SACEP NEWS

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EDITORIAL

The Environment and Poverty Web

Modernisation and its achievements have drawn heavily from natural systems, processes and resources. However, it has also increased the degree of separation between nature and human society, thereby drawing away from the principles of stewardship that was the way of our ancestors. Modern attempts to protect natural resources also initially pulled away from ancient principles of use and nurture and into the domain of preservation. This meant keeping natural resources in and humans out and safe from harm. This approach has had its benefits and species and habitats that may have otherwise been lost forever have been preserved. On the flip side this restricted communities directly reliant on natural systems of a lifeline to basic needs and in the long run did not protect the resources as envisioned. The past two decades has seen a shift back to a more inclusive conservation approach that looks at preservation and sustainable use in similar lines to our early ancestors. Yet now the balancing act is compounded as humanity grows with greater demands along with increasing problems of poverty, inequity, and depletion and degradation of natural resources.

The links between poverty and environment illustrates the complex and connected nature of the web of life. Human needs and natural needs seem to be in a tug of war where one only succeeds by taking from the other but overall gain is in the negative for both. Rural areas, and poor communities suffer the brunt of this relationship by being at the bottom end of the social structures. They live life with less resources, less services, less choices, and less ability to absorb shocks and changes. This is also the larger portion of the faster growing bulk of South Asia's residents. Solutions have to address both human and natural needs on the same side if a dent is to be made on reducing poverty and increasing sustainability.

Conventions signed, laws changed, policies drafted, committees formulated, projects implemented have only just started to address the inter-linkages of poverty and environment. The key to achieving a more positive relationship lie in combining the sectoral and in many ways segregated actions aimed at addressing these issues. It also calls for greater participation and assigning responsibilities to the beneficiaries.

While activities are needed at all levels, innovations at community level play a vital role in increasing practices that do not exploit natural systems. This is also where those directly relying on natural resources can build systems that show that alternative management styles that are non-exploitative, non-destructive are possible. Their efforts build a sense of ownership and collective responsibility towards the overall development process while also directly benefiting their own families and communities.

This issue of SACEP NEWS focuses on *"Tackling Poverty and Natural Resources Management through Community Based Initiatives"*. It features case studies on some of the innovative local and national projects and programmes in South Asia that can increase ideas for adaptation and replication on a wider scale.

Many of the articles featured were sent in by various organisations working in South Asia and we extend our thanks for their contributions. We hope that the case studies will allow you to explore options for addressing the many facets of the poverty and environment web.

Mahboob Elahi
Director General, SACEP

In this Issue

CASE STUDY 1
Generating Additional Income From Waste

The **Suganthi Devadason Marine Research Institute (SDMRI)** is a marine research and development organisation, established in 1998 with an objective to cater the research needs of marine and coastal ecosystems in India and to uplift the socio-economic conditions of coastal folk. The objectives of SDMRI are multi and interdisciplinary involving the research work on conservation and management of marine and coastal ecosystems, reef ecosystem remediation (reef restoration and artificial reefs), environmental monitoring and impact assessment, biodiversity, marine natural products, biofouling, pollution, aquaculture and sea ranching, sea food processing and development of value added products, socio-economics, capacity building, environmental education and creation of awareness etc. SDMRI has been recognised by Manonmaniam Sundaranar University of the Government of Tamil Nadu as a Research Centre, leading to a Ph.D. programme that is recognised by the University Grants Commission (UGC) of Government of India.

There are many Self Help Groups (SHG's) for women along Tuticorin coast, which comprise mostly of uneducated women. Through SHG's, women are empowered in social and economical domains through active participation in the decision making and planning processes and by linking them with micro enterprises and banking institutions. The coastal families solely depend on income of men through fishing activities and most of the families are living under the poverty line. Suganthi Devadason Marine Research Institute (SDMRI) is presently carrying out a programme with the SHG of Vellapatti village with the main objective of empowering these women to generate income and support the men to enhance the socio-economic status of themselves and their families. Under this programme, vermi composting and crab-fattening were introduced as income generation activities.

Vermi Composting

Once the community agreed to participate, they were given training in vermi composting methodology that included preparation of pit and composting, maintenance of pit and maintenance of waste until harvesting of the bio fertiliser. The methods were also practically demonstrated. The low financial input in raw material and high output in the final product and the possibilities of revenue were emphasized during the training. The women were encouraged to start vermi composting units in their backyards using locally available raw materials such as cow dung. Technical back up was given to all trainees until they harvested their compost. Marketing of the compost was also arranged for them and they were encouraged to prepare the biofertiliser continuously. The women participating in the vermi compost programme are happy with this scheme, as it requires low financial input while each can earn about Rs.1,500 - 3,500 every 45 days.

Monitoring of compost pit

Community Based Crab Fattening

The main fishery of Vellapatti is crab and they mainly fish around the nearby Vaan and Koswari islands. Along with their target species *P. pelagicus*, they get a small number of *Scylla serrata* and lobsters in their daily catches. The moulted crabs of *P. pelagicus*, *S. serrata* and lobsters that have a soft carapace are discarded as they have a poor market value. Therefore development of crab fattening is ideal to maximize the use of this resource.

More than 95% of the fisherwomen of Vellapatti village are actively involved in fishery related activities like sorting of the catches, net cleaning, mending and fabrication that help their family members. Everyday they spend most of their time carrying out these activities by the shore.

The staff of SDMRI conducted crab fattening training for the selected women for a week in which water quality management, selection of suitable water crabs, feed management and tank maintenance were explained both theoretically and practically. Fieldwork such as purchasing of moulted crabs from the auction shed was also carried out. Women showed keen interest in learning maintenance methods and collecting live bivalves for feed.

The Tuticorin District Administration has sanctioned Rs. 500,000 (US $ 10,870) for the infrastructure facility to the selected five groups at Vellapatti village and constructed a wet lab with twelve tanks (two-tons each), a settlement tank, a motor for pumping the seawater and lights for illumination inside the building. An air compressor and other accessories like air tubes, joints, regulators and cable were also recieved through sponsorship. The technical back up was provided by SDMRI free of charge as a service to the society. It was also noteworthy that the location is pollution free and ideal spot for crab fattening. The fisherwomen can easily engage themselves both in their routine work and crab fattening, as the facility is located close to the landing area. The profit per SHG through crab fattening is about Rs. 2,800 per crop.

This is the first time in the country that a community-based crab fattening programme was implemented for alternative/additional livelihood, especially for the women fisher folk. This has proved to be a great success not only in terms of generating extra income to the family through the SHGs but also to create awareness among fisher folk about the value of marine resources and the need for conservation and sustainable utilisation. Active participation, infrastructure, support from the district administration and technical back up from SDMRI has facilitated the successful progress of the project. Now the Vellapatti fishing village is becoming a role model for the establishment of similar projects in other fishing villages along the Gulf of Mannar Biosphere Reserve on the Southeast coast of India.

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CASE STUDY 2:

Integrating Biodiversity Protection and Cultural Heritage into Rice Production

The wet zone in Southwestern Sri Lanka has long been a rice growing region. Rice cultivation is a type of agriculture that integrates well with wetland ecosystems. Traditional rice cultivations contained a reed bed and a home garden, which not only supplied households with material to weave baskets and vessels for domestic use, but also provided a habitat for a diverse set of freshwater fish, frog, plant, and insect species. However, since the green revolution, these farming patterns, and the traditional weaving techniques have been dying out. Chemical fertilisers and intensified rice cultivation has eliminated reed beds and consequentially many fish and plant species have all but disappeared from the ecosystem. At the same time, the weavers of reed rugs, baskets, mats and other items have almost given up the craft due to lack of reeds, proper markets and poor financial gains. The committee for the People's Rights was established in 1991 in order to educate people of their rights. Since then work has expanded to promote agriculture practices such as organic rice cultivation to the farmers.

Implementation

In 1999, the Committee for People's Rights initiated the Rush and Reed Conservation and Diversification Programme to re-introduce the reeds and weaving practices in the region. The effort began with the formation of 18 groups of 5 people each who agreed to plant threatened rush and reed varieties in their rice paddy fields. At the same time, young people, mostly women, were trained in weaving, particularly using fast-disappearing traditional motifs. To promote the sale of these products, the project built a crafts centre and showroom. More and more farmers began to plant reed beds, and close to 150 people have been trained in craft production. In 2003, the project began to work closely with 20 farmers to re-introduce the self-sustaining "micro-land unit", which consists of less than 1 acre composed of a paddy field, a reed bed and a home garden. The farmers have received training in organic farming techniques, including vermiculture, liquid fertiliser, and compost. It is hoped that the farmers, selected for their leadership qualities, will encourage and set an example to others to undertake similar efforts.

The craft centre and showroom

Community members weeding reed beds

Reed Products

Results

There are signs that wetland ecosystems are starting to recover since this project began. Approximately 12 rush and reed varieties have been successfully re-introduced, along with several plants traditionally used to make natural dyes. Natural fertilisers and traditional pest control methods are replacing chemical fertilisers - the major cause of reed depletion. It has also helped to maintain the natural balance of the ecosystem by increasing the populations of frogs, spiders and insects. Several fish species have also returned to the area. In all, over 750 plants have been re-introduced to the area.

The project's livelihood benefits are also impressive. Farmers who began growing reeds have increased their income by $50-$70 annually, with $10 to $60 more when households are also engaged in craft production, which is a significant increase by Sri Lankan standards. The farmers using the "micro-land unit" approach have also saved between $30-$40 annually by growing more of their own food. Craft production has now become an important source of income for the women, enhancing their independence and participation in decision-making processes. Currently, they produce approximately 1,000 craft pieces per month. In August 2003, a group member won an award at the designer project and received market exposure at the Tendence Fair in Frankfurt, Germany. She also attended workshop in the Netherlands through the Fair Trade Assistance Programme.

Partnerships

The success of the Rush and Reed programme is the product of a wide range of partnerships and networks. Sri Lanka's Environment Ministry and the GEF Small Grants programme provided funding while the Department of Agrarian Services enabled farmers to cultivate in unused fields. The National Handicrafts Board and the National Design Centre have provided critical training and assistance in the development of the craft centre and in market promotion. NGO networks, including the Green Movement of Sri Lanka and the Movement for National Land and Agriculture Reform, have created awareness about these efforts.

The **Committee for People's Rights** was established in 1991 in order to educate people of their rights. Subsequently the Committee became aware of the decline of the traditional agriculture based society, creating youth unrest, poverty, loss of moral and social values etc., thus the committee reintroduced organic farming as an alternative to solve these problems. In 1999, the Rush and Reed Conservation and Diversification Programme was initiated to re-introduce reeds and weaving practices to the region. In 2003, the project began to work closely with 20 farmers to re-introduce the self-sustaining "micro-land unit," which consists of less than 1 acre composed of a paddy field, a reed bed, and a home garden. In 2004, the Committee for People's Rights was named a finalist for UNDP's Equator Prize..

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CASE STUDY 3:
Safeguarding Livelihoods & Natural Resources by Curbing Drought Risks

Drought in South Asia

In the past few decades South Asia has experienced droughts with increasing frequency and intensity. A combination of natural factors - principally, the scarcity of rain over a period of many years, with man-made factors - the erosion of traditional rainwater harvesting systems, the indiscriminate boring of tube wells and the promotion of water-intensive cash crops in arid areas, through government subsidies, has gradually led to a crisis situation in many parts of the region. Those most affected are people who are heavily dependent on rain-fed agriculture and livestock production for their livelihood. Their struggle for survival with less water has led to a cycle of poverty, environmental degradation and desertification.

To offer solutions to people facing these difficulties, Intermediate Technology Development Group - South Asia (ITDG) started a drought mitigation programme in Rajastan, India, Tharparkar desert, Pakistan and in two arid zone locations in Sri Lanka.

The Intermediate Technology Development Group (ITDG) was established in 1966 by Dr. Fritz Schumacher, author of 'Small is Beautiful'. The organisation has regional and country offices in Peru, Kenya, Zimbabwe, Sri Lanka, Sudan, Bangladesh and Nepal. ITDG helps eradicate poverty in developing countries by developing and using technology and by demonstrating results, sharing knowledge and influencing others. Core values include: putting people first i.e. focusing on what matters most to the people whom we work with, respecting their rights, and supporting their own efforts to improve the quality of their lives; working in partnership; respect for diversity i.e. recognition of the fact that communities comprise of people who are different on the basis of gender, ethnicity, religion or disability and the need to give them due respect and support and concern for future generations i.e. the need to achieve sustainability.

Duryog Nivaran (DN) is a disaster mitigation network liaising with organisations and individuals in South Asia. DN challenges the dominant view that disasters are isolated events which need emergency response, promoting instead the alternative approach that looks at building communities' capacity to mitigate and manage disasters themselves. The regional drought mitigation projects were carried out under the DN banner. For further information visit our website www.duryognivaran.com

The Project

Work carried out by ITDG and partners (through Duryog Nivaran) have proven that there is a link between livelihood security and levels of risk and vulnerability to disasters. Therefore for communities living in disaster prone areas, risk management and disaster preparedness become important components of the development process towards achieving livelihood security and sustainable resource management (as they are dependent on scarce natural resources).

ITDG's *Livelihood Options for Disaster Risk Reduction Project* explored the impact of disasters on livelihoods and assessed the needs and livelihood opportunities that result from disasters in the South Asian region. It also sought to identify and demonstrate practical options that can build capacity and enhance livelihood security enabling communities to tackle disaster risk in a positive way.

As part of the demonstration, drought was tackled through community-managed approaches using simple, appropriate technologies including:

1. Reviving traditional rainwater harvesting systems and introducing new ones
2. Promoting water-saving irrigation methods and drought resistant crop combinations
3. Developing and promoting long term measures to improve catchments and increase water table

Women contributing to the construction of an anicut and pond to recharge depleting ground water in Lawadi, Rajasthan.

The Outcomes

In Lalwadi (Rajasthan), the project built a low anicut to collect rainwater in a pond that would recharge depleted ground water and also provide water for livestock and home gardens. People's participation in the entire project was high - from the stage of deciding the location of the pond to the actual construction.

A rainwater harvesting tank in Mahameddawa, northwestern Sri Lanka, that is used to meet domestic needs and to cultivate home gardens

In Sri Lanka, water availability was increased through ground and above-ground tanks that collected roof and field runoff.

In Pakistan, underground tanks at household level collected monsoon runoff.

The increased water itself became the first pivot for change- in attitudes and the environment. The pressure on ground water was reduced. Awareness raising activities espoused the need to protect soil, plant trees, protect forests, adopt water-saving agriculture techniques, adopt home gardening to increase food availability and engage in less-destructive animal husbandry.

In Lalwadi people were encouraged to grow traditional food crops in home gardens and use

dry land farming methods which are more suited for the arid zones.

In Usgala, southern Sri Lanka, grasses were cultivated to prevent slope degradation and increase soil condition.

In Mahameddawa, northwestern Sri Lanka, perennial fruit crops like mango, pomegranate, papaya, coconut and cashew were encouraged as a long term measures against water-intensive cash crops.

In Pakistan some 1000 neem trees were cultivated as a long term income generating project and home gardens were made popular, fed by waste water from kitchen use. Energy efficient cooking stoves were also introduced to cut down dependency on fuel wood. Across the board, organic agriculture was promoted with soil-enriching techniques like mulching.

For the people of these villages the outcomes were immediate. Water being available at their doorstep meant a saving in time and resources that would otherwise be spent in fetching and procuring the precious resource.

For the environment, the benefits were more subtle, but important. Firstly, by harvesting rainwater, the human extraction pressure on ground water was reduced to a great extent. Different species of crops contributed to enhanced diversity. The demand for firewood was reduced thus easing the pressure on existing natural forests. Soil quality was improved and erosion prevention mechanisms were put in place. Above all, the poor people living in these difficult and arid zones of South Asia were compelled to understand the importance of the natural balance of the ecosystem around them, and the need to participate in conservation activities that in turn enrich their own livelihoods.

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CASE STUDY 4:
Innovative Smallholder Solutions for Improved Food and Livelihood Security in South Asia

Farmers in rural communities in India and Nepal are practicing innovative ways of dealing with the challenges of water management. Many of these practices stem from traditional ones used by their ancestors. These localised interventions can be viable alternatives that make the difference in remote rural communities where implementing large –scale irrigation infrastructures that are complex to manage and require huge capital investments are not feasible. Unfortunately the benefits of these 'home grown' solutions are rarely scientifically verified and do not travel beyond their original village or community. If they do, they have the power to transform the quality of life for many poor communities.

This article describes six low cost techniques developed by local communities in India and Nepal that show great promise not only for improving the livelihoods and food security of poor farmers across South Asia but also for sustainable use of natural resources. These methods were tried and tested with the assistance of local development organisations with funding from the Department for International Development (DFID) U.K. The International Water Management Institute (IWMI) evaluated the six practices.

The Solutions

Reviving *Paals* to Harvest Rainwater

In the Alwar district of Rajasthan, farmers are restoring *paals* which are traditional water harvesting structures constructed across seasonal water courses (*nalas) that* capture water during periods of heavy rainfall. With time, many of the existing structures fell into disuse but the practice was revived by the PRADAN (Professional Assistance for Development Action), a local NGO. Farmers collect water over an area of 4 to 5 hectares for 2 to 3 months. During this time, water saturates the upper soil layers and seeps down to recharge underground aquifers. The technology is suitable for areas not subject to salinity, excessive flooding or waterlogging. Fine sediments carried by run-off get deposited in the submerged area creating a rich layer of silt and clay. Crops can be grown during the post monsoon period using residual soil moisture stored in the field. During dry seasons, recharged groundwater is used by farmers to irrigate low-water consuming crops. Farmers can also pump more water at reduced pumping costs due to raised water tables. The *paal* revival has helped generate more income for farmers, and considerably improved livelihoods and food security within the community. *Paals* can also be built in locations where constructing a dam or building a surface reservoir is not possible, or is too costly.

Community participating to restore degraded watersheds in India

Storing Water Using Five Percent Pit Technology

The Five percent technology is a technique that eliminates the risks of unpredictable rainfall patterns. A pit representing five percent of the total area of a farmer's land is dug at the most upstream part of the plot. This pit collects runoff water and stores it for use during dry spells. Each pit is around 1.5 metres deep and water is lifted manually and applied to crop fields. Five percent represents the minimum area for supplying the required irrigation to upland paddy during critical growth periods immediately after the monsoon. The choice of making bigger or deeper pits depends on land availability and soil

type. Many farmers are taking up vegetable cultivation or fish farming during the dry season. Five percent pit technology improves water availability, minimizes soil erosion and improves land productivity. It is promoted in West Bengal by PRADAN. The technology is appropriate for areas with erratic rainfall and for fields in upper catchments which dry up early even during the monsoons.

Productive use of waste water

Using Wastewater in a Safe and Productive Way

Along the Musi River, between the twin cities of Hyderabad and Secunderabad in Andhra Pradesh, India, an estimated 100,000 acres of land is irrigated with domestic and industrial wastewater flowing from these cities. Farmers in the areas have successfully switched from paddy to growing para grass a type of fodder. Studies led by IWMI show that approximately 95% of cultivated land in urban and peri-urban areas around the Musi River is cultivated with para grass that requires little attention. It can be harvested for over 20 years without replanting. Landowners earn an income by renting out the land for fodder or vegetable cultivation. Labourers who cut the grass and those who transport it to markets also derive income from this activity. A number of farmers are also cultivating jasmine, which is high in demand and worn daily by Indian women. Coconut palms and banana plants are grown with wastewater in the heart of Hyderabad. Banana leaves are used as decorations for weddings and religious ceremonies. Wastewater is also used for livestock, fisheries and toddy production.

Rejuvenating *Ooranis* for Drinking Water

Ooranis are traditional village tanks dug below ground level and used for collecting rainwater and runoff. These have become derelict over time and the *DHAN Foundation*, a local development organisation is helping to restore these tanks, in the Ramnathapuram district of Tamil Nadu. They are a major source of drinking water and for domestic use where groundwater is not available in adequate quantities, or not potable. *Ooranis* are dug to depths ranging from 2 to 5 metres and the excavated earth is deposited as a bank around the lower perimeter. Previously, women would walk long distances to find water and children often missed school because they had to collect and carry water. In villages where *ooranis* were restored, families have saved 45 working days per household per year. Women have more time for their families and children can attend school regularly. Properly restored tanks provide safe drinking water, reducing the risk of water-borne diseases and improving overall health. Women in the village are personally supervising the hygienic use of these tanks as a source of drinking water.

Integrating Land and Water Management Practices for Better Livelihoods

In areas like Udaipur, Rajasthan, less than 20% of the land is cultivated. Remaining land belongs to the State but provides significant support to farming communities by supplying fodder, grazing land and fuelwood. To help mitigate the effects of drought, recent efforts by *Seva Mandir*, a community-based NGO, integrate rainwater harvesting with afforestation, rejuvenation of grazing lands and improved watershed treatment with significant community involvement. As a result, villages have developed a self-sustaining system to recharge groundwater which provides enough water for livestock even during drought conditions. Land quality and crop productivity is also improved through more reliable supplies of water. Even silt deposits above bunds are made use of to create new agriculture 'fields' that farmers or the landless can use to plant crops or timber.

Increasing Water Savings with Low Cost Drip Irrigation Kits

Crops irrigated by drip irrigation schemes show water savings of up to 50 percent and yield increases of 30 to 50 percent. Drip irrigation has the advantage of delivering the water directly to the plant through a system of plastic tubes with minimal water loss. Unfortunately, many smallholders cannot afford conventional drip systems because of high initial investment costs. However, in Nepal and India, a number of farmers are using low-cost irrigation kits which require little initial investment. These systems have been developed by *International Development Enterprise (IDE)*. The drip systems are divisible and sold in kits that farmers can install and maintain themselves. They are also expandable so that farmers can start small and scale up as their income increases. As a result of this technology, many farmers - especially- women- are growing high value crops for sale, using previously unproductive land. The impacts of these systems are felt through higher household incomes, better nutrition, improved standards of living and education opportunities.

Using drip irrigation in Nepal

for more information smallholder initiatives see:
www.iwmi.cgiar.org/smallholdersolutions

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CASE STUDY 5:
Sustainable Forest Management Through Community Forestry

Community forestry has the potential to reduce forest degradation, protect biodiversity and provide basic needs. Nepal has been in the forefront in enacting community forestry initiatives in South Asia and see it as a movement for social change where local communities are involved in national efforts towards sustainable development.

Development of Community Forest Management

Nepal's forests have undergone several different management phases – a traditional local management phase, a state controlled phase (under the Nationalization Act -1957) and a participatory phase (since 1978). This phase gave rise to Community Forestry. The Forest Act of 1993 fully legitimised the process of management of state owned forests by independent local Forest User Groups (FUGs). In addition to the Forest Act, The Government of Nepal has also enacted a Community Forestry Directive (1996) and Community Forestry Inventory Guidelines (2001) to facilitate this process. Community forestry has progressed into a devolved management practice supported by Nepal's constitution given its benefits of conservation and development.

Stakeholders and their Roles in Community Forestry

A range of players are involved and success depends on their coordinated and collaborative efforts.

- Forest User Groups (FUG) - are registered autonomous bodies made up of people residing around forests who are responsible to manage, develop, conserve and use forest areas. While provisioning basic needs is foremost, the group can also take up commercial activities.
- Government Authority (GA) - The Department of Forests through the Private and Community Forestry Division and the District Forest Offices (DFO) facilitate the overall process of setting up FUGs, sorting out inequity situations, violations of management and benefit sharing, giving technical support and carrying out M&E activities.
- Federation of Community Forest Users' Groups - (FECOFUN) - is a network and an NGO group that supports, coordinates, promotes and advocates for the cause of community forestry in local, national, and regional levels.
- Donor Community (DO) & Other Organisations (Orgs)- support the FUGs and/or the government through financing, advocacy, capacity building etc.

Some Conditions and Facilitation Mechanisms in Force:

- State retains ownership and the community gets use-rights
- State owned forests and degraded forests are handed over to the community without limitation on area, or time.
- User rights are mutually recognised and conditions are drawn up (through negotiations) in an operational plan.
- FUGs are evaluated for on accessibility, traditional use rights, willingness and capacity to manage the resources.
- FUGs make all management decisions and each member (household) has equal rights over resources, while outsiders have no access.

Positive Outcomes of Community Forestry Projects

By 2002, Nepal's nationwide community forest programmes had resulted in over 848,000ha of forests being managed by about 11,000 FUGs consisting of approximately 1.2 million households (FUG Database, 2002).It has resulted in improvements in forest conditions and biodiversity and reforestation of degraded lands. FUGs have proved that local communities can manage forests. They have secured better benefits while also investing in local development.

Emerging Issues

Supportive policy and institutional mechanisms spanning national and local components have played a vital role towards the success of this initiative. This is also an evolving process that has to be analysed and improved for greater benefits. Some of issues arising are given below:

- Thus far 24% of land set aside for community forestry has been transferred. Setting up of at least another 30,000 FUGs is needed to take on the rest. An appropriate mechanism and time frame is needed for this.
- The more protection oriented (passive) management style followed is implied to have caused an under utilisaton of forest capacity that can lead to a waning of interest due to inadequate benefits. It has also caused degradation of adjoining forests due to over use. A production oriented (active) management style is suggested for more efficiency.
- Although there is a high degree of participation, cases of the lack of transparency and democratic processes, dominance, and inadequate participation of women and poorer people were experienced. Therefore further work and mechanisms to strengthen management is needed.
- Better benefit sharing options that are reflective of the needs poorer households are necessary.
- Further strengthening of financial tools and management arrangements are needed for sustainability without external support.
- It can supply basic needs but if community forestry is to meet Nepal's poverty alleviation objectives, policies and actions to be taken needs to be further elaborated.
- Effective implementation has had problems of inadequate capacity and manpower restrictions (government level) and this needs to be addressed to maximize benefits of sustainable use and to handle setting up and monitoring of the growing number of community forestry initiatives.
- Community forestry initiatives have been more successful in the mid hills region, and has not done as well in the lowlands (Terai regions). This has highlighted the need for more location and context specific programming.

This article was compiled based on:

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Baral, J. C. 2002. *Unintended outcomes of community forestry intervention in Nepal - some implications.* Online 2003. www.mtnforum.org

International Network of Forests and Communities (INFC).2003. *Community Forestry in Nepal.* On line 2003. www.forestsandcommunities.org

CASE STUDY 6:
Trophy Hunting for Conservation and Development

In 1995, a 3-year Pre-Investment Feasibility (PRIF) project on "Maintaining Biodiversity in Pakistan with Rural Community Development" was undertaken to test the viability of community based approaches (technical and legal empowerment) to conservation management in 15 pilot sites in Northern Areas (NAs) and North West Frontier Province (NWFP). It was implemented by the Ministry of Environment, Local Government and Rural Development, IUCN and the Agha Khan Rural Support Programme (AKRSP), with GEF support. Since then, the Government of Pakistan has extended the application of this community-based conservation approach through the Mountain Area Conservancy Programme (MACP) in the Karakorum, Hindu Kush and Western Himalayas mountain ranges to strengthen conservation management and viability on a larger scale.

The Setting: The pilot sites are located in alpine pastures interspersed with juniper/birch forests. Wildlife species include snow leopard, markhor, ibex, and marco polo sheep. The life styles of the local communities revolve around agro-pastoral systems. Traditionally local communities had usufruct rights to grazing, fuelwood, and timber. Access and use were through mutual understanding, not written laws or regulations. However, traditionally there were no agreements for wildlife use and widespread and uncontrolled hunting, coupled with loss of habitats (over grazing and deforestation) has led to depletion of wildlife species in the area.

The Process: This initiative tested the then emerging conservation approach that saw use as a way to enhance rather than degrade biodiversity. It provides a vital link between conservation and development thereby bringing in sustainable use, equity and access into management and conservation methodology. It also transfers and shares the responsibility of conservation with the local community. This plays an important role in establishing skills and structures at a local level that enhances the long term success of sharing of power/authority, and commitment to conservation. (See box for diagrammatic depiction of project activities)

Sustainable Use Activities: Community Conservation Areas managed by the community have been designated and sustainable use and conservation measures have commenced.

Trophy Hunting: Trophy hunting is hunting for sport of species with horns, antlers or tusks (as trophies), and mature males of ungulates are the main targets. The ibex, and the markhor are hunted in the project area. The ibex is relatively abundant, but the markhor is endangered (listed in CITES Appendix I).

In 2000 the federal cabinet officially banned all big game hunting except in community controlled areas. By introducing community based trophy hunting programmes (CTHP) it is envisioned that the revenue from licensed hunting privileges will be the incentive to stop poaching and illegal hunting which will assist in the conservation and recovery of the species.

The CTHPs are allotted a quota of hunts per year by the National Council for Conservation Wildlife (NCCW). The NCCW assigns the markhor hunts directly to the community sites based on their conservation plans and population data. The ibex quotas are assigned to the provincial authorities who select the sites through discussions with the communities. At present a province can get 15 -20 ibex hunts per year at US $3,000 for foreigners and US$ 450 for locals, and 6 markhor hunts per year for the whole country (in accordance to CITES regulations) at US$ 25,000 for foreigners and locals. 80% of the takings go directly to the community and 20% to the government. It is stipulated that part of the revenue must be used for conservation activities.

Licenses to hunt are given to recognised outfitters or the individual hunters from the NCCW (for markhors) and the provincial authorities (for ibex). The NCCW issues export licenses in the event that the hunt is successful.

The Village Wildlife Guards (VWG) are in charge of the hunts. The NCCW has an overall monitoring role, while the provincial authorities are involved in administering the CTHPs and monitoring activities. Communities while benefiting from trophy hunting and other sustainable use activities are responsible for conservation in the area under their control.

Initial site and agreement process 1) Valley selection based on social and biological criteria 2) Agreement on Terms of involvement through awareness and dialogues, 3) Resource and needs appraisal using participatory processes, and 4) Formulation of Village Management Plans and Joint Action Plans

Formulation of structures and plans for implementation involved 1) Establishing Village Conservation Committees (VCC) led by the community with agreed authority and tasks, 2) Nominating Village Wildlife Guides (VWGs) to be involved in management activities, 3) Drawing up Conservation Management Plans with activities for conservation and sustainable use, 4) Setting up of District Conservation Committees (DCC) with membership from state and community to support conservation activities and 5) Assigning (by DCC) community controlled hunting areas

Capacity Building involved 1) Technical capacity building (training, surveying, awareness) 2) Financing mechanisms (VCF), 3) Infrastructure support and 4) Confidence building

Sustainable use activities involved operationalisation of 1) trophy hunting, 2) eco-tourism, 3) plant harvesting etc.

Like most things conservation comes at a price. Village Conservation Funds (VCF) administered by the community were set up as a revolving fund for conservation activities. Seed money was collected from the project and the community. A portion of the revenue from the trophy hunting and other sustainable use activities go into this fund.

Impacts: Thus far trophy hunting has reduced poaching and the number of sheep and goats kept in captivity. The communities have benefited from this enterprise with changes in attitudes that support conservation.

Further strengthening the institutional mechanisms are needed so that:

1. Resource surveys and population data is collected regularly
2. Illegal hunting (as there are still incidences) is abolished
3. Standards are set and procedures tightened for trophy hunting, sharing of benefits etc.

If trophy hunting is to be successful:

- All parties concerned must have a change of behaviour in regard to wildlife.
- The community must be engaged, involved and benefit. There must also be equitable distribution of benefits while supporting conservation efforts is a vital component.
- State parties must play a monitoring role to ensure that the hunts are carried out as stipulated while also carrying out regular wildlife surveys to ensure sustainability.
- Allocation of quotas and licenses must be based primarily on biological considerations not on community benefits or political motives
- Capacity building is needed for the community and the local authorities.

Markhor
www.adventure-touroperator.com

- Mechanisms that ensure and monitor conservation objectives must be set up and enforced in the CTHPs

An Evaluation Mission of the PRIF phase carried out by GEF in concluded that the approach had yielded positive results and has set a strong base for achieving cost-effective biodiversity conservation.

The project has shown that linking development and conservation can draw in village communities to support biodiversity conservation and to enact sustainable use. This has contributed to raise awareness and increase support giving communities more authority and capacity to manage wildlife.

This article was compiled based on:

Ministry of environment, local government and rural development Government of Pakistan, 2004. *Mountain Area Conservancy Project.* Online March 2004 www.macp-pk.org

Shakleton, D.M 2001. *A review of Community-Based Trophy Hunting Programs in Pakistan.* Online March 2004 www.macp-pk.org

Ahmed, J and S. Hussain. (n/d). *Community-Based Natural Resource Management In Northern Pakistan.* IUCN - Gland, Switzerland on line March 2004. www.srdis.ciesin.org/cases/Pakistan-Paper.html

International Conference on Sustainable Water Resources Management in Changing Environment of the Monsoon Region

17 - 19 November 2004 in Colombo, Sri Lanka

This conference is organised by the United Nations University in Collaboration with The National Water Resources Authority - Sri Lanka the United Nations Environment Programme, University of Peradeniya - Sri Lanka, University of Moratuwa - Sri Lanka and the South Asia Co-operative Environment Programme(SACEP)

The primary objective of the conference is to bring together knowledge related to water cycle behaviour at catchment and regional scales in monsoon Asia. In particular, linkages that arise due to changes in water demand, water utilisation practices, landuse, climate and water policy would be explored. The conference would also address two key issues associated with the water cycle changes and predicting its behaviour. The first is the Atmospheric Brown Cloud (ABC) and its impacts on water resources and agriculture. Past observations, results of analyses and modeling related to the above themes are especially welcome. The second is the use of Information and Communication Technology (ICT) in improving hydrological predictions that would lead to better water management practices.

The discussion of sustainable water resources development will be carried out based on these linkages, exploring adaptation practices that would minimize the disruptions to the natural water cycle through improved water management strategies.

Conference Themes

(1) Climatic change: Atmospheric Brown Cloud; El-Nino impacts; Monsoon failures

(2) Impacts of development on water resources: Landuse change; Urbanisation; Water demand; Socio-economic changes

(3) Hydrological monitoring and forecasting: Basin water cycle management; Hydrometric networks;

(4) Experiences in water management: Country strategies and policies; Water resources development; Water resources asset management; Historical experience.

For Pre-Registration and further information please contact: Dr. Assela Pathirana
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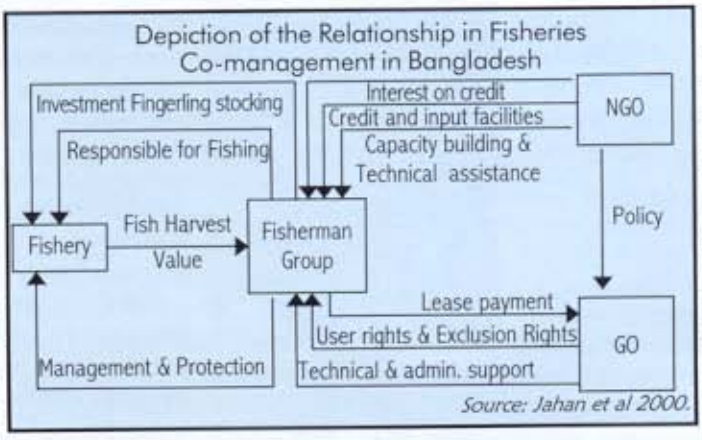
53-70, Jingumae 5-chome, Shibuya-ku, Tokyo 150-8925 APAN
E-mail: WRMinCE@hq.unu.edu
URL: wm.hq.unu.edu/conf/wrm

Call For Papers

Prospective presenters are invited to submit an abstract on a single A4 size paper with sufficient details to judge the quality and the relevance of the submission. The abstracts should be submitted by e-mail, fax or post to the conference secretariat at United Nations University. Abstracts will be accepted based on quality, originality, and relevance to the conference theme. Authors of accepted abstracts are invited to submit a full paper. All papers will be published in the conference proceedings and selected papers will be arranged to be published in a related international journal after peer-review. The language of the conference would be English.

CASE STUDY 7:
More Equitable Benefit Sharing of Inland Fisheries

Inland water bodies inclusive of rivers, baors (oxbow lakes), beels (lakes), haors (flooded depressions), reservoirs, marshes, estuaries amounting to 4.5 billion ha, gives Bangladesh a vast and varied fishery resource base that employs about 1.2 million full time fishers. The Ministry of Lands (MOL) has authority over the water bodies considered to be common property. Some fishing rights are allocated to private parties through auctions - for the lease of licenses. This restricts the control to a few wealthy middlemen or influential fishermen who can afford the licenses. This system has compromised conservation interests and the livelihoods of the fisher community - especially the poorer segments. It has led to inequity in economic benefit sharing, and in access and control. In addition this sector is burdened with a growing fish dependent population, high management costs and reducing fish stocks.



In an attempt to improve management and resource protection, the Government of Bangladesh enacted the New Fisheries Management Policy - NFMP (1986), that looks to gradually phase out leasing of fishing rights and replace it with licenses given directly to fishermen (proven to be "genuine fishers", given time spent and income derived from fisheries). Although this gives more fishermen greater access, in order to ensure that goals of economic gains and social equity are met, local institutions and fisher communities must be capable and willing to take over the responsibilities. Co-management of fisheries offers a solution for this by sharing the burden and building on the collective strength of several actors.

Co-management of fisheries is a management approach based on a partnership amongst the government, the fisher community and external agencies that collaborate to manage the resources in an equitable and sustainable manner. Strengthening local capacity is part of the process. It is a more inclusive and decentralised option.

Since the NFMP was enacted, co-management initiatives have taken place under the Oxbow Lake Co-management Project (OLP II) 1988 - 1997 and the Community Based Management Project (Since 1995). It has involved fisher communities in various parts of the country, the Department of Fisheries, NGOs (BRAC, Caritas, Proshika, Banchte Sheka, CRED), the World Fish Centre, and donors (IFAD, DANIDA, DFID), Ford Foundation). It has facilitated the setting up of inland water body management groups that involve over 5000 fisher families. The Department of Fisheries is responsible to secure the transfer of the water bodies from the Land Administration. The community either leases or pays revenue for user rights. For each water body the NGO establishes Management Committees with representatives elected by the community. These groups are responsible to design and oversee management activities. Their tasks include administrative duties (court cases, communications/liaising, book keeping), releasing fingerlings, and distributing income. The members are involved in harvesting, guarding, selling and marketing. The local government and the external organisations work to ensure that proper institution building, capacity development, and technology and credit transfer are taking place.

Some of the sustainable harvesting activities include:

- Establishing sanctuaries, assigning no fishing areas, enacting voluntary closed seasons
- Fish stocking, banning use of harmful fishing gear
- Guarding (against poachers)
- Alternative income sources (rice husking, small businesses) and value adding to fisheries (technology, processing).

Some hurdles that have been encountered include:

- Difficulties with the handing over of the water bodies
- Conflicts among stakeholders (over user rights, etc)
- Increased management costs (legal fees and court cases due to illegal occupation and guarding against poaching)
- Acts of corruption by powerful individuals.
- Finding an appropriate mechanism to manage open systems (rivers) which has proved to be harder due to unclear policies over management roles. -

Some of the potential benefits of co-management includes:

- Wider participation and sharing of responsibilities
- Better distribution of benefits.
- Lower transaction costs over time in comparison to centralised management systems.
- Stewardship – increased production, sustainable harvests and conservation of resources
- Availability of better technology and credit facilities.
- Reduced vulnerability and pressure on fishery resources as well as increased food security, diversity and employment options.

This article was compiled based on:

Hossain, M.M, S.A. Rahman and P.M. Thompson. 1998. *Building government-non-government organization-fisher partnerships for fisheries management in Bangladesh.* On line April 2004. dlc.dlib.indiana.edu/archive/00000064

Jahan, K.M., N.M.R. Abdullah and K. Kuperan Viswanathan. 2000 (1). *Welfare impacts of fisheries co-management system at Oxbow lakes in Bangladesh.* On line April 2004. www.oregonstate.edu/dept/IIFET/2000/papers/viswanathan2.pdf

Jahan, K.M. N.M.R. Abdullah and K.K.Viswanathan. 2000 (2). *Transaction costs in fisheries co-management at Oxbow lake (Baor) in Bangladesh.* On line April 2004. www.worldfishcenter.org/Pubs/Way%2520Forward/17%2520Jahan.pdf

Thompson, P.M, P. Sultana and Md. Nurul Islam 2000: *Cooperation, Conflicts and Sustainability in Community Managed Fisheries in Bangladesh.* On line Aril 2004. dlc.dlib.indiana.edu/archive/00000362

The mission of **Rainforest Rescue International (RRI)** is to promote the conservation of tropical rainforest in a manner that will lead to long lasting social, economical and environmental benefits to the people of tropical rainforests by undertaking appropriate environmental action on matters including: research; education; certification and development of natural products and markets. RRI believes it is about making lifestyle choices towards a solution-focused approach for a sustainable future.

Conserving Rainforests

Rainforest Rescue International (RRI) has been active in Sri Lanka since February 2003 and in a short time span have initiated several innovative activities:

- Plant and Spice Safari's: Groups (4-8) visit gardens around the Kottawa Forest Reserve and meet with farmers to learn about production activities varying from rice cultivation to local medicine. 30% of the income goes to the farmers, 10% to the village committee or an environmental CBO and 30% to other RRI activities including workshops for farmers on ecologically sound farming practices.
- Rasa Organic Shop: This shop is dedicated to selling products made by farmers and craftsmen using natural resources/products. Workshops on Value added product and quality control are given to secure potential international markets.
- Rainforest Tree Rescue: True to it's mission, RRI is physically digging out trees from a highway that is being built and replacing them in other environmental projects.
- Indigenous Rainforest Tree Nursery: In Pilagoda, 19 km from Galle, RRI has a 4 acre plot where it grows indigenous trees and plants for future replanting programmes
- Kanneliya-Sinharaja Biodiversity Corridor: An initiative has commenced to research the potential of creating such a corridor and to gauge the interest of people to assist with it.

RRI is working towards becoming a professional, multi-disciplinary, scientific organisation working in partnership with others in field-based projects and applied research.

Sent in by: Rainforest Rescue International (RRI)
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NEW

Rebuilding a Wetland

Bhitarkanika, located on the East Coast of Orissa State, is a national park that spreads over 145km^2. It is a unique mangrove forest ecosystem, harbouring the largest known rookery of endangered Olive Ridley sea turtles in the world. This mangrove has declined due to unsustainable, short-sighted developments.

The **Sandhan Foundation** is a registered Non-profit, Public Trust in Bhubaneswar. It acts as a center for media documentation on ecology and bio-resources of the State. It promotes awareness on Nature-conservation and restoration among women & schoolchildren, dependent communities and rural village folks for rightful use and sustainable Eco-development.

When the *'Super Cyclone-1999'* struck the Orissa coast in October, an estimated 20,000 coastal residents perished and property damage was immense. Analysis showed that the immensity of the disaster could have been lessened if a healthy mangrove forest buffer was present. Cyclones are frequent in this region, and we felt it imperative to act to restore the mangrove before another cyclone strikes.

We plan to carry out a restoration effort that empowers the dependent local communities to sustainably manage their coastal resources by setting up community mangrove forests starting around the Bhitarkanika mangrove forest. The local communities will participate in conserving and restoring the coastal wetland ecology while interacting with wetland experts, researchers, and academics coming together to form the Coastal Community Resource Center (CCRC). The CCRC, as envisaged, will be a learning and demonstration center to help alleviate poverty, while engendering a conservation approach benefiting and involving the local communities. The CCRC will be set up in the village of Gupti in the Bhitarkanika Mangrove area with active involvement of the local communities to reverse soil erosion and land degradation, to restore native plants, and to raise awareness.

Sent in by: Bijay K. Nanda
Hon Executive Director-cum-Media Administrator,
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Training Municipal Wastewater Managers in South Asia

The uncontrolled discharge of municipal wastewater causes serious environmental and human health problems and threatens sustainable coastal development in many of the world's coastlines. In response to the daunting challenges in addressing wastewater problems, the UNEP/GPA has developed a training programme for municipal wastewater managers, jointly with the UNESCO-IHE Institute for Water Education and the UN/DOALOS Train-Sea-Coast Programme.

This wastewater management course was delivered for the first time in South Asia, in March 2004 to a group of 28 participants from Sri Lanka, Pakistan and Bangladesh. The target group consisted of municipal engineers and project managers, with health officials and NGO representatives contributing to the discussions and group work. The course focused on (i) objective oriented planning, (ii) innovative technological and financial approaches, (iii) stakeholder involvement and (iv) proposal writing and presentation skills. The course builds on the existing expertise of course participants.

The Training was organised in collaboration with the National Water Supply and Drainage Board of Sri Lanka (NWS&DB) and funded by NORAD and the Belgian Government.

More information about the training and related activities can be found at: www.gpa.unep.org/training

WORLD ENVIRONMENT DAY - 5 JUNE 2004

- The world's seas and oceans are tainted by untreated wastewater, air-borne pollution, industrial effluent and silt.
- Each year marine litter kills up to a 1,000,000 seabirds and 100,000 sea mammals and turtles
- 80% of pollution in seas comes from land-based activities.
- More than 70 % of the world's marine fisheries have been fished up to or beyond their sustainable limit, with nearly ¾ of the fish stocks harvested faster than they can reproduce.
- Nitrogen overload from fertilizers is creating a growing number of oxygen-starved "dead zones"
- Less than .5% of marine habitats are protected

World Environment Day asks us to reflect on the kind of choices we make regarding our oceans and seas.

For more information Please visit: www.unep.org/wed

Pilot Testing the ICARM Concept in the Attanagalu Oya, Sri Lanka

SACEP and the Coast Conservation Department of Sri Lanka are implementing a pilot project on Integrated Coastal Area and River Basin Management (ICARM) at the Attanagalu Oya river basin. UNEP-Regional Seas Programme is providing the financial support for the first phase, which will culminate with an integrated management framework and an action plan for the river basin by the end of 2004.

Although only 45km long, the Attanagalu Oya is one of the most populated and industrialized river basins in the country; accounting for about 10% of nations' GDP. Previous studies indicate that activities in the river basin have significant detrimental impacts on downstream coastal wetlands with high fishery, recreational and ecological values.

On 23rd April, a local level stakeholder meeting was held with the participation of 40 government (central and provincial) and NGO representation to discuss the issues to be addressed for integrated coastal area and river basin management. Unauthorized filling and siltation of wetlands/coastal area, dumping of solid waste, poor maintenance of irrigation networks, river-bank erosion, discharge of untreated industrial effluents and health issues associated with poor environmental management were identified as the main problems. Lack of or poor communication between and amongst Central and Provincial Authorities and other stakeholders was also highlighted. An open invitation was extended to the participants to take a field trip along the river for further clarifications and to pin point locations/issues that have to be addressed in the action plan.

SACEP together with the IOSEA Secretariat is putting together a compilation of marine turtle activities in the South Asia region towards developing a regional perspective and requests information on the following:

1) **Distribution** - Present status, Nesting beaches, Feeding areas, Migration patterns
2) **Projects** – Short description of activities and methodologies used, Implementors, Location, Impacts, What is needed
3) **Capacity needs** - Resource needs, Training needs
4) **R &D/Scientific details** - Present studies, Future needs

Send to: kf_sacep@eol.lk

Handbooks on Environmental Legislation in South Asia

Work is underway for the preparation of handbooks on National Environmental Legislation and Institutions in SACEP's member countries. This is done as a part of a publication series on Environmental Law and Policy under the auspices of UNEP, SACEP & NORAD.

The handbooks will enable Environmental Law officers in the Environment Ministries in South Asia to examine contemporary developments in both national and international environmental law with a view to promoting their incorporation, adapted as appropriate, to the particular circumstances of the participating countries in their national legal and institutional regimes for promoting the goals of sustainable development.

At present draft reports are under review by the country governments. These reports will be finalised at the high level officials meeting to be held in September 2004 in Sri Lanka.

For further details contact: Prasantha D. Abeyegunewardene at pd_sacep@eol.lk

The next issue will feature...

Adoption of Environmentally Friendly Energy Options

it will explore advantages and disadvantages and criteria and conditions for their adoption.

Please feel free to send in articles, along with pictures and a description of your organisation to the contact details given below by August , 2004.

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