

# **Bridging Epistemologies and Integrating Indigenous Knowledge with Scientific Knowledge for Sustainable Development: A Case Study Among Iranian Nomads**

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## **Abstract:**

The pastoral nomads of Iran, who had been able to achieve a “sustainable balance” between their environment and their economy throughout their history, are being held responsible for the degradation of the rangelands by the experts and state officials. The government of Iran has placed considerable resources into provision of advice and services to improve the natural resource status of Iranian rangelands, yet these efforts—characterized by the process of technology transfer and top-down centralized planning—have failed to improve the livelihood among nomads and address the ecological problem.

This paper explores and compares two different epistemologies and systems of meaning among a group of nomads on the one hand, and the outsiders (officials, academics and practitioners) on the other. The paper, which based on findings of an *Action Research* project conducted by the author among nomads and officials, highlights the basic epistemological differences between the two groups, and shows that their agendas and priorities are radically different. The outcomes of action research shows that bridging these two systems of meaning through their active participation and dialogue could improve collaborative efforts to address the environmental degradation in the region. It shows how integrating different knowledge can generate a better understanding of current situation and avoid the implementation of undesirable and ineffective technologies.

## **Key Words:**

Indigenous Knowledge, Iranian Pastoral Nomads, Action Research, , Epistemology

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## **Prologue:**

The geo-climatic characteristics of Iran, make most of the country more suitable for pastoralism than crop cultivation, particularly in the Zagros and Alborz mountains of the central plateau. History of Iran illustrates that “pastoralist nomads” have been the main users of these resources, from times which probably preceded any settlement by sedentary peoples.

To have been able to sustain such a way of life over the millennia, would suggest that, at least until relatively recently, the nomadic pastoralists of Iran had been able to achieve “balance” between their environment and their economy through a long-time co-adaptation. All of this has certainly changed over recent decades with the nomads now being held responsible for very significant degradation of the rangelands over which they migrate with their livestock. Indeed the situation has degenerated to such an extent that the very lifestyle and continued nomadic existence of these transient pastoralists is considered by many to be under severe threat. Efforts to improve the natural resource status of Iranian rangelands, has traditionally been attempted through the use of technology transfer and centralized top-down planning.

A number of very significant dilemmas characterise the situation:

- (a) Nomadism is responsible for the degradation of the natural resource base, with particular respect to the very extensive areas of soils eroded through over-grazing, yet roughly one third of the total area of Iran (164 million hec) is unusable for any purpose other than pastoralism. If the nomadic way of production ceases it is difficult to conceive of other productive uses for this land in a way which will benefit the national economy.
- (b) The utilisation of the rangelands by nomadic pastoralists is characterised by low levels of productivity, yet although they represent only a small proportion of the population, even in rural areas, the nomads are the main breeders of indigenous species of livestock in Iran, providing the breeding stock for the rest of the

livestock industry in the country, including large-scale commercial livestock enterprises.

- (c) Poverty and low levels of social welfare amongst the nomadic peoples, are cause for significant concern to government agencies committed to matters of equity and social justice, yet while a large proportion of the nomadic population wish now to improve their own welfare through settlement, the government does not enthusiastically support such a strategy for a number of different reasons including those above.
- (d) There is increasing national concern about the deterioration of the diverse cultural identity and heritage of the nomads, yet equally, with their capacity for independent action, there are concerns that the nomads pose potential problems of control by the government.

The conventional strategies to development have generally failed to identify, or at least respect the complex inter-relationships that exist between all of these different factors. It is not surprising therefore, that the strategies adopted over recent years, are now not considered to have been the most appropriate. These have included attempts to achieve,

1. political control through military intervention and enforced settlement during Pahlavi period (1900-1979)
2. the protection of natural resources and improving production through natural resource re-distribution and “Transfer of Technology” model and
3. the modernisation of the social feature through introduction of social services associated with sedentarised communities. Active nomadic support for government-initiated activities has been limited, while the rate of unorganised settlement continues to increase.

Natural resource degradation seems to be the most important and growing concern, and this has not been addressed by resource redistribution, technological and conservation strategies.

The underlying theme of this paper is that the relatively limited achievements in nomadic development and natural resource conservation stem from the fact that policies are:

- based on a reductionist view point and analysis among officials, which separates theory from practice, and neglects the diversity, complexity and recursiveness of the different dimensions of nomadic life.
- developed on the basis of government perceptions of the nature of the issues confronting nomads rather than on the basis of shared concerns with the nomads themselves.

It is argued here that the current approach to development activities needs to shift from conventional empiricism, with its linear logic and power relationships, to models which endeavor to establish systemic and mutual recognition and accommodation of change among “clients” and the researcher as facilitator.

### **Research Process and Methodology:**

There were three phases of inquiry in the study, which when taken all together, represent what might be termed a “participatory action research methodologies”. The aim of first phase , was exploring the complexity and diversity among current problematic situation. The second phase of research planned to assist both nomads and different government agencies to understand each others’ perspectives and go beyond the “symptom”, to find common issues/goals. The third phase of research designed to facilitate organizational change among government agents to undertake the viewpoint of the people in the process of planning and development

#### ***Exploring complexities and Stakeholders Analysis.***

The first phase of the research comprised an ethnographic study of the Bonkoh as a “human activity system” (Checkland 1981); a group of people carrying out a certain set of functions pertinent to the research question. In this case the question involved what the nomads themselves perceived as the threats to their welfare and cohesion as a purposeful group of nomadic pastoralists.

Thus the bonkoh was considered as an appropriate level for intervention and study for these two reasons. Firstly, it is territorially identifiable and acts as a “system” for

purposes of environmental management both in summer and winter quarters. Secondly, it acts, for a number of other purposes, as a cohesive group, providing a basis for collective action, even if the higher level of tribal organisation does not function any more (Emadi, Fisher and Woog, 1992).

Critical reflections on this phase of the research from the researcher-as-participant/observer confirmed some major findings including;

- high level of complexity of the issue and current status of situation as perceived by the nomads themselves,
- the unease of the nomads and their life,
- the lack of significant hope among nomads for improvement in future,
- finally and the most important one, the lack of common understanding among nomads and the officials who are responsible for change and development among nomads.

Two different systems of meaning and conceptualizing the current situation was explored among nomads and change agents. Need for new way of understanding and a mutual recognition was recognized as the first step for any constructive change and improvement by the researcher.

***Assisting Both Nomads And Government Agencies Recognizing Each Others Perspectives and Epistemologies,***

Reflection on the outcomes of the first phase of the research, led to the submission that a more action-oriented or “development-focused” approach to the research would represent a potentially important innovation in a situation which currently seems irresolvable. In other words, the apparent irresolution of the situation that the nomads believe themselves to be in, suggested the need for an approach grounded in a context of “Research through Action for Development”.

In turning now to an action-oriented approach to research, the researcher was extremely conscious of the two quite different “traditions” which characterise it. As Brown (1983;1993) has posited, one can recognise profound differences between what he has

termed the “northern tradition” of action research (AR) - with its emphasis on organisational change through problem solving - and the “southern tradition” of participatory action research (PAR) - which has been developed in the context of the “empowerment of disempowered communities of the so-called third world. At first glance, each of these two approaches would seem to have relevance in the present context; the “northern” tradition being perfectly relevant for exploring changes in the organisation of government agencies to more closely fit the self-espoused needs of the nomads, and the “southern” tradition highly appropriate to the nomadic communities in their search for greater empowerment and their participation in the planning and decision-making processes.

In the event, the researcher chose an approach which combined both ends by adopting a more or less conventional AR approach to work with agents from relevant government departments who in turn, would be encouraged to practice a PAR approach based on the ends of encouraging much greater participation of the nomads in the quest for “improvements in their situations”. Thus action research teams were formed comprising local officers of different government departments (including FRO, ONPI and BPO) concerned with nomadic issues with the researcher as facilitator. The team was faced directly with the problematical situation, as perceived by a range of the stakeholders including representatives of the nomadic communities. The first task of action research team was to understand the general situation of the nomads in terms of various issues. Meanwhile we were going to explore the nomads, views about their situation and their main concerns, interests and issues. We were going to explore their ideas and views about government services and how relevant they were to their needs and issues. Finally, we were going to discover, with the nomads, possibilities for improvement in the provision of these services.

Previously, the officers had an abstract perception of what was happening in the situation. Through their collective viewing of the situation and discussions, they were able to see the impact of the projects of their various agencies upon the projects of the other agencies. They began to see that the projects interconnected in ways which had not previously been recognised nor thought of.

An example is relevant here. When a small water reservoir is built by ONPI, the herds of the nomads will congregate in the particular area which causes overgrazing. This problem of overgrazing is the responsibility of FRO. In addition, ONPI has built a road into the area which means that the nomads can now transport their water by vehicle and thus they do not need the reservoir in this particular area. They need the reservoir in an area which is not accessible by road.

Collective reflection on, and explanation of, the social context based on the direct observations of the officers, lead to an environment in which all participants were able to look at the situation from the perspective of the other organisations. They became familiar with the wide range of activities and projects which were being implemented at the regional level and were able to examine their previous and current strategies and policies toward the nomads. The situations they observed highlighted the interconnections in the social context.

When the officers had conceptualised their findings, theoretical input and discussion was introduced to inform their findings and practice. The relevant theories were introduced as aids in expressing their findings which they were not able to express in conventional scientific language and logic.

At this time, some nomads were invited to share their views and perspectives on the various projects with the governmental officers. This was an attempt to introduce the nomads' views and perspectives on the situation and to include their perspectives in the ensuing discussions.

Confronting the participants on different occasions with the nomads and their capabilities, assisted the process of understanding in depth the theory of participation. When their language and logic was interpreted and contextualised by the facilitator, the participants became more familiar with the idea of the nomads' indigenous knowledge and its importance in the process of decision making for change and development. It became clear during these meetings between the government officials and nomads, that the nomads were able to see and understand outcomes of various projects while they were in the planning stages.

The dynamic of this continuous process in brief was that, first, the officials had a regular meeting with all camps of the Ghareghani clan. Secondly, we had a regular group discussion among the officials based on the daily visits and observations in order to keep the process of action and reflection in line with a participatory approach.

The process of these regular meetings and discussions can be summarised in the three following points:

1. equalising the context and facilitating interaction for effective communication between team members and nomads;
2. facilitating a learning environment in which all participants were informed and could consider other perspectives that were presented;
3. exploring the possibilities and facilitating the processes for situation improvement.

Regular group discussion among team members was conducted as a means of collective reflection on daily personal observations and the organisational perspectives of each member. My role as facilitator was to establish an environment for negotiation between participants and at the same time create an opportunity for all of us to see the situation in a different way, in a broader and longer term framework considering different viewpoints.

Creating and maintaining a learning environment among all members was the most crucial task. Appreciation and respect for the personal, professional and organisational perspectives of others and, more importantly, keeping in mind the nomads and their perspectives in the discussions of the daily observations and activities, were the major elements in the process of learning.

The action face of the research included “actions to broaden the perceptions of the government agents” as well as “actions to practice novel participative researching approaches to development”. Reviewing the past experiences of various organisations’ projects and focusing on the actual outcomes in social reality was a way of learning which on several occasions transformed the attitudes of the officers toward current approaches to development. Taking a wider perspective, rather than a purely



organisational one, and focusing on a Bonkoh, enable them see the effects of various organisational strategies and their inappropriateness within the social context and nomads' needs. Hence they were connected to the problematical world which was caused by the policies and actions which were based on their perspectives.

During each session we reviewed the whole process from the meta-level to see “what we learned” and “how we learned” (Bawden, 1992a). Combining social practice and research (Action Research), introducing learning from experience (experiential learning), and systems thinking, were very unfamiliar activities to all participants at the early stages of this research. On many occasions they were very uneasy with the situation resulting from this way of thinking and viewing situations. The social practice and its outcomes made this process more understandable and comfortable.

What came as a surprise was discovering the unique possibilities to improve the situation for all the members of Ghareghani and the action research team to improve the situation without any fundamental investment or transference of technology .

Among the outcomes of this (second) phase of the research, were clear agreement within the action researching teams of the failure of their conventional approaches to the “problems with the nomads”, and the particular transformation of that worldview into one more accurately portrayed as the “problems being faced by the nomads” (including that of the perceived failure of achieving any sense of shared meanings between the nomads and the government agents). There was also the crucial outcome of new action-researching development practices by the agents and the appreciation of this innovation by the nomads.

### ***Facilitating Epistemological Change within the Government Organisations;***

Reflection on the outcomes of the second phase of the research showed that; changes in the attitudes and beliefs of practitioners to “see things the other way around” are very crucial. To start and maintain this crucial changes in attitudes of practitioners and specialist toward people and resources needed a new strategies for institutional change and action research in organisations for “learning to learn, and learning to help in participative ways. Above mentioned reasons on one hand, and the need for up-scaling

the outcomes of the research on the other hand, led to offer an intensive workshop for officers from the Forest and Range Organisation (FRO). learning process and the learning strategies behind this phase of research could be summarised as follows:

- 1) creating a critical learning environment;
- 2) collective reflection on past experience and current problems;
- 3) assisting the participants to see their views toward the problematical situation from a meta-level;
- 4) introducing systems thinking as a new way of looking at the situation;
- 5) supporting participants in creating a new strategic plan for the next action;
- 6) reviewing and evaluation of the whole process as a new way of monitoring, planning researching and learning.

The program of the workshop was carefully designed by the facilitators to meet the proposed goals and follow the theoretical position and above learning strategies. The major learning themes of the workshop focused on three different areas:

- (a) fundamentals of experiential learning;
- (b) systems thinking; and
- (c) people's participation in natural resource co-management.

The learning process was facilitated through four learning tasks, including:

- group discussions and team work;
- propositional inputs including lectures and learning packages;
- field trips; and
- personal reflection on the process through preparation of a paper by each participant.

The program of the workshop was designed for thirteen working days in such a way that the four major learning tasks complemented each other to maintain a continuous process of action and reflection. At the end of each task and, after personal questions and comments of participants, a group discussion was conducted in order to facilitate group reflection on the content and process of the workshop.

The essential metaphor introduced during this event, was that of the organisation as a learning system as distinct from a regulating system. What we were facing in the process of the workshop, was some combination of various barriers among some participants, particularly the perceptual one about local people and their role in natural resource destruction. But we were witness to a shift among a majority of participants in their way of looking at the situation. The shift was particularly obvious among the technology-oriented practitioners toward recognising the impact of social issues on ecology. Due to the tremendous diversity of personal, professional and organisational backgrounds of participants, there were significant clashes between them about ways of looking and conceptualising the experience and collected data. What made these clashes fruitful to all participants was the applied methodology which considered this diversity of viewpoints as a source of building rich pictures and also led to shared definition from the problematic situation. Considering the same reality from different angles and perspectives helped all participants to move from their strict discipline toward multidisciplinary perspectives and even beyond that to an interdisciplinary approach to analysing the situation. Evaluations confirmed that most of the participants found the inputs and lectures of invited academics and researchers irrelevant to their current complex and changing issues.

Feedback from the participants in this workshop, confirmed the fact that there had been significant transformations in ways of thinking about the complex relationships between nomads in Iran, the environments in which they live and work, the technologies that they use as pastoralists, the agents of government departments concerned with these aspects of sustainable development, and Iranian society at large.

The outcomes of this phase showed that there will need to be some significant changes in the way we go about our “seeing” and our “doing” if we are to improve on current, apparently intractable complex situations (Bawden, 1988) within the organisation as a learning system.

## REFERENCES

1. Bawden, R.J. (1990a) Towards Action Researching Systems. *In Action Research for Change and Development*, Zuber Skerritt, John Wiley, Sydney, Australia.
2. Brown, L.D.( 1993) Social Change Through Collective Reflection with Asian Nongovernmental Development Organizations. *Human Relations*, Vol 46, No 2, 1993.
3. Chambers, R. (1994) *Beyond Farmer First, Rural People's Knowledge*, Agricultural Reserach and Extension Practice, Scoones and Thompson, J. (ed), Intermediate Technology Publication, UK.
4. Chekland, P.B.( 1981) *Systems Thinking Systems Practice*. New York, John Wiley& Sons.
5. Emadi, M.H (1997). "Rainwater Catchment Systems and Indigenous Knowledge Systems : An Exploration with Iranian Nomads". Proceedings of the 8th International conference on rainwater catchment systems (Vol. 2), April 25-29 1997 Tehran Iran.
6. Emadi, M.H (1997) "Systems Theory and Social Emancipation". 4th World Congress on Action Research, Colombia, June, 1997.
7. Emadi, M.H and Bawden, R.J (1995), "Systemic Action Research Among Iranian Nomads". Proceeding of the Fifth International Rangeland Congress, Salt Lake City, Utah, July 23-28, 1995.
8. Emadi, M.H. (1997). "Indigenous People and PM&E; A Case Study From Iran". International Workshop on: Participatory Monitoring and Evaluation (PM&E), Held at International Institute for Rural, Reconstruction (IIRR) Cavite, Manila, Philippines, (24-30 Nov 1997)
9. Emadi M. H. and Abbasi E. (2001), "Small Indigenous Communities and Great Conservation Lessons": Institutional Arrangements and Management Tools in

*Support of Conservation*. Keynote speaker International Seminar on Environment, Religion and Culture 18-20 June, 2001

10. Emadi Mohammad H., (2003), *Application Of Indigenous Knowledge In The Process Of Dry Land Managment; A Case Study With Iranian Nomads* . Seventh International Conference on Development of Dry Lands, Organised by ICARDA and MOJA, 14-17 Sep 2003, Tehran , Iran
11. Maturana, H.R. & Varela, F.J. (1988) *The Tree of Knowledge: The biological roots of human understanding*,: Shambala, Boston.
12. Senge, P.M. (1990) *The Fifth Discipline :The Art and Practice of the Learning Organization*. Doubleday Currency New York.