

1. Background and motivation for the study

1.1. Failure of development efforts

Peasants all over the world have developed their own forms of farming to survive. Their way of farming is determined by local possibilities and limitations of ecology and within the social, economic and political structure of their countries and the whole world.

Furthermore it is estimated that a large part (three-fourths) of all farming families are scarcely in a position to buy machinery, fertilizers, insecticides, hybrid seeds or veterinary medicines. These low external input farming systems produce a large part of the total agricultural production world-wide and livestock plays an essential role in the agrarian economy of developing countries. More than half of the rural population depends at least in part on livestock for their livelihood, and 12% of the world's population is entirely dependent on livestock production. In the developing countries the role of livestock is often multi-purpose: a source of subsistence (milk, meat, wool, eggs, hides), draught power, manure, additional income (from the selling of animal products), investment, spiritual or religious functions, security and social status.

The classification of livestock production systems can be done based on the relative importance of livestock in the system (animal based, mixed crop-animal, crop based), scale of operation (large versus small), utilisation of outputs (subsistence versus commercial), and source of feed (uncultivated lands versus cultivated lands). Broadly, the systems can also be classified into migratory and sedentary systems. (de Jong *et al.*, 1992). Livestock can be seen as a subsystem within a farming system. The lack of appropriate technologies being developed to match the perceptions and resources of farmers can be brought back to this lack of perception where it concerns the role of livestock in a wider perspective than livestock production in itself (Cornelissen, 2001)

In contrast with earlier development activities which were initially only involved with the most modern forms of livestock production, including supplies of livestock mainly intended for large-scale dairy farming, these traditional systems need a thorough, interdisciplinary study which consist of a socio-economic and an agro-ecological analysis, as well as analyses of livestock production and official policy. There is no shortage of examples where the actual technology to improve livestock systems in the developing countries were technically inappropriate. This is particularly the case where technologies that work in western countries were transferred to developing countries. A classic example has been the repeated attempts by Dutch government to introduce high yielding Friesian/Holstein cattle into developing countries to increase milk production. Bred for intensive (high input, high output), temperate production systems, these breeds have failed to produce under adverse climatic, disease and management conditions associated with developing countries (Geerlings, 1998).

The multi- and bilateral development institutes (incl. The World Bank) have paid much attention to the development of livestock sectors in developing countries. Set aside some exceptions, mainly in Latin America, Europe and North Africa, the results were disappointing. An internal review of World Bank lending concluded that based on the bank's own criteria of economic return, more than 37% of projects reviewed in 1991 should have been considered unsatisfactory. In the water supply and sanitation sector, 43% of projects were experiencing major problems, in the agriculture sector, 42% (Bond W. 1996).

From the analyses of literature it can be concluded that many projects have failed because of the lack of understanding of social, economic, cultural, environmental, and political factors which influence the decision making of the people for whom these development programs are supposed to benefit (Davis 1995, DGIS 1997, Fernandez 1991, Hooft van't 1995, Mathias *et al*, 1999, Perezgrovas 1992, Vijfhuizen 1992, WWVA 1994). Other important reasons for these disappointing results are; oversimplification of problems; lack of institutional capacity to conduct projects; skepticism about farmer's knowledge and potential contribution, predetermined thinking patterns and gender-blindness, i.e. that farming is a predominantly male domain and the lack of interdisciplinary research.

Livestock contribution to total food production has been growing at a faster rate than that of the agricultural sector as a whole - a trend that is expected to continue (see table 1.1). The most spectacular increases have been achieved from egg production which has increased by 330% over the last 20 years, with the meat production having increased by 127%, compared with 78% for cereals over the same period. Much of this growth has been derived largely from an increase in animal populations and stimulated, in part, by increasing income and urbanisation.

Table 1.1: Trends and projections in Food Production in developing countries

	Million tonnes			Growth rate, %	
Product	1996/71	1988/90	2010	1970/90	1990/10
Wheat	67	132	205	3.8	2.1
Rice	177	303	459	3.0	2.0
Milk	78.0	147.3	247.6	3.5	2.5
Meat	28.5	64.8	143	4.6	3.8
Eggs	4.6	15.3			
Fish	16.4	35.1	-	-	-

Source: After Agriculture toward 2010"

Land is becoming scarce, quantitatively as well as qualitatively, due to a more intensive use of land for crop production and subsequent loss of soil fertility, over exploitation of marginal lands and erosion. This problem is most visible in developing countries. Its solution is hampered by:

1. A lack of resources.
2. Weak government policies, at both national and international level.
3. A lack of appropriate technologies and failure of agricultural scientists to develop sustainable technologies that match the perceptions and resources of small farmers.

The problem of rising food production is, therefore, complicated because of social, political and economic constraints (Cornelissen, 2001).

In the developing countries livestock are an integral part of the local farming system, their contribution to the whole farming system is highly variable and their importance ranges from low in some systems to crucial in others such as in the agro-pastoral system described in this thesis. Several factors play a role in the functioning and production output of such a system. Some of these factors include; available resources and security of their supply, stable markets, environmental conditions (fodder availability) and disease control.

The last two mentioned seem to be of highest relevance for the described agro-pastoral system.

1.2. Animal healthcare interventions

Although several governmental and International services exist to prevent, control or eradicate major livestock diseases like rinderpest, anthrax and CBPP, small holders still have to cope with many animal diseases and low fertility and productivity of their animals. Veterinary services -on a regular bases- are out of the question for these small holders who often live to far away from cities or they can not afford to pay for veterinary services.

The third world is almost completely dependent on the import of therapeutic drugs and farmer demand for effective drugs has frequently been met by smuggled drugs with all the attendant problems of lack of consistent supply, questionable handling practices, high cost and loss of government tax revenue (Chema *et al*, n.d.). Furthermore problems associated with the use of modern veterinary drugs are: lack of knowledge of the selection of appropriate drugs, incorrect drug administration, incorrect drug doses, availability of drugs, and ignorance of disposal and withdrawal periods prior to product consumption which may be hazardous to human health. Even with increasing numbers of veterinary graduates, the delivery of veterinary services to the majority of livestock raisers is declining in many developing countries. If primary animal healthcare services are ever to reach a majority of the world's livestock, then as WHO recognised for human patients nearly two decades ago it is necessary to tap all possible practitioner resources, including traditional healers and

localised paraprofessionals. This imperative is particularly acute wherever livestock are dispersed across large and remote rural areas and/or are nomadic or transhumant, as in the case in many nations of the tropics (McCorkle 1997).

Traditionally, veterinarians [and “science” in general] have tried to discourage traditional medicines in favor of the modern medicine in which they were trained.

Scepticism about farmers knowledge and potential contribution stems from an honest appraisal on the part of many dedicated scientists. Researchers simply have not seen hard evidence to prove or disapprove its existence and value. This is partly because farmers seldom record their accomplishments in writing, rarely write papers on their discoveries and do not attach their names and patents to their inventions (Chambers *et al*, 1990).

‘Modern’ medicines are economically often unrealistic to those in the low income groups and those living in remote areas. Ethnoveterinary remedies on the other hand are often freely available, or have a cost in proportion to the value of the animal, or are already part of the culture, often work and are relatively easy to administer (Fielding in Lans, 2001).

On the other hand “epidemics and fatal endemic diseases are more appropriately treated with commercial drugs and more resources may need to be devoted to these large-scale concerns in the future” (Lans, 2001, p 8).

In many projects in developing countries, the way in which scientific knowledge is to be combined and interacted with local knowledge of the target-group is an underestimated aspect. Both projects with strong theoretical preferences for either scientific knowledge or indigenous face problems (Hooff van’t, 1997).

With the foregoing in mind a research was conducted to gather detailed information on the sheep husbandry and healthcare system of the Raikas in Godwar area of Pali district in Rajasthan, India. Special attention has been paid to both traditional and conventional actors and institutions in animal health care, the ethnoveterinary knowledge present, problems and obstacles relating to sheep husbandry and healthcare, sheep disease prevalence in the research area and ethnoveterinary practices including medicinal plants, minerals and animal products used to cope with some of the most common diseases.

1.3. Focus and main purpose of the study

1.3.1. Research objectives

The main objective of this thesis is to document and understand the ethnoveterinary knowledge and practices of the shepherding Raikas in Godwar area and to explore whether it can usefully complement formal veterinary practices.

Other objectives of the research are:

- ☐ Understanding the rationale of the sheep husbandry system of the Raikas:
 - ☐ Economic importance
 - ☐ Identify the strengths, characteristics and purpose of the sheep breeds used.
 - ☐ Identify the bottlenecks in sheep healthcare (main diseases, problems relating to conventional healthcare services, medicine availability, fodder deficiency etc).
 - ☐ Identify possible options for improvement of sheep healthcare interventions (both traditional and conventional).
 - ☐ Cultural and social values
 - ☐ Understanding women's role and contribution to sheep husbandry and healthcare.

1.3.2. Problem statement

The high rate of failure of development efforts to improve animal healthcare is evident in many publications. Main cause is the misinterpretation of peoples real needs and interests and ignorance and underestimation of local peoples knowledge and capabilities regarding animal husbandry and healthcare and in particular women's contribution and knowledge of the subject. Added to this is the problem of inadequate governmental animal healthcare services. In this study sheep rearing Raikas in central-south Rajasthan were chosen to evaluate the bottlenecks and problems they face and to evaluate the ethnoveterinary practices they employ as possible successful alternatives or complementary to the conventional healthcare delivery system.

1.3.3. Research questions

- ☐ How can the sheep husbandry and management system of the Raikas be described?
- ☐ Which practices can be identified as ethnoveterinary practices in the research area?
- ☐ What are the main problems and bottlenecks relating to sheep husbandry and healthcare?
- ☐ In what way do women contribute to sheep husbandry (in terms of labor)
- ☐ What traditional treatments can be identified for the main sheep diseases and does the ethnomedical literature support the claimed uses of the medicinal plants?
- ☐ What are strong and weak points of both conventional and traditional animal health care actors and institutions and how can they be improved.

The results of this study are presented in chapter 5. Chapter 2 presents a literature review on the different thesis subjects such as ethnoveterinary research, gender bias in livestock research and conventional healthcare delivery services. Chapter 4 will deal with the research design and data collecting methods and Chapter 3 will give some background information on the research area and the context of the study. The following figure will give a visual representation of the subjects and focus of the study.

