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ALUMNI NEWSLETTER

Ecoagriculture and Payment for Ecosystems Services Issue

Feature Article

Payments for Ecosystems Services: Creating Pro-Poor Policy And Improving Livelihoods in Developing Countries

By Purabi Bose (ELP 2004)

Payments for Ecosystem Services (PES) have been increasingly considered a mechanism for ecosystem conservation. PES could be defined as ecosystem services from the natural environment that maintains and/or enhances sustainable development of local communities and improves livelihoods of ecosystem-service providers.

It is expected that PES will contribute towards achieving Millennium Development Goals (MDGs) in the long-run. In particular PES should affect MDG 1 which seeks to eradicate extreme poverty and hunger by 50%, as well as MDG which seeks to ensure environmental sustainability by 2015.

How can the pro-poor ecosystem services benefit the poorest countries? This depends on whether poor people are considered as potential ecosystem service providers, and if they receive the benefits of PES mechanisms. In many parts of South and South-East Asia (like in Latin America and African countries), areas with the most valueable forests and biodiversity conservation tend to be inhabited by relatively poor people. In Indonesia, Vietnam, Thailand, Nepal and India among other Asian countries, most forests in the upland areas are perceived as potential markets for biodiversity conservation — they are not recognised for agricultural purposes. Thus, the government typically holds legal rights on lands considered important for ecosystem services and excludes locals from the market benefits of ecosystem services.

Traditionally, local communities inhabiting ecologically valuable areas are deprived of basic amenities and services. It is sometimes assumed that segregating local communities from conservation activities could provide mutual conservation benefits. Other times, integrating local communities has reaped profits. In both cases, it is close to impossible to improve the livelihoods of the poor when they are excluded from participating in PES decision-making processes. This is particularly true for households with little or no land tenure rights, which are required for receiving payments under PES schemes.

Proximity of natural resources to that of agricultural land makes social component of PES crucial for local communities.
(Bali, Indonesia. Photo by Purabi Bose.)

> "How can the pro-poor ecosystem services benefit the poorest countries? This depends on whether poor people are considered as potential ecosystem service providers, and if they receive the benefits of PES mechanisms."

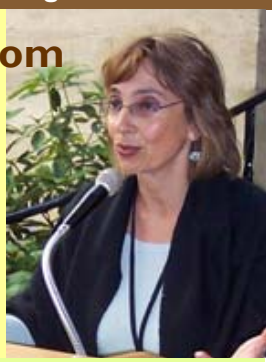
If national governments give permission for land and/or forest rights to households and create new approaches involving the poor, environmental services could have a collective impact. Such an approach exists in Indonesia, wherein farmers are offered semi-legal secure land tenure as a benefit for adhering to beneficial biodiversity and land management practices. This approach allows poor households to benefit from the payment services and engages them in ecosystem conservation. This has occassionally resulted in forest regeneration and in the protection of biodiversity. Sometimes, when protected forests (often in upland areas) are near agricultural land, local communities are better able to protect the forest (as ecosystem service providers) while conducting agricultural activities on their near-by farm lands. As such, individual needs assessments are better than blanket PES approaches.

The success of PES in developing countries depends on various factors associated with the resources and limitations of the poor to par-

(Continued on page 9)

Letter from Robin Marsh

Co-Director ELP



Reporting from PHE Conference, Cebu City, Philippines

I am writing from the Philippines, attending the 2nd National Conference on Population, Health and Environment in Cebu City. Let me say a few words about this integrated approach before going on to the lead topic of this newsletter – ecoagriculture and PES.

As all of you ELP alums know, we offer a workshop on Population, Poverty and Environment in the ELP summer course, and it is also a course I offer to upper division undergraduates at UC Berkeley. It is the only course on campus that integrates demographic trends into the study of poverty, consumption, environment and natural resources. I've come to realize that this is a problem.

Economists rarely look at the serious consequences of population growth on poverty in fragile landscapes and bloated cities, and the disproportionate negative impacts on maternal and child welfare. Geographers often fail to link demography with pressures on precarious landscapes that lead to natural disasters and tragic loss of lives for poor people. This is no more evident than in the Philippines which is reeling from a recent mudslide that killed thousands including schools full of children. One presentation here showed the population density in this *barangay* (township) to be 4,000 persons per square kilometer. Sadly, the official Catholic Church calls these disasters "Acts of God" that visit those who don't pray enough, or, worse, those who practice family planning.

I am amazed by the courage and dedication of hundreds of people at this PHE

(Continued on page 15)

Feature Article

Payment for Ecosystems Services

By David Zilberman, Co-Director ELP

There is growing interest in payment for environmental services (PES). Part of it is a result of the growing reliance on market solutions to environmental problems. Another reason is a realization of the political constraints on the use of taxation, direct controls to achieve environmental objectives. Finally, there is awareness that provisions of environmental amenities are costly, and frequently the beneficiaries are much richer than the providers of these amenities. Therefore, it is only individuals who contribute to the generation of public goods embodied in environmental amenities who should be compensated.

It is useful to distinguish among three main categories of ES: 1) subsidies for pollution prevention (e.g., a water agency may pay to reduce grazing in watersheds that feed its reservoirs, 2) payment for conservation and preservation (e.g., landowners may be paid by an environmental group to preserve old-growth forest), and 3) compensation for creation of amenities (e.g., farmers may be paid for agricultural activities that sequester carbon in soil or trees).

"I am now studying the extent to which environmental services programs can be used as a mechanism to reduce poverty."

Each category may result in different types of financial arrangements and involve different groups of buyers and sellers.

Another useful distinction is among programs where land or water resources are transitioned from productive activities to conservation activities. Some working land programs modify production activities to reduce pollution or provide environmental amenities while other development rights programs pay farmers or ranchers to give up the option of selling their land to developers.

Thus far, governments have financed some of the major ES programs. For example, the Conservation Reserve Program annually pays more than $2 billion for activities that will reduce soil erosion, improve water quality, and protect native plants. The European Community has its own payments for multifunctionality, and Mexico, for forest protection. Some major NGOs, for example the Nature Conservancy and Ducks Unlimited, have also engaged in paying for amenities including preservation of forests and protection of wetlands. Finally, some private sector entities (water utilities or land developers) are also purchasing ES. For example, utility companies may pay to reduce water-contaminating activities, and developers may pay to establish new wetlands to replace what they may drain during their construction efforts. Insurance companies are considered as potential buyers of ES; for example, they may pay to maintain buffer zones around rivers, thus reducing exposure to the risk of floods. Thus far, however, their activity in the ES market is limited.

My research on ES has addressed three issues:

1) Examining the targets of purchases of ES. Historically, buyers of ES either use their funds to maximize the volume of land or water included in their program without recognizing differences among land qualities, or target their funds to purchase lands that provide the best qualities. We argued for targeting lands that provide the highest benefits per

(Continued on page 15)

Defining Ecoagriculture

Edited By Tricia Yang from Ecoagriculture Partners
(www.ecoagriculturepartners.org)

In 2000, the term "ecoagriculture" was introduced to create a vision of rural communities organizing their resources to 1) enhance rural livelihoods, 2) protect or enhance biodiversity and ecosystem services, and 3) develop more sustainable and productive agricultural systems (crops, livestock, forests, fish). These three goals have served as the basis for forwarding conservation and rural development strategies in the face of an increasing demand for agricultural resources that threatens to encroach on areas featuring wild biodiversity.

Ecoagriculture recognizes agricultural producers and communities as key stewards of ecosystems and biodiversity and enables them to play those roles effectively. It applies an integrated ecosystem approach to landscapes to address all the above goals, drawing on diverse elements of production and conservation management systems. Meeting these goals usually requires collaboration or coordination between diverse stakeholders who are collectively responsible for managing key components of a landscape.

In 2004, the ecoagriculture paradigm was given its due attention when participants from across the world at the International Ecoagriculture Conference and Practitioner's Fair in Nairobi, Kenya developed a framework to "achieve improved livelihoods, conservation of biodiversity (genetic resources, ecosystems services and wild flora and fauna), and sustainable production at a landscape scale." This framework has been entitled the Nairobi Declaration.

The Declaration recognizes that deriving food, forest and wetland products --in both intensive and extensive systems-- is one of the chief challenges to improved livelihoods, biodiversity and sustainability. For example, over one third of the world's land area is heavily planted as crops or pasture; and more land is being utilized as part of the farming cycle in tree crops, grazing systems and production forestry. Similarly, biodiversity conservation efforts have been implemented without adequate recognition given to linkages and interactions with the production of food and forest products.

The Declaration states: "We are dedicated to ensuring that large-scale development and adoption of ecoagriculture contributes to achieving the Millennium Development Goals on hunger, poverty alleviation, gender equality, environmental sustainability and partnerships, and enhance implementation of global environmental conventions by all nations." Furthermore it declares:

- That ecoagriculture embraces diverse systems and practices linking production and biodiversity across landscapes;
- That grassroots communities and farmers all around the world have practised ecoagriculture principles for millennia, with the potential for maintaining ecosystems and transforming vast areas of degraded lands into productive and ecologically functional systems;
- That ecoagriculture is globally important wherever the demands for food, ecosystem services and rural livelihoods converge, including rural farming communities living in or around protected areas and other habitats of high biodiversity value or endangered species; and
- That ecoagriculture is also highly important in critical catchments such as mountain ecosystems serving human and wildlife populations; and in biologically degraded landscapes where ecosystem services are essential for sustainable food production and local livelihoods need urgent rehabilitation.

This issue of the ELP Alumni Newsletter features ecoagriculture projects and challenges in ELP member countries, illustrating it's importance in sustainable development . *For a complete account of the Nairobi Declaration, please refer to:* *http://www.ecoagriculturepartners.org/whatis/nairobideclaration.htm.*

"We believe that mobilizing a movement of diverse stakeholders inspired and committed to ecoagriculture and the improvement of rural livelihoods together with preservation and restoration of ecosystem services, will build synergies and achieve globally significant benefits for food security, human health and nutrition, poverty alleviation and environmental sustainability."

Nairobi Declaration, Nairobi, Kenya, October 1, 2004

Feature Article

Ecoagriculture and Payments for Ecosystems Services In Switzerland

By Hans Burger (ELP 2001)

MULTIFUNCTIONAL AGRICULTURE

What is the role of agriculture in a country with a modern economy, high purchasing power among consumers but also a very high cost of living? From a purely economical point of view, its role is nearly negligible: agriculture accounts for only about 1 % of GNP and about 2 to 3 % of the workforce. Food imports (40 % of consumption) are actually cheaper.

In the Federal Constitution the role of agriculture is defined as **multifunctional**, namely:

- food production (safe and healthy food, secure part of the food supply)
- non-commodity outputs such as care of the rural landscape, ecology, biological diversity, animal welfare, recreation and tourism

Accordingly, agriculture policy consists of a full and complex basket of instruments, which are linked to other policies concerning environment, protection of natural resources, land planning and so on.

It is - beside others - the job of my department and my staff to implement this national agricultural policy in the canton of Aargau in the northern part of Switzerland. In this canton there are 3000 family farms of an average 20 hectares which produce, surrounded by densely populated areas, a great variety of food and services.

PEOPLE DECIDE AS VOTERS, CONSUMERS AS WELL AS TAXPAYERS

Each person decides about the type of agriculture s/he wants on three levels: as a voter in referendums, as a consumer as well as indirectly as a taxpayer. The kind of multifunctional agriculture has been confirmed several times in recent years in popular votes, annual budget allotments (not without difficulties) and in part by consumer behavior. A good portion of the food is under various certified private labels concerning production standards like organic production, animal welfare, and area of production. So the consumers can choose.

TOOLS OF A MULTIFUNCTIONAL AGRICULTURAL POLICY, PAYMENTS OF ECOSYSTEMS SERVICES

The farmers are under heavy pressure through ongoing market liberalization to rationalize their farms. Market support instruments are more and more reduced; income and price policies are decoupled and replaced by direct payments to compensate for the higher costs. The main two forms of direct payments are:

- general direct payments
- direct ecological payments

To be eligible for *general direct payments*, Swiss farmers have to comply with a set of ecological performances such as minimal share of ecological compensation areas (7%), soil protection, crop rotation, plant protection, fertilizer balance, animal-friendly livestock husbandry, besides adhering to the general environmental legislation. This so called cross compliance is controlled by special organizations and by the canton. It is a rather complex system and not specially liked by the farmers, because it restricts many of the existing farming techniques in order to get higher returns. However the system provides the non-production targets as mentioned above as well. More than 90 % of the farmers apply for these general direct payments, firstly because they depend heavily on this income and secondly because the proof of this set of ecological performances is a prerequisite for almost all private labels. In other words, without this proof they can hardly sell their products.

Furthermore, farmers with superior ecological performances can apply for *additional direct ecological payments* on a voluntary basis. These require special regional projects in order to get the necessary interlinking of areas and higher ecological quality. In this context I must also mention that for many of the ecological habitats in my area, old traditional farming practices (e.g. dry, low-input meadows, tall old fruit trees, hedges etc.) were the basis. So, where such elements still exist, the aim is also to get these traditional lands under contract via such additional ecological payments. About 25 % of my farmers apply for such additional payments, mainly in the dryer and hilly Jura area and in the valleys near the rivers (e.g. the Rhine).

"Each person decides about the type of agriculture s/he wants on three levels: as a voter in referendums, as a consumer and indirectly as a taxpayer."

OUTLOOK

In the coming years, I think this concept of development of a sustainable multifunctional agriculture will prevail in our country. The challenge is to make the concept more

(Continued on page 9)

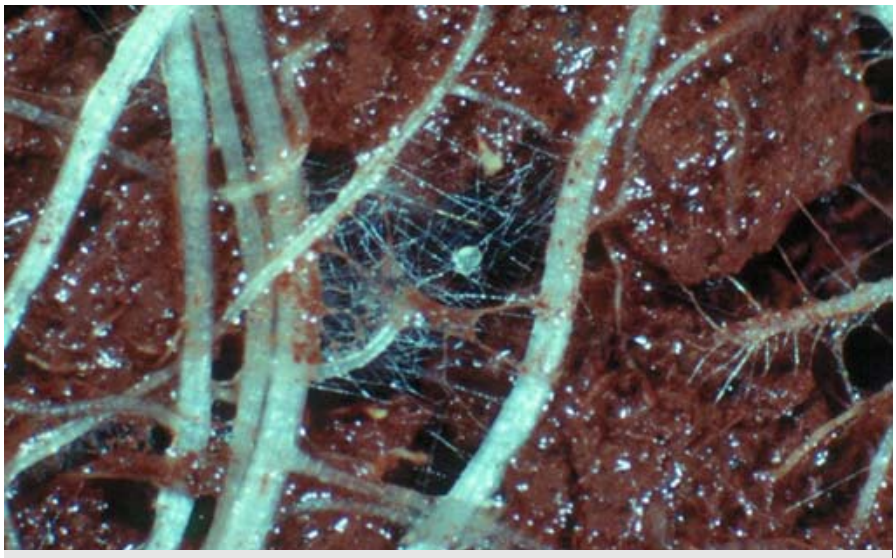
Feature Article

Soil Biodiversity and Ecosystem Service Provision In the Context of Ecoagriculture

by Edmundo Barrios (ELP 2003)

Increases in land productivity in the past have largely resulted from the introduction of new crop varieties into farming systems on fertile soils with good supplies of water, fertilizer and pesticides. However, in many less fertile parts of the planet, land productivity has actually been declining in the last decades. While high-input agriculture has been one alternative to address this problem, the usually low resource-use efficiency of these agricultural systems often leads to high economic and environmental costs. Recent years have shown increasing interest in the development of productive farming systems with a high efficiency of internal resource use and thus lower input requirement and cost. In this context, the importance of soil biodiversity for the improvement of soil fertility and land productivity through biological processes becomes a key component of a strategy towards agricultural sustainability.

The majority of ecosystem processes in both natural and managed ecosystems depend on the soil resource as it not only houses a large proportion of the terrestrial biosphere but also provides the physical substrate for most human activities. Although soils have been widely studied and classified in terms of physical and chemical characteristics, knowledge of soil biodiversity and function is very limited. The role of soil organisms in high input agriculture has received little attention, likely because natural and biologically-mediated processes (like those regulating soil structure, nutrient supply and pest and disease control) have been largely replaced by human inputs (i.e. soil tillage, fertilizer and pesticide applications) that ultimately depend on non-renewable energy sources. In natural ecosystems, the internal regulation of function is largely a result of plant biodiversity through flows of energy, nutrients and information. But this form of control is increasingly lost through agricultural intensification. One of the challenges ahead consists of promoting agricultural systems in landscapes managed to sustain rural livelihoods while simultaneously protecting the environment — as expressed in the Nairobi Declaration on Ecoagriculture and the Millenium Development Goals.



Plant roots and mycorrhiza external hyphae as key determinants of soil aggregation and stabilization. Mycorrhizal fungi have been traditionally associated with improved phosphorus nutrition but recent studies highlight their great impact on ecosystem processes by influencing plant community dynamics, soil structure, carbon sequestration and the biological control of root pathogens and pests.
© K.Ritz, National Soil Resources Institute, Cranfield University, UK.

Agricultural landscapes hold a large proportion of the world's biodiversity, but there is limited understanding about the relative contribution of each management type to conservation of biodiversity, maintenance of ecosystem functions and provision of ecosystem services. According to the Millennium Ecosystem Assessment, ecosystem services can be classified into those associated with the provision of goods (i.e. food, fibers, fresh water), those derived from benefits of regulation of ecosystem processes (i.e. climate regulation, disease control, detoxification), those that support life in the planet (i.e. soil formation, nutrient cycling, pollination) and those cultural services that are not associated with material benefits (i.e. recreation, aesthetic, symbolic).

Soil biodiversity can be considered by focusing on the groups of soil organisms that play major roles in ecosystem functioning through direct or indirect impacts on ecosystem services. Direct impacts are those where specific organisms like symbiotic microorganisms (i.e. rhizobium and mycorrhiza) or pest and diseases (i.e. white grubs and root rots) have a positive or negative effect on crop yield respectively. Indirect effects, on the other hand, include those provided by soil organisms participating in carbon and nutrient cycles (i.e. methanogens and nitrifiers), soil structure modification (i.e. earthworms, fungi and bacteria) and food web interactions (i.e. protozoa and nematodes as microregulators) that generate ecosystem services that ultimately have an impact on land productivity.

Increasing research efforts need to be made to address the challenge of gaining a predictive understanding on the linkages between soil biodiversity, ecosystem functioning and the provision of ecosystem services. Our current GEF funded project is entitled 'Conservation and Sustainable Management of Below Ground Biodiversity' and involves research teams from Brazil, India, Indonesia, Ivory Coast, Kenya, Mexico and Uganda is a current effort in this direction that is also ad-

(Continued on page 9)

Feature Article

Exploring Routes to Community-based Environmental Stewardship

By Chris Aldridge (ELP 2005)

Eastward of my English childhood home, lie the remnants of the great oak forest of Sherwood, where the word "steward" was in use. Amongst those oaks flitted one of the greatest English legends and heroes – Robin Hood - today synonymous with a special kind of community-based charity, when "he robbed the rich to give to the poor". In England, the medieval title of Steward included the management of property such as forests and their resources, but not a typically benign service then, but given to rather forceful stewarding of royal forests - as playgrounds for English kings.

Amongst contemporary stewardship examples are the Marine Stewardship Council, with its mission to safeguard the world's seafood supply by promoting the best environmental choice; and the Forest Stewardship Council which applies principles of Forest Stewardship, to international certification.

In an English/EU example, managed by the Department for Environment, Food and Rural Affairs, a new agri-environment scheme provides funding to farmers who deliver effective environmental management on their land, and the wider benefits of conserving biodiversity, enhancing landscape quality, protecting the historic environment and promoting public access and understanding of the countryside. The scheme has three parts. At the most basic Entry Level Stewardship, farmers can receive a payment of £30 ($50) per hectare per year for all the land entered into the scheme, for up to 5 years. There are also Organic Entry Level and Higher Level tiers – the latter provides more resources in exchange for more significant environmental benefits in high priority situations and areas.

"My own experience in the south-west province of Guizhou (China's poorest province) suggests firstly that National Nature Reserves (NNRs) in China represent the best locations for testing eco-compensation models and development of case studies."

Stewardship and guardianship of natural resources are interlinked but are not the same! The latter is the outcome of the former, so in a developing country, what mechanisms can facilitate rural individuals and communities to mature toward stewardship briefs for managing parts of the natural environment? How can eco-compensation of this type become common currency in rural China, for example?

My own experience in the south-west province of Guizhou (China's poorest province) suggests firstly that National Nature Reserves (NNRs) in China represent the best locations for testing eco-compensation models and development of case studies replicable to the wider South East Asia. And success can be the greater if the vehicle of capacity building and empowerment is a community association. I can refer personally to two cases of contemporary community associations and both funded from the Small Grants Scheme (SGS) of British Consulate Beijing – 1) Pingshang Bamboo Group, Chishui NNR and 2) Feng Ba Honey Group at Fanjingshan NNR; both in Guizhou province.

Pingshang village is remote upland community of the Miao clan, located high in a natural bamboo habitat of Chishui Reserve. With poverty indicators that included very low levels of graduation to secondary school by village youngsters and wide-spread ill-health amongst women, the population was in spiraling poverty. Its chief cash product of bamboo chopsticks was of low quality and value, and was sold in bulk for others to refine in the valley floor. With the facilitation and actions of a Producer Group, income from chopsticks, now of quality, has doubled in less than 1 year. Ultimately, as it matures, the Group will have the capacity to provide a stewardship/management role for a contiguous area of Reserve.

The medieval oak forest of Sherwood.

The Feng Ba initiative is more diverse in its background, because it is connected to restoration of the Guizhou Golden Monkey – an environmental icon of China. In a procedure to improve the livelihoods of Feng Ba families (without their utilizing a non-reserve forest recently adopted by a transient colony of the primates) a SGS grant was employed to restore and improve the traditional honey production skills (exploiting wild bees) of the villagers. The Feng Ba Honey Group was formed and the prognosis is good for the village as well as for the itinerant Golden Monkeys of the district. Again, as at PingShang, that Group can develop the capacity to become wardens and stewards of a portion of the Reserve.

Whatever the local solutions, South East Asia can profit communally from steward-

(Continued on page 9)

UN General Assembly Proclaims 2006 the International Year of Deserts and Desertification

Edited By Tricia Yang from the International Year of Deserts and Desertification Website (www.iydd.org)

In the words of UN Secretary-General Kofi Annan, desertification is one of the world's most alarming processes of environmental degradation. Desertification refers to the loss of land's biological productivity, caused by human-induced factors and climate change. It affects one-third of the earth's surface -- over a billion people -- and has potentially destructive social and economic consequences.

To bring attention to this devastating phenomenon, the United Nations General Assembly has proclaimed 2006 as the International Year of Deserts and Desertification. Its aims are to help prevent the exacerbation of desertification around the world and relay the message that desertification poses a major threat to humanity. Specifically, awareness needs to be built around the cultural diversity and unique ecosystems of deserts around the globe so that they are approached as distinctive natural habitats that deserve specialized attention. It is this diversity that presents unique challenges for global sustainable development. Furthermore, deserts and drylands have accommodated to some of the world's oldest civilizations, possessing a unique heritage which deserves protection.

Below is an article by Philip Kisoyan who attended the seventh session of the Conference of the Parties (COP-7) to the United Nations Convention to Combat Desertification (UNCCD) held in Nairobi Kenya in October 2005. His article addresses desertification in Kenya.

Combating Desertification in Kenya: Lessons Learned

By Philip Kisoyan (ELP 2002)

The challenge facing Kenya is how to provide essential goods and services to an ever-increasing population from a diminishing resource base. Over 80% of Kenya's landmass in classified as arid or semi-arid with highly variable rainfall. Poor communities in these arid and semi-arid lands depend almost entirely on natural resources for survival and income. Their livelihoods hinge on herding cattle, camels, sheep, goats and on small-scale dry land farming.

The rangelands are fragile ecosystem and very sensitive to disturbances. The stability of these rangelands has been traditionally maintained by the mobility of pastoralists. Over the years, the government has encouraged sedentarization through infrastructural development and provision of water and social amenities. The sub-division of the arid lands and conversion of land use has exerted pressure on these lands, and as a consequence has led to an increase in soil erosion and siltation of lakes. The incidences of droughts and floods have increased causing havoc to the fragile livelihoods of the pastoralists. The vicious cycle of drought, impoverishment and vulnerability have pushed people to destitution.

In response to land degradation and spread of desertification, the government in partnership with international development agencies has initiated numerous community-based conservation and development programmes. The interventions initiated include dam construction for large-scale irrigation, water development, dryland aforestation, reseeding and animal improvement. However, despite the massive investment running into million of dollars and signing of international conventions, there is no discernable change in the state of the environment nor the livelihoods of the targeted population.

There is need to critically evaluate the underlying social-economic factors that inhibit the adoption and scaling up of best land use practices.

Some of the lessons learned in community-based conservation projects are that:

- Local communities will only support interventions that they perceive to coincide with their immediate needs of improving and securing their livelihoods.
- Simple technologies with immediate returns have higher probabilities of adoption than labour intensive structures with long-term benefits
- Environmental conservation is a long-term investment with many uncertainties and risks. Without the security of tenure as in the case of communal lands, conservation becomes an unviable venture.
- Sustainability can only be guaranteed if conservation activities can be transformed into micro-enterprises and linked to private sector along with capacity building in entrepreneurship. Goods and services from arid lands should be developed into marketable products with appropriate eco-friendly certification.
- The government should strengthen legal and institutional framework to support and promote conservation initiatives with guarantees of direct benefits to stakeholders.

As we usher in 2006, the International Year of Deserts and Desertification, we need to review the experiences of the best and worst practices of combating desertification in order to incorporate the lessons learned in future plans.

"The vicious cycle of drought, impoverishment and vulnerability have pushed people to destitution."

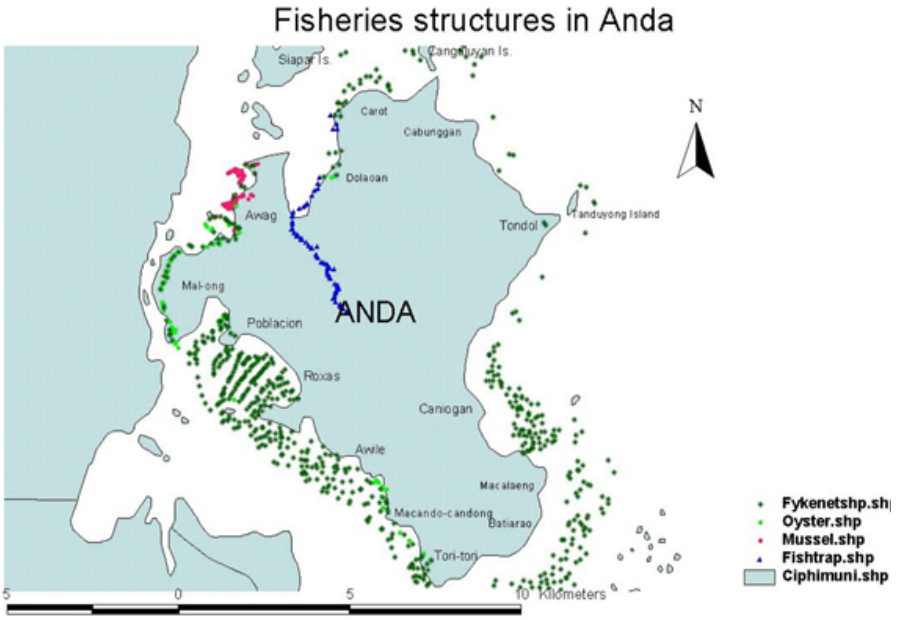
Feature Article

Ecosystems Services in the Philippines: For Whom?

By Nelia Lagura (ELP 2004)

With the emergence of the concept of payments for ecosystem services, along came two important issues. These issues are very crucial and real and must be afforded attention if only to ensure consistency of principles in environmental protection. First is whether or not governments, in implementing payment schemes, have looked upon sustainability; second is whether or not those schemes are equitable.

There are many other issues that must be dealt with when it comes to payments for ecosystems services. Nevertheless, in Bolinao and Anda, Philippines, the main issues are sustainability and equitability. This article hopes to portray the dangers of implementing the concept of payments for ecosystem services without considering first its impact on the environment and on the stakeholders, in this case, the local fisher folk.



THE RESOURCE

The Philippines is the second largest archipelagic nation. To a great extent, the country depends on coastal and marine natural resources for food security, employment opportunities and economic gains. About 60% of the annual protein intake of Filipinos comes from capture fisheries.

> *"The (aquacultures) significantly reduced the traditional fishing grounds of the municipal subsistence fisher folks. They also obstruct navigation and hastened sedimentation causing flooding during raining seasons."*

Among the country's most economically important fishing grounds is the Lingayen Gulf. It supplies approximately 70% of the fish demands of Luzon. To protect the gulf from degradation, or further degradation, then President Fidel Ramos officially declared the gulf an Environmentally Critical Area on March 25, 1993.

Among the seventeen towns bordering the gulf, Bolinao stands out as one of the most extensively developed reef system and associated habitats in Northern Luzon. Its reef and that of its neighbor Anda, function as the spawning and breeding grounds for a significant number of fish and invertebrate species. Such being the case, these areas are among the most productive in terms of marine and aquatic resources, thus, attracting fishers — legal and illegal — as well as mariculture operators.

PERMITTING MARINE AQUACULTURE

In order to supply the ever-increasing demands for fish, particularly bangus (Milk fish), mangroves were converted into fishponds. With the issuance, however, of an Executive Order (1995) declaring the cutting of mangroves as illegal, bangus culture expanded into the coastal waters. Because of the unpreparedness of the local governments and the involvement of local officials in the business, aquaculture structures soon crowded what were once communal fishing grounds.

Permitting and licensing regulations followed and marine aquaculture easily became the top income generating industry of these towns. The Municipality of Anda supposedly collects 44 million pesos from its 900 structures and Bolinao receives 12 million from its 700 structures.

THE PROBLEMS

The aquaculture structures significantly reduced the traditional fishing grounds of the municipal subsistence fisher folk. They also obstruct navigation and hastened sedimentation causing flooding during rainy seasons. The unabsorbed fish feed causes water pollution and consequently a series of fish kills; the most unexpected and damaging was in February of 2002 closely followed by a less severe one in May of the same year. Regular minor fish kills continue to happen every year.

Legal and Social Issues

Apart from the obvious adverse impacts of marine aquaculture on the environment and on navigation, it has also adversely affected the livelihood of local fishers. The proliferation of marine aquaculture structures within traditional fishing grounds

(Continued on page 9)

(**Bose**, *Continued from page 1)*

ticipate in ecosystem services. Some of the social challenges for PES to achieve the MDGs are the lack of: a) access and authority over resources; b) security over land-tenure rights; c) balance between large land holders and households with marginal land holding; d) appropriate mechanisms for forest land allocation to local communities; and e) social balance between rural elite and poor households.

Making payments for ecosystem services a pro-poor policy for improving the livelihoods of poor households in developing countries requires an in-depth understanding of external factors influencing the decision making process. In addition, knowledge sharing of success and failure stories is urgently required to ensure investment in successful PES approaches.

(**Burger**, *Continued from page 4)*

effective and easier for the farmers to handle. However ES is not undisputed, because of cost. We have reached the limits of what society is prepared to pay. The costs of all the direct payments amount to roughly Swiss Francs 40'000 (US$ 30'000) per farm per year or to Swiss Francs 320 (US$ 250) per inhabi-

(**Barrios**, *Continued from page 5)*

dressing the economic valuation of ecosystem services provided by soil biota.

Greater understanding is needed because the adoption of agricultural technologies that rest on the biological management of soil processes driven by soil organisms would greatly depend on identifying creative ways by which farmers "experience" the impacts made by organisms that are not visible to the naked eye by being too small or because they are underground. The 'low profile' of soil biota and associated functions in the provision of ecosystem services has likely been an important factor in their almost complete ignorance in biodiversity conservation and policy development. This problem is particularly critical in tropical areas that are supposed to be global 'hot spots' of biodiversity in general and of soil biodiversity in particular. Curiously, it is in tropical areas where data and information is most limited.

tant per year. In addition, this concept equally needs the support of the consumers through their daily purchases. A substantial number of consumers prefer quality; they want and do have trust in locally produced food. This trust is an asset which has to be well cared for.

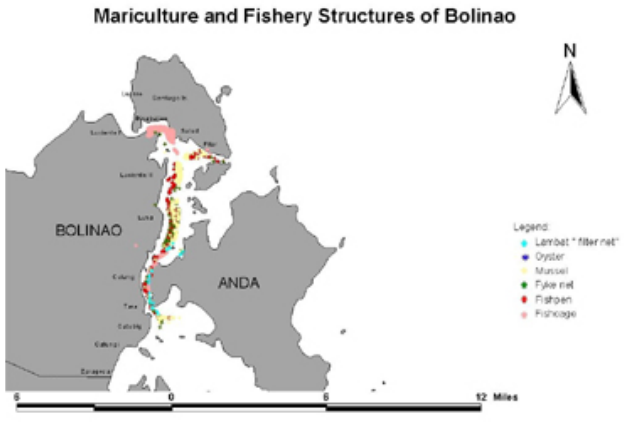
(**Aldridge**, *Continued from page 6)*

ship initiatives, but the wider rural community and urban citizenry has yet to be educated about the unpaid stewardship and guardianship roles of farmers, which generally is taken so much for granted.

For more information, refer to:

- Chris Aldridge: ChristopherAldridge@Asiamail.com
- Department for Environment, Food and Rural Affairs: www.defra.gov.uk
- Forest Stewardship Council: www.fsc.org
- Guizhou PRA Network: www.gzpra.org
- Marine Stewardship Council: www.msc.org
- Peak District National Park: www.peakdistrict.org
- Robin Hood: www.robinhood.info
- Small Grants Scheme: www.uk.cn/bj

(**Lagura**, *Continued from page 8)*



pushed local fishers farther into the ocean, requiring them to use bigger boats and nets. Those who couldn't afford such boats and gear by the government had to find other means to survive.

As it is a national policy to protect the preferential rights of municipal fisher folk over municipal waters, these local governments, in theory, offers the fishery lots for rent to resident fishermen. With their meager income which can go as low as $3 per day, the local fishers can not possibly afford to pay the annual rent ($200-$1,600) in addition to construction cost of at least $600. Thus, the lots are offered to moneyed residents and non-residents as well even though the Fisheries Code (RA 8550) requires that only those listed in the Registry of Municipal Fisherfolk (residents) shall be allowed to fish within municipal waters.

EFFORTS TO ADDRESS THE ISSUES

Scientists and legal groups of the Sagip Lingayen Gulf Project have been working together to assist local governments into realizing the adverse impacts of the lack of genuine regulation of these structures to the environment and on the lives of subsistence fishermen. With the finalization of the scientific study on the carrying capacity of the area, mayors have committed to come up with ordinances which will ensure environmental protection as well as to ensure the livelihood of its displaced local fisher. However, with the investments of some local officials at stake, it still remains an uphill climb.

SGI Update

The Niger, A Life Line: A Documentary Film from Mali on the Impact of Hydrological Dams on Downstream Livelihoods

Edited By Tricia Yang from SGI Proposal by Pieter Terpstra (ELP 2004) and Abou Bamba (ELP 2003)

"Dams have changed the river's natural cycles. Water is controlled in order to produce power or for irrigation. During the rainy season water is stored and floods, which previously inundated the land, are reduced to a minimum. During the dry season water is released to a constant flow essentially transforming the river into a canal. This has disrupted the ecological balance and reduced the availability of natural resources that people depend on."
— From *The Niger, A Life Line*, A Wetlands International Film

SGI PROJECT PURPOSE

This SGI project involving ELP alumni Abou Bamba (ELP 2003), African Coordinator of the Ramsar Convention, and Pieter Terpstra (ELP 2004), at the Netherlands Ministry of Foreign Affairs, was designed to develop a documentary film introducing the trade-offs between dams and natural river-basin management in Mali's Niger River.

Made also in collaboration with Vrije Universiteit (VU) of the Netherlands, responsible for producing and editing the documentary under the leadership of Dr Pieter van Beukering, the documentary shows that the perturbation of the natural system has led to a decrease in production and biodiversity values in the Inner Niger Delta. Prior to the placement of the dams, the Niger River used to swell and flood the Inner Niger Delta, providing a livelihood for many farmers, fishermen and cattle breeders. However, the construction of dams on the Niger River to capture hydrological potential has 1) reduced the maximum flood level decreasing the agricultural potential of the Inner Niger Delta, 2) obstructed fish migration between spawning and feeding areas, thus limiting growth and reproduction, and 3) delayed flooding so that fish have less time to grow and reproduce, shrinking their reproduction cycles and making them more vulnerable to over fishing. The challenge now is to ensure optimal management of the different dams, based on hydrological and ecological models as well as to incorporate various lessons learned in the development of plans for other dams.

DOCUMENTARY DEVELOPMENT

The documentary development process included a brainstorming session with involved parties to identify primary issues, after which a script was written based on knowledge gathered. The local and international partners, including ELP's Robin Marsh, were invited to provide feedback on the script. The documentary was then filmed and sent to the Netherlands for editing. After receiving approval from RAMSAR and NEPAD, the documentary was integrated into a RAMSAR/NEPAD dissemination package and distributed to various audiences. Efforts are still being made to broadcast the documentaries on local and international television networks.

OUTCOME

The premier showing of the documentary was at the Ramsar Conference of Parties in Uganda in November 2005. The film has already helped develop an increased understanding among high-level decision makers on the issues surrounding wetland management and the link with poverty in African countries, with an in-depth case study of wetlands in Mali.

This SGI project was a model of transnational collaboration between filmmakers based at Vrije Universiteit in the Netherlands, Abou Bamba at Ramsar Secretariat, IUCN Headquarters, Switzerland, Wetlands International in Netherlands, Senegal and Mali, and myself at UC Berkeley. All of us contributed to the final documentary script through iterative drafts. Also, the DVD's first edit was circulated to all partners for their input. The result is a clearer and more compelling product, though still a work in progress. The documentary is being presented this week at the 4th World Water Forum in Mexico City.

The film focuses on the threatened livelihoods of traditional Malian farmers, fishers and herders who dwell in the great Niger Delta downstream from the major hydroelectric dams that supply power and water for irrigation to farmers upsteam. The dams have been necessary to allow irrigation and productivity gains for rice cultivation in dryland Mali, greatly improving national food security. The documentary leaves us with a challenge for developing "soft" water management strategies in the future that conserve wetlands and downstream livelihoods, while still providing adequate irrigation water to produce rice for all Malians.

—Robin Marsh

SGI Update

Monitoring Community-Based Natural Resource Management in Madagascar: Forest as a Case Study, Phase II

Edited by Tricia Yang from a project report by Catherine Corson

State and donor-sponsored programs in Madagascar designed to decentralize natural resource management to rural communities — Gestion Contractualisée des Forêts (GCF) and Gestion Locale Sécurisée (GELOSE) — aim to reduce tavy, or slash and burn agriculture, through establishing and guaranteeing relative local land tenure. In most cases, these programs include an initial transfer of resource management for three years, with a potential renewal for an additional ten years, should the community successfully manage the resources. Yet, only limited evaluation of community-based natural resource management (CBNRM) programs has taken place, so little is known about the degree to which these programs are actually influencing tavy rates.

In order to understand the efficacy of these programs, an SGI pilot study was introduced in 2002 at *Ampatsy*, a commune of Alatsinainy lalamarina, located in the central corridor of Fianarantsoa, Madagascar. The study identified key socio-economic and ecological indicators for long-term monitoring of CBNRM at the Ampatsy Forest, an area of 430 hectares transferred formally to the grassroots community in July 2002. The study also performed a preliminary analysis of socio-economic, biological and geographic information to identify what conditions CBNRM works best. It also developed a predictive model for successful CBNRM.

SGI PROJECT PURPOSE

This SGI project is the second phase of the evaluation process, measuring progress since the last survey by the Haona Soa association, under the supervision of **Olga Ramaromanana** (ELP 2002). It expands the evaluation to include activities in the Fianarantsoa corridor by comparing the success of the Ampatsy GCF in reducing the rate of tavy rates to other areas around it.

PROJECT ACTIVITIES

The SGI team, including **Lisa Gaylord,** Environment and Natural Resources Team Leader at USAID Madagascar (ELP 2001), and Catherine Corson, PhD Candidate at UC Berkeley's Ecosystem Management, Environmental Science Policy and Management focused on the community-level biological and socio-economic monitoring, rather than on expanding the economic model, which simplified causal relationships and lacked sufficient variability. In response to indications from the pilot study that the GCF may displace tavy to areas just outside the GCF boundaries, the team also conducted research at Andranomiditra (which has a GELOSE) and Ambalaivo (slated for future community management) to provide contextual information. Together these three sites formed a solid block of continuous land within the biologically-critical Fianarantsoa corridor. The team also coordinated its research agenda with other organizations involved in developing monitoring guidelines and providing technical assistance to avoid duplication and ensure distribution of its results more widely across the conservation and development community.

The Ampatsy Forest.

OUTCOME

The research identified an increase in the Ampatsy Fokotany population and revealed that, in particular, the Agnara people within the Fokotany are much more in need of land because their land is less productive. The field team found that forest access is a privilege of certain classes, while the restriction on tavy affects the most marginalized residents with minimal resources to expand cultivation. Furthermore, they discovered that technical assistance programs do not necessarily reach those most in need. But they found that no new tavy has been observed in the GCF since its inauguration, indicating positive ecological impacts from the management transfer.

The primary implications for the sustainability of the GCF in the face of decreased access to resources imposed by the tavy restriction are 1) that the GCF must rest on a more solid base than the authority of the President and current social cohesion; and 2) that the costs and benefits of the GCF and the technical assistance should be more equitably distributed across the social classes. The team did observe a tendency to extend the cultivated terrain into the non-transferred zone, and reported that at least five families had emigrated to Ambalaivo. Therefore, there is a potential displacement of pressure to zones outside the GCF.

"The population of Ampatsy has a very promising base for community conservation since they still respect social regulations. With some help, they will constitute an exemplary, successful case of management transfer, and the efforts that they have made to improve their ecological impacts merit appreciation. However, families need effective alternatives in compensation for the tavy restriction. Without this alterative, the management transfer will be an economic and social catastrophe resulting in the impoverishment of the communities who depend on the forest."

— The Madagascar Field Team

ELP Alumni News

Teresita Amezcua, ELP '03
Mexico
I just finished working to start a masters degree in animal and health production, and I will we working in a project about restoration of the deer populaton in some forests in México.

Hans Burger, ELP '01
Switzerland
I am still very much interested in sustainable development and all the news from "Berkeley". After attending the unforgettable course in 2001 I wanted to return to development work abroad. However this did not materialize. Among all the participants I may therefore be a bit exotic, coming from a small rich country which is famous mainly for its banks and multinationals and often criticized for its support of agriculture.

Peter Kuria, ELP '01
Kenya/Finland
I have recently added a few videos on global activism at this link:
http://video.google.com/videosearch?q=Democratising+Globally

Our NGO, SHALIN Suomi ry, has facilitated for the Community Ecological Governance Global Alliance to participate in the forthcoming FAO - Agrarian Reform in Porto Allegre Brazil (Brazil, 7-10 March 2006). If you will be attending the conference you can look out for them. SHALIN ry is sourced for the funds by the Finnish Foreign Ministry (FORMIN). CEG GA team includes members from Africa, Asia and Brazil.

Hasta luego!

Festus Luboyera, ELP '05
South Africa/Germany
We had a very successful Climate Conference in Montreal at the end of last year at which Parties to the UNFCCC requested our secretariat to conduct a number of activities. We are now writing technical papers for the subsidiary bodies of the Conference of the Parties, conducting workshops and expert meetings and preparing to facilitate the negotiations at the subsidiary bodies meetings.

The next session of the subsidiary bodies meetings will take place in May this year. In conjunction with these meetings we will host
- a workshop of the dialogue on long-term cooperative action to address climate by enhancing implementation of the Convention;
- the first session of the of the Ad hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG);
- three in-session workshops on: CO2 capture and storage; mitigation in agriculture, forestry and rural development; CO2 capture and storage as clean development mechanism project activities.

I must also mention that the UN Secretary General has recently taken a number of decisions at both policy and implementation levels that are likely to enhance the integration of climate change activities in other UN activities.

Keep well and may God bless,
Festus

Robert Murtland, ELP '01
Northern Ireland
I am working here in Montenegro
I have a decent job
I am plying Forest Management
and the pay is not too bad

I get up in the morning
I get up with the lark
and as I'm walking down the street
You hear the girls remark.

That's Bob the old Forester from Berkeley 2001!

If you watch CNN, Montenegro has a holiday advertising spot, it's a beautiful little country with the Vision of becoming an Ecological State and I am privileged to try and help. Check it out on the web.

Best Wishes,
Bob

Yohannes Izmi Ryan, ELP '05
Indonesia
Here is a pictures of the preparation of a traditional canoe called "Jalur." Each years in August, there is a festival "pacu jalur" or cano race near to our concession. This "jalur" is made from one single tree and has at least 30 meter length and has seats for 40 to 60 people. The commu-

nities in each village are working together starting from February to prepare this "jalur".

Siddique Akbar Siddiqui, ELP '05
Pakistan
We in Pakistan are extremely busy with shelters, reconstruction etc. after the earthquake of October 2005. *(See ELP website for the full story.)*

Dhenuka Srinivasan, ELP '05
India
Just wanted to update you on something exciting I have embarked on. Since I was in Berkeley for the ELP which was my first ever visit tothe U.S, I am here again to take on the Fulbright Indo American Environmental Leadership program. This is a short duration fellowship that allows me to work and network in the area of my interests. My proposal is to work on air quality monitoring, data analysis and modeling issues. As a part of the fellowship I landed here on the 6th of March and am currently at the U.S Environmental Protection Agency's Office of Air Quality Planning and Standards in Durham, North Carolina, U.S.A. I will be with USEPA for the entire March 2006 and then head to Washington University St. Louis to be with Dr. Rudolf Husar, Director of the Center for Air Pollution Impact, Trends and Analysis, (CAPITA). I'm hoping to learn the entire system of air quality monitoring network data analysis and see if the USEPA indexing system can be replicated for the data that we generate back home in India.

Regards,
Dhenuka

(Continued on page 13)

ELP Alumni News

Anna Zuchetti, ELP '04
Peru

This year I am fully occupied with managing our NGO, grupo GEA, which has doubled its budget and has got many new initiatives under way. One of these concerns our model sustainable development program in the "Green Valley" south of Lima:

we will develop a pre-feasibility study to assess economic instruments for conservation of agricultural lands, with the Beahrs ELP Small Grants Initiative and the support of Robin Marsh and David Zilbermann.

A small sample of some significant projects and consultancies we are involved with this year are:

- a growing program to train young leaders from peri-urban areas in leadership for sustainable development. We have a growing network of more than 400 youngsters (16-29 yrs) developing interesting initiatives, including urban habitat improvement projects in shanty towns;
- the valuation of the Inca trail in the upper Lurin and Chilca watersheds, whilst supporting local communities to develop ecotourism products and services: this project aims to use natural and cultural resources (the Inca trails and its surrounding landscape) as assets for local socio-economic development; a big national campaign of illegal logging and deforestation: this is Peru's (and Latin America's) number one Environmental Problem, and due to the expertise we developed in environmental communications, we have been contracted by USAID-IRG to develop this topic in the mass media to increase public consciousness and influence public policy on these issues.
- our launch of the first National Seminar on Environmental Education for Sustainability, an initiative we will develop each year in order to build a strong community of teachers and researchers in the field. Participants include the Center of Ecoliteracy from Berkeley, that has excellent approaches and projects in this field, as well as other centers of excellence from Brasil, Chile and schools from the coast, Andes and Amazon of Peru.

Un abrazo,
Anna

ELP Alumni Reunions in the Philippines!

NANI SAPTARIANI AND LANDO VELASCO VISIT THE PHILIPPINES

Lando Velasco, Nelia Lagura, Nani Saptariani and Gia Ibay.

Nani Saptariani (ELP 2004) from Indonesia and Lando Velasco (ELP 2003) from the Philippines but currently living in Bonn, Germany, visited the Philippines in November 2005. They met up with Gia Ibay (ELP 2004) and Nelia Lagura (ELP 2004) for a mini-reunion!

ROBIN VISITS THE PHILIPPINES JUST LAST WEEK!

These pictures are fresh from Robin's reunion last week with Agnes Rola and Vicky Espaldon (ELP 2001), Nyhria Rogel (ELP 2002), Dulce Elazequi (ELP 2003) and Nelia Lagura and Gia Ibay (ELP 2004)! We had a wonderful evening with beer and Filipino food on a swaying bamboo island, and caught up on work, love and friendship!

From L to R: Vicky Espaldon (ELP 2001), Gia Ibay (ELP 2004), Dulce Elazegui (ELP 2003), Nyhria Rogel (ELP 2002), Nelia Lagura (ELP 2004), Robin Marsh and Agnes Rola (ELP 2001).

Feature Article

Recap: Beahrs ELP Cyberseminar on Urban Sustainability

By Chris Jones, ELP Program Consultant

A new community of scientists and practitioners is emerging to address critical urban environmental sustainability problems in developing countries around the globe…and the Beahrs ELP Alumni Network has been closely linked to this process. In January I had the privilege of moderating a cyberspace discussion with ELP alums on this emerging community called the Urban Sustainability Initiative, or USI. This discussion took place a week prior to a major USI planning meeting to outline the structure of this new initiative. I attended this meeting as one of the representatives from UC Berkeley and carried the messages from the ELP cyberseminar along with me. In this brief letter I would like to thank the ELP participants by highlighting just a few of these powerful messages.

The two principle foundations of the USI are 1) advancing the science, technology and practices of urban environmental sustainability, and 2) improving the institutional capacity of cities to make environmentally sound decisions. The cyberseminar participants addressed both of these issues in innovative ways.

One of the questions we asked participants was how they would spend a grant of $2 million to improve the environmental quality of their cities. The areas addressed most by participants were solid waste management and sanitation. Muthoni Ngotho (ELP 2003) mentioned the need to first conduct a review of the history of waste management in a city to get a perspective "on what has worked, what has not, and the strategies for the future". Patrick Karani (ELP 2003) suggested that one strategy could involve encouraging small enterprises to manage and recycle waste. Similarly, Agnes Rola (ELP 2001) suggested recycling enterprises to turn marketplace waste into organic fertilizer for crops in rural areas. Janet Geddes, an associate of Archana Patkar's (ELP 2003) in Mumbai, mentioned an initiative in Mumbai to put thousands of public toilets in place around the city. These toilets would employ community members in maintenance of the systems and could potentially lead to production of energy through collection of the waste streams. These innovative approaches, in combination with public education, have the potential to be both environmentally and economically sustainable, and thus "low hanging fruit" for USI involvement.

Governance is the other major thrust of the initiative. Peter Kuria (and Muthoni Ngotho) mentioned the tendency in the global south for 'top bureaucrats' to 'hijack' research and development processes. He recommended that before engaging in specific cities that we first do our homework to understand local conditions, existing research, why local initiatives have failed in the past and how complex sets of institutions and policies function. Rodica Stanescu (ELP 2004) warned that the legal frameworks be in line with local priorities and the ability of businesses to comply. Finally, Dhenuka Srinivasan (ELP 2005) mentioned the importance of transparency and participation to ensure that initiatives are not only appropriate, but also long-lived.

Anna Zucchetti (ELP 2005) reminded us of the important equity considerations in environmental decision-making. For example, Peter Kuria warned of the potential of waste management enterprises to put landfill scavengers out of work. Patrick Karani furthered that there is a tendency in planning efforts to avoid the peri-urban dwellers that require more innovative and often decentralized solutions. And Agnes Rola asked us not to forget that "people are both the problem and the solution".

As I write this letter, a draft of the USI proposal is sitting on my desk for review. Once again I carry the words of the ELP Alumni Network with me in a critical moment of planning for the project. I can't say what exactly of the many things I learned will make their way into the proposal, but the spirit of the ELP will certainly be a guiding force. I hope we can continue this journey together in the years to come. Many thanks to those of you who have been involved thus far!

Quotes from the Cyberseminar

On the Empowerment of Local Stakeholders

"Participation and empowerment of local stakeholders is critical for the sustainability of the initiatives. As much as USI is seeking partnerships, it should be wary of the manipulation and control of gatekeepers in the name of NGOs, CBOs, private groups even local government actors who purport to represent the community of these cities."

— Muthoni Ngotho (ELP 2003)

On Waste Management

"I believe most urban areas are experiencing difficulties coping with increasing volumes of waste generated on a daily basis due to increasing numbers of people in cities… (but) waste management has the potential to create jobs, reduce crime by reducing the number of city idlers, improve the performance of the environment and restore the urban ecosystem… In addition, waste management could lead to the development of environmental infrastructure that would result in income generation, industrialization with approaches to sustainable production and resource conservation, archiving sustainability."

— Patrick Karani (ELP 2003)

On Transparency

"I think the right to information and transparency is of critical importance. Take the case of huge developmental projects in countries like that of my own: how many EIA's have stopped other development project from coming up due to high environmental trade offs? It is often pre-decided whether a damn project or a highway is coming through! Participation by various stakeholders along with acts of transparency in implementation an decision making processes is of utmost importance."

— Dhenuka Srinivasan (ELP 2005)

For more information on the USI see http://bie.berkeley.edu/sustainable_cities.htm

(**Marsh**, *Continued from page 2)*

Conference who are struggling against oppositional religious and political forces to introduce integrated PHE programs into the poorest coastal and hillside communities of the Philippines. The message is that teenagers, couples and parents have the human right and responsibility to control their reproductive lives, and to bring up healthy families. Healthy families are the cornerstone of poverty reduction and restoration of degraded ecosystem services, together with policies that encourage responsible parenthood, and support multi-pronged human development programs at local levels.

Here at the conference there are participants from Madagascar, Kenya, Tanzania, Burma, Thailand, the Caribbean, and other countries sharing their PHE experiences. Some of them will join the ELP 2006. I invite our ELP alums interested in this integrated approach to learn more about the PHE International Network (to be launched today!) from me and these new ELPers. This approach needs more champions. Think about it.

ECOAGRICULTURE AND PAYMENT FOR ECOSYSTEMS SERVICES

The articles in this newsletter present an excellent sampling of the thousands of ecoagriculture practices and PES schemes around the world. As an enthusiastic member of the NGO, Ecoagriculture Partners, I want to clarify the intersection of these two terms. "Ecoagriculture" essentially describes cultivated landscapes that combine sustainable and high-yielding food and fiber production with biodiversity conservation. The management system itself is self-sustaining through production, consumption and sale of ecosystem goods and services. One part of this management system may be a PES scheme that brings buyers and sellers together, particularly water services in downstream-upstream situations, and increasingly initiatives that involve distant buyers of carbon credits from reforestation and sustainably managed forest projects. Payments for conservation of biological diversity tend to be donor funded (conservation NGOs) because these services are public goods treasured by the whole planet. However, pharmaceutical companies may compensate communities for bio-prospecting, although these transactions seem to be fraught with unjust terms.

David Zilberman is a lead researcher in the field of Ecosystem Services – and we look forward to reading the results of his new publications and studies. Nelia Lagura alerts us to the negative environmental impacts of marine aquaculture, and questions this as a solution to local threatened fisheries, because poor fishers are unable to compete in the aquaculture business. Edmundo Barrios alerts us to the underlying importance of soil biodiversity – soil biota for the practice of ecoagriculture. Research is showing how proper use of soil biota can maintain and increase soil fertility and yields without the use of agrochemicals. Chris Aldridge and Hans Burger share some of the experiences of PES in developed countries – UK and Switzerland. Citizens in these countries are willing to pay significantly (as consumers, taxpayers and voters) to support "multi-functional agriculture" that rewards environmental stewardship by farmers and ranchers. Chris also shares an interesting example of his work in China taking the pressure off the habitat of the endangered Guizhou Golden Monkey, by restoring and promoting traditional honey production skills.

This newsletter also shares the results of two recent SGI projects from Mali and Madagascar. Alums who would like a copy of the documentary film*: The Niger, A Life Line*, may contact alum Abou Bamba at the Ramsar Convention.

That's all for now. David and I look forward to a fantastic ELP 2006. Before long, we will be introducing you to these new friends and colleagues.

Warm regards,
Robin

(**Zilberman**, *Continued from page 2)*

dollar spent. In order to operationalize this approach, quantitative indicators of various amenities have been developed. We demonstrated that this approach could more than double the volume of environmental amenities obtained with the given budget compared to traditional targeting practices. We also showed that acreage maximization is optimal targeting formula when there is a negative correlation between environmental amenities and productivity of the land.

2) Secondly, I am now studying the extent to which ES programs can be used as a mechanism to alleviate poverty. Again, correlations can play a major role in assessing this relationship. If the poor operate the least productive lands and provide most of the environmental amenities, then indeed payment for ES can reduce poverty. However, if lands owned by the richer members of the community are taken out of production to provide ES, thus reducing food supplies, increasing food prices, and reducing employment, then payment for ES may actually enhance poverty.

3) A third line of research that I am engaged in is the development of demand for ES programs. Thus far, most of the buying of ES was by governments in developed countries. I am investigating how modern tools of marketing will affect willingness to pay for ES and will develop a mechanism where individuals will appreciate various aspects of environmental preservation, or companies that benefit from ES actually invest in ES programs. That may mean promotion of ES programs, and the targeting of the appropriate market segments that are most likely to invest. This also suggests an emphasis on verification and quality controls of ES, so the buyers would be assured they receive what they purchased. Finally, in some cases when the ES programs have public good properties, it is important that their supporters get appropriate recognition for their contribution.

Currently, we are completing a special issue of *Environmental and Development Economics* on ES. I'm also co-editing a book on ES for FAO. Finally, a special workshop on ES will be held at the International Agricultural Association meetings in Australia on August 12, 2006.

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Center for Sustainable
Resource Development
4 Giannini Hall
University of California
Berkeley, CA 94720-3100

Phone: 510.643.4200
Fax: 510.643.4483

Newsletter Editor: Tricia Yang
tricia@nature.berkeley.edu

Check out our website:
http://nature.berkeley.edu/BeahrsELP/

The Beahrs Environmental Leadership Program (ELP) links state-of-the-art environmental and natural resource science and policy at the University of California, Berkeley, with environmental professionals around the world. It is the leading international program within the Center for Sustainable Resource Development of the College of Natural Resources.

The core component of the Beahrs ELP is an interdisciplinary summer certificate course in Sustainable Environmental Management. Participant in the summer course:

- Develop an interdisciplinary understanding of key environmental topics;
- Explore alternative policies, technologies and institutions that promote sustainable environmental management;
- Strengthen conflict management and leadership skills;
- Experience cross-cultural and cross-sectoral learning from peers around the world.

Course participants continue their learning and peer relations through the Beahrs ELP Berkeley Alumni Network, with an active website, THIS newsletter, and various exchange opportunities.

Announcing SGI Project Awardees 2006!

Congratulations to the following small grant recipients for 2006!

Ahmed Hassan (ELP 2003)
Sami Kamel (ELP 2002)
Country: Egypt
Business Development Support and Competitiveness Strategies for Small, Medium and Micro Ecotourism Enterprises in Egypt

James Rubakisibo (ELP 2003)
Aventino Kasangaki (ELP 2004)
Country: Rwanda
Promotion of Green Environment through Strengthening Local Initiatives

Natalia Vinograd (ELP 2005)
Dr. A.Pavlov, Eng. E Kayukova
Country: Russia
Dissemination of Environmental Knowledge about Water Quality Issues among the Youth of the St. Petersburg Region, Russia

Anna Zucchetti (ELP 2005)
Raul Tolmos (ELP 2005)
Country: Peru
Pre-Feasability Study to Apply an Economic Instrument for the Conservation of Agricultural Lands in the Lurín Valley, Metropolitan Lima, Perú

Second Annual SPSU ELP Conference in St. Petersburg

On November 16-17, 2005 the second St. Petersburg State University Environmental Leadership Program was held in for 159 participants from 23 Russian cities. The conference was part of a joint initiative with USAID/ICS and UC Berkeley aimed at establishing an interdisciplinary Masters level program on "Sustainable Development and Environmental Management." The conference focused on the following subjects:

- Indicators of SD
- Environmental security of northern areas and local populations
- Integration of protected areas into social and economic development
- Leadership in SD
- International Policies and legal aspects of SD
- SD, EM and economies

Representatives from across the public, private and academic sectors provided feedback and insights on these subject areas, helping to shape a core curriculum for the Masters program at SPSU. The conference also served as a forum for information sharing and learning on current field developments.

Congratulations SPSU for yet another successful conference!

SPSU Representatives Visit ELP to Explore Academic Exchange Opportunities

Dr. Ilia Dementiev and Prof. Alexei Zavarin met with Robin Marsh and David Zilberman on February 9, 2005 to establish stronger ties between St. Petersburg State University and UC Berkeley's Beahrs ELP, Center for Sustainable Resource Development, and College of Natural Resources. Building on an on-going relationship between the two universities, the group met to explore concrete opportunities for research and education exchanges between their respective faculty and students.

Dr. Ilia Dementiev, Prof. Alexei Zavarin and Dean Paul Ludden

David Zilberman, Robin Marsh,
Dr. Ilia Dementiev and Prof. Alexei Zavarin