

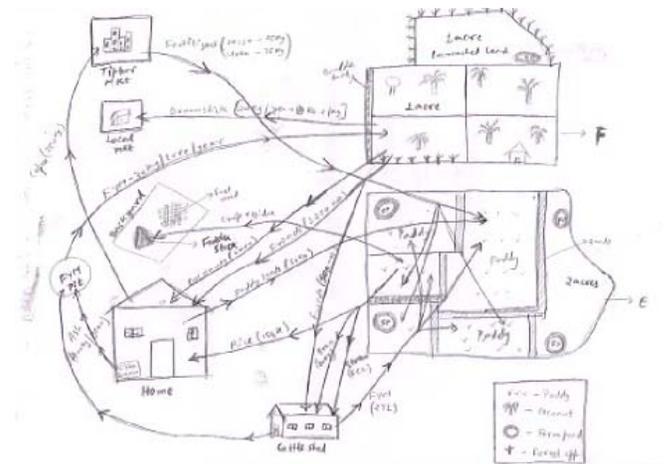
Soil fertility management in semi-arid India: its role in agricultural systems and the livelihoods of poor people

The Natural Resources Institute, the Deccan Development Society and BAIF have recently completed a preliminary research study on soil fertility management and livelihoods in three rural districts of Andhra Pradesh and Karnataka. The study focused on two poor groups: 1) small and marginal farmers looking at how they are managing soil fertility and the soil-related problems they face in their agriculture, and 2) landless families and other poor people engaged in the trade of organic fertilisers such as farmyard manure and vermicompost. A detailed report of the projects' findings has been published.

It is commonly assumed that rainfed areas face a soil fertility crisis. While there are concerns, the report challenges this orthodoxy. It challenges the view that farmers are not managing soil fertility carefully, and that simply more fertilisers and more external inputs will improve livelihoods. It offers alternatives based upon consultation with farmers and analysis of a wide range of case-studies. It also provides detailed information on a neglected but important aspect of these farming systems – the importance and expansion of income-generating opportunities from the trade in organic fertilisers. The research findings have implications for development programmes, future research and policy.

Research methodology

The research included a combination of reviews and fieldwork using both quantitative and qualitative methods, such as farm resource flow mapping. The fieldwork covered four villages each in both AP (Medak District) and Karnataka (Tumkur/ Hassan Districts). These were selected to include 'intervention' villages where NGO-implemented natural resources management programmes have been active and 'non-intervention' villages.



Key findings

1. No decline in soil productivity

In the study areas there is little evidence that soil productivity is in decline. This is contrary to the prevailing wisdom that soils in rainfed areas are being significantly degraded. In fact, yield trends and the views of farmers suggest that productivity is stable or increasing, and that soil fertility is only one important constraint faced by farmers.

2. Rich indigenous knowledge on soil fertility management (SFM)

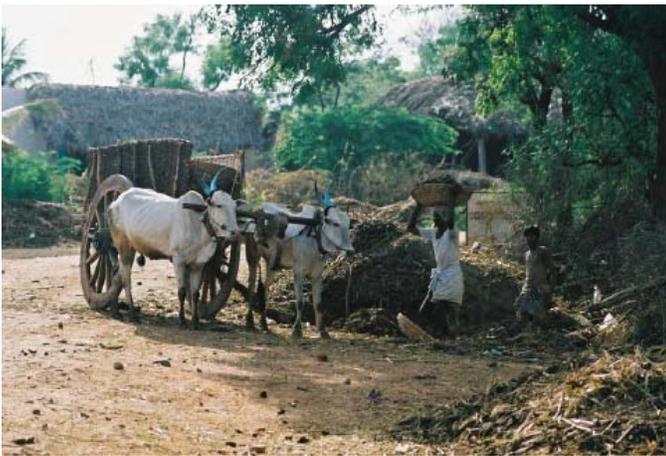
Farmers are actively managing soil fertility and other soil properties through a wide range of practices and significant inputs of time, knowledge and capital. As well as adapting so-called 'modern' methods like combining chemical and organic fertilisers, practices based on long experience and a rich knowledge of the locally specific conditions and constraints are alive and vibrant. These



indigenous and dynamic SFM practices are largely unknown and undocumented by the official research and extension system.

3. Re-distribution of livestock

The overall number of livestock is decreasing in the study areas due to labour shortages, decline in grazing lands, and increasing mechanisation. But the proportion of landless and small farmers owning livestock is increasing as a result of a number of government programs promoting livestock ownership. Livestock ownership opens up new opportunities for the poor, including trade in farmyard manure (FYM) and compost.



4. Emerging markets for organic matter

The strong demand for organic inputs (including the preferences of many big farmers growing specialist crops like ginger, betel nut and coconut) and changes in livestock numbers and ownership have led to a rapidly expanding market for organic fertilisers. With improved access to the supply of FYM, some of the poor and landless are in a strong position to benefit from this trade.

5. Concern about impact of chemical fertilisers

Farmers expressed concern about negative impacts of chemicals on soils such as hardening and compaction, the soil becoming 'addicted' to fertiliser applications, and the scorching of crops. Farmers also noted negative changes in food quality including smell and taste.

Recommendations

It is recommended that key stakeholders should work to:

- Raise awareness among agricultural research and extension agencies on the wide range of effective local SFM practices.

- Create a 'level playing field' for both organic and inorganic SFM methods by promoting and supporting farmers in using organic methods (such as livestock loans, improving seed availability, loans and training for organic inputs, and agroforestry)
- Undertake an audit and develop a manual of low external input SFM practices combining farmers' and researchers' knowledge on various methods.
- Research on-farm nutrient balances that include adequate assessment of organic inputs and recycling of nutrients to assess whether soils are being mined for nutrients.
- Undertake research to better understand the impacts of chemical fertilisers on soil quality on-farm and develop alternatives for small and marginal farmers
- Develop local and community certification and marketing opportunities for organically produced rainfed crops, and develop and test models to link small and medium organic farmers to these markets
- Mainstream the use of a livelihoods perspective in SFM research in order to address poverty, and to better understand household-level constraints and opportunities.
- Undertake action research to identify the best options for poor people to produce and market organic fertilisers, and to engage in trade on more favourable terms.
- Further develop the methodology used for this study into a package of methods suitable for participatory research on SFM in India.

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For further details on this research project see:

<http://www.nri.org/IndiaSFM> (from end-Mar ch 2002)

or contact Barbara Adolph and John Butterworth at NRI (B.Adolph@gre.ac.uk, j.a.butterworth@gre.ac.uk), PV Satheesh at DDS in Pastapur (ddsppvr@hd2.dot.net.in), or GNS Reddy at BAIF in Tiptur (baif@bgl.vsnl.net.in).

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