

Consultative Meeting
Policy Dimensions of Conservation and Sustainable Management of
Belowground Biodiversity
Mascot Hotel, Thiruvanthapuram
January 8, 2008

This meeting was organized by the National Coordinator, Conservation and Sustainable Management of Belowground Biodiversity Programme (India component) with support from the Kerala State Biodiversity Board. The meeting was chaired by Dr V.S. Vijayan, Chairman, Kerala State Biodiversity Board. The list of invitees/participants is given in Appendix 1.

Following a welcome address by Dr R.V. Varma, Member Secretary, Kerala State Biodiversity Board, National Coordinator explained the context and background of the programme (Appendix 2) and the objectives of the meeting:

- (i) mid-term evaluation of the relevance of the project output for biodiversity conservation policies and programmes
- (ii) identification of linkages/actions for further improvement in the project outputs.

Dr V. S. Vijayan, in his remarks as Chairman of the meeting, stated:

- Though belowground biodiversity is a very useful component, it has been a 'lesser known' component of biodiversity to conservation policy makers and an object studied to a lesser extent by the scientists as compared to the aboveground biodiversity.
- We are passing through a critical phase of pollution/contamination of all components of the environment – air, water, soil and food. Despite of several acts and policies, the process of degradation is continuing endangering the very survival of mankind.
- Ecosystems providing immense intangible benefits in terms of environmental services rendered by them, are being converted/lost at rapid rates for rapid economic gains. India has lost 38% of its wetlands during last couple of decades. Low level of understanding of the economic values of ecosystem services among politicians and policy makers is one of the underlying causes of loss of environmentally valuable ecosystems/habitats/land use-cover types.
- The pace of development should be judged in terms of not only economic growth but also in terms parameters like changes in human health and consumption of medicines.
- Agricultural development following the path of green revolution did improve production in the country but at the cost of depletion and deterioration of many natural resources, particularly soil and water.

- Organic farming, which has been practiced by traditional communities since ages, is getting more and more recognition. It provides new opportunities of economic development to the poor and marginal farmers together with improvement in environmental quality and biodiversity conservation. Research output of a programme like the present one on conservation and sustainable management of belowground biodiversity could improve technical efficiency in organic farming and thus directly contribute to the goal of sustainable development.
- With the establishment of National Biodiversity Authority and State Biodiversity Boards, the process of documentation of traditional knowledge on biodiversity in the form of People's Biodiversity Register at village level has gained momentum. The documentation of belowground biodiversity is however missing. The group involved in the present programme should come up with recommendations and action plans for incorporation of belowground biodiversity in existing documentation systems.

Chairman's remarks were followed by presentation on the work done by the project team in Kerala region (Appendix 3), Karnataka region (Appendix 4), Himalayan region (Appendix 5) and the national/country work synthesis (Appendix 6).

Following questions/suggestions/comments emerged during the discussion:

- The methodology of conclusions about traditional knowledge need to be expanded. (for Kerala study area)
- The ecological impacts of expansion of residential area should also be looked into. (for Kerala study area).
- Larger invertebrate populations in cardamom and coffee plantations compared to those in forests could be because the forests sampled were disturbed. There is a need of making comparison with less disturbed forests and other land uses. (for Karnataka region).
- The group should also make reference of the emerging concepts of precision agriculture and precision forestry and should try to pin point precise actions needed in the present scenario. The recommendations should be sound from the point of their scientific merits but also in terms of their socio-economic viability/acceptability.
- While presenting the findings to the conservation-development policy makers/programme implementers the group should be cautious in stating conclusions and making generalizations. There is always a time lag between response of belowground community to the changes in the aboveground community, which is not adequately accounted in the methods applied for inventorying above and belowground diversity or finding out a relationship between the two. Further, taxonomic resolution of inventory of aboveground diversity is not absolutely similar to that of the belowground diversity which would delimit the scope of generalizations about aboveground-belowground biodiversity relationships.

- The group should also make efforts for inventorying diversity of blue green algae in view of their role in nitrogen fixation and thereby maintaining soil fertility.
- Identification of indicator species, e.g., ants *Lobopeltata* sps. and *Leptogenys* sps indicating disturbances in forests and unique species, e.g., high degree of persistence of earthworms *Parryodrilus lavelee* and *Pontoscolex corethrurus* in Kerala area would be very useful to the land managers (Appendix 7).
- The group should comprehend the hard science work done in the project in the form of simple formulations for improving productivity in organic farming, marketing of products by improving farmers' capacity to the requirements of certification and for inclusion of belowground biodiversity component in forest management plans.
- Some of the data, such as that on biodiversity-ecosystem service relationships (e.g., the role of mycorrhiza in sustaining high yields in cashew plantations, Appendix 7) would be relevant in reports prepared for Planning Commission by agencies like the Forest Department so as to draw attention to the immense benefits of the hidden soil organisms.
- The data collected in this project should be analysed to answer the questions – Is conservation of species diversity more crucial for maintaining/enhancing ecosystem functions than that of functional diversity? How do belowground organisms affect carbon partitioning in an ecosystem?
- The need of expansion of the kind of work done in and around Nanda Devi Biosphere Reserve and Niligiri Biosphere Reserve in this project should be brought to the appropriate agencies.
- During discussions, the policies adopted/under discussion in state of Kerala and increasing awareness to the multiple values of biodiversity through documentary films were also discussed, from the point of facilitating similar activities in other States (Appendix 8, 9, 10).

The following activities emerged from the questions/comments/suggestions and responses:

- Capacity building activities in the area of taxonomy of belowground organisms can be undertaken as joint activities of Kerala State Biodiversity Board and the belowground biodiversity (BGBD) project.
- The BGBD project group will work out the details of how belowground biodiversity component should be included in People's Biodiversity Register and Forest Management Plans.
- Efforts on validation and improvement of traditional knowledge and practices related to organic farming will be further strengthened.
- The demonstration plots of the project (demonstration of restoration/rehabilitation of degraded ecosystems and of the costs/benefits associated with belowground biodiversity) will be used for training of students, NGOs and staff of concerned development agencies.

The meeting ended with a vote of thanks to the authorities of the Kerala State Biodiversity Board and the expert members by Dr K.S. Rao.

Appendices

1. List of invitees
2. Presentation of K.G. Saxena – objectives of the workshop
3. Presentation of Dr U.M. Chandrashekhara – highlights of Kerala study area
4. Presentation of Dr Bal Kirshana Gowda – highlights of Karnataka study area
5. Presentation of Dr R. K. Maikhuri – highlights of Himalaya study area
6. Presentation of K.G. Saxena – synthesis – India programme
7. Presentation of Dr R. Gnanaharan, Director, Kerala Forest Research Institute
8. Document: Kerala Biodiversity Strategy and Action Plan
9. Draft Document: Kerala State Organic Farming Policy
10. The film prepared by Kerala State Biodiversity Board