CALPI PROGRAMME SERIES 1 DECEMBER 2005

Livestock Environment and Development in Watersheds

Policy Note

SEMI-ARID INDIA

inter cooperation
Natural Resource Management
Rural Economy
Local Governance and Civil Society

Livestock Environment and Development in Watersheds

Series 1 2005

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Design, Layout and Printing
Idea Workshop, New Delhi. Series cover design concept by Write Arm.

Photos
Photographs by Dr Ranjitha Puskur and S. Jayraj

Publisher
Intercooperation; Delegation-India, Hyderabad

Citation
CALPI (2005) Livestock Environment and Development in Watersheds
Intercooperation India Programme Series 1, Intercooperation Delegation, Hyderabad, India. 28 pp.

Copies available from

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Acknowledgements

This policy paper is written based on various studies on livestock environment interactions in the watersheds in India carried out by the CALPI[1] programme of SDC-IC together with the global Livestock Environment and Development (LEAD) Initiative of FAO. The first one was a preliminary desk study (Mangurkar and Ravikumar, 2001). It was followed by a field level LEAD research (CALPI-IWMI, 2005) conducted by the International Water Management Institute (IWMI). This research was organised in association with five watershed organisations (WOTR, WASSAN, Samuha, Sampark and Sevamandir), which looked at how livestock influence livelihoods and environment and how watershed development influences all the three.

Apart from the above, a working group (LEAD Working Group, 2005) consisting of four experts representing different disciplines (Dr B R Mangurkar, Dr Vijay Paul Sharma, Dr S L Seth and Dr Nitya S Ghotge) reviewed relevent national policies and various literature/reports to identify policy gaps, and prepared a set of approaches for sustainable and effective utilisation of livestock resources in the watershed context.

The LEAD research carried out by IWMI, mainly focused at micro (watershed / state) level, but the working group focused on national or macro level issues.

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[1] Capitalisation of Livestock Programme Experiences India is a programme of the Swiss Agency for Development and Cooperation (SDC) and the Intercooperation (IC).

Foreword

Finding a balance: towards a new revolution

This policy note is intended to contribute to solving one of today's most crucial agricultural dilemmas in India: how to find a balance between the fast growing demand for food, especially livestock products, and the need to sustain natural resource base of land, water and biological diversity. Seeking the balance can also be taken as an opportunity namely enabling, capacitating and supporting the livelihoods of families living in arid and semi arid areas of India, which often belong to the below poverty line category and depend on rearing animals (small ruminants, poultry, etc.), to obtain a substantial share of the increasing livestock product market. Animals play a crucial role in their livelihoods and evidence is showing that increased droughts stimulate households to invest in animals as a form of security and to avert risks.

The Internationally recognised Indian revolutions in the agriculture sector, the so-called 'green' and 'white' revolution, gave an enormous boost to the sector in terms of becoming self-reliant in food production and the being world wide the largest producer of milk. Both have been providing perspectives to millions of small scale fe/male farmers. These revolutions did however not substantially contribute to the agricultural development of arid and semi arid areas (typical rain fed zones) neither were the relatively isolated tribal (adivasis) communities reached. In more recent years, a pronounced shift in terms of agricultural sector development has been made and the change gears focus on rain fed areas (including tribal areas) and aim at watershed development whereby taking the local government (Panchayat Raj Institutions) as the centre of actions. Is a 'decentralised watershed revolution' on?

The enclosed policy note 'Livestock, Environment and Development in Watersheds' is therefore a most timely publication and relevant for policy makers, members of watershed committees and / or user groups, elected PRI members, practitioners as well as outsiders interested to learn from experiences made in India be it international NGOs, donor agencies and / or World Economic Forum entities which show more and more interest in water issues.

The content is concise and follows a two pronged approach namely it addresses policy issues on the one hand but provide technical background information on the other hand and thus gathering for a policy as well as a technical audience. Each sub-theme starts with a short description, depicting the context and the core constraints, followed by practical and realistic recommendations that are illustrated by providing examples of proven practices. The crisp and short presentations allow even the casual reader to finish the publication.

When one takes the effort to read the publication, he/she will realise that watershed development can only be successful and relevant for the poor communities of a given watershed when animals are taking into account. This implies that one should keep 'the access to water and fodder for animals' as an overall focus when planning and implementing watershed measurements. The publication explains how 'common property resources' can be developed; i.e. how fodder

resource development can go hand in hand with watershed developments. It rightly emphasises the importance of coordinating the services provision in the field of 'watershed', 'forestry' and 'livestock' production. The practioners whether government and/ or non governmental, representing the relevant subject matters expertise, should develop a common vision and work approach. When their efforts are coordinated whereby active involvement of PRIs is realised, a real 'decentralised watershed revolution', which genuinely profits the poorer communities living and/or passing through (pastoralists) a given watershed, may take place.

We sincerely hope that this publication will contribute to watershed development which also benefits the poor households depending on livestock with the ultimate wish that they can obtain a pronounced share in the growing livestock product market.

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Acronyms

AFARM	Action for Agricultural Renewal in Maharashtra
CALPI	Capitalisation of Livestock Programme Experiences India
CBOs	Community Based Organisations
CPR	Common Property Resources
FAO	Food and Agricultural Organisation
IC	Intercooperation
IWMI	International Water Management Institute
LEAD	Livestock Environment and Development
NABARD	National Bank for Agriculture and Rural Development
NRM	Natural Resource Management
NWDPRA	National Watershed Development Project for Rainfed Areas
PESA	Panchayat Raj Extension to Scheduled Areas Act
PRI	Panchayat Raj Institutions
SDC	Swiss Agency for Development and Cooperation
WASSAN	Watershed Support Services and Activities Network
WOTR	Water Organisation Trust
VWC	Village Watershed Committees

Executive Summary

In India livestock play an important role in enhancing livelihoods, improving natural resource base and promoting rural economy and production. Hence livestock should be integrated as an active component in watershed development programmes. At the same time livestock associated environmental issues such as over grazing, land degradation etc. should also be given proper attention.

Watershed development projects have the potential to improve livestock services and opportunities to the farmers. This can be best achieved through proper integration of breeding, feeding and health measures into watershed development programmes. Other strategies may include facilitating easy access to credit, providing grazing rights to the poor, developing CPRs and fixing norms for its sustainable use. Further, improving the access to knowledge, skills, and information will be a good investment for developing capacities of the poor.

Enhanced involvement of the migrant, landless and small farmers, particularly women should be explicitly mentioned in watershed guidelines and they are to be consciously participated in watershed development programmes.

Though key elements of effective livestock development such as livestock user groups, community participation, management of CPRs etc. are missing in the livestock sector programmes, these can be easily accommodated in the existing nodes of watershed development, which require no extra budgetary allocation.

Lack of coordination, synergy and convergence amongst different policies and departments are serious impediments for forging effective and efficient integration. Watershed guidelines need to be viewed in their holistic perspective and should stipulate that resources available under various government programmes should be made best use of through joint planning. Watershed development programmes should establish linkages with government departments and resource organizations and a common convergence agenda should be culled out for persuasion by the respective departments.

This publication aims at creating awareness among policy makers, planners and implementers on livestock environment interactions and suggests to better integrate livestock considerations into the design and implementation of watershed development programmes.

Background

Millions of poor farming families in rural India rear livestock, which is often their only means of sustained livelihood. These animals also contribute to ecological services. However, several practices today – related to access, use and management of resources – diminish the natural resource base and are a cause of grave concern.

Water and fodder are critical constraints for livestock development in semi-arid areas. In 1990, the government accorded high priority to meeting these needs under its programmes. Under the National Watershed Development Project for Rainfed Areas (NWDPRA), 10% of project costs were earmarked to improving livestock rearing through financial support, improved healthcare services, fodder production and water points, etc. But, subsequent guidelines have been blurred on the issue of livestock rearing and are no longer an explicitly spelled out priority.

This policy paper analyses critical issues which affect the environment and the livelihoods of livestock rearing communities. It makes a series of recommendations which will ensure that livestock rearing continues to be a viable livelihood option for the poor on the one hand, and that the ecosystem can be preserved and nurtured, on the other. The issues are especially pertinent for policy makers, planners and implementers in various government departments – agriculture, rural development, forestry, revenue – as well as village self governments (gram panchayats), non governmental organisations and community based organisations participating in watershed projects.

ISSUE: 1

Access to Resources and Environmental Implications

1.1 Reduced access to common land resources (including forest) and environmental implications

Most small, marginal and landless farmers depend on common property resources (CPR) such as fodder and water for grazing their animals. Access to these resources is becoming increasingly restricted, which results in livestock rearing becoming a non-viable livelihood option for poor families.

Reduced access to common resources takes place due to a number of factors including the overall shrinking grazing areas[2] and other common resources as well as the encroachment of land for private purposes.

Most watershed programmes tend to regard grazing as a harmful practice. When watershed interventions and afforestation are underway, restrictions and bans are imposed on tree grazing. In addition, afforestation programmes, community forestry and social forestry focus on developing plantations of non-fodder and non-browsable species of plants, with the explicit objective of enhancing the biomass and forest cover, as an alternative to building social norms for protection. Social fencing and restricted access to fodder resources bring about a forced migration of livestock, small ruminants in particular. The shift to the "stall-feeding" system increases the workload of women, who are required to spend more time collecting, cutting and carrying feed. Taken together, these factors have a disastrous impact on livestock owners'.[3]

Overall, reduced access to common resources results in declining returns from livestock in real terms. In the end, having no alternatives, these families are forced to sell their assets and lose an assured means of livelihood.

Traditional rights granted to villagers under the joint forest management policy are not

complemented with maintenance and management responsibility for a number of reasons. After programmes are initiated, there is often a long period before communities can have access to any major produce from the forest. Sometimes villagers live at a distance and are not in a position to protect the forests, and there are conflicts amongst different groups such as migrant and settled groups or buffalo versus sheep or goat owners.

The overall degradation of common land resources is a matter of serious concern as sustainable environment is a prerequisite for sustainable development. In many watershed areas farm animals are let loose for open grazing on common property resources without any control on resource use or any consideration of permissible stocking rates. This leads to denudation of land and soil erosion. Despite low rainfall and aridity, watersheds that practice good management systems such as controlled grazing or cut and carry can help regenerate the ecosystem.

Based on the above analysis, the following suggestions emerge for policy makers' consideration:

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2 According to the World Bank, the total area covered under 'grazing areas' has shrunk by more than one-third post independence in India. The number of watering points (ponds), an important component of grazing lands, has also declined in many states from 55 to 92 percent.

3 Some watershed management practices such as controlled grazing have a positive impact on the environment, but if they are indiscriminately applied, then they can have a negative impact on the livelihoods of marginal farmers, especially small ruminant keepers.

❋ **Ensure that common resources become more productive by enabling people to develop a greater stake in protecting and using them.** People who are genuinely dependent on common resources should be given a stake in managing and utilizing them. Strategies to create a stronger stake for communities in the development, management and sustainable utilisation of common resources are a must. These include encouraging local, informal arrangements to ensure rotational grazing of different plots by different species of animals, rotational closure of common resources to grow desired fodder trees (social fencing) and encourage some amount of supplementary stall feeding. Protection mechanisms should be developed by the communities and implemented by them in partnership with the local administration. Mechanisms for this such as the formation of user groups, preceded by multi- stakeholder consultations should be built into the watershed development programmes from the start. (Also see following section on improved representation of livestock rearers in user groups.)

❋ **Ensure that the special concerns of small ruminant and other livestock owners are addressed** within the framework of watershed programmes for sustainable natural resource management. For example, in areas where watershed and afforestation interventions are

planned, there is a long period of time before communities have access to any major produce from the forest. Ensure that there is a plan for alternate means of livelihood such as off-farm employment or compensation for livestock owners during this time will ensure that affected families can tide over this period and that the ecological environment can be preserved. Ensure also that restrictions on grazing are rationalised and that separate common property resources/ fallow land sub-plans are prepared by user groups for equitable access.

❋ **Provide rights to the poor** Ensure that small, marginal and landless livestock keepers and migrant groups can enjoy their traditional right to access forests and commons for fodder, fuel and medicinal needs and that they contribute to the development and management of these common resources. Village Forest Protection Committees (VFPCs) should include members that belong to socially, politically and economically weaker classes. Organising primary groups with equitable representation within the VFPCs will provide more space for democratic decision-making.

❋ **Strengthen Panchayati Raj Institutions** The Panchayat Raj Extension to Scheduled Areas Act (PESA) empowers the village level governments or Gram Sabhas and Gram Panchayats to safeguard and preserve the traditions and customs of the people and community resources.[4] These village governments should play a greater role to ensure that decisions are made with the best interests of the larger community at heart.[5]

[4] The act governs 29 activities including animal husbandry, dairying and poultry, social forestry and farm forestry, watershed development, fuel and fodder, maintenance of community assets and agriculture.

[5] In many villages community grazing lands have been handed over to other interests or have been encroached upon with the connivance of the Panchayat

Examples of good practice

- In Maharashtra, the state government issued a resolution stating that the village watershed committees (VWC) could share the benefits from the forest lands provided they participate in the development and protection of government forestry. The farmers were given freedom to collect twigs and branches of the trees in the forest land for feeding of cattle, for mulching and fuel. The fodder grown in forest was also made available.
- In Andhra Pradesh, the Foundation for Ecological Security and the Ananta Paryavarana Parirakshana Samithi established various institutional systems for regenerating commons on large scale. These organisations facilitated the formation of norms for protection, sharing of benefits and imposed penalties for defaulters.
- A voluntary ban on the free grazing of the animals at some common resource locations resulted in increasing biomass availability. This was found to depend on the status of the ecosystem productivity and the degree of access to users from poor households.
- In Rajasthan, participatory approaches to protecting pasture development were utilised with positive results.

1.2 Scarcity of fodder during drought

Fodder scarcity is a major bottleneck in supporting livelihoods which are based predominantly on crop-livestock farming systems in semi-arid and rainfed areas.

Green fodder production for large ruminants is limited by both water availability and small land holdings. Crop residues in some cases are also becoming scarce due to shifts in cropping patterns in favour of cash crops with limited fodder value. In addition, there is a decline in their quality due to the increasing use of chemicals in crop production. Last but not the least, the shrinking grazing of areas adversely affects livestock based livelihoods dependent on equitable access to common resource areas.

Environmental consequences tend to show a vicious circle of poor availability of fodder which leads to uncontrolled grazing, which in turn results in diminished vegetative cover and accelerated degradation through erosion. Thus, increased pressure on available grazing resources only compounds ecological degradation.

The mandate of providing fodder[6] to marginal communities especially for those who have historically been landless and dependant on the forests is under the purview of the Forest Department. However, the department provides no clear directives for enhancing fodder supply to meet requirements, nor any rational

mechanism of managing livestock-environment-forest conflicts despite policy intentions and the rhetoric of process related and legislative reforms. There are no concerted efforts in watershed development areas to improve fodder availability. This, coupled with a reduction of fallow lands following treatment and promotion of non-browsable (non-fodder) plant species adds to the poor livestock keepers problems.

Eventually, the performance of the livestock under such stressful conditions becomes sub-optimal. And, when the cost of feeding/fodder input also shoots up, the risk of non-profitability and loss for livestock rearing families becomes all too real. Poor families are then forced to sell their livestock, something that typically takes place during the summer, and especially during drought periods.

[6] As well as fuel and medicinal plants

Watershed development programmes must therefore contribute to the overall enhancement of fodder sources and harness their potential to provide a strong fodder base for the growth of livestock based livelihoods for the poor. The following actions are recommended:

* **The Forest Department should enhance access to fodder** and anticipate the best means to resolve the conflict between livestock grazing requirements vis-à-vis the enhancement of forest and vegetative cover.

* **Fodder planning should be explicitly catered for in watershed programme guidelines.** Although a budget is available for general fodder enhancement, related planning frameworks, resource materials and capacity building modules are lacking within plans. Watershed guidelines should also explicitly mention the types of biomass to be promoted (local including fodder trees and shrubs).

* **Poor livestock owners must get access to fodder entitlements** either through the provision of funding for watch and ward on common resources or through the long-term lease of fallow/irrigated lands to develop fodder resources. Self help groups and cooperatives can be called upon to help manage common resources better and design mechanisms to ensure access to all. Creative options for improving watch and ward of common resources include the creation of a rotating corpus, encouraging a stake in the produce and payments in kind.

* **Participatory methods must be used to analyse fodder scarcity/requirements** and fodder plans need to be made during the planning phase of watershed development programmes, along with soil and water conservation plans. These will provide a systematic analysis and a sound basis for planning**.** In all cases, efforts must be simultaneously viable and sustainable.

* **Special water allocations need to be made** to enhance green fodder availability during the year, especially during summer, in addition to usual water usage plans. One option is to encourage collective investments in irrigation for efficient water use on collective fodder plots. Budget support for such collective action should be provided under livelihood enhancement to create assured fodder access to the poor keeping sustainability /viability concepts in mind.

* **Special measures to meet fodder requirements should be encouraged** such as: shifts in cropping patterns; seeding and promotion of fodder trees, shrubs and local grasses; community or co-operative fodder storage and banking methods to tide over crisis situations and to safeguard against fodder shortages and price fluctuations; silage making and the promotion of fodder processing techniques such as chaffing and briquetting etc. depending on sustainability, viability and local needs.

* **Special measures should be taken to overcome acute fodder scarcity.** If needed, opening of village level Scarcity Camps for livestock should be promoted so as to save the precious livestock and its productivity. Preference should be given for livestock owned by landless, small and marginal farmers. In drought conditions, livestock rearers should be provided with market tips to ensure that they get the best prices for the sale of their livestock and to resist making distress sales.

Examples of good practice

- In Madhya Pradesh, leasing common resources to self-help groups and cooperatives not only enhanced fodder availability but also created an income generating enterprise for the women involved.
- In Karnataka, a rotating corpus was created to fund watch and ward activities for common resources.
- Cattle camps in 1972, 1976 and also later in the wake of drought conditions in Gujarat, Maharashtra and Rajasthan helped to save thousands of productive large ruminants. Activities included provision of water through tankers and fodder for livestock, temporary fodder banks and animal health camps to tackle disease problems.

1.3 Reduced access to drinking water for livestock

Poor farmers turn to livestock production during the dry season since it represents a dependable source of income in the event of crop failure. This places an added pressure on common resources at a time when water is already scarce, indicating the need for watershed programmes to allocate between competing demands for drinking water, human and livestock and production needs.

The quality and availability of drinking water is dependent on several factors. For example, the quality of drinking water deteriorates during the peak of summer, leading to a greater incidence of death and disease. Poor households tend to have less access to water, while richer farmers exploit common groundwater resources collected through watershed development efforts through borewells. An overall shift to more water intensive crops also affects water availability and rapidly depletes ground water tables.

Under these conditions, poor farmers put animal health at risk by making them travel long distances to access drinking water. Eventually, during periods when livestock mortality is high, farmers make distress sales, which adversely affects the income generating capacity of the poor.

Despite the fact that all policies governing drinking water (National Watersheds Development Projects for Rainfed Areas, 1990) accords highest priority to drinking water needs of (human beings and) animals, the focus has thus far largely been on provision of water for large ruminants. This leaves the poor with little or no resources to depend on.

Given this scenario, the following actions are recommended:

❋ **Pay particular attention to drinking water needs for small ruminants** through explicit mention of the same in policy documents. Include plans for water provisioning for competing uses through water budgeting and accounting within planning frameworks, especially during soil and water conservation planning. If water troughs or hand pumps are to be installed to access ground water resources, then these should be budgeted for.

❋ **Include drinking water security for livestock into action plans,** in plan objectives and through a series of relevant activities such as the provision of water access points. Consult communities to ensure ownership, regulation and maintenance of these access points. Base assessments on number of livestock as well as places where access points will be needed and on other infrastructural requirements.

❋ **Provide facilities for improved drinking water to prevent disease outbreaks.** Ensure that water troughs for animals are built and that separation and hygiene are maintained for human and animal access points. Regular chlorination and cleaning of water tanks and other hygiene measures should be managed by the communities and local governments as required. Water use should be rationalised for animal and human requirements.

Examples of good practice

- In Karnataka, water troughs were built for livestock watering alongside hand pumps
- In Tamil Nadu, watershed programmes made no initial plans to cater to animal drinking water requirement. However, recently, watering points have been introduced as an entry point activity with good results. This was done after making an inventory of livestock in the watersheds, estimating their water needs and looking at places where water could be provided.

ISSUE: 2

Access to Quality Inputs and Services

2.1 Poor access to livestock services

Watershed development projects have the potential to create opportunities for improving the livestock production systems through improved availability of feeding, breeding, disease control and management practices. Such interventions will make livestock rearing a sustainable practice for poor farmers.

In the long term, healthy and well-bred animals require fewer investments and fetch higher prices. With the provision of effective livestock services, poor livestock owners will not need to indiscriminately increase the number of animals to break even on their investments in the enterprise, thereby reducing the overall pressure on common resources in watershed development areas.

Earlier watershed guidelines (1990) contained several useful provisions for animal healthcare that supported livestock rearing such as seed money for medicines and simple equipment; preventive vaccination, primary health care and first aid; de-worming, population control through the castration of scrub bulls etc. However, livestock services, currently provided by state governments are few and largely inaccessible to the poor. Private services are expensive. So far, neither the demands nor the potential for value added services such as livestock insurance against death and disease have been assessed.

Poor livestock owners allow indiscriminate breeding, which places an additional burden on the ecosystem. In the absence of good quality local bulls, quality breeding attempts have largely failed, leading to the extinction rather than conservation of useful local livestock species as well as an erosion of traditional ethno-veterinary health delivery services. In the absence of proper vet services, zoonotic animal diseases, communicable to human beings, are in danger of becoming more widespread.

This situation calls for the following urgent measures:

* **Ensure that the National Livestock Policy is redrafted and that it includes a special focus on a breeding policy for small livestock** that allows for scientific breeding in indigenous animal populations in selected areas to regenerate animal species and improve overall livestock health and vitality. This should be done based on real regional data on the subject.

* **Prompt the Animal Husbandry Department to initiate actions for superior quality bulls** for improved breeding services, especially in resource rich areas. Ensure that the selection of rams, bucks and indigenous

breed bulls as well as their distribution becomes a focus area within watershed development programmes as a means to ensuring the long term ecological sustainability of the region. Relevant budget allocations for these activities should be made at the planning stage and linkages with self help groups and the animal husbandry department should be maintained from the start of the programme. Ensure synergy of action between this department and watershed development programmes in all states.

* **Livestock para-workers must be given official recognition and be trained to focus on preventive health care services** for livestock in watershed development areas. This should be arranged in collaboration with the animal husbandry department. Capacity building efforts for para-vets and other community based livestock service providers competent to handle day to day livestock service needs, under the supervision and guidance of a qualified vet should be planned and budgeted for.

Examples of good practice

- During Operation Flood, milk producers' cooperatives took ownership for the effective provision of services, in addition to the state animal husbandry department. User groups, having increased stake in the provision of these services, demonstrated good results.
- BAIF, a nongovernmental organisation in Mahashtra, introduced door-step delivery of Artificial Insemination Services for dairy animals as early as 1970. These services were initially funded by farmer cooperatives and later on by the government. At many of the places, local youth, both graduates and undergraduates, are being encouraged to run the activity as a self-employed income generating activity, which has resulted in increased demand for these services.
- Programmes supported by the Swiss Agency for Development and Co-operation and Intercooperation(SDC-IC) in Vishakhapattanam, Vijaya-nagaram and Srikakulam districts of Andhra Pradesh, as well as several national and state government programmes in other districts of the state have been encouraging breeding services and veterinary first-aid delivery through what is now known as the 'Gopal Mitra scheme'. Similar efforts were also made under the UP Diversified Agricultural Support Project through the "para-vet" system. Unfortunately, the focus has been more on health care rather than disease prevention.
- The Andhra Pradesh Rural Livelihoods Programme tried to upgrade breeds through the supply of improved bulls in Nalgonda district with mixed results. The DANIDA watershed development programme tried improved bucks in Madhya Pradesh. There are also good examples of para-vet training and practice introduced in remote areas, from various states and agencies (Morrenhof, Ahuja & Tripathy, 2004).
- The Draft National Livestock Policy 2003 proposes to enhance the participation of co-operatives, nongovernmental organisations, breed societies and farmers in improving livestock production efficiency. The policy also encourages private partnerships for the provision of essential enterprise development inputs and services, so that poor farmers can improve the efficiency of their assets.

2.2 Poor access to formal and institutional credit

Limited access to formal/institutional sources of credit limits livestock production possibilities of poor farmers and pastoral communities. This is compounded by the fact that they do not have access to basic business development and market information. Too much seasonal buying and selling causes serious setbacks to their asset building capabilities. In addition, credit flows to communities suffer as a consequence of the absence of sound watershed governance institutions. This puts livestock enterprises at additional risk.

Bullocks are not financed by most local banks. Those that do finance bullocks, insist that they should not be sold during the summer because they consider them to be a long-term asset. They also do not look at fodder availability as a precondition for finance. This makes the danger of entering into a vicious cycle that follows accessing credit for livestock purchase at private lending rates a real one,

the consequences of which are worse for poorer sections of the farming community and for women.

Keeping cattle during acute scarcity periods makes poor families and their investments vulnerable. This is why they tend to sell their livestock at low rates. After a normal rainfall, there is a rush for acquisition of replacement stock, usually at a higher cost than what they were sold for. Formal credit institutions do not take into account this seasonal selling and purchasing pattern.

Poorer households, especially small ruminant holders, have little or no capital resources to invest in their livestock enterprise. Investments such as for acquiring or upgrading to better breeds or for improved health care, feeding and management practices – all of which have the combined effect of reducing environmental stress – are too luxurious on their existing resources. Instead, they resort to keeping larger stocks of animals to break even, thus increasing the pressure on environment.

Thus, as stated in the draft livestock policy 2003, outputs from livestock sector will be greatly influenced by the quality, availability and accessibility to credit. However, there is a long way to go before financial institutions can strengthen their support in real terms.

Given this scenario, the following actions are suggested:

❋ **Strengthen poor livestock owners' access to credit and market information.** Watershed development programmes and lending institutions should facilitate linkages between livestock rearing groups, especially women's self help groups and sources of institutional credit. Access to market and feed/fodder resources, as well as borrowers' working knowledge of related livestock production and processing activity should be considered as prerequisite for lending. Credit should also be linked with access to breeding, health extension and marketing services. Finally, livestock should be insured for covering the risk of loss of production and life.

❋ **Strengthen watershed development activities to include budgets for emergency cam and services.** Watershed development programme managers should be able to enhance business development plans for poor livestock owners by sharing relevant public information with banks and lending institutions such as budgets for emergency camps and services in the case of drought. Overall strategy for building livestock assets should be designed around a fodder development programme as a sub-set of watershed development.

❋ **Enhance interagency cooperation.** State level and watershed level policies should be synergised with the national policy. Short term credit facility being provided to agriculture sector should be extended to Animal Husbandry sector as well.

Examples of good practice

- Credit facilities from local banks and cooperatives for the acquisition of dairy animals played a major role in most watershed development projects in western Maharashtra, where the productivity of the livestock sector has been positive resulting in tangible benefits to the market for milk for over twenty years.
- Many of the bankers in Maharashtra, which finance the purchase of livestock, particularly goats, insist on training/ working knowledge of livestock

production and management as a pre-condition for accessing loans.

- NABARD has been promoting the use of credit, routed through nationalised banks, for various kinds of livestock activities such as livestock purchase, setting up commercial units of small and large animals, livestock products processing plants etc. This has benefited a large number of private entrepreneurs, farmer cooperatives and organisations. It is interesting to note, however, that there were no takers for credit available for the rearing of young crossbred heifers.
- Advancing credit through self-help groups is a more recent development. In most watershed development programmes, a big proportion of credit availed by self help groups, especially by women, is used for acquiring livestock to build assets.
- Few non-government organisations deal with financing for livestock production as an income generating activity for women. Innovative schemes such as the "passing on the gift" (of livestock progeny) scheme by AFARM, have helped to create livelihood support for a number of poor women and to widen programme outreach. Similarly, small ruminants are made available to poorer communities at subsidized costs by state level development boards.

ISSUE: 3

Information, Participation and Co-ordination

3.1 Poor access to skills, knowledge and information

For landless small and marginal farmers to become responsible stakeholders in ensuring both sustainable livelihoods and environments, they need access to skills, knowledge and information that empower. However, while the National Livestock policy focuses on the "training and awareness" components for staff, it is silent on the issue of training and awareness building of livestock rearing families themselves.

Under previous watershed development project guidelines, at least 10% of project cost was earmarked for various activities related to Animal Husbandry, including training of farmers. In the projects for arid areas, about 30% of the project funds were provided for livestock development. Although a good beginning was made, the importance of livestock in watershed development projects is now diluted.

Present "training and awareness" infrastructure is inadequate to cater to both current and future needs, is located in comparatively well-developed areas and is therefore inaccessible to the vast number of livestock owners living in remote farms and hamlets. The availability of skilled human resources is also not adequate.[7]

Together these factors result in the poor exploitation of technology, which in turn adversely affect not only the profitability of livestock rearing but also the environment.

The following recommendations are born of the above analysis:

- **Improve access to skills, knowledge and information** by supporting the training of para vets (gopals) and training of village (women and men). Training inputs should be expanded to include livestock rearing families and treated as a part of productivity enhancement activities, under the works budget, rather than under the training budget which is grossly inadequate to provide such inputs.

- **Watershed programmes should link up with the Animal Husbandry training infrastructure** and work together with them to reorient and expand to remote but potentially productive areas. This linkage should be the responsibility of the district administration.

- **Training for livestock rearers, para-vets and private practitioners is imperative** for supporting livestock rearing activities through livestock extension services. Their training needs should be identified and arrangements made for training. The introduction of relevant distant education systems and training of trainers would be welcome steps in this direction. Achieving this should be the responsibility of state government.

[7] For example, the National Livestock Policy states that there is shortage of qualitative and quantitative manpower in the area of veterinary sciences.

❋ **Planners should invest in improving skills, knowledge and information in related and alternative livelihoods** of poor farmers who rear livestock under a "low input" regime, using freely available public resources under economic compulsions. This will provide crucial livelihood support to a large number of poor households. Systems studies with the participation of farmers are recommended to develop a better understanding of conditions in which new technologies are likely to be adopted.

❋ **Watershed programmes should establish village level information centres** that should be organised and managed by farmers themselves with support from the Government extension workers and cater to the diverse information needs of livestock owners. This will help to 'democratise information'. Self Help Groups and Community Based Organisations in watershed development programmes could pilot these activities.

Examples of good practice

- Case studies from across the country show improvements in crop-livestock integration and adoption of environmentally sound management practices such as vermi-composting, installation of biogas units and the improved use of agricultural waste as a result of training and awareness inputs in various livestock related programmes. However, less water intensive organic practices suitable to each agro-ecological zone would be the most appropriate to promote.
- At BAIF in Maharashtra, livestock owners in watershed projects were provided exposure visits to cattle/ dairy development projects and specific training programmes were organised. Feedback indicates that this had a favourable impact on the livestock enterprise and thereby the income of livestock rearing families.
- RAIN, a nongovernmental organisation in Maharashtra imparts training in goat rearing that has resulted in a large number of youth starting stall feeding enterprises for goat rearing. (It is acknowledged however, that stall feeding is not appropriate in all situations.)
- A comparison of productivity of dairy animals under Operation Flood (OF) and Non-OF areas indicate favourable impact of various interventions, including training and awareness of the livestock rearing families in OF areas through improved management of livestock.

3.2 Low representation and participation in decision making

Inadequate representation of livestock rearers, especially small ruminant keepers, in watershed development programmes adversely affects their interests and livelihoods. In addition, it has a long term debilitating effect on the environment because groups excluded from decision-making bodies are unable to understand and influence the link between sustainable livelihoods and the preservation of ecological environments.

Although watershed guidelines do provide for participation of all households and all sections of farming communities in the decision-making process, most small ruminant and livestock rearing families belong to economically and socially disadvantaged

communities. This predisposes them towards having little say in community decision-making processes. If these livestock owners are not included from the beginning of the programme, then local decision and policy making bodies are weakened because they are unable to form acceptable institutional and social norms, such as for the rational use of common resources, and enforce them. These factors further result in harmful, short-cut practices such as the aforementioned plantation of non-fodder vegetation in watershed development areas.

Excluded livestock owners must then struggle in an increasingly harsh environment rather than protect and adapt to diminishing local resources on their own. More often than not, this means that they must sell their asset.

The following suggestions emerge:

* **Explicitly mention the inclusion of all livestock owners in watershed guidelines** Include migrant, landless and small farming families**,** so that implementers can consciously involve these groups, especially women, who primarily constitute small ruminant rearers.

* **User groups of common resources should include livestock rearing families amongst its stakeholders** and consciously consider livestock production activities and their dependence on common resources while planning their management and use.

3.3 Poor coordination amongst government policies and departments

From previous discussions, it is already evident that there are a variety of policies and government departments dealing with the issue of livestock rearing. These include the departments of rural development, animal husbandry, revenue and forestry. Local self government bodies such as gram panchayats also have powers related to this issue. Thus, there are many development players in the same watershed area, who are either part of watershed development projects or who operate independently. Coordination amongst all the players can be enhanced during both the planning and implementing stages of the project through the following suggestions:

* **Watershed guidelines should stipulate that resources available under various government programmes** for that area should be considered at the planning stage. Resource use should be planned strategically to make the best use of what is available, so as not to burden watershed development project budgets unduly by including numerous activities.

* **Watershed development programmes should establish linkages with government departments & resource organizations** to take advantage of resources available at the area level.

* **A common, "convergence" agenda should be culled out of the available action plans and should be pursued with various departments.** The district programmes management agencies should facilitate implementation of these convergence action plans.

ISSUE: 4

Integrating Livestock in Watershed Development Programmes

(Ravindra A, WASSAN)

Livestock - Multiple Perspective

There is a general tendency to look at livestock rearing as an "income generating" activity, a "measure of equity" for the landless or as an "activity" for self-help groups. Thus, distributing or financing livestock assets becomes their main focus. Some watershed programmes consider livestock issues as "Watershed plus" and they do not receive the attention they deserve.

In isolation, each of these perspectives limit the scope of watershed programmes. Livestock are a core natural resource that provides ecosystem services. As a part of the production system, livestock make demands on natural resources, but they also generate products for consumption and income. While land distribution may remain skewed, livestock rearing provides an opportunity for the poor to create some assets and income.

Taken together, these characteristics put livestock at the heart of watershed development because, livestock concerns three of its main components viz.,

- ❖ natural resources management (livestock are a natural resource),
- ❖ productivity enhancement (livestock are a part of the production system), and
- ❖ livelihood improvement (livestock enhance the livelihoods of the poor).

Integrating livestock issues into watershed programmes The integration of livestock issues into watershed development should not make undue demands on the limited financial resources in the programme. Also, it should not replace sectoral allocations to livestock sector nor dilute the responsibilities of the livestock departments in addressing the issues. Increased investment allocation within livestock departments to complement watershed programmes may be an option.

Watersheds are part of a process oriented, community institutions centered approach. Thus the following nodes of integration with the watershed programme may be considered:

- ❖ Community institutions: Some aspects that need to be addressed are - providing representation to livestock rearers and organisations, especially, in decision making processes, and developing specific programmes addressing the issues of livestock rearers as a specific stakeholder group. Building in a focus on institutional mechanisms for grazing rotation, marketing, and healthcare services is important.
- ❖ Participatory action planning: Specific livestock sub-sector plans like ensuring drinking water for livestock, fodder sub-plans etc. may be considered. Participatory

Table 1: Nodes (existing and new) of integrating livestock in the watershed development programmes

	NRM (existing)	Capacity Building (existing)	Community Organisation (existing)	Administration/ Facilitation (existing)	Productivity Enhancement & Livelihoods (New)
		Community mobilization & training			
Budget Nodes as per Haryali Guidelines	Presently it is the budget head under "works" – 85% earmarked for this purpose.	5% available under this head at present.	Community organisation budgets merged with capacity building	For the salaries of facilitators etc. – 10% is earmarked	This budget node at present does not exist & needs to be created. In A.P. this is created by earmarking 33% of the 'works' budget for the purpose
Program Aspects to be covered in each budget node	• Intensive fodder trees & grasses *(in CPRs, Bunds etc.)* • Developing new Drinking Water structures & reviving existing ones	• Skills, awareness & Knowledge in management • This budget is not sufficient for training para-workers; therefore it needs to be considered under the Productivity enhancement & livelihoods budget.	**Institutional Base for the following to be evolved:** • Health Care services • Protection (CPRs and PPRs) & tenurial rights • Markets (input & outputs) • Participation of rearers' institutions in decision making • Scarcity management (regular or during droughts) / planning for coping mechanisms	**Convergence** With facilitation and nominal investment from the watershed program, the sectoral services and investment can be accessed in the following aspects from various departments, banks and other institutions. • Breeding services, practices and breed protection • Health Care • Infrastructure • Credit • Markets	• Developing Para-workers (from PE budget node) • Breed improvement • Green fodder • Crop patternsAsset building from livelihood budgets/ revolving fund for SHGs: • Plough bullocks • Accessing New Livestock Assets • Income generation opportunities

planning methodologies, unit costs for specific interventions and approval mechanisms for such plans etc. should be developed.

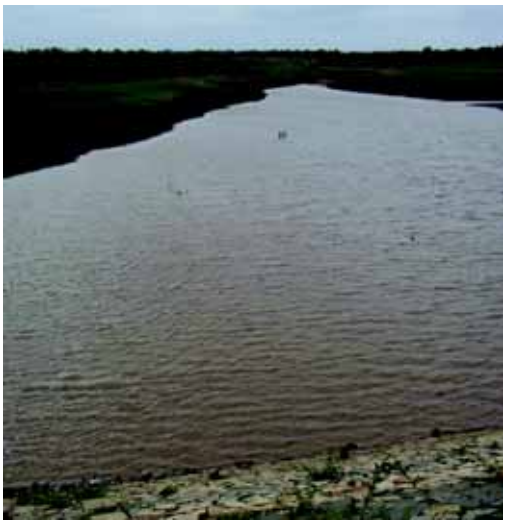
- Capacity building budget: Budgets presently available in the watershed programme under 'training' are not sufficient for developing the capacities of para-workers. Resources from the productivity enhancement (as a part of works budget) may be accessed for this purpose. Developing relevant capacity building modules is of utmost importance.
- Programme Facilitation: Treating livestock as a specialized sector does not take us forward as the programme cannot afford the salaries of a specialist. Instead, the capacities of existing workers and para-professionals need to be developed. Spacing out programme processes as well as the identifying the best sequence of processes within the five-year framework currently available, is of concern.
- What can the livestock sector learn from watershed approach? Community based programmes, building stakeholder institutions and vesting programme budgets with them, an area development approach covering all the households in one pocket are some of the major processes that might help the livestock sector improve its relevance and effectiveness.

Nodes of integration. Elements that are currently missing in livestock development programmes such as community participation, promotion of rearer organisations and community management of Common Property Resources (CPRs) can be accommodated in the existing nodes of watershed development programmes. Interestingly, these goals can be accomplished without extra budget allocations because the majority of the funds are already available in these nodes.

However, operational strategies and processes like participatory planning methods, capacity building modules, appropriate institutional mechanisms, effective convergence strategies etc. need to be evolved.

The table (Table 1) illustrates these specific nodes of integration between watersheds and livestock development.

In a nutshell, a little more focus on livestock issues within watershed programme guidelines would go a long way in not only rejuvenating the environment but also preserving the livelihoods of thousands of poor farming communities. More than anything, the sector will benefit from good examples of addressing livestock issues within watershed development programmes. Such examples need to be created.



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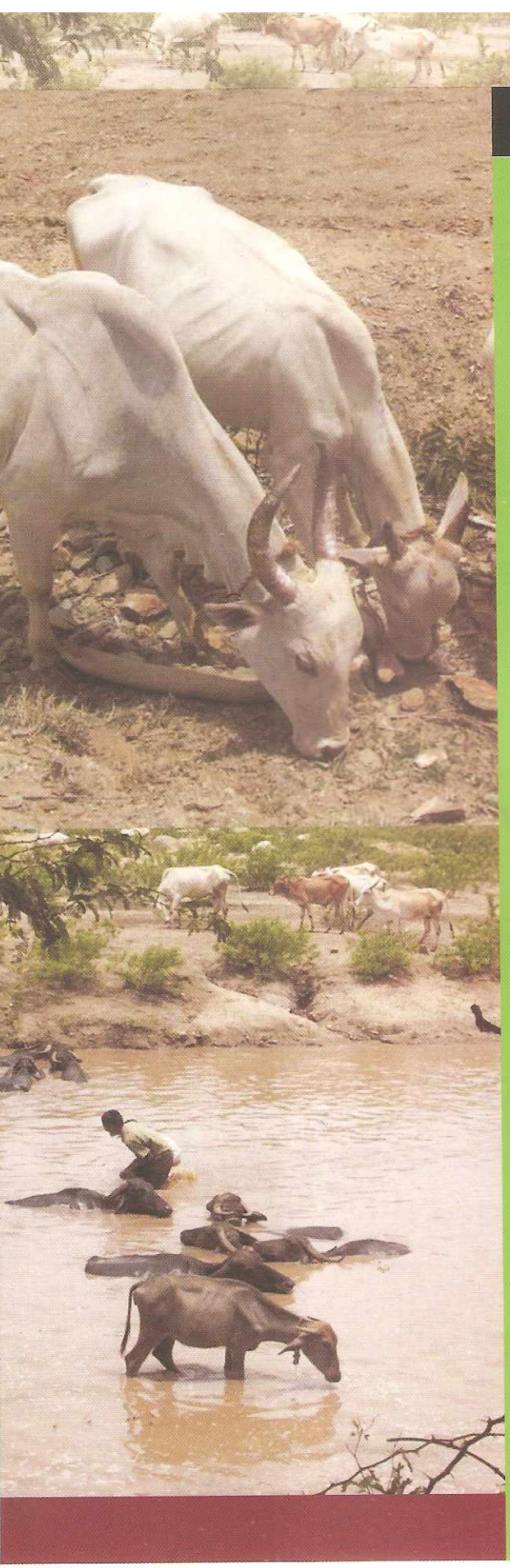
Intercooperation supports partner organisations in more than twenty developing and transition countries on mandates from Swiss government and other donors. In South Asia, Intercooperation is present in India, Pakistan, Bangladesh and Nepal.

Intercooperation has been working in India since 1982, as a project management and implementation partner of the Swiss Agency for Development and Cooperation, SDC. Our early experience focused on the livestock and dairy sector, providing technical expertise through a series of bilateral projects with state governments in Kerala, Rajasthan, Andhra Pradesh, Orissa and Sikkim. Intercooperation now works with governments, technical and research organizations, NGOs and Community Based Organisations (CBOs) on initiatives in natural resource management for sustainable livelihoods. Our working domains in India comprise:

- Livestock and livelihoods - particularly small ruminants in semi-arid India
- Participatory watershed development with a focus on equity
- Participatory agricultural extension
- Farming systems approach to sustainable agriculture
- Human and institutional development
- Policy formulation and development of decision support systems
- Decentralisation and local governance

In all our work we seek to support gender balanced, equitable development, focusing on the empowerment of the poor and marginalized.



CALPI PROGRAMME SERIES

The role of livestock in poverty reduction in India is well acknowledged by all. Livestock also provide ecosystem services. But there are increasing concerns on the unsustainable use of land and water resources by livestock /keepers.

Watershed development is one of the ways of mitigating negative environmental impacts. Unfortunately, in many watershed development programmes, livestock are not systematically integrated as an active component. Similarly the common land on which the livestock of the poorest are dependent are subjected to unsustainable practices leading to its degradation.

This policy note analyses critical issues which affect the environment and the livelihoods of livestock keepers and suggests a series of options for the sustainable use of land, forest and water resources for the long term benefit of the livestock keepers and the community at large.

This policy note is addressed to policy makers, policy implementers, watershed practitioners and other individuals and organizations in the government and non-government sectors concerned with watershed and livestock development. The audience also includes officials in the ministries and departments as well as representatives of Panchayats and civil society groups.

Aim of this publication is to create awareness on the intended audience on the critical livestock environment interactions and help them to better integrate livestock considerations into the design and implementation of watershed development and management programmes.

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