118).
- Venot, J.-P. et al., 2014: Beyond the promises of technology: a review of the discourses and actors who make drip irrigation. *Irrigation and Drainage*, **63**(2), 186–194, doi:[10.1002/ird.1839](https://doi.org/10.1002/ird.1839).
- Venter, M., O. Venter, S. Laurance, and M. Bird, 2012: Recarbonization of the Humid Tropics. In: *Recarbonization of the Biosphere: Ecosystems and the Global Carbon Cycle* [Lal, R., K. Lorenz, R.F. Hüttl, B.U. Schneider, and J. von Braun (eds.)]. Springer Netherlands, Dordrecht, pp. 229–252, doi:[10.1007/978-94-007-4159-1_11](https://doi.org/10.1007/978-94-007-4159-1_11).
- Verchot, L.V. et al., 2007: Climate change: Linking adaptation and mitigation through agroforestry. *Mitigation and Adaptation Strategies for Global Change*, **12**(5), 901–918, doi:[10.1007/s11027-007-9105-6](https://doi.org/10.1007/s11027-007-9105-6).
- Verguet, S. et al., 2015: Health gains and financial risk protection afforded by public financing of selected interventions in Ethiopia: an extended cost-effectiveness analysis. *The Lancet Global Health*, **3**(5), 288–296, doi:[10.1016/s2214-109x\(14\)70346-8](https://doi.org/10.1016/s2214-109x(14)70346-8).
- Vesnic-Alujevic, L., M. Breitegger, and G. Pereira, 2016: What smart grids tell about innovation narratives in the European Union: Hopes, imaginaries and policy. *Energy Research & Social Science*, **12**, 16–26, doi:[10.1016/j.erss.2015.11.011](https://doi.org/10.1016/j.erss.2015.11.011).
- Vierros, M., 2017: Communities and blue carbon: the role of traditional management systems in providing benefits for carbon storage, biodiversity conservation and livelihoods. *Climatic Change*, **140**(1), 89–100, doi:[10.1007/s10584-013-0920-3](https://doi.org/10.1007/s10584-013-0920-3).
- Viger, M., R.D. Hancock, F. Miglietta, and G. Taylor, 2015: More plant growth but less plant defence? First global gene expression data for plants grown in soil amended with biochar. *GCB Bioenergy*, **7**(4), 658–672, doi:[10.1111/gcbb.12182](https://doi.org/10.1111/gcbb.12182).
- Villarroel Walker, R., M.B. Beck, J.W. Hall, R.J. Dawson, and O. Heidrich, 2014: The energy-water-food nexus: Strategic analysis of technologies for transforming the urban metabolism. *Journal of Environmental Management*, **141**, 104–115, doi:[10.1016/j.jenvman.2014.01.054](https://doi.org/10.1016/j.jenvman.2014.01.054).
- Vimmerstedt, L.J., B.W. Bush, D.D. Hsu, D. Inman, and S.O. Peterson, 2015: Maturation of biomass-to-biofuels conversion technology pathways for rapid expansion of biofuels production: A system dynamics perspective. *Biofuels, Bioproducts and Biorefining*, **9**(2), 158–176, doi:[10.1002/bbb.1515](https://doi.org/10.1002/bbb.1515).
- Vincent, K., A.J. Dougill, J.L. Dixon, L.C. Stringer, and T. Cull, 2015: Identifying climate services needs for national planning: insights from Malawi. *Climate Policy*, **30**(2), 1–14, doi:[10.1080/14693062.2015.1075374](https://doi.org/10.1080/14693062.2015.1075374).
- Vincent, S., M. Radhakrishnan, L. Hayde, and A. Pathirana, 2017: Enhancing the Economic Value of Large Investments in Sustainable Drainage Systems (SuDS) through Inclusion of Ecosystems Services Benefits. *Water*, **9**(11), 841, doi:[10.3390/w9110841](https://doi.org/10.3390/w9110841).
- Vinke-de Kruijf, J. and C. Pahl-Wostl, 2016: A multi-level perspective on learning about climate change adaptation through international cooperation. *Environmental Science & Policy*, **66**, 242–249, doi:[10.1016/j.envsci.2016.07.004](https://doi.org/10.1016/j.envsci.2016.07.004).

- Virkkala, R., J. Pöyry, R.K. Heikkinen, A. Lehtinen, and J. Valkama, 2014: Protected areas alleviate climate change effects on northern bird species of conservation concern. *Ecology and Evolution*, **4**(15), 2991–3003, doi:10.1002/ece3.1162.
- Vivoda, V. and G. Graetz, 2015: Nuclear Policy and Regulation in Japan after Fukushima: Navigating the Crisis. *Journal of Contemporary Asia*, **45**(3), 490–509, doi:10.1080/00472336.2014.981283.
- Vochozka, M., A. Maroušková, J. Váchal, and J. Straková, 2016: The economic impact of biochar use in Central Europe. *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, **38**(16), 2390–2396, doi:10.1080/15567036.2015.1072600.
- Voormolen, J.A., H.M. Junginger, and W.G.J.H.M. van Sark, 2016: Unravelling historical cost developments of offshore wind energy in Europe. *Energy Policy*, **88**(88), 435–444, doi:10.1016/j.enpol.2015.10.047.
- Voskamp, I.M. and F.H.M. Van de Ven, 2015: Planning support system for climate adaptation: Composing effective sets of blue-green measures to reduce urban vulnerability to extreme weather events. *Building and Environment*, **83**, 159–167, doi:10.1016/j.buildenv.2014.07.018.
- Vousdoukas, M.I., E. Voukouvalas, A. Annunziato, A. Giardino, and L. Feyen, 2016: Projections of extreme storm surge levels along Europe. *Climate Dynamics*, **47**(9), 3171–3190, doi:10.1007/s00382-016-3019-5.
- Wakabayashi, M., 2013: Voluntary business activities to mitigate climate change: Case studies in Japan. *Energy Policy*, **63**, 1086–1090, doi:10.1016/j.enpol.2013.08.027.
- Waldron, A. et al., 2017: Agroforestry Can Enhance Food Security While Meeting Other Sustainable Development Goals. *Tropical Conservation Science*, **10**, 1940082917720667, doi:10.1177/1940082917720667.
- Walker, M.E., Z. Lv, and E. Masanet, 2013: Industrial steam systems and the energy-water nexus. *Environmental Science & Technology*, **47**(22), 13060–13067, doi:10.1021/es403715z.
- Wallace, B., 2017: A framework for adapting to climate change risk in coastal cities. *Environmental Hazards*, **16**(2), 149–164, doi:10.1080/17477891.2017.1298511.
- Wallbott, L., 2014: Indigenous Peoples in UN REDD+ Negotiations: "Importing Power" and Lobbying for Rights through Discursive Interplay Management. *Ecology and Society*, **19**(1), 21, doi:10.5751/es-06111-190121.
- Wallquist, L., S.L.O. Seigo, V.H.M. Visschers, and M. Siegrist, 2012: Public acceptance of CCS system elements: A conjoint measurement. *International Journal of Greenhouse Gas Control*, **6**, 77–83, doi:10.1016/j.ijggc.2011.11.008.
- Wamsler, C., E. Brink, and O. Rantala, 2012: Climate Change, Adaptation, and Formal Education: the Role of Schooling for Increasing Societies' Adaptive Capacities in El Salvador and Brazil. *Ecology and Society*, **17**(2), 2, doi:10.5751/es-04645-170202.
- Wang, C., X. Zheng, W. Cai, X. Gao, and P. Berrill, 2017: Unexpected water impacts of energy-saving measures in the iron and steel sector: Tradeoffs or synergies? *Applied Energy*, **205**, 1119–1127, doi:10.1016/j.apenergy.2017.08.125.
- Wang, F.M. et al., 2018: Assessing Stakeholder Needs for Adaptation Tracking. In: *Adaptation metrics: perspectives on measuring, aggregating and comparing adaptation results* [Christiansen, L., G. Martinez, and P. Naswa (eds.)]. UNEP DTU Partnership, Copenhagen, Denmark, pp. 49–62.
- Wang, J., J. O'Donnell, and A.R. Brandt, 2017: Potential solar energy use in the global petroleum sector. *Energy*, **118**, 884–892, doi:10.1016/j.energy.2016.10.107.
- Wang, X. et al., 2016: Taking account of governance: Implications for land-use dynamics, food prices, and trade patterns. *Ecological Economics*, **122**, 12–24, doi:10.1016/j.ecolecon.2015.11.018.
- Wang, X.J. et al., 2011: A strategy to deal with water crisis under climate change for mainstream in the middle reaches of Yellow River. *Mitigation and Adaptation Strategies for Global Change*, **16**(5), 555–566, doi:10.1007/s11027-010-9279-1.
- Wang, Y., X. Yan, and Z. Wang, 2014: The biogeophysical effects of extreme afforestation in modeling future climate. *Theoretical and Applied Climatology*, **118**(3), 511–521, doi:10.1007/s00704-013-1085-8.
- Watanabe, T., A.C. Byers, M.A. Somos-Valenzuela, and D.C. McKinney, 2016: The Need for Community Involvement in Glacial Lake Field Research: The Case of Imja Glacial Lake, Khumbu, Nepal Himalaya. In: *Climate Change, Glacier Response, and Vegetation Dynamics in the Himalaya: Contributions Toward Future Earth Initiatives* [Singh, R.B., U. Schickhoff, and S. Mal (eds.)]. Springer International Publishing, Cham, Switzerland, pp. 235–250, doi:10.1007/978-3-319-28977-9_13.
- Watkins, K., 2015: *Power, People, Planet: Seizing Africa's Energy and Climate Opportunities*. Africa Progress Report 2015. Africa Progress Panel, Geneva, Switzerland, 179 pp.
- Watts, N. et al., 2015: Health and climate change: Policy responses to protect public health. *The Lancet*, **386**(10006), 1861–1914, doi:10.1016/s0140-6736(15)60854-6.
- Weatherdon, L., A.K. Magnan, A.D. Rogers, U.R. Sumaila, and W.W.L. Cheung, 2016: Observed and Projected Impacts of Climate Change on Marine Fisheries, Aquaculture, Coastal Tourism, and Human Health: An Update. *Frontiers in Marine Science*, **3**, 48, doi:10.3389/fmars.2016.00048.
- Webber, S., 2017: Circulating climate services: Commercializing science for climate change adaptation in Pacific Islands. *Geoforum*, **85**, 82–91, doi:10.1016/j.geoforum.2017.07.009.
- Webber, S. and S.D. Donner, 2017: Climate service warnings: cautions about commercializing climate science for adaptation in the developing world. *Wiley Interdisciplinary Reviews: Climate Change*, **8**(1), e424, doi:10.1002/wcc.424.
- Webster, A.J. and R.H. Clarke, 2017: Insurance companies should collect a carbon levy. *Nature*, **549**(7671), 152–154, doi:10.1038/549152a.
- WEC, 2016: *World Energy Resources 2016: Wind*. World Energy Council (WEC), London, UK, 69 pp.
- Wee, B., 2015: Peak car: The first signs of a shift towards ICT-based activities replacing travel? A discussion paper. *Transport Policy*, **42**, 1–3, doi:10.1016/j.tranpol.2015.04.002.
- Wehkamp, J., N. Koch, S. Lübbes, and S. Fuss, 2018a: Governance and deforestation – a meta-analysis in economics. *Ecological Economics*, **144**, 214–227, doi:10.1016/j.ecolecon.2017.07.030.
- Wehkamp, J. et al., 2018b: Accounting for institutional quality in global forest modeling. *Environmental Modelling & Software*, **102**, 250–259, doi:10.1016/j.envsoft.2018.01.020.
- Wei, M., S. Patadia, and D.M. Kammen, 2010: Putting renewables and energy efficiency to work: How many jobs can the clean energy industry generate in the US? *Energy Policy*, **38**(2), 919–931, doi:10.1016/j.enpol.2009.10.044.
- Wei, Y., D. Tang, Y. Ding, and G. Agoramoorthy, 2016: Incorporating water consumption into crop water footprint: A case study of China's South-North Water Diversion Project. *Science of The Total Environment*, **545–546**, 601–608, doi:10.1016/j.scitotenv.2015.12.062.
- Weindl, I. et al., 2015: Livestock in a changing climate: production system transitions as an adaptation strategy for agriculture. *Environmental Research Letters*, **10**(9), 094021, doi:10.1088/1748-9326/10/9/094021.
- Weinhofer, G. and T. Busch, 2013: Corporate Strategies for Managing Climate Risks. *Business Strategy and the Environment*, **22**(2), 121–144, doi:10.1002/bse.1744.
- Weisse, R. et al., 2015: Climate services for marine applications in Europe. *Earth Perspectives*, **2**(1), 3, doi:10.1186/s40322-015-0029-0.
- Weldegebriel, Z.B. and M. Prowse, 2013: Climate-Change Adaptation in Ethiopia: To What Extent Does Social Protection Influence Livelihood Diversification? *Development Policy Review*, **31**, o35–o56, doi:10.1111/dpr.12038.
- Weldu, Y.W., G. Assefa, and O. Jolliet, 2017: Life cycle human health and ecotoxicological impacts assessment of electricity production from wood biomass compared to coal fuel. *Applied Energy*, **187**, 564–574, doi:10.1016/j.apenergy.2016.11.101.
- Well, M. and A. Carrapatoso, 2017: REDD+ finance: policy making in the context of fragmented institutions. *Climate Policy*, **17**(6), 687–707, doi:10.1080/14693062.2016.1202096.
- Wellesley, L., C. Happer, and A. Froggatt, 2015: *Changing Climate, Changing Diets Pathways to Lower Meat Consumption*. Chatham House: The Royal Institute of International Affairs, 64 pp.
- Wells, L., B. Rismanchi, and L. Aye, 2018: A review of Net Zero Energy Buildings with reflections on the Australian context. *Energy and Buildings*, **158**, 616–628, doi:10.1016/j.enbuild.2017.10.055.
- Wernberg, T. et al., 2016: Climate-driven regime shift of a temperate marine ecosystem. *Science*, **353**(6295), 169–172, doi:10.1126/science.aad8745.
- Wesseling, J.H. et al., 2017: The transition of energy intensive processing industries towards deep decarbonization: Characteristics and implications for future research. *Renewable and Sustainable Energy Reviews*, **79**, 1303–1313, doi:10.1016/j.rser.2017.05.156.
- West, P.C. et al., 2014: Leverage points for improving global food security and the environment. *Science*, **345**(6194), 325–328, doi:10.1126/science.1246067.
- West, T.A.P., 2016: Indigenous community benefits from a de-centralized approach to REDD+ in Brazil. *Climate Policy*, **16**(7), 924–939, doi:10.1080/14693062.2015.1058238.
- Westengen, O.T., P. Nyanga, D. Chibamba, M. Guillen-Royo, and D. Banik, 2018: A climate for commerce: the political agronomy of conservation agriculture in Zambia. *Agriculture and Human Values*, **35**(1), 255–268, doi:10.1007/s10460-017-9820-x.
- Westhoek, H. et al., 2014: Food choices, health and environment: Effects of cutting Europe's meat and dairy intake. *Global Environmental Change*, **26**(1), 196–205, doi:10.1016/j.gloenvcha.2014.02.004.
- Wheatley, S., B.K. Sovacool, and D. Sornette, 2016: Reassessing the safety of nuclear power. *Energy Research & Social Science*, **15**, 96–100, doi:10.1016/j.erss.2015.12.026.
- White, C.J. et al., 2017: Potential applications of subseasonal-to-seasonal (S2S) predictions. *Meteorological Applications*, **24**(3), 315–325, doi:10.1002/met.1654.
- White, R., J. Turpie, and G.L. Letley, 2017: *Greening Africa's Cities: Enhancing the Relationship between Urbanization, Environmental Assets, and Ecosystem Services*. 56 pp.

- Whitelegg, J., 2016: World transport Policy and Practice Special Edition: Outputs from EU Evidence Project. *World transport Policy and Practice*, 22.1/2, 226.
- Whitman, T. and J. Lehmann, 2009: Biochar-One way forward for soil carbon in offset mechanisms in Africa? *Environmental Science & Policy*, 12(7), 1024–1027, doi:10.1016/j.envsci.2009.07.013.
- WHO, 2011: *Preliminary dose estimation from the nuclear accident after the 2011 Great East Japan Earthquake and Tsunami*. World Health Organization (WHO), Geneva, Switzerland, 52 pp.
- WHO, 2015: *Lessons learned on health adaptation to climate variability and change: experiences across low- and middle-income countries*. World Health Organization (WHO), Geneva, Switzerland, 72 pp.
- Wicke, B., E. Smeets, A. Tabeau, J. Hilbert, and A. Faaij, 2009: Macroeconomic impacts of bioenergy production on surplus agricultural land-A case study of Argentina. *Renewable and Sustainable Energy Reviews*, 13(9), 2463–2473, doi:10.1016/j.rser.2009.05.010.
- Wijaya, S., M. Imran, and J. McNeill, 2017: Multi-level policy tensions in Bus Rapid Transit (BRT) development in low-income Asian cities. *Transportation Research Procedia*, 25, 5104–5120, doi:10.1016/j.trpro.2018.02.040.
- Wiktorowicz, J. et al., 2018: WGV: An Australian Urban Precinct Case Study to Demonstrate the 1.5°C Agenda Including Multiple SDGs. *Urban Planning*, 3(2), 64–81, doi:10.17645/up.v3i2.1245.
- Wilhite, D.A., M.V.K. Sivakumar, and R. Pulwarty, 2014: Managing drought risk in a changing climate: The role of national drought policy. *Weather and Climate Extremes*, 3, 4–13, doi:10.1016/j.wace.2014.01.002.
- Wilkinson, E., L. Schipper, C. Simonet, and Z. Kubik, 2016: *Climate change, migration and the 2030 Agenda for Sustainable Development*. Overseas Development Institute (ODI), London, UK, 15 pp.
- Williams, A.T., N. Rangel-Buitrago, E. Pranzini, and G. Anfuso, 2018: The management of coastal erosion. *Ocean & Coastal Management*, 156, 4–20, doi:10.1016/j.ocecoaman.2017.03.022.
- Williams, P. et al., 2017: Community-based observing networks and systems in the Arctic: Human perceptions of environmental change and instrument-derived data. *Regional Environmental Change*, 18(2), 547–559, doi:10.1007/s10113-017-1220-7.
- Williamson, P., 2016: Emissions reduction: Scrutinize CO₂ removal methods. *Nature*, 530(153), 5–7, doi:10.1038/530153a.
- Wilmsen, B. and M. Webber, 2015: What can we learn from the practice of development-forced displacement and resettlement for organised resettlements in response to climate change? *Geoforum*, 58, 76–85, doi:10.1016/j.geoforum.2014.10.016.
- Wilson, S.A. et al., 2009: Carbon Dioxide Fixation within Mine Wastes of Ultramafic-Hosted Ore Deposits: Examples from the Clinton Creek and Cassiar Chrysotile Deposits, Canada. *Economic Geology*, 104(1), 95–112, doi:10.2113/gsecongeo.104.1.95.
- Win, K.T. et al., 2015: Effects of water saving irrigation and rice variety on greenhouse gas emissions and water use efficiency in a paddy field fertilized with anaerobically digested pig slurry. *Paddy and Water Environment*, 13(1), 51–60, doi:10.1007/s10333-013-0406-y.
- Winjum, J.K., R.K. Dixon, and P.E. Schroeder, 1992: Estimating the global potential of forest and agroforest management practices to sequester carbon. *Water, Air, and Soil Pollution*, 64(1–2), 213–227, doi:10.1007/bf00477103.
- Winjum, J.K., R.K. Dixon, and P.E. Schroeder, 1993: Forest management and carbon storage: An analysis of 12 key forest nations. *Water, Air, and Soil Pollution*, 70(1), 239–257, doi:10.1007/bf01105000.
- Winsten, J., S. Walker, S. Brown, and S. Grimland, 2011: Estimating carbon supply curves from afforestation of agricultural land in the Northeastern U.S. *Mitigation and Adaptation Strategies for Global Change*, 16(8), 925–942, doi:10.1007/s11027-011-9303-0.
- Winward, J., P. Schiellerup, and B. Boardman, 1998: *Cool Labels: the first three years of the European Energy Label*. Environmental Change Unit, University of Oxford, Oxford, UK, 141 pp.
- Wirasingha, S.G., N. Schofield, and A. Emadi, 2008: Plug-in hybrid electric vehicle developments in the US: Trends, barriers, and economic feasibility. In: *2008 IEEE Vehicle Power and Propulsion Conference*. pp. 1–8, doi:10.1109/vppc.2008.4677702.
- Wise, R.M. et al., 2014: Reconceptualising adaptation to climate change as part of pathways of change and response. *Global Environmental Change*, 28, 325–336, doi:10.1016/j.gloenvcha.2013.12.002.
- WMO, 2015: *Valuing Weather and Climate: Economic Assessment of Meteorological and Hydrological Services*. WMO-No. 1153, World Meteorological Organization (WMO), Geneva, Switzerland, 308 pp.
- Wolfrom, L. and M. Yokoi-Arai, 2015: Financial instruments for managing disaster risks related to climate change. *OECD Journal: Financial Market Trends*, 2015(1), 25–47, doi:10.1787/fmt-2015-5jrtdkpxk5d5.
- Wolshon, B., V. Dixit, and J. Renne, 2013: Special Issue on Interdisciplinary and Multimodal Nature of Evacuations: Nexus of Research and Practice. *Natural Hazards Review*, 14(3), 149–150, doi:10.1061/(asce)nh.1527-6996.0000115.
- Wood, S.A., A.S. Jina, M. Jain, P. Kristjansson, and R.S. DeFries, 2014: Smallholder farmer cropping decisions related to climate variability across multiple regions. *Global Environmental Change*, 25, 163–172, doi:10.1016/j.gloenvcha.2013.12.011.
- Woodcock, J. et al., 2009: Public health benefits of strategies to reduce greenhouse-gas emissions: urban land transport. *The Lancet*, 374(9705), 1930–1943, doi:10.1016/s0140-6736(09)61714-1.
- Woodruff, S.C. and M. Stults, 2016: Numerous strategies but limited implementation guidance in US local adaptation plans. *Nature Climate Change*, 6(8), 796–802, doi:10.1038/nclimate3012.
- Woolf, D., D. Solomon, and J. Lehmann, 2018: Land restoration in food security programmes: synergies with climate change mitigation. *Climate Policy*, 1–11, doi:10.1080/14693062.2018.1427537.
- Woolf, D., J.E. Amonette, A. Street-Perrott, J. Lehmann, and S. Joseph, 2010: Sustainable bio-char to mitigate global climate change. *Nature Communications*, 1, 56, doi:10.1038/ncomms1053.
- World Bank, 2017: *Pacific Possible: Long-term Economic Opportunities and Challenges for Pacific Island Countries*. World Bank Group, Washington DC, USA, 158 pp.
- Worrell, E., L. Bernstein, J. Roy, L. Price, and J. Harnisch, 2008: Industrial energy efficiency and climate change mitigation. *Energy Efficiency*, 2(2), 109, doi:10.1007/s12053-008-9032-8.
- Wright, H. et al., 2014: Farmers, food and climate change: ensuring community-based adaptation is mainstreamed into agricultural programmes. *Climate and Development*, 6(4), 318–328, doi:10.1080/17565529.2014.965654.
- Wright, M.J., D.A.H. Teagle, and P.M. Feetham, 2014: A quantitative evaluation of the public response to climate engineering. *Nature Climate Change*, 4(2), 106–110, doi:10.1038/nclimate2087.
- Wu, Y., 2017: Public acceptance of constructing coastal/inland nuclear power plants in post-Fukushima China. *Energy Policy*, 101, 484–491, doi:10.1016/j.enpol.2016.11.008.
- Wylie, L., A.E. Sutton-Grier, and A. Moore, 2016: Keys to successful blue carbon projects: Lessons learned from global case studies. *Marine Policy*, 65, 76–84, doi:10.1016/j.marpol.2015.12.020.
- Xiao, J., W. Fan, Y. Deng, S. Li, and P. Yan, 2016: Nurses' knowledge and attitudes regarding potential impacts of climate change on public health in central of China. *International Journal of Nursing Sciences*, 3(2), 158–161, doi:10.1016/j.ijnss.2016.04.002.
- Xie, J. et al., 2017: An integrated assessment of urban flooding mitigation strategies for robust decision making. *Environmental Modelling & Software*, 95, 143–155, doi:10.1016/j.envsoft.2017.06.027.
- Xiong, Y., U. Krogmann, G. Mainelis, L.A. Rodenburg, and C.J. Andrews, 2015: Indoor air quality in green buildings: A case-study in a residential high-rise building in the northeastern United States. *Journal of Environmental Science and Health, Part A*, 50(3), 225–242, doi:10.1080/10934529.2015.981101.
- Xue, X. et al., 2015: Critical insights for a sustainability framework to address integrated community water services: Technical metrics and approaches. *Water Research*, 77, 155–169, doi:10.1016/j.watres.2015.03.017.
- Yamamoto, H., J. Fujino, and K. Yamaji, 2001: Evaluation of bioenergy potential with a multi-regional global-land-use-and-energy model. *Biomass and Bioenergy*, 21(3), 185–203, doi:10.1016/s0961-9534(01)00025-3.
- Yamamoto, L., D.A. Serraglio, and F.S. Cavedon-Capdeville, 2017: Human mobility in the context of climate change and disasters: a South American approach. *International Journal of Climate Change Strategies and Management*, 10(1), 65–85, doi:10.1108/ijccsm-03-2017-0069.
- Yang, Y.C.E., S. Wi, P.A. Ray, C.M. Brown, and A.F. Khalil, 2016: The future nexus of the Brahmaputra River Basin: Climate, water, energy and food trajectories. *Global Environmental Change*, 37, 16–30, doi:10.1016/j.gloenvcha.2016.01.002.
- Yangka, D. and P. Newman, 2018: Bhutan: Can the 1.5°C Agenda Be Integrated with Growth in Wealth and Happiness? *Urban Planning*, 3(2), 94–112, doi:10.17645/up.v3i2.1250.
- Ye, Y. et al., 2018: Low-Carbon Transportation Oriented Urban Spatial Structure: Theory, Model and Case Study. *Sustainability*, 10(1), 19–34, doi:10.3390/su10010019.
- Yemshanov, D., D.W. McKenney, T. Hatton, and G. Fox, 2005: Investment Attractiveness of Afforestation in Canada Inclusive of Carbon Sequestration Benefits. *Canadian Journal of Agricultural Economics/Revue canadienne d'agroeconomie*, 53(4), 307–323, doi:10.1111/j.1744-7976.2005.00021.x.
- Yu, S. et al., 2017: Improving building energy efficiency in India: State-level analysis of building energy efficiency policies. *Energy Policy*, 110, 331–341, doi:10.1016/j.enpol.2017.07.013.
- Yu, X. and P.W. Gillis, 2014: Do Hazard Mitigation and Preparedness Reduce Physical Damage to Businesses in Disasters? Critical Role of Business Disaster Planning. *Natural Hazards Review*, 15(3), 04014007, doi:10.1061/(asce)nh.1527-6996.0000137.

- Zanchi, G., N. Pena, and N. Bird, 2012: Is woody bioenergy carbon neutral? A comparative assessment of emissions from consumption of woody bioenergy and fossil fuel. *GCB Bioenergy*, **4**(6), 761–772, doi:[10.1111/j.1757-1707.2011.01149.x](https://doi.org/10.1111/j.1757-1707.2011.01149.x).
- Zeman, F.S., 2003: An investigation into the feasibility of capturing carbon dioxide directly from the atmosphere. In: *Proceedings of the 2nd Annual Conference on Carbon Sequestration*. Exchange Monitor.
- Zeman, F.S., 2014: Reducing the Cost of Ca-Based Direct Air Capture of CO₂. *Environmental Science & Technology*, **48**(19), 11730–11735, doi:[10.1021/es502887y](https://doi.org/10.1021/es502887y).
- Zha, D. and N. Ding, 2015: Threshold characteristic of energy efficiency on substitution between energy and non-energy factors. *Economic Modelling*, **46**, 180–187, doi:[10.1016/j.econmod.2014.12.021](https://doi.org/10.1016/j.econmod.2014.12.021).
- Zhang, C. and J. Yan, 2015: CDM's influence on technology transfers: A study of the implemented clean development mechanism projects in China. *Applied Energy*, **158**, 355–365, doi:[10.1016/j.apenergy.2015.06.072](https://doi.org/10.1016/j.apenergy.2015.06.072).
- Zhang, H., 2016: Towards global green shipping: the development of international regulations on reduction of GHG emissions from ships. *International Environmental Agreements: Politics, Law and Economics*, **16**(4), 561–577, doi:[10.1007/s10784-014-9270-5](https://doi.org/10.1007/s10784-014-9270-5).
- Zhang, K. et al., 2012: The role of mangroves in attenuating storm surges. *Estuarine, Coastal and Shelf Science*, **102–103**, 11–23, doi:[10.1016/j.ecss.2012.02.021](https://doi.org/10.1016/j.ecss.2012.02.021).
- Zhang, R., K. Matsushima, and K. Kobayashi, 2018: Can land use planning help mitigate transport-related carbon emissions? A case of Changzhou. *Land Use Policy*, **74**, 32–40, doi:[10.1016/j.landusepol.2017.04.025](https://doi.org/10.1016/j.landusepol.2017.04.025).
- Zhang, S., E. Worrell, and W. Crijns-Graus, 2015: Evaluating co-benefits of energy efficiency and air pollution abatement in China's cement industry. *Applied Energy*, **147**, 192–213, doi:[10.1016/j.apenergy.2015.02.081](https://doi.org/10.1016/j.apenergy.2015.02.081).
- Zhang, S., E. Worrell, W. Crijns-Graus, F. Wagner, and J. Cofala, 2014: Co-benefits of energy efficiency improvement and air pollution abatement in the Chinese iron and steel industry. *Energy*, **78**, 333–345, doi:[10.1016/j.energy.2014.10.018](https://doi.org/10.1016/j.energy.2014.10.018).
- Zhang, S., H. Ren, W. Zhou, Y. Yu, and C. Chen, 2018: Assessing air pollution abatement co-benefits of energy efficiency improvement in cement industry: A city level analysis. *Journal of Cleaner Production*, **185**, 761–771, doi:[10.1016/j.jclepro.2018.02.293](https://doi.org/10.1016/j.jclepro.2018.02.293).
- Zhang, W., H. Liu, C. Sun, T.C. Drage, and C.E. Snape, 2014: Capturing CO₂ from ambient air using a polyethyleneimine–silica adsorbent in fluidized beds. *Chemical Engineering Science*, **116**, 306–316, doi:[10.1016/j.ces.2014.05.018](https://doi.org/10.1016/j.ces.2014.05.018).
- Zhang, Y., Y. Yu, and B. Zou, 2011: Analyzing public awareness and acceptance of alternative fuel vehicles in China: The case of EV. *Energy Policy*, **39**(11), 7015–7024, doi:[10.1016/j.enpol.2011.07.055](https://doi.org/10.1016/j.enpol.2011.07.055).
- Zheng, B. and J. Xu, 2014: Carbon Capture and Storage Development Trends from a Techno-Paradigm Perspective. *Energies*, **7**(8), 5221–5250, doi:[10.3390/en7085221](https://doi.org/10.3390/en7085221).
- Zheng, Y., Z. Hu, J. Wang, and Q. Wen, 2014: IRSP (integrated resource strategic planning) with interconnected smart grids in integrating renewable energy and implementing DSM (demand side management) in China. *Energy*, **76**, 863–874, doi:[10.1016/j.energy.2014.08.087](https://doi.org/10.1016/j.energy.2014.08.087).
- Zhou, Y., M. Ma, F. Kong, K. Wang, and J. Bi, 2018: Capturing the co-benefits of energy efficiency in China – A perspective from the water-energy nexus. *Resources, Conservation and Recycling*, **132**, 93–101, doi:[10.1016/j.resconrec.2018.01.019](https://doi.org/10.1016/j.resconrec.2018.01.019).
- Ziervogel, G. and L. Joubert, 2014: New ways to deal with Cape town's flooded communities. *Water Wheel*, **13**(5), 24–25.
- Ziervogel, G., A. Cowen, and J. Ziniades, 2016a: Moving from Adaptive to Transformative Capacity: Building Foundations for Inclusive, Thriving, and Regenerative Urban Settlements. *Sustainability*, **8**(9), 955, doi:[10.3390/su8090955](https://doi.org/10.3390/su8090955).
- Ziervogel, G., J. Waddell, W. Smit, and A. Taylor, 2016b: Flooding in Cape Town's informal settlements: barriers to collaborative urban risk governance. *South African Geographical Journal*, **98**(1), 1–20, doi:[10.1080/03736245.2014.924867](https://doi.org/10.1080/03736245.2014.924867).
- Ziervogel, G. et al., 2017: Inserting rights and justice into urban resilience: a focus on everyday risk. *Environment and Urbanization*, **29**(1), 123–138, doi:[10.1177/0956247816686905](https://doi.org/10.1177/0956247816686905).
- Zimmermann, M. et al., 2012: Rapid degradation of pyrogenic carbon. *Global Change Biology*, **18**(11), 3306–3316, doi:[10.1111/j.1365-2486.2012.02796.x](https://doi.org/10.1111/j.1365-2486.2012.02796.x).
- Zinda, J.A., C.J. Trac, D. Zhai, and S. Harrell, 2017: Dual-function forests in the returning farmland to forest program and the flexibility of environmental policy in China. *Geoforum*, **78**, 119–132, doi:[10.1016/j.geoforum.2016.03.012](https://doi.org/10.1016/j.geoforum.2016.03.012).
- Zinia, N.J. and P. McShane, 2018: Ecosystem services management: An evaluation of green adaptations for urban development in Dhaka, Bangladesh. *Landscape and Urban Planning*, **173**, 23–32, doi:[10.1016/j.landurbplan.2018.01.008](https://doi.org/10.1016/j.landurbplan.2018.01.008).
- Zogg, R. et al., 2010: *Energy Savings Potential and RD&D Opportunities for Commercial Building Appliances*. Report for DOE Office of Energy Efficiency and Renewable Energy Building Technologies Program, 12 pp.
- Zomer, R.J., D.A. Bossio, R. Sommer, and L. Verchot, 2017: Global Sequestration Potential of Increased Organic Carbon in Cropland Soils. *Scientific Reports*, **7**(1), 1–8, doi:[10.1038/s41598-017-15794-8](https://doi.org/10.1038/s41598-017-15794-8).
- Zou, X., Y.-Li, Q. Gao, and Y. Wan, 2012: How water saving irrigation contributes to climate change resilience—a case study of practices in China. *Mitigation and Adaptation Strategies for Global Change*, **17**(2), 111–132, doi:[10.1007/s11027-011-9316-8](https://doi.org/10.1007/s11027-011-9316-8).
- Zubelzu, S., R. Alvarez, and A. Hernández, 2015: Methodology to calculate the carbon footprint of household land use in the urban planning stage. *Land Use Policy*, **48**, 223–235, doi:[10.1016/j.landusepol.2015.06.005](https://doi.org/10.1016/j.landusepol.2015.06.005).
- Żukiewicz-Sobczak, W. et al., 2014: Obesity and poverty paradox in developed countries. *Annals of Agricultural and Environmental Medicine*, **21**(3), 590–594, doi:[10.5604/12321966.1120608](https://doi.org/10.5604/12321966.1120608).