SMALL RUMINANT PRODUCTION SYSTEMS NETWORK FOR ASIA

PROCEEDINGS OF THE INAUGURAL MEETING AND LAUNCHING OF THE ASIAN SMALL RUMINANT INFORMATION CENTRE, KUALA LUMPUR, MALAYSIA, 21-23 AUGUST 1989
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SMALL RUMINANT PRODUCTION SYSTEMS NETWORK FOR ASIA

Proceedings of the inaugural meeting and launching of the Asian Small Ruminant Information Centre, Kuala Lumpur, Malaysia, 21-23 August 1989

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This publication presents the results of a meeting held in Kuala Lumpur, Malaysia, 21-23 August 1989, whose primary objective was to examine the formation of a network to support research and development activities for small ruminants in national agricultural systems and collaborative research programmes in Asia. There was consensus that a single network should be established for small ruminants in Asia whose name should be Small Ruminant Production Systems Network for Asia (SRUPNA). It was also agreed to establish a centralised information facility called Asian Small Ruminant Information Centre (ASRIC) to be based in the Central Sheep and Wool Research Institute (CSWRI) in Avikanagar, India. A three man Steering Committee was appointed to determine the location of the coordination unit to pursue the objectives, as well as future activities of SRUPNA and ASRIC.
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SUPPORT FOR RESEARCH AND DEVELOPMENT ON SMALL RUMINANTS BY GTZ

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ABSTRACT

The importance of small ruminants for rural development increases as farm size decreases. Extension services should pay attention to all aspects of the production system, to the improvement of feeding, hygiene and general husbandry. In this context, the management of small ruminants has to ensure that environmental damage is avoided. While production for subsistence is important, the sale of surplus products increases incomes and purchasing power of the population in rural areas. In order for sheep and goats to play a part in rural development appropriate production systems must be designed based on local research and disseminated in the form of extension materials that have been tested prior to distribution. Improved coordination and cooperation of small ruminant research activities with bilateral and multilateral donors and with national and international organisations and institutions is crucial so as to avoid losses due to friction and to equally avoid duplication of work. We see cooperation with national and international agricultural research institutions in our partner countries as a significant part of the promotion program, to harness scientific potential to a greater degree than has been the case to date for the cause of small ruminant development.

INTRODUCTION

Small ruminants are a realistic animal husbandry option as a source of income or as a way of increasing income, particularly in view of the small area of land required and the fact that these animals make use of fodder which is not suitable for human consumption.

Small ruminants are suited as almost no other domestic animal for integration into smallholders' activities and those of landless families. They have a multitude of uses, producing a large number of varied products such as milk, meat, skins, hides, hair or wool and dung.

If we look at research topics in the field of small ruminant development in tropical and subtropical areas, however, it rapidly becomes obvious that very little work has been done in this field. This is compounded by the limited financial resources available to deal
with a large number of as yet untackled subjects. For each individual country, but also for international organisations, a coordination of research with subsequent exchange of experience is becoming more important than ever before. The research activities in the field of small ruminants totalling some 400 - 600 projects are not yet too numerous to gain an overview.

The following contribution aims to illustrate briefly the global strategies and the future direction of the small ruminant research and development activities of the Deutsche Gesellschaft fur Technische Zusammenarbeit (GTZ) and to look at the development of a Euro-African Small Ruminant Network with the objective of coordinating the information flow and support to research activities.

GLOBAL STRATEGY OF THE GTZ IN SMALL RUMINANT DEVELOPMENT

Between 1982 and 1987 (inclusive) the Federal Republic of Germany made available a total of DM 298 million for some 89 animal production and veterinary medicine projects within the scope of technical cooperation. Of these 59.4% were accounted for by animal production and 40.6% by veterinary medicine measures.

The regional emphasis of this cooperation lay in Africa, where 63.3% of all project funds are going. Asia came second with 26.5%, followed by South and Central America with 4.1% and Europe with 2%. 4.1% of funds were earmarked for supra-regional projects.

Small ruminant projects, totalling 13 are second in number only to cattle projects.

The GTZ's primary considerations when selecting projects are food security and rural development, with Africa as priority region. Technical cooperation is intended to help satisfy basic needs, in other words:

1) To develop natural and human resources through research and training.

2) To promote less developed regions.

3) To promote the social and economic integration of disadvantaged sectors of the population.

In order to find solutions to these challenges some important key principles should be mentioned:

1) Economic growth should increasingly be stimulated through promotion of integrated production systems.

2) Small ruminant production methods should be adapted to rural economic and natural conditions.

3) Natural resources should be used carefully in order to ensure their long-term availability.

4) The lack of adequate and appropriate technologies necessitate an increase in adaptive research.
5) Self-sustaining development should be supported by the participation of the target population in planning, implementation and evaluation of development activities.

As regards the target group and the resources it has at its disposal, it must again be mentioned, however, that the absolute objective is, through extension and advisory services to put the small family farm in a position to achieve higher performance from its animals. Key elements for this include fodder, animal hygiene and health and proper management.

The often extremely limited agricultural land available and the feeding habits of small ruminants give them a special place in the overall range of productive livestock.

Along with the results of analyses of constraints and bottlenecks, small ruminant promotion concepts must take into account the prevailing economic structures in the country:

1) Measures to improve prevailing general conditions for the smallholders (regional and sectoral) must be integrated into the program.

2) Service facilities (veterinary care, markets, training) must be in line with the regional economic level. Small ruminant development can in various ways contribute to the net production and the development of rural areas. A distinction is made here between animal husbandry in marginal areas as the only possible utilisation of natural pastures or existing natural environment.

3) Small ruminants keeping as an integral part of farming activities to utilise otherwise non-utilisable fodder and agricultural by-products.

WHAT ARE THE PARTICULAR CHARACTERISTICS OF PROJECTS TO PROMOTE SMALL RUMINANTS?

Before answering this question I would firstly like to take a look at some statistics. In the mid 1970s, there were two projects in which sheep and goats played a role – one in Latin America, and one in east Africa. In 1985 alone, the GTZ implemented 6 purely sheep or goat projects in Asia (Sri Lanka) and Africa (Algeria, Burundi, Cte d’Ivoire, Tunisia, Morocco). By the end of 1988 these had been joined by another 10 projects (in Brazil, Colombia, Malawi, Malaysia, Niger, Portugal, Rwanda, Somalia, Togo), within the scope of which project components to increase meat and milk production are contained.

This development over the last ten years, which is mirrored generally in the international scene, speaks for itself.

GTZ RESEARCH - APPROACHES AND KEY AREAS

The GTZ has at its disposal experts with a great many years' experience in the field of international technical cooperation and can always recruit the services of German and non-German consultants to
implement special projects. The Animal Production Division works closely with universities and institutes in the Federal Republic of Germany and abroad and with other international organisations.

To help it to work out extension programs, the GTZ is carrying out research and development programs in the small ruminant sector. These are intended to gather practice-oriented, scientifically processed information and to translate this into practice.

The strategic research approach has two prongs:
1) the methodical research approach, and
2) research approaches within the discipline.

Methodical Research Approach

After many years working with small ruminants, in particular goats, the need for a more targeted, better coordinated research to solve the problems confronting us is pointed out again and again.

An important principle to respect here is that research approaches must be planned as programs appropriate to the system in which they will be implemented. The second vital principle is that innovations should only be introduced once they have been thoroughly tested in pilot projects.

Research Approaches within the Discipline

It is pragmatic and realistic to make use of available research capacity in the traditional disciplines:

a) Health and hygiene
b) Feed and fodder
c) Reproduction and breeding
d) Prevailing socioeconomic conditions

where planning for each individual research project is integrated into a well-thought out strategy and where there can be an appropriate exchange of experience.

Thereby priorities should be worked out within each of these disciplines with regard to their significance for individual ecological zones.

Taking the example of the humid and subhumid zone of Africa here are the research priorities as planned in the GTZ:

Economic and Socio-economic Context

Before priorities for research projects are determined, the problem must be viewed in the context of the prevailing socio-economic conditions. This is vital if research is to be conducted into small ruminant development. The economic context is however, not only
important during the planning phase, but also during the entire implementation phase of a research program.

**Feed and Animal Nutrition**

A top priority in formulating research projects in humid and subhumid areas; the following are the key points:

a) Fodder resources  
b) Fodder and nutrient requirements  
c) Range and herd management.

**Animal Health**

The second research priority is animal health. Epidemiological research (ecopathology) is needed to improve the health status of small ruminants. Economic weighting can give practical measures with a good return on inputs.

**Animal Production Techniques and Animal Breeding**

Animal husbandry technology includes the development of appropriate methods of breeding and keeping young animals, milk production and feeding techniques. Breeding questions should be limited to the research into genotype-environment interactions, the analysis of well-performing local populations and the definition of selection parameters and targeted mating.

Crossbreeding with imported races should only be performed under certain conditions and research work to improve biotechnical measures (artificial insemination and embryo transfer) are not priority activities.

**REGIONAL STRATEGY AND PRIORITIES OF GTZ RESEARCH**

If we distinguish between research tasks according to the potential of the production location, the priority in extensive livestock breeding is the improvement of meat production, while with increasing intensity of the production system, milk and lamb production become increasingly important. Along this, investigations should be conducted into range management, feeding, breeding, husbandry and hygiene and the production and processing of products. This intentionally wide-ranging framework is made vital in conjunction with intensifying of small ruminant production by the necessity for this branch of animal production to make its contribution to maintaining a stable ecosystem.

Agricultural economic investigations, closely linked to work on production technology, have been carried out in Peru and in the Mediterranean countries (Turkey, Cyprus, Jordan, Syria, Tunisia and Morocco). The need for reliable data and practical experience in small ruminant production led to the establishment of an extensive research project in Tunisia.

In this project, a vast quantity of information and data on production locations, forms of goat keeping, goat products and the prices of these products and production factors is being recorded so as
to draw up a typology of goat keeping according to location. A project implemented jointly with the Berlin Technical University and the University of Malaysia concentrated on the efforts of breeders to increase performance in meat and milk production. Various degrees of intensity in the animal keeping, in particular during the rearing phase were analysed with regard to their impact on the performance level achieved with the aim of defining the optimum form of smallholder goat keeping in East Asia.

In Burundi and Sri Lanka, the first steps have been made to developing goat keeping as an important economic activity in a disadvantaged region. The objective of this project is to improve the local goat population by crossbreeding with a high-performance breed and optimising husbandry conditions. At present projects involving small ruminants are also being implemented in Malawi, Bangladesh, India, Pakistan, Lesotho, Sao Tom and Cap Verde - conclusive evidence of the increase in status of an area of animal production which has been largely ignored to date.

In conclusion, it should be noted that the approach taken by the research project in Tunisia has proved attractive and appropriate, not only for the prevailing conditions there. Rather it is becoming a typical project approach for programs in areas with similar general conditions.

Having said this though, the GTZ does not have the perfect extension concept on tap. The concept must always be adapted to bring it into line with the specific conditions of any given country, and indeed the specific region of a country. This necessitates investigations, the results of which will be processed and made into extension programs. This type of work has already been performed in Burundi, Malawi and Sri Lanka, to name only a few examples.

All project results available to us at the present time concur that sustainable improvements in performance cannot be achieved exclusively (and certainly not primarily) by breeding improvements or gene transfer. In most cases improved fodder supply, health care and management lead to such significant and lasting improvements in performance, that the whole question of whether costly gene transfer is economically defensible should be rethought.

The following areas of research are thus the most important when compiling an extension program:

1) The contribution of sheep and goat keeping to human nutrition and to the family income.

2) Integration of small ruminants into smallholders' activities to increase and maintain soil productivity.

3) Combined husbandry systems for ruminants - sheep/goat, cattle/buffalo and their impact on vegetation and overall performance

4) Geoecological investigations to determine the range capacity.

5) Evaluation of the performance potential of local populations and crosses.
6) Endoparasite control measures.

7) Measures to improve production and rearing performances of the local population.

8) Breeding measures to increase milk and meat production, identification of high-performance breed for crossbreeding.

9) Measures to improve the quality of skins and wool.

10) Organisation and economic viability of milk production using small ruminants.

WHAT CONCLUSIONS SHOULD BE DRAWN FOR PROMOTION MEASURES?

In general the maxim holds true that increasing population density and/or scarcity of land results in a development which makes animal production indispensable if agricultural productivity is to be attained. Measures to promote small ruminants can, in this situation, be used as an instrument of rural development. This is however only possible when one takes into account the fact that small ruminants can only continue to make a valuable contribution to the development of rural areas if the scientific work on basic issues involved continues.

With reference to our subjects, these remarks on the strategy of small ruminant development indicate that improvements can and will only be achieved if those who own and manage sheep and/or goats are ready and willing to cooperate. That was one point. Another point refers to planners and designers. Sustainable success is not possible in any project if the major constraints and underlying factors which determine the present unsatisfactory level of production are not recognised and pinpointed by the people themselves. The principle of participation is the key to successful cooperation. Which brings me to make a few points on the basic principles of the small ruminant development concept and on experience gained to date.

Resources

We must accept the fact that livestock development strategies are not only technological methods of increasing production on a per hectare or per head basis, but that livestock development will only benefit the livestock-owning community if the natural conditions are at least maintained if not improved at the same time. Environmental management is closely linked to goat production, for example.

Breeding

It is important to familiarise oneself with local breeds and their genetic make-up before deciding on a breeding strategy, especially before crossbreeding is initiated. Different approaches are necessary to achieve different objectives, since the heredity of beef and milk traits varies considerably.

Health

Since in various countries there is not a sufficient number of field staff available to actually reach the livestock owner, a new
approach has been developed – the auxiliary animal health care program.

This aims at transferring basic preventive measures and fairly simple technologies down to the grassroots level. This is still a new concept and at present initial steps are being taken to implement it.

Management

Livestock management, animal health and animal nutrition are closely linked. Nevertheless, the demand for improved management systems appropriate for the natural conditions and adapted to the traditions of the target group in question is an important aspect. Special attention is paid to the changeover from meat production to milk production which entail organising collection and processing of dairy products.

Any further increase in animal production must be achieved primarily by intensifying existing production systems rather than by increasing animal numbers.

As a consequence, projects must have the following characteristics:

a) A multi-disciplinary approach

Integration of cropping and animal husbandry adapted to suit farm size, demand, the market, soil conditions and water availability.

Development of multidisciplinary extension services for demonstration and extension of technically and economically integrated farm systems.

An intensification of health care and development of appropriate and cost-conscious methods for prevention and treatment of diseases.

b) Manpower development and research

Experience shows that projects and programs must be very flexible as regards inputs and that they require a higher level of more comprehensive specialised know-how. This implies better and wider reaching technical solutions as well as higher, multidisciplinary standards of expertise at academic and producer level. More attention will thus have to be paid to manpower development and specialist training, adaptive research and development of improved appropriate technologies, elaboration of integrated concepts, strategies and programs and their extension into production practices.

c) Ecology and environment

There are numerous examples of an inappropriate production system resulting in the severe degradation of the natural environment. If we are to maintain an environment which can offer a livelihood to the generations to come, more attention will have to be paid to environmental protection. Methods must be developed to allow us to assess and quantify the environmental impact of livestock
projects. If properly used in project planning this could make a valuable contribution to a better, more sustained utilisation of natural resources.

So, we can now say that the three most important aspects to be borne in mind when deciding whether or not to promote small ruminant production are:

1) Small ruminant production should only be promoted where efforts are being made to better exploit existing reserves giving due care and attention to environmental impact and ensuring that natural resources are maintained.

2) Promotion must benefit the priority target group - smallholders, the landless and the urban poor.

3) Research in this sector must be practice-oriented and as far as possible aimed at the complete production process.

Successful research work depends on problem recognition, exchange of ideas, critical assessment of results, demand (finance) and on effective research management. In the latter, a development organisation such as the GTZ has a major role to play.

WHAT ARE THE EXPERIENCES TO DATE?

Since sheep and goat were discovered some ten years ago as important species for rural development in tropical and subtropical areas, independent attempts have been made everywhere to increase the level of knowledge on sheep and goat production through research, without first checking whether work had already been done on a specific topic.

A handful of experts have produced results, some of which are not comparable or cannot be transferred. It can be seen from the duplicity of results that the same topic has been tackled by several different research projects - particularly unfortunate in a field with very limited financial resources and where, despite the research work which has been performed, we still know too little.

It has also become clear that the potential of European institutes for cooperation is doubtless greater than the requirement. Yet there are still a great many excellent institutions and scientists working on topics relevant to tropical areas who have no contact with international centres. There is a great need for coordination of research work and greater contact between researchers in Europe and in developing countries. One of the GTZ's tasks over the last few years has been to develop the conceptual framework and initiate coordination of institutions working in development and research institutes. A first success was recorded in 1986 when a conference on the theme "Coordination of Small Ruminant Research for Development in Africa" was held in Montpellier. Initiated by the GTZ, it was organised jointly by the GTZ, the European Community, the CTA (Centre Technique de Coopération Agricole et Rurale) and the IEMVT (Institut d'Elevage et de Médecine Vétérinaire des Pays Tropicaux).
The major result of the conference was CTA's decision to hold an informal meeting once a year for about twelve international donor organisations interested in the promotion of small ruminants.

A Euro-African Small Ruminant Network (REAPER) has also been established, with its secretariat at the GTZ. REAPER is not a research organisation which produces new knowledge or technologies, neither is it directly involved in project formulation and implementation, rather it aims to establish, in the initial phase a platform for efficient services, intercommunication and linkages to and among the institutions and specialists working in small ruminant research.

Once the network is established, REAPER is to focus on building up a service unit for:

1) Strengthening the research into African development through improved communication among European researchers, between North and South Africa, between scientists in East and West Africa using different languages and establishing a better liaison with the ILCA network for European institutions and researchers;

2) Providing clearer guidelines to the program of science and technology for development (STD) of the European Community and donors on priorities to set when setting up small ruminant research and development projects and thus generate more investment into research and development of livestock production based on small ruminants.

Mandate:

3) The network concentrates on African countries, but does not deal with Africa to the exclusion of requests for information from and communication with researchers in other parts of the world. It devotes itself to generating an increased volume of effective research work through coordination and concertation of small ruminant research in Europe and Africa in conjunction with international centres and development agencies regardless of whether this research may be funded by STD or by other sources, in particular national bilateral sources.

It translates development problems into research and connected activities (training) and facilitates the transfer of research into development.

It organises the permanent updating of an inventory of small ruminant research, with particular emphasis on European and African research teams, but also including relevant work carried out elsewhere.

It makes research findings available to researchers and developers through appropriate publications and seminars or workshops.

It identifies possible funding for small ruminant research and continuation of the network itself and attempts to involve more European institutes.
Organisation and Operation

a) The GTZ coordinates cooperation within the network. During the initial phase the GTZ, IEMVT and ITMA are joining forces in conjunction with CTA.

b) Scientific committee: a scientific committee will guide and supervise the execution of the network and act as an advisory body for STD -2 - Small Ruminant research. It will comprise three African scientists and representative of IEMVT, ITMA and the GTZ.

c) Elements of the network: The elements of the network are tools provided as services for researchers

These tools include workshops, research and training grants and the seed money scheme.

d) Operation: REAPER complements ongoing activities in the small ruminant sector, making use of existing information networks, data banks, training facilities such as FAO Sagin and its regional networks SPAAR, IBAR and others. It is vital that we coordinate our work with and complement the activities of ILCA-SRMMT focusing on European partner participation in relevant research and that we carry out workshops jointly.

The organisation of the effective diffusion of scientific and technical information to each of the African countries presents us with a great challenge because of the diversity and nature of the information needed for the agricultural and rural development of each individual country. The network activities are thus perforce concerned with major development topics. Information on these topics will be collected and disseminated so as to reach as large an audience in as many countries as possible.

The medium-term objectives of the network are:

1) To help African countries gain easier access to the results of work carried out by the national, regional and international bodies involved in small ruminant development.

2) To help organise meeting of specialists, research planners and development staff so that they may exchange experience gained in specific ecological environments.

3) To encourage regional cooperation in the exchange of information on small ruminant development.

4) To break down the linguistic barrier by translating work considered to be important for small ruminant experts and technicians in African countries.

5) To make REAPER not only an institution to relay scientific and technical information regarding small ruminant development, but also, at least in the long-term, to make it a forum which can assist the EEC and African countries to develop a better concept of effective assistance to small ruminant development in Africa.
CONCLUSION

The discussions on the situation in individual countries and on new approaches have certainly promoted a better mutual understanding and the dialogue will continue. The recommendations for an improved strategy will serve as a valuable basis for work in these countries and for the contribution we can make. You may be sure that the GTZ will do its best to implement the recommendations.