

## Good Practice Brief

# Innovations in Common Land Development

## Strengthening Institutional and Physical spaces for Poor Livestock-keepers

### SUMMARY

Several studies highlight the wide-ranging contributions of common lands to the village economy – ranging from food, fodder and timber to benefit flows to farming systems, animal husbandry, to ecological services of resource conservation, recharge of ground water and sustainability of agro-ecological systems. The range of direct and indirect contributions from CPRs, however, has a limited quantification of benefits from commons due to the invisibility and inability to monitor and measure the flows emanating from commons. Documentation also states that livestock keeping is directly related to availability of private and common lands, and as the availability of land decreases poor livestock-keepers become more vulnerable to feed and fodder scarcity.

The issue of benefits and incentives raises concern about choosing appropriate management strategies that involve identifying appropriate mix of technologies, institutional arrangements and preferences over the use and users of the commons. Interventions carried out by the Foundation for Ecological Security (FES) and the BAIF Development Research Foundation in different project locations across 5 districts in Rajasthan demonstrate that **increased availability of fodder biomass – grasses, shrub and tree leaves – is possible through protected commons.** This increased availability of biomass has in turn directly resulted in improved livelihoods.



## The Context

Building on its experience of working with different types of CPRs/ common lands available for development, and corresponding village institutions (legal forms), FES diversified into watershed development in 1996. The average expenditure on physical interventions towards regeneration of common lands in the watershed way of working e.g. Thoria watershed is around Rs. 9000/- per hectare<sup>1</sup> while in case of regeneration activities carried out on smaller scale comes to 12 to 18 thousand per hectare.

The context in Rajasthan represents a typical dryland ecosystem with low and erratic rainfall with high inter-year variation as its most conspicuous feature. Livelihoods of communities inhabiting these areas primarily depend on agriculture and livestock keeping. Broadly the production system can be classified as a mixed farming system with agriculture and livestock playing a complementary and synergetic role. Landless, marginal and small farmers constitute more than 80% of the rural households. Commons which constitute 30%-80% of a village, have wide ranging contributions to the local economy from food, fodder, timber to benefit flows to agriculture and animal husbandry, to ecological services of resource conservation, recharge of groundwater and sustainability of agro-ecological systems. The BPL households, constituting almost 20-40% of the total households in the area, keep a significant share of the livestock. Their livestock – a mix of cattle, buffaloes, goat and sheep – depend mainly on crop residues and fodder derived from the village commons. They also keep 20-30% of their farm land as beeds, which is used for grazing and meeting fodder requirement of their livestock. There is an increasing trend towards conversion of beed lands for cropping. With depletion and degradation of the commons, poor livestock-keepers have been facing hardships to graze their livestock and to meet the energy (e.g. daily fuel wood etc) requirements of their households.

## Benefits to Poor Livestock keepers

Systematic development and management of the Commons to support poor livestock-keepers has impacted the productivity of the commons under governance and has affected the livestock production systems. Present day data from FES operational area comprising 439 villages indicates that, depending upon the condition and location of the commons, on an average the:

- Grass biomass availability increased from a low of 0.26 ton/ha to a high of 8.5 ton/ha based on the condition and location of commons,
- Grass cover increased from 50% to 80% with a shift in composition towards more palatable species (from 35% to 70%),
- **The number of trees** has increased from a low of 29 trees/ha to a high of 289 (Thoria watershed),
- **The average per hectare monetary value** for all types of palatable biomass (trees-shrubs-grasses) on the regenerated and other commons treated in watershed development programs ranges from Rs 1,652/- to Rs. 5,370/- per hectare<sup>2</sup> and is available almost from the second year of intervention - Jatropha plantations in similar conditions promise a net income of Rs.8000/- per year, from the sixth year onwards<sup>3</sup>,
- There is a significant improvement in the **quality of fodder** available from CPRs. E.g. in Rajasthan, grass fodder constitutes almost 46%,

<sup>1</sup> Includes costs towards soil and water conservation, a combination of natural regeneration, seeding and plantation of trees and fodder wherever applicable.. Ref- SA PPLPP (2009) Code: SAGP02, "Innovations in Common Land Development: Strengthening Institutional and Physical Spaces for Poor Livestock Keepers". Good Practice Note, Delhi, India - Table 10.

<sup>2</sup> Based on market prices, ranging from Rs.155 to Rs.11 lakhs per ton for trees-depending on the type; Rs.1500/- per ton for shrub biomass and Fodder @Rs.900/- per ton.

<sup>3</sup> Considering a seed yield range of 0.5 tons to 10 tons per hectare, a probable target could be 2 tons per ha and sold for Jatropha oil extraction at Rs.5/- per kilo. With establishment cost of Rs. 7000/- plus aftercare @Rs.2000/- per year, after 6 years a net income of Rs.8000/- per ha per year can be estimated. (source: [http://www.baif.org.in/asp\\_x\\_pages/pdf/Agroforestry/MEDA.pdf](http://www.baif.org.in/asp_x_pages/pdf/Agroforestry/MEDA.pdf))

- **The water level in open wells** rose from 33 feet post-monsoon in 1996 to an average of 23.25 feet (with some spatial variations) consistently from 2002 to 2006, thereby indicating a gain of around 10 feet in the water column,
- **The agricultural area under double crop (rabi)** has increased significantly (94% in Thoria from 1996 to 2006) due to the assured availability of water – this translates into more crop residues available as dry fodder every year,
- **The number of additional livestock inducted into the area include cross breeds which have increased in the study villages from 17 to 158. The buffalo population have increased** by 15.49%, sheep population by 6.88% and goats by 15.93%. Total livestock has increased by 9.53%. However, the cattle have decreased by 8.48%,
- Around 40,000 poor livestock-keeper households in 439 villages spread out over 5 districts, who depend on the commons for almost 60 percent of their fodder requirements have benefitted by FES interventions,
- **Milk production and sale (case from Thoria) show an increase** from 51,435 litres in 1994-95 to 136,800 litres in 2004-05; this was attributed as much to the presence of market linkage and services provided by the cooperative dairies in the area as it was to improved fodder and water availability.

Another significant impact seen is that the people have gained rights over the CPRs and government acknowledges the strength of the village institutions in managing the CPRs by supporting them in conflict resolution particularly visible during scarcity periods. A culture of democratic decision-making has evolved enabling poor households to participate in those processes.

The community-managed commons have also contributed to environmental services in terms of reduced soil erosion, increased water availability, increased recharge, nutrient flows, thereby, strengthening different livelihood components.

However, more work is needed to convince the government to invest in CPRs to convert them into productive resources for livestock-keepers rather than be

## The Practice

FES believes that effective conservation and ecological restoration needs to be done on multiple scales such as land-parcel, village, landscape and region. In all their interventions including watershed development and management program in Thoria, they have followed a **landscape approach i.e. landscape level planning and patch level action**. They have attempted to integrate larger landscape and ecological considerations into the village level activities so that the overall impact of the different village-level actions is much more than a simple sum of various un-coordinated village-level actions.

Irrespective of the nature and type of CPRs to be improved, FES invests substantial time and efforts towards -

- Identifying ecologically significant areas such as patches of pastures/grassland, forests, sacred groves, farm land etc. in consultation with local people and experts (foresters, naturalists and the like), and understanding how these components are interlinked;
- Making an assessment of the current status of the CPRs to be restored through fairly rigorous and in-depth participatory analysis processes, with due emphasis on local and traditional NRM practices and issues related to competing claims on specific CPRs;

- Ascertaining the degradation of CPRs especially grazing lands, water sources, and agriculture fields on a historical time scale by consulting village elders, secondary literature and land records.
- Assessing capability of land, based on government or other agency criteria, with reference to its productive potential and specific management in order to make choices regarding eco-restoration and land management options;
- Checking the existing database on land use, land cover and property rights in the location specific situation by ground-truthing of satellite imagery indicating existing land cover/use, understanding the administrative boundaries and current user regimes etc. to clearly gauge the current situation;
- Mapping of the land use and land ownership patterns in terms of which legal category of land is used, controlled, managed and owned by whom – this is crucial to the design of interventions.

The work of FES on CPR comprises of work on various categories of common land namely gauchar (common pasture lands in custody of the Panchayat/ local government), revenue wastelands and water regimes for the regeneration and restoration of the watershed. The common lands and private lands are treated as one unit where work on the commons would stabilise water and nutrient cycles, thereby, improving productivity of private lands for agriculture and livestock.

In operational terms, this implied three distinct domains of investments, namely a) Bio-physical, b) Social-Institutional and c) Facilitation by the intervening agency/ organisations.

**a) Bio-Physical interventions:** FES has been mindful of the fact that drawing upon many proven cost-effective technologies using locally available biomass-based materials can significantly reduce total costs of the civil works such as construction of walls, roads, etc. These technologies have also been able to increase the strength and durability of engineering works at a lower cost. Such technologies have also led to the empowerment of people by enhancing skills and reducing their dependence on professional agencies and special equipment.

The mainstay of the bio-physical interventions has been to develop a protected patch with a suitable mix of grass and tree species that would provide different products to livestock-keepers to meet the feed and fodder needs of both small and large ruminants. While maintaining the natural (bio) diversity of the ecosystem, care was taken to consult and make use of local knowledge while selecting grass, legume and tree species.

Regeneration and the sustainable management of CPRs involve the following major technical and material investments:

- Fencing of physical boundaries: stone-wall, live-hedge and/or cattle protection trenches
- Seed bed preparation: removal of weeds, tilling, burning dry grasses, manuring
- Seeding: collecting local seeds, sowing and plantation
- Soil conservation measures: farm bunds, contour bunds, staggered trenches
- Maintenance: weed/ invasive species removal, fence repairs, pruning trees and shrubs

**b) Social Institutional aspects:** By following a landscape approach, FES has been able to facilitate the strengthening and creation of durable institutional arrangements for community-based NRM to enhance

livelihood security not only at the village level but for people from different parts of the landscape. Specific institutional interventions entailed:

- Securing tenure by consistently engaging with state government and different legal custodians of the CPRs esp. local government line departments and gram Panchayat;
- Crafting new or strengthening existing traditional institutional mechanisms for management of the CPRs depending upon the type of CPR;
  - framing rules and regulations for the management and sharing of the produce of the land - these include:
  - rules for membership: all men and women above 18 years,
  - meetings: common place accessible to all, night-time, monthly, fines for not attending,
  - decision-making: representative management committee vetoed by general body,
  - protection of the resource: rotational or by appointing guard paid by contribution, fines for violation,
  - physical work: plot-wise interventions, labour opportunities for all, shramdaan, payment in presence of all,
  - benefit sharing: regulated and rotational grazing (fee & time to be decided collectively), typically one month after monsoons, tree lopping allowed in some villages,
  - space allocation for small ruminants to graze.

**c) Role of facilitating agency:** Commons are resources of the whole village where different actors are linked to each other in complex relationships guided by caste, class and gender, and the norms that govern them that have evolved over time. The role of any facilitating agency working towards development of the commons gains importance as it works with these different actors within and outside the villages – it starts from building an understanding of the internal, village-level complexity to awareness about the various legal and policy provisions for organising the people, considering the technical aspects of the context, to providing options and promoting discussions about rules and operational systems that govern the commons in order to make benefit sharing fair and equitable.

Among other things, FES has invested considerable time and effort in the following activities:

- Liaising with government to provide rights to the village institution, making government and institutions aware of the policy provisions that can help people gain rights to CPRs;
- Providing funds to regenerate and restore the CPRs;
- Facilitating micro-planning processes based on technical understanding and long term objectives with appropriate technology solutions in order to approximate the natural processes;
- Supporting capacity building and institutional development of the village institutions formed with due attention to the relationships between and differential needs of various groups of actors, in order to include all esp. the poorer households.

## Policy implications

It is evident that investing in CPR development is not only good for poor livestock-keepers but also appears to make economic and policy sense. It promises an overall increase in livestock productivity and production and consequently growth of the sector. The GP is evidence that a one-off investment in CPR regeneration can suffice to promote a sustainable long-term use of CPRs – i.e. to ensure increased production and year-round availability of fodder and water for livestock – as there is no need of external finance for day-to-day CPR management.

The changes in land use/ land cover also have the potential to make a case for terrestrial carbon sequestration<sup>4</sup>. For Example in Thoria, the open forest area has increased from 80 ha in 1993 to 756 ha in 2006; which has resulted from growth in quality of forest thereby reducing the wastelands by 81%. Similarly the scrub land is also upgraded to mixed degraded and later to open forest, thereby reducing it by 25%; and the agricultural area under second crop increased by 94%.

Therefore, there is a need for programmes designed around appropriate combination of investments in the bio-physical, social - institutional, and facilitation aspects that ensure the regeneration and sustainable management of CPRs – livestock.

<sup>4</sup> The Chicago Climate Exchange (CCX) credits grass planting at 1.0 metric tons of CO<sub>2</sub> per acre per year; depending upon the agro-climatic location, species and the baseline condition of trees (degraded or deforested) tree plantings can yield credits from an average of 3-4 to 7 metric tons per acre per year.

## SOUTH ASIA Pro Poor Livestock Policy Programme

A joint initiative of NDDB and FAO

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