

Second Annual Report 2010-2011

प्राकृतिक संसाधन प्रबंधन केंद्र



Natural Resources Management Centre
NABARD

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Vision

To emerge as the knowledge leader to promote sustainable and equitable relationship between people and eco-systems.

Mission

To promote policies and investment in natural resource based livelihoods through innovative partnering, capacity development, action research, knowledge management and advocacy.



FOREWORD

As the World celebrates 2011 as International Year of Forests, the Natural Resource Management Centre has completed 2 years of its existence. Forests are a very important natural resource for the mankind as it serves as a sink for carbon dioxide, the major contributor of Green House Gases (GHG). As per the census of 2011, India's population has grown to 1.21 billion and human population is again a major contributor to pollution. As population grows, the area under cultivation is shrinking day-by-day. There is a challenge before the scientific community, Community Based Organisations and farmers to produce more from fewer resources. Some technologies like System of Intensification of Rice (SRI) have the potential to enhance production using less resources. Propagation of such technologies is important. This is more so where 60% of the countries contributing to the world economy are paddy growers. Technologies such as renewable energy sources assume importance in the coming decades, when cost of production of energy will come down from ₹ 17 per unit to a level below the cost of production of energy from coal or other non-renewable resources.

Sustainability is another buzzword among environmental scientists. How to maintain present yield levels without affecting the environment is a great challenge to all stakeholders. The natural resources have been the main source of human livelihood. The time has come to use our natural resources judiciously for the benefit of the people solely dependent on forest and in the eco-fragile zones.

Since its inception, the Natural Resource Management Centre has sought to improve the livelihood options of the marginalised people through sustainable management of natural resources. The efforts of the Centre in popularising low cost technologies for rain water harvesting, alternate livelihoods in eco-fragile zones of Sunderbans, identifying issues of farmers relating to climate change, etc., will go a long way in improving the living standard of the rural communities.

I wish all success to the Natural Resource Management Centre in their endeavours and for fulfilling the dream of NABARD's management for it to emerge as an Institution of Excellence.

(Dr K G Karmakar)
Managing Director
NABARD
13 April 2011

Steering Committee members



Shri S K Mitra,
Executive Director, NABARD
Chairman, Steering Committee



Shri Jagdeesh Rao,
Executive Director,
Foundation for Ecological
Security, Anand, Gujrat
Member



Shri G G Sohani,
President, BAIF -
Development Research
Foundation, Pune
Member



Shri C K Gopalakrishna,
CGM, DPD-FS, NABARD,
HO, Mumbai
Member



Shri Prasant Das, CGM,
HRDD, NABARD, HO,
Mumbai
Member



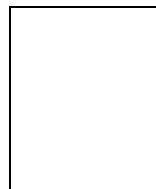
Dr P Renganathan, CGM,
TSD, NABARD, HO,
Mumbai
Member



Shri P Mohanaiah, CGM,
NABARD, Andhra
Pradesh RO, Hyderabad
Member



Shri N S P Rao, CGM,
NABARD, WBRO,
Kolkata
Member



Smt. T S Raji Gain, GM,
NRMC, Kolkata
Convenor

NRMC Team



M K De, AGM



Vijay Kumar, AM



Amit Roy, SDA



Tarak Halder, DA(S)



Bani Das, OA

About Us

NABARD's Policy on NRM seeks to "enhancing livelihoods and quality of life of rural communities through improved resource conditions". NABARD's interventions are directed towards achieving a balance between livelihood enhancement, poverty reduction and ecological sustainability. Such interventions have been soft interventions in experimenting, demonstrating, creating awareness and addressing capacity building needs. Through these interventions, NABARD has been able to prove the success of the experiment and successful models have emerged. The larger replication on a wider scale requires more partners and public and private investments. Towards this end and to give focused attention to NRM sector the Natural Resource Management Center at Kolkata has been established which became functional on 01 April 2009.

An internal Task Force was constituted by NABARD during August 2008 under the Chairmanship of Dr Prakash Bakshi, Executive Director. The task force recommended operational aspects of the centre to give focus attention to Natural Resource Management Sector. It envisaged NRMC as an institution of excellence, which will facilitate the thematic leadership role of NABARD in NRM sector and is visioned as brand institution of NABARD.

Objectives and Functions

The overall objective of NRMC is to facilitate improvement in livelihoods of rural poor through sustainable management of natural resources. For achieving this the center,

- Identifies appropriate technologies available and ready for transfer
- Creates awareness among and builds capacity of communities and other stake holders about the need and utility of appropriate technologies
- Identifies and documents successful models.
- Facilitates replication of successful models in NRM and transfer of technologies
- Facilitates NRM based livelihoods integrating technology and credit
- Promotes CDM technologies and facilitates C- credit earning
- Takes up/ facilitates special studies, meets, workshops, Action research/ research in NRM
- Networks with academic institutions, research organizations, policy-making institutions, technical institutions, financial institutions, livelihood promoting institutions.
- Adopts a multi-sectoral and multi disciplinary approach.
- Involves in policy feed back and advocacy.
- Publishes relevant literature for various stakeholders
- Will maintain comprehensive database on resources, technologies and approaches in NRM.
- Will establish and maintain Information and Knowledge Management Systems (IKMS) for various stakeholders.
- Serve as NRM development technology clearing house.

Steps forward

During the current year a workshop was organized with support from GiZ (the then GTZ) to finalize the Vision and Mission of NRMC at Bangalore which was attended by cross section of people representing Steering Committee of NRMC, NABARD and BAIF, Foundation of Ecological Security (FES), PRADAN and GiZ. As an outcome the Vision and Mission of NRMC have been finalised. The Vision and Mission statements are presented on the inside cover of the Annual report. During the workshop a consensus was arrived that to begin with NRMC would focus on six major functional areas - Soil and water management, waste management, renewable energy, climate change and sustainable agriculture.

Another major milestone was constitution of a Working Group on Institutional arrangements of NRMC under the Chairmanship of Shri P. Das, CGM, HRDD. The group met on 04 February 2011 to look into the institutional development strategies/ framework of NRMC. Major recommendation of the working group are, NRMC will be an autonomous body registered under Societies Act and will have provision for funding by national and international agencies.

NRMC started its activity in April 2009 and has stepped into 2nd year. Learning from the experiences of the last year and as the institution evolved, the clarity in the role and needs of the NRM sector were clear. The programmes were attuned accordingly and therefore were more focused during the second year. The centre's core functional areas related to land and water resources, sustainable agriculture and NRM based livelihoods. The global concerns like Climate Change and national priorities like renewable energy sector also found place in this year's programmes. The activities of the center were spread over almost all the states of India. The interventions included workshops and seminars, training programmes, Action Research and publications. The participants included Trainers of Banking Sector, Representatives of Farmers' Clubs, NGOs, CBOs and a few government agencies.

During the year the Steering Committee, the body, which gives direction and guides the activity of NRMC met thrice at different places and has given the support and advice to carry forward mission and vision of NRMC. Networking was given focal attention by joining in Working Groups, like International Association for the Study of the Commons (IASC), the Indian Society for Ecological Economics (INSEE) and the International Society for Ecological Economics (ISEE), google group SRI, SRI consortium etc. Dialoguing with many institutions for collaboration has increased our visibility within 2 years of existence. These have brought in results by way of involving NRMC in different fora for suggestions and discussions. NRMC has contributed papers in different seminars and workshops, the recent being the paper on common property resources for the regional meeting of the EU branch of the IASC as its theme "Shared Resources in a Rapidly Changing World" in Bulgaria.

System of Rice Intensification (SRI) was another area where NRMC facilitated enhancing the capacity of all the stakeholders and policy advocacy to extend full support under National Food Security Mission (NFSM) and special support in the 12th Five Year Plan. NRMC had organized a National Seminar of SRI which brought funding agencies, research institutions, scientists and government department and CBOs, for discussion to draw up an action plan.

The NRMC was formally launched within NABARD's West Bengal Regional Office. NRMC became functional on 01 April 2009 with Smt. T S Raji Gain as OSD and Shri. M K De, Asst. General Manager along with support staff of one Development Assistant(DA), one DA(S) and one Office Assistant(OA). Shri Vijay Kumar, AM joined the team during the current year.

The year 2010-11

During the last year (2009-10) the action plan approved was in respect of 26 programmes against which 22 programmes were conducted. The actual expenditure was ` 1.675 million, while for the year 2010-11 we have incurred an expenditure of ` 9.546 million. In terms of programme also, NRMC has diversified its activities to different sectors. The details are presented below.

1. CLIMATE CHANGE

Climate Change is a matter of grave concern for developing countries like India, whose economy is heavily depended on the climate sensitive sector like agriculture. The Climate Change and Natural Resource Management are intimately related. Of the total Green House Gas (GHG) emission in India, 40% is from the Energy Sector, about 33% from Agriculture and 7% from waste. To the 33% GHG from agriculture, a major contributor is rice paddies contributing about 20.4% of total Methane emission. The Government of India has announced the National Action Plan on Climate Change (NAPCC) with its' Eight Missions. The important missions on Energy, Water, Sustainable Agriculture and Green India are directly related to Natural Resource Management. Promoting adaptation and mitigation also involves financing apart from awareness creation, technology transfer and Capacity building. The centre's focus was on these aspects during the year and under this theme the programmes conducted include.

1.1. Programme on Renewable Energy - BAIF, Pune

An Orientation programme on Renewable Energy was organised for NABARD officers, Bankers and NGOs of Western States viz. Rajasthan, Gujarat, Maharashtra, Madhya Pradesh and Goa. The programme was hosted by BAIF Development Research Foundation in Pune from 03 to 05 May 2010. The programme was inaugurated by Shri P Satish, CGM, Maharashtra RO. Shri N K Joshi, Ex-Chairman, Aryabhata Gramin Bank who was instrumental in

financing solar home lighting system was resource person in the programme. A field visit was organised to a Bio-fuel unit at Pune. The programme coverage included importance, status and potential of renewable energy in India, possibilities of promotion and financing such initiatives and also experiences in financing.



1.2. Training programme on Improved jute retting

The traditional method of separating jute fibres from its' stick involves lot of water, longer duration and pollution in the water bodies, as also yielding poor quality fibre. A new technique developed by NIRJAFT, an ICAR institute utilises less water, lesser days and yields better quality fibre (for details see [www.nabard.org/nrmc/publication/Opportunities in Green finance](http://www.nabard.org/nrmc/publication/Opportunities%20in%20Green%20finance))

Two training programmes were organised for representatives of Farmers' club and NGOs from Bihar, Orissa, Assam, Tripura and West Bengal. Totally 50 trainer farmers have been covered under 5 day training programme. The programme covered scientific cultivation of Jute, improved method of jute retting, SRI cultivation, Azolla production, etc (Azolla and SRI can be integrated into jute based cropping sequence).



1.3. Trainers' Training Programme on Climate Literacy & Green Finance

A PWC study on behalf of NABARD has indicated that there is a huge resource gap of ₹ 300 billion per annum in areas related to NRM and climate change. To facilitate credit flow to the sector as also tapping of the business potential present, a Trainers' Training Programme on 'Climate Literacy and Green Finance' was organized in Kolkata from 4th to 6th October 2010. Trainers/Faculty Members from major commercial banks participated in the programme. At the end of the programme, the participants developed a training module for branch managers and identified a few activities for immediate financing which included solar based activities, integrated farming models and integrated KCC and green buildings. Field visits to ornamental fisheries cluster and roof top solar harvester were organized as part of the programme.



1.4. Presentation to General Managers of Priority Sector

A presentation on Opportunities in Green Financing to General Managers of Commercial Banks heading Priority Sector departments was made with the objective of facilitating processes for enhanced credit flow for green initiatives.

1.5. National Seminar on SRI

System of Rice Intensification (SRI) is an improved method of cultivation of paddy, where requirement of seed and water is less as compared to traditional method. Yield from SRI method is also more than the conventional method. Further it reduces methane emission and improves the soil structure due to use of organic matter. Natural Resource Management Centre (NRM), Kolkata organised a National Seminar on System of Rice Intensification (SRI) on **11 and 12 July 2010** at Raichak, 24 Paraganas(S), West Bengal.

The participants and resource persons included all stake holders right from farmers, farmers' groups, scientists, practitioners, NGOs, CBOs, Government agencies representing state and central, banks, microfinance institutions,

funding agencies and officials of NABARD. The participants were drawn from 11 major rice-producing states of India.



Dr. K G Karmakar, Managing Director, NABARD inaugurated the seminar. A training tool (Flip chart) for SRI prepared by NRMCM was unveiled by Dr Karmakar. This will be used by the stakeholders for wider dissemination of SRI methodology. Dr Karmakar mentioned that GOI has earmarked ` 80 million to NABARD for propagating and facilitating SRI practices through NGOs. He also announced that another ` 160 million would be provided by NABARD for propagating and piloting these practices. Another ` 240 million is also available from Sir Dorabji Tata Trust. The papers presented and the proceedings and strategies arrived at during the seminar are up loaded on www.nabard.org/nrmc

2. WATER

On one side, there is erraticity in the monsoons, on the other side whatever rain is received is lost as runoff or there is hardly any storage. The National Mission of Water therefore focuses on not only collection of the rainwater and its storage but also on its' efficient use. The center's programme on the theme included.

2.1. BIRD Programme on post watershed linkage

Watershed is a geographical unit which drains out water through common drainage point. Interventions like, soil and moisture conservation, plantation and orchard development form the part of watershed development. NABARD is implementing participatory watershed development in a big way in 15 States. Concept of watershed development is shifting towards watershed plus, where livelihood from watershed is holistically addressed. With the objective of providing livelihood in the treated watershed, a programme was organised in association with Bankers' Institute of Rural Development (BIRD), Lucknow. BIRD had organised the programme for bankers for post watershed linkage in Bankura from 16 to 21 Dec. 2010. NRMCM guided the participants about watershed concepts and prospect of bank finance under post watershed situation.

2.2. Workshop on Rain Water Harvesting and Water Use Efficiency

A Workshop on Rain Water Harvesting and Water Use Efficiency was organised on 15 and 16 March 2011 in Kalyan Krishi Vigyan Kendra, Jahajpur at Purulia district, West Bengal. Participants of the programme were representatives of NGOs, Farmers' Club of State of Orissa, Chhattisgarh, Jharkhand, Bihar, Assam and West Bengal. Altogether 30 Participants took part in the workshop. The programme was inaugurated by the Chief Regional Manager, United Bank of India and expressed all collaboration in popularising the Rain Water Harvesting Structures in Purulia district. The programme included discussion on low cost water harvesting Structure like, contour bund, 30x 40 model, 5% model, demonstration of micro-irrigation for Water Use Efficiency by M/s Jain Irrigation. Team from NRMCC and Sri Amitava Biswas, DDM, Purulia and PRADAN, Purulia coordinated the entire programme.



The programme included field visit to a Bandudih Watershed of Bagmundi block where many structures like 30 X 40 models, 5% model, agro-horticatures inventions were made in cluster by PRADAN.

2.3. Programme on "Water for All"

Darjeeling receives around 2000 mm of rainfall, however, much of it is lost and people suffer from want of water for agriculture and household purpose. NRMCC in association with the Kalimpong Krishak Kalyan Sanghatan, a federation of Farmers Clubs in Darjeeling district has organised a campaign on "Water for All" in Darjeeling district. The month long programme was launched on 05 June 2010 (Environment Day). The programme helped in building the awareness of the community about the efficient water management, collection and distribution of water.

3. NRM BASED LIVELIHOODS

Addressing the issue of rural livelihoods especially in the context of dwindling natural resources is a challenge. The challenge is doubled when we need to maintain the ecological balance and simultaneously promote livelihoods to ensure quality of life for the rural poor and marginalised communities like the indigenous people. Therefore, special focus was given for the purpose and the interventions included awareness creation of new and innovative

livelihood options through exposure, demonstrations, technology transfer, publications and providing information on forward backward linkages etc. The programmes include

3.1. Training on Lac cultivation

A group of 25 farmers from tribal villages of Purulia, Bankura and Burdwan district were given training on lac cultivation in Indian Institute of Natural Resins and Gums, Ranchi from 04 to 08 October 2010. The farmers will utilise existing *palash* and *ber* plants for cultivation of lac as income generating activity.



The programme has helped the watershed community of Bhalki to formulate a project on lac farming in their watershed area.

3.2. Concept Appreciation Programme

The Concept Appreciation Programme for Senior Officers on Tribal Development Fund (TDF) and Natural Resource Management (NRM) was organised from 11 to 14 April 2010 at Mukutmanipur, Bankura. The programme was attended by 15 senior officers from different NABARD Regional Offices and NBSC, Lucknow. The programme was conducted in collaboration with National Bank Staff College (NBSC) at Mukutmanipur, Bankura West Bengal. The participants were given exposure to Orchard based wasteland development, Forestry based Tussar silk cultivation and community based eco-tourism by the indigenous community during the programme.



3.3. Consultative and Orientation Meet on NRM issues for Eastern region

A Consultative and Orientation Meet on NRM for eastern states was organised from 9-11 August 2010 at Bolpur. Participants from Jharkhand, Bihar, Eastern UP, Orissa, Chhattisgarh and West Bengal attended the meeting. The meet included field visits to NRM projects viz. Watershed and *WADI* in Birbhum district. The important issues that emerged during the meet include, reduction of run off, collection and storage of rainwater, alternate livelihoods for forest and mine dependent people.



3.4. Consultation cum Orientation Meet on NRM issues for NE States

The Consultative cum Orientation Meet was organised for the North Eastern region during 01 to 03 Dec. 2010 at ICAR complex, Barapani, Shillong, Meghalaya. Eight States i.e. Assam, Arunachal Pradesh, Meghalaya, Nagaland, Manipur, Mizoram, Tripura and Sikkim was covered in this meet. The participants were various stakeholders in NRM sector. The meet also had a field visit to various technologies developed by ICAR complex and models of integrated farming.

Important issues that emerged and needs to be addressed are cultivation of ornamental fisheries, rearing of flora and fauna of forest to reduce dependency on forest, rehabilitation of limestone mine areas etc.



3.5. Marketing and Linkages

To promote NRM based livelihood and sustain it, facilitating market linkages is important. The rural populace also need to know spectrum of possibilities in NRM based livelihoods, the technologies available and the urban/market preferences. The events under the theme aimed at these aspects.

3.5.1 Nature Fest

Nature Fest, an event showcasing technologies and services related to NRM and products of NRM based livelihoods was organized from 25 October to 03 November 2010. The programme was inaugurated by Dr Asim Dasgupta, Hon. Finance Minister, Government of West Bengal in the presence of Shri U C Sarangi, the Chairman and Shri S K Mitra, Executive Director. There were totally 100 stalls, of which 60 were displaying technologies and products and another 40 were displaying and selling NRM based products. In addition to normal visitors, 1290 farmers, PACs/LAMPs Secretaries and SHG members from West Bengal and neighbouring states visited the fest every day as part of the exposure programme. One important aspect of the fair was that the premises were lighted up by solar street lamps and electricity production through windmills and bio-diesel were also displayed. The fair also displayed unique eco-friendly textiles based on banana fibre, jute, eri, tussar etc. apart from seed jewellery, fish scale and jute jewellery. Everyday, around one hundred fifty farmers from the State as well as from neighbouring states are visiting the event and interacting with resource persons on jute retting, grading of jute, jute and products out of waste material, SRI, vermi composting, rainwater harvesting, best agronomic practices, JLG, Farmers' Club Federations etc.



As per the feedback received from the participants, total sale figure have been estimated at ` 2.2298 million. In addition, many tie-ups and orders have taken place in the exhibition.

3.5.2. 4th East Himalayan Expo in Siliguri

An area of 51 sqm was allotted to NRMCA in the 4th East Himalayan Expo organized by Indian Trade Promotion Organisation (ITPO), a Govt. of India enterprise at Siliguri from 10th to 19th December, 2010 at Siliguri, West Bengal in collaboration with Federation of Chamber of Commerce & Industry (FOCCIN) and ITPO. Five farmers' club and NGOs have displayed their products in the Expo.

3.6 Action Research Project on *Eri* Silk in Sunderbans

Action Research project on alternate livelihood through *Eri* silk rearing was sanctioned in September 2010 in Chandanpiri village, Namkhana Block of 24 Parganas (South). The

Eri silk is also called “Ahimsa Silk” because the pupa is not killed while extracting the silk fibre. The pupa can be harvested through an opening of the cocoon. In other types of silk like mulberry and tussar, the pupa is killed by boiling or hot air to spin the silk thread.

project involves planting of castor (host plant for *Eri* Silkworm) and rearing of *eri* silk by 35 identified farmers of Chandanpiri village. The project was launched in collaboration with Central Silk Board, Govt. of India with funding support of the entire capacity building part in the project with an estimated outlay of ₹ 0.45 million. The Chandanpiri Shri Ramakrishna Ashram and Art Illuminates Mankind (AIM) will act as Project Implementing Agency and Project Facilitating Agency, respectively. The total cost of project is ₹ 2.359 million, of which NABARD's contribution will be ₹ 0.989 million. NABARD has released ₹ 0.521 million in the month of October 2010. 20 Disease Free Layings (DFLs) were arranged by Central Silk Board, which were reared by the farmers of Chandanpiri and 5.5 kg of eri cocoons could be harvested.



So far 15 rearing houses are ready for handing over to the farmers and remaining are under construction. Additional 100 DFLs were supplied to the farmers on 13 Jan. 11. 700 chandrika and 700 rearing tray were supplied to the farmers. A workshop was organised from 22 - 29 November 2010 with the all stakeholders of the action research project on Eri Silk Cultivation in 24 Pdns. (S) district. The objective of the workshop was to sensitise and finalize the roles of various stakeholders in the project. The 1st meeting of the Project

Monitoring and Implementation Committee (PMIC) was convened on 24 January 2011.

Shri N S P Rao, CGM, West Bengal RO inaugurated and handed over the rearing house to the farmers on 16 Feb. 2011. Shri Rao also inaugurated two farmers' clubs on the occasion and lauded the activities of the Implementing Agency in the interior areas of Sunderbans.



As part of the action research on Eri silk, 40 participants including 35 farmers took part in the exposure visit to Coochbehar, West Bengal and Kokrajhar, Assam from 17 to 22 February 2011. The programme was organised at the behest of Central Silk Board, Partner in the project.

3.7. Action Research on Livelihood in Ayodhya hills, Purulia

An integrated project for the 16 tribal villages on fringes of Ayodhya hills in Arsha block of Purulia district was sanctioned to Gramin Vikash Trust. The objective of the Action Research is to try out alternate the livelihood models in the fringe villages of forests, which are replicable and identify the best approach and activity so that the model can be up scaled. The alternate livelihoods will deter the villagers from entering the forests and reduce dependency and promote forest protection. The activities identified are orchard-based livelihood similar to wadi model, lac cultivation, goatery, piggery and vegetable cultivation with water harvesting structure. The project started with cultivation of vegetable in the area for which good quality vegetable seeds were supplied to the identified farmers.

During the current year 20 farmers have taken up tomato cultivation in the project areas.

3.8. Action Research project at Sunderbans:

The South Asian Forum for Environment (SAFE) is implementing the action research programmes in sunderbans. The project will include repair and maintenance of embankments by planting of *vetiver* grass. The *vetiver* grass has very good root system and tremendous scope in sunderban region. The programme is being implemented in Satjelia Island of Gosaba Block. An

amount of ₹ 0.2338 million was released towards 1st instalment. The vetiver grass at a later stage is expected to be raw materials for handicrafts to be promoted among SHG women. At a later stage vetiver grass is expected to be raw material for handicraft to be promoted among the SHG women.

4. SUSTAINABLE AGRICULTURE

About 70% of our rural population depends on agriculture. However, the productivity and remunerations from agriculture are diminishing over the years due to various factors like fragmentation of land, non-availability of quality inputs, marketing linkages, access to appropriate technologies and cropping practices etc. Huge tracts of land, the basis of agriculture is degraded, suffers from problems like alkalinity / salinity, nutrient deficiency, water logging etc. However, we need to produce more and more to feed the ever increasing population. To produce more from unit of land and sustain the production and quality of natural resources requires strategic interventions. With this in view, the center conducted a few programmes on the theme, which include,

4.1 Programme on Soil test based fertilizer recommendation

One of the major issues related to productivity is poor soil conditions due to injudicious use of fertiliser. Three programmes on Soil test based fertilizer recommendation was organised for extending training on soil testing to 65 members from different Farmers' clubs in Eastern States. The programme was organized by Ramakrishna Mission Samaj Sevak Sikshan Mandir, Belur and Bidhan Chandra Krishi Viswavidyalaya (BCKV), Kalyani. The participants were given soil test kit to carry on soil testing activity in their area of operation.



4.2. Workshop on Organic Farming in Nadia

Loss in organic carbon is a major issue with continuous use of chemical fertilizers. Moreover, the chemical intensive agriculture also tends to contribute to GHG emission apart from rendering land useless. The Bhabanipur Horticulture Development Society, Nadia organised a Workshop on Organic Farming on 19 May 2010. The resource persons in the workshop

included the Director, Goyespur KVK, Dr Mahadev Pramanik, Prof. of Agronomy and Dr Paritosh Ghanti, Horticulturist. Around 100 farmers from Bhabanipore, Satyapol and Bahilapol villages attended the workshop.

4.3. Seminar on "System Intensification Towards Food and Environmental Security"

In India Food Security is a major concern. We need to adopt multi disciplinary strategies to ensure enhanced production and productivity. Therefore, NRMC co-sponsored and participated in the International Symposium on "System Intensification Towards Food and Environmental Security" from 24 to 27 February 2011 at Bidhan Chandra Krishi Viswavidyalaya (BCKV), Kalyani organised by the Crop and Weed Science Society. The important aspects discussed include, eminent person like *Prof. Norman Uphoff*, USA (expert in SRI technology) has participated in the Seminar.



NRMC presented a paper on "Up scaling of System of Rice Intensification (SRI) – Challenges and Initiatives of NABARD" and actively participated in the seminar.

4.4. Exposure programme to IIPR, Kanpur

Protein deficiency among the Indian populace is an area of concern. The area under pulses has been slowly reducing. In order to promote pulse production and its' seed production, an Exposure was organised for 22 farmers from districts of Purulia, Bankura, Nadia, Birbhum and Malda (Pulse growing districts) to Indian Institute of Pulse Research (IIPR), Kanpur. The farmers were given exposure to pulse cultivation and multiplication of pulse seeds. The programme was coordinated by Srijani Farmers' Club, Nadia district.

One farmers' club in Nadia district has taken up pulse cultivation during the current year.

4.5. Adoption of village for Sustainable and Organic Agriculture

Indian Institute for Natural and Environment Study (IINES) implementing agency for adoption of village for Sustainable and Organic Agriculture. The

programme is being implemented in Jaffarnagar village of Ranaghat –II Block, Nadia. Various components include supply of organic inputs, vermi bed materials, IPM kit, planting neem and construction cow urine trough.

5. CELEBRATION OF EVENTS

5.1. World Earth Day

The World Earth day was celebrated on 22 April 2010. Father Dr. Xavier Savarimuthu, Professor of Environmental Science, St. Xavier College and expert was invited to interact with staff of NRMC and West Bengal RO. He touched upon important issues like water use, quantity and quality constraints and upcoming phenomenon of Environmental refugees.



5.2. World Environment Day

The World Environment day was celebrated on 05 June 2010 by organising painting competition and quiz competition for the members of NABARD Paribar and Essay competition among the staff members. The topic for painting and essay competition was related to environment and natural resources



6. NETWORKING

6.1. NRMC has become member of International Association for the study of the Commons (IASC), the Indian Society for Ecological Economics (INSEE) and the International Society for Ecological Economics (ISEE), which will help in networking with agencies involved in natural resources management.

6.2. NRMC had attended a meeting on revised guidelines on Agriculture Technology Management Agency (ATMA) organised by Agriculture Management and Extension Training Institute (SAMETI) at Ramakrishna Mission Ashram, Narendrapur on 20 August 2010. The various issues on agriculture extension were discussed in the workshop and NABARD's Extension programme like ACABC, FTTF, CAT was apprised to the participants.

6.3. NRMC had a discussion with Mr Sajiv Anand, Vice President of Agribusiness services of I-Next Bureau. I-Next Bureau is providing market solution to the farmers by linking with market. Various inputs are also integrated in the supply chain. They would be involved in our sustainable agriculture project.

6.4. We have become members of Green House Gas Management Institute(GHGMI), Consultative Group on International Agriculture Research (CGIAR), PEW Centre on Global Climate Change. We also subscribe to World Bank Institute (WBI) News and Newsletter of Integrated River Basin Management Society(IRBMS).

6.4. Conference of IASC at Hyderabad.

Sri M K De and Smt T S Raji Gain, GM attended the 13th Biennial Conference of the International Association for the Study of the Commons(IASC), Hyderabad from 10-14 January 2011. The maiden conference in south Asia was organised and hosted by Foundation for Ecological Security (FES), Anand. The around 800 delegates and dignitaries attended the programme from 69 Countries and 45 institutes/CBOs of India.



The programme was inaugurated by Shri Jairam Ramesh, Minister of State (Independent Charge) for Environment and Forest. The key note address in the conference was delivered by *Dr. Elinor Ostrom*, Nobel Laureate in Economic Science (2009) on "Cooperating for Common Good: Challenges Supposed Impossibilities and Panacea".

NRMC being member in the International Association for the Study of the Commons (IASC) could interact with the other members to network in their future endeavor. The interactions during the conference have thrown up a few issues for further studies and policy intervention. For e.g. Study of community based management of irrigation structures funded by RIDF and recommend a suitable model and policy.

6.5. Discussions with GiZ and International Institute for Rural Reconstruction (IIRR), Philippines were also held for collaborative programmes.

7. RESEARCH AND STUDIES

7.1. Summer Placement

Ms Ishani Mitra, intern under Summer Placement Scheme made a presentation of her study on "Effect of electricity tariff hike on Boro cultivation" to the senior officers of NABARD on 14th December 2010. The important aspects that emerged from the study were:

- The tariff benefit (for use during night) extended by the government is not being passed on to the small farmers who purchase water from the large farmers.
- There is crop diversification especially to pulses when water becomes costly due to increase in tariff of electricity. This has also forced a few farmers to take SRI where water requirement is less.

7.2. Internship

Another candidate Miss Anurima Jha, a Law Graduate from University of Petroleum and energy Studies, Dehradun, College of Legal Studies did her internship under NRMC. The topic for her internship was "Water consumption pattern and resources in India from a legal perspective". The document gave us the legal perspective of water use both within India and outside India. The recommendation included stringent water use policy to increase the water use efficiency.

8. Impacts and Outcomes of the Programmes

- About 12 programmes conducted by trainees of Innovative Jute Retting programme covering about 1500 farmers.
- Cultivation of lac initiated in Bhalki watershed.

- 60 farmers clubs taking up Kit based soil testing activity and recommending fertilizers
- Organic Village set up in Nadia district of West Bengal
- Community participation in water saving and use efficiency in Kalimpong block of Darjeeling district.
- SRI training material being used as base material and translated into local languages.
- Pulse production and pulse seed production taken up by a few farmers' clubs
- Exposure to more than 60 technologies in respect of 1290 farmers on NRM based livelihoods
- Sale and market linkages, learning of urban preferences for artisans involved in NRM based handicrafts.
- Alternate livelihoods to 55 farmers in 24 Parganas(S) and Purulia as outcome of action research projects
- Strengthening of Earthen embankment in Sundarban area through plantation of mangroves.
- A few UPNRM projects on the anvil in NE and Eastern states.
- A module on Solar energy introduced in training programme of Indian Overseas Bank.

9. STEERING COMMITTEE AND OTHER MEETINGS

9.1. 3rd meeting of Steering Committee

The Third meeting of the Steering Committee of NRMC was held at NABARD HO, Mumbai on 05 May 2010. Shri U.C. Sarangi, Chairman, NABARD

NRMC should find their place not only at the National level but also at International level. For attaining this, NRMC should be on mailing list of all national level and international level institutions involved in NRM sector and also subscribe to their journals. Identify where what has happened and how and see how this is possible in our scenario.

.. Shri U.C. Sarangi, Chairman, NABARD

addressed the Committee members and expressed that there should be a definite plan of expansion and institutional building for NRMC- if required people who have passion for such work could be spared from

NABARD to NRMC on permanent basis. We may start small but we need to plan for getting into the next orbit. A publication titled "Community based Natural Resource Management" was also released at the hands of the Chairman on the occasion.

9.2 4th meeting of Steering Committee

The fourth meeting of the Steering Committee of NRMC was held at Pragati Herbal Garden Resort, Hyderabad on 17 September 2010. As part of the meeting, the members visited M/s K N Bio Science (India) Pvt. Ltd, an

enterprise manufacturing biofertiliser and Bio-pesticide and interacted with the staff. The Vedic Organic, a certification agency accredited by APEDA also made a presentation to the committee members. The team also visited an outlet of M/s SRESTA with brand name "24 letters Mantra" at Banjara Hills selling organic products. On the following day the team also visited Enabavi village, a non-pesticidal village in Warangal district.



9.3. 5th meeting of Steering Committee

NRMC, Kolkata organised its V meeting of Steering Committee at Bhubaneswar on 08 and 09 February 2011. The meeting was chaired by Shri S.K. Mitra, ED and attended by among others, Shri N S P Rao, CGM and Smt. T S Raji Gain, OSD, NRMC.



As a part of the meeting, a field visit was organised to Seed Village in Jayadev, Khurdah District. The members reviewed the Seed Village model adopted by Orissa RO of NABARD, which is in operation in 11 districts of Orissa and interacted with the farmers. Members lauded the efforts of the farmers and the institutional arrangements in promotion of quality seeds of paddy and green gram in the State. The Steering Committee gave in principle approval of the recommendations of the Working Group on Institutional arrangement of NRMC and Action Plan of NRMC for the year 2011-12.

9.4. Meeting of Working Group on Institutional arrangements of NRMC.

A Working Group on Institutional arrangements of NRMC was constituted under the Chairmanship of Shri P. Das, CGM, HRDD. The group met on 04 Feb. 2011 to look into the institutional development strategies/ framework of NRMC. Major recommendation of the working group are NRMC will be an autonomous body registered under Societies Act and will have provision for funding by national and international agencies. The report submitted by the chairman is under approval of higher management.

The other recommendation includes:

- NRMC should be an autonomous body
- Budget based funding by NABARD
- DPD-FS, Head Office will be the anchor department
- Annual Plan / budget approved by Steering Committee / Governing council to be forwarded to DPD-FS for approval by NABARD
- Separate bank account and accounting unit
- Separate website and e-magazine
- Corporate image to be green

9.5. Workshop on Vision and Mission of NRMC

Natural Resource Management Centre (NRMC), Kolkata in association with GTZ has organised a workshop to finalize the Vision and Mission of NRMC in Bangalore on 09th Dec. 2010. The programme was chaired by Sri S K Mitra, ED and was attended by members of Steering Committee of NRMC, senior executives of NABARD and representatives of BAIF, Foundation of Ecological Security (FES) , PRADAN and GTZ.



The Vision and Mission of NRMC finalised are

Vision

To emerge as the knowledge leader to promote sustainable and equitable relationship between people and eco-systems.

Mission

To promote policies and investment in natural resource based livelihoods through innovative partnering, capacity development, action research, knowledge management and advocacy.

10. Participation by NRM

10.1. Training programme on Climate Change

Mrs T S Raji Gain, OSD attended a programme on "Climate change and water use efficiency" organised by Engineers Staff College of India (ESCI), Hyderabad.

10.2. Livelihood India Conference

Smt. Raji Gain, GM attended the Livelihood India Conference organised by Access India Development held on 17 Nov. 2010 at New Delhi. She was one of the panelists in the discussion on the topic "Women in Agriculture".

10.3. Workshop on Smart Power Environmentally Sound Economic Development (SPEED)

The Confederation of Indian Industries (CII) had organised a workshop on 02 June 2010 on smart Power Environmentally Sound Economic Development (SPEED) to popularise biomass-based electricity in non-electrified villages. The objective of the workshop was to integrate the power requirement of telephone towers with the electricity requirement of the non-electrified villages. The workshop was attended by NRM.

10.4. Training programme on Sustainable Natural Resource Management

NRM had attended the Training programme on Sustainable Natural Resource Management organised by International Institute for Rural Reconstruction, Philippines.

10.5. Programme on Information Knowledge Management (IKM)

A programme was organised to operationalise the IKM portal of NRM developed by Price Waterhouse Cooper and it attended by NRM. NRM will be one of the administrators of the IKM portal.

10.6 Training Programme on Partnership Process Manager

The training programme on Partnership Process Manager organised by GIZ at Goa was attended by NRMC. The programme dwelt on relationship building in Private Public Partnership model.

11. MISCELANEOUS

11.1. Unveiling of Watershed Model

Natural Resource Management Centre(NRMC), Kolkata has designed a model of watershed. The model was prepared with objective of using it as training tool. The live model with water shower simulating natural rain was unveiled at the hands of Dr K G Karmakar, Managing Director on 09 July 2010.



11.2. Information and Knowledge Management (IKM) in Natural Resources

Price Waterhouse Cooper Pvt. Ltd. was assigned the job of developing a portal for NRM sector. NRMC was involved from the beginning of the preparation of structure of the NRM portal. The NRMC is expected to act as an administrator of the portal. A training programme on administration of portal was organised from 07 to 09 March 2011 involving all the stakeholders. The portal is expected to be launched during 1st quarter of 2011-12.

12.3. NRMC building

NRMC is constantly pursuing with Head office for green building of the new premises. A meeting was organised by Premises Department, Head Office about the allocation of space for NRMC and incorporate green features to get "GRIHA" rating in the proposed new building. NRMC is making all effort to get maximum GRIHA rating for the new premises.

13. PUBLICATION

13.1. Release of Brochure on Azolla :

A brochure on Azolla has been printed by NRMCC. Azolla is a wonder crop used for biofertiliser and this can also be used as fodder for cattles and feed for poultry and fish production. The brochure was released at the hands of the Chairman during his visit to the RO on 28 July 2010.



13.2. A brochure on Azolla in Bengali

The brochure on azolla was translated in bengali and is under publication. It is expected to be brought out in April 2011.

13.3. Training tool for SRI :

A training material was designed and printed by NRMCC. The training material was published in English, Hindi and Bengali and widely circulated among the stakeholders. It is expected to be used for the farmers as flip chart where modern technology of communication may not be available due to paucity of electricity. The training material is available for sale to the partners popularising SRI.

13.4. E- publication on SRI:

As follow up of the National Seminar on SRI held on 11 and 12 July 2010, we have compiled and edited all the papers presented and strategies and action plan emerged during the seminar and same was uploaded in the website of NABARD. They are available on www.nabard.org/nrmc.

Acknowledgement

Starting the journey with a small interactive session on environmental issues on 22 April 2009 (Earth day), NRMC has diversified into mega events like National Seminar and Action Research during its' second year. This has been possible due to the guidance and support of the senior management at NABARD. We acknowledge and place on record our sincere thanks. The members of the Steering Committee were always available to us for consultations, suggestions and guidance apart from formal fora of meetings. Their motivation and encouragement has pushed us to give our best for development of NRMC. Shri S.K. Mitra, ED, NABARD and Chairman of Steering Committee has always evinced special interest in activities of NRMC. We, thank them all (the present and past members) from core of our heart. The operational aspects of the recommendations of the Bakshi Committee in respect of the institutional development of NRMC were finalized through a Working Group discussions, we thank all the members of the Working Group for their valuable suggestions, which will help in evolution of NRMC. Support from partners and stakeholders was forthcoming in the form of programmes, financial support, technical support, information sharing, field visits etc, we, thank them for this, hoping for continued associations. It is worth mentioning GiZ here, who facilitated the Vision and Mission workshop.

The staff of NABARD especially at DPD-FS, HO and West Bengal RO need mention here for supporting us in every step. Last but not the least we express our gratitude to Shri N.S.P. Rao, CGM, WBRO for his full support.

(Smt T.S. Raji Gain)

General Manager

Annexure

Expenditure of NRMC during 20010-11

S/N	Particulars	Amt Sanctioned (₹)	No. of families / participants covered
1	Programme on Renewable Energy in association with BAIF in Pune, 03 to 05 May 2010	234905	27
2	Celebration of Earth Day by interaction with environmentalist on 22nd April, 2010	4420	65
3	Concept Appreciation Programme for senior officer on TDF & NRM in association with National Bank Staff College from 11 to 14 April, 2010	40844	15
4	Three programme on soil testing and Fertilizer recommendation	389122	20
5	Awareness programme on alternative livelihood in Fringe villages of Arsha Block of Purulia District	80415	35
6	Exposure visit to Indian Institute of Pulse Research, Kanpur	61490	22
7	Programme on organic farming on 19 May 2010 in Nadia District	16031	100
8	National Seminar on SRI on 11 & 12 July 2010 at Raichak, 24 Pdns (S)	1575180	350
9	Awareness Programme on "Water for all" at Kalimpong, Darjeeling	85000	200
10	Two Programmes on improved Jute Retting by NIRJAFT	214191	60
11	Consultative cum Orientation Meet for Eastern States at Bolpur, from 09 to 11 August, 2010	316076	25
12	Celebration of World Environment Day on 05 June 2010	17895	70
13	Organisation of Nature Fest	2150193	1200
14	Programme in connection with the Action Research project on Eri Silk.	998810	35
15	Trainers training programme on Climate Literacy & Green Finance held during 4-6 Oct, 2010	67220	14

16	4th East Himalayan Expo organised by ITPO held at Siliguri from 10 - 19 Dec 2010	138900	5
17	Consultative & Orientation meet of NRM for NE from 01 -03 Dec. 10 at Barapani, Meghalaya	75271	24
18	Sponsoring International Symposium on System Intensification towards Food and Environmental Security from 24-27 Feb 2011	125000	NA
19	Workshop on Vision and Mission on 09 Dec. 2010 at Bangalore	6038	20
20	Programme on Rain Water Harvesting and Water Use Efficiency, at Purulia	71868	35
21	Programme on adoption of villages for Sustainable Agriculture & Organic Farming in Nadia district	343400	350
22	Implementing Action Research Project on establishment of embankment in Sunderban, 24 Pdns (S)	233600	65
23	Preparation of Watershed Model by M/s WAVE-C	211500	NA
24	Expenditure in connection with the 3rd Steering Committee at Mumbai	33760	NA
25	Expenditure in connection with the 4th Steering Committee meeting held on 26-27 March, 2010	165844	NA
26	Expenditure in connection with the 5th Steering Committee meeting held at Bhubaneswar on 26-27 March, 2010	95023	NA
27	Membership fee of International Association of Study of Commons (IASC)	14633	NA
28	Publishing of NRM Booklets and other publications	560720	NA
29	Infrastructure development of NRMC	70279	NA
30	Miscellaneous Expenditure	34448	NA
31	Action Research on Alternate Livelihoods in forest fringe areas of Ayodhya hills	1114000	750
	Total	95,46,076	3487

Note : All items except 31 were booked under FIPF A/c and item 31 was booked under TDF A/c.

Man - despite his artistic pretensions, his sophistication, and his many accomplishments - owes his existence to a six inch layer of top soil and the fact that it rains.

~ Chinese proverb

"Only after the last tree has been cut down... the last river has been poisoned... the last fish caught, only then will you find that money cannot be eaten."

~ Cree Indian Prophecy

We do not inherit the earth from our ancestors, we borrow it from our children.

~Native American Proverb

Modern technology
Owes ecology
An apology.

~Alan M. Eddison

"GO GREEN"

- GREEN TIPS

- ✓ While building a house / Flat, try rain water harvesting and solar lights
- ✓ Generate less waste - recycle waste into compost
- ✓ Plant a tree/plant wherever possible using vermi/bio composts
- ✓ Use both sides of the paper
- ✓ Discourage use of plastic, go for a cloth / jute bag
- ✓ Plug all leaks in water pipes
- ✓ Recycle used water for watering plants / trees
- ✓ Use handloom woven materials
- ✓ Gift plants, jute items, recycled paper mache articles etc.
- ✓ Use eco-friendly products like seetalpati, madurkati
- ✓ Unplug appliances and switch other electrical appliances off when not in use
- ✓ Keep computer on sleep mode when not in use
- ✓ Encourage kids to play outdoor games rather video games
- ✓ Eat locally grown seasonal vegetables and food
- ✓ Walk short distances
- ✓ Use public transport, car pools or cycles for longer distance
- ✓ Save your health as well as others by not smoking
- ✓ Pressure cook, stir fry - remain healthy and use less fuel
- ✓ Play music, TV etc. softly
- ✓ Do not use loudspeakers at odd hours
- ✓ Sun dry clothes rather than machine drying
- ✓ Walk instead of treadmill.
- ✓ Remain healthy and save environment, fat people contribute 1 ton more CO₂
- ✓ Use energy efficient and saving appliances, bulbs
- ✓ The more you eat raw foods, the lesser the energy that get used up in cooking
- ✓ Measure your carbon foot prints - www.treeswaterpeople.org,
www.unep.org/carbonfootprintcalculator, www.carbonfund.org

Reduce your ecological footprint(carbon, water etc.), offset what you can not reduce.