

BIORIGHTS as a Pro-poor Economic Paradigm for Sustainable Environmental Development in Global South

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Abstract

Bio-rights are financial mechanism to compensate opportunity costs of local stakeholders and assist commons of global south in reconciling poverty alleviation and sustainable use of natural resources. It could contribute to poverty alleviation by direct payments to compensate for poverty related costs and distribution of payments to communities on the basis of nature conservation. It depicts a mixed financial model of community partnership for sustainability with low investment and high return assurances, affirming women empowerment and social cohesion, catalyzing social changes too. Adaptive environmental management is the key factor for sustainability of this conservation model, which works on community-ecosystem approach and is decentralized to the lowest appropriate level.

Review of case studies from South Asia shows that local people in developing countries that are dependent on the nature actively support the Biorights system, which is a precondition for the success of Biorights. In order for Biorights to be globally successful it should be considered at first to aim at those nature areas which have the highest priority to conserve, in terms of estimated benefits and costs of conservation. Need for a juridical basis and a good monitoring system was stated several times during the study, especially from stakeholders.

The present paper would mainly focus on India's first Biorights project at East Kolkata Wetlands (EKW), a threatened Ramsar site in the state of West Bengal in India, while comparing with similar studies in Philippines, Vietnam, Indonesia and Bhutan. EKW comprise of a cluster of inter-distributaries swamps, spread across 12,500 hectare and is renowned as a model of multiple use wetland having a wastewater treatment, nutrient capturing and resource recovery system developed and maintained by the local fishermen commune, the biggest of its type in the world. Unfortunately in recent days EKW is facing challenges of being removed from the Ramsar wetland list due to waste escalation and severe urban encroachment.

The present study attempts to peruse the challenges of restoring vulnerable ecosystems of significant socioeconomic importance in rural and peri-urban areas of developing countries across the world for wise use of natural resources and pro-poor sustainable development for the socio-economic well being of commons.

Keywords:

BIORIGHTS: Empowering Pro-poor Conservation Efforts

There is a strong need to connect issues of sustainable environmental development with poverty alleviation in the global south. Conventional strategies to escape poverty have been traditional agro-forestry and migration. Migration is no longer a solution for the one billion poor people living in the rural areas of the world, while the traditional systems of agriculture and forestry are not necessarily leading towards development in the future. People are caught in the ostensible rural poverty trap. A recent trend in inversing the poverty problems of the commons dwelling over vital ecosystems is to recompense them for conserving their natural resources through financial incentives. Biorights could contribute to this by compensating

local people in developing countries directly for not degrading the natural environment.

Biorights is a concept that tries to protect areas of global biological importance by compensating poor people that live near nature areas and that are dependent of these nature areas for cash generating activities. It allows public value of key biodiversity areas to be transformed over time to local stakeholders as a direct economic benefit and turns natural resource management and conservation into a development opportunity. The hypothesis is that a sustainable development is possible in underprivileged communities of global south that would inverse the negative link between poverty and nature degradation.

In order for Biorights to be successful we need cooperation of both the global community and local people in developing countries. The local people, mostly poor farmers, fishermen or tribal communities need to actively support the idea of Biorights as they determine to a large extent what will happen with the nature that surrounds them. For the long term development process, involvement of the private sector, including the corporate world, will be essential if Biorights is to become a successful paradigm. This can best be achieved by designing and installing pilot project on Biorights that will integrate nature-services with indigenous value added services and transform it as a financial tool for sustainable environment development through participation, reciprocity and community partnership in peri-urban to rural areas of global south.

Success, by means of these Biorights pilot projects, would greatly contribute to the involvement of private initiators and the eventual success of Biorights. Besides looking at the “buyers” side of Biorights, such study would also investigate the expected behavior towards Biorights of the “sellers” side e.g. the farmers and fishermen, artisans and craftsmen in developing countries. Bio-rights could thus form a new mechanism for rural development in developing countries and countries in transition, as it would de-couple poverty and environmental degradation. It would provide a fiscal tool that act as a contract between local communities and the global community, to provide income for the local people, and to conserve natural resources and biodiversity on earth. The global community offers economic compensation to local stakeholders for the immediate loss of income opportunities (local opportunity costs) from their natural environment, as an incentive to conserve the natural capital of the globe. This turns environmental protection and biodiversity in developing regions into a development opportunity rather than being associated with the poverty trap. Conservation through community participation can best be obtained if it can assure socioeconomic security and poverty reduction. Bio-rights are a one point solution for this. It is a panacea for rural empowerment and sustainable development.

The New Economic Paradigm in Global Perspective

The monetary value of nature has so far not been recognized by the world community with our current economic system and hence its value is only marginally present in the market. Mostly the costs of nature conservation are visible in the market and only the most obvious benefits. That is why it is not possible at present to make an unbiased cost-benefit analysis of existing nature reserves. Therefore, other tools have to be found that can prioritize nature areas that are the most important to conserve. It will be wiser to aim at areas in developing third world that also have a high value in global biological importance, but where compensation payments are still lower.

The money that is needed for Biorights projects has to come from global stakeholders that have interests, of some sort, to protect these areas of global biological importance. In poverty alleviation the stakeholders need to be found in especially the public sector and to a lesser

extent in the private sector of developed countries. But as earlier said, for long term developmental process involvement of the private sector may become essential along with the fact that governments also might find Biorights interesting. Governments of developed countries might find it an effective way of spending money that is meant for either nature conservation- or development projects and governments in the developing countries concerned may find it an attractive solution to reach the Millennium Development Goals for 2015, which state that extreme poverty has to be decreased by 50%.

A cost-effective analysis may be an interesting tool to find what the most important areas of global biological importance are. The most cost-effective areas in the world are those that have a high wilderness value (e.g. the Sahara desert or the Eastern Himalayas) and that are low populated and relatively less developed. This would mean that especially the “hotspot” areas in developing countries are the ones that need protection first. But pointing out the most cost-effective areas worldwide is one thing, making nature conservation a sustainable solution for the local people is another. Perusal of analysis results suggests that the global average compensation cost that is needed to cover the opportunity costs of the local people lies in the range of US\$13.65 ha⁻¹ yr⁻¹.

Though Biorights is a new concept, it does hold elements that are effective in delivering a turn over of the same through global partnership. The unique potentials it has can ensure the sustainability of the fiscal model. These are essentially:

1. The direct payments to compensate for poverty related costs. These payments are also for the long term to guarantee a sustainable rural development
2. The distribution of payments to communities and not to individuals on the basis of nature conservation.

A local-global partnership will therefore endorse the success of this model. The local commons need to actively support the idea of Biorights as they determine the fate of the natural resources ultimately and the global community is of course important for the investment, who have to determine if benefits of participating are greater than the costs.

In that light, an interview survey was carried out in the Netherlands covering a number of public- and private bodies that could have an incentive to participate in Biorights projects. The result from the study was that almost all respondents found the concept interesting. A slight difference could be noticed however between the opinions of respondents in the public- and private sector. The public organisations that were interviewed were all involved in either the development- or nature conservation issue. Biorights might become part of the policy of these organisations once it proves to contribute to a solution for the poverty- and nature degradation problem. The respondents from the private sector were generally a bit more sceptical as some of them did not see clear benefits that Biorights could have for their company. But Biorights might become more interesting for the private sector and especially the financial sector: If it succeeds in reducing the availability of “risk-money” that is normally available for these kinds of projects. In the case that fiscal benefits are available. At the UNEP FI Global Roundtable Conference that was held in Tokyo in 2003, it became clear that although there was a noticeable willingness to invest in more socially responsible initiatives, there is still a lack of actual investment in them as these projects are regarded as not profitable enough in which return on investment is too low. This is of course an imagery relating to the lack of awareness in investors.

Considering the biodiversity business, the difficulty so far is that forests are regarded as

public goods, which may cause the global community (the investors) in anticipating that others will take the lead in conservation efforts. However, clear and defined private property rights might trigger global investors to start investing in nature conservation. In that sense, a positive trend towards more private owned land is happening at present, as governments in developing countries are giving away state property rights to either individuals or local communities. The role of private initiators should be much more highlighted in this context, as it takes financial courage to start investing in a new market such as for Biorights.

Observations from the case study area in San Juan la Selva region, north of Costa Rica reflects that the compensation payment in the case region has to lie at least in the range of \$88/ha to be competitive with the timber market which is simply the opportunity cost of the land, by means of timber revenue. At a market price for Biorights of US\$98/ha, an estimated 80% of this region can be conserved. This price is also the estimated global benefits that all the stakeholders combined have in the conservation of the primary forests of Costa Rica. Conservation of the remaining 20% of the area is at high costs and it can be considered whether this is cost-effective. Due to the relative high compensation costs, future trends in timber and beef revenue, which determine the opportunity costs of the land, may also determine the success of Biorights in this area. If the opportunity costs of the land drops due to a major drop in timber prices, Biorights might become both an economically and at the same time sustainable interesting alternative for dwellers of this region.

Evaluating Prospects of BIORIGHTS: Case studies from developing nations of global south

GPI and Poverty reduction: Indonesia

At the 8th Conference of the Parties of the Ramsar Convention in Valencia in November 2002, during which the publication on Wise Use of Mires and Peatlands was launched, a draft Resolution [COP8 DR11] on designation of under-represented wetland types was signed, which included reference to the role of the Global Peatlands Initiative (GPI). Following this, in the stakeholder meetings in Central Kalimantan of Indonesia in relation to the Ex-Mega Rice Project, which affected over 1.5 million ha of tropical peat swamp forests and caused significant environmental problems and increased poverty as well, the GPI financed the development of the "Biorights" financial system, which provides a basis for addressing poverty-environment issues. During the UNEP-Finance Roundtable in Tokyo in October 2003 in a workshop on Biodiversity and Finance, the innovative Biorights approach was presented by the authorities of Central Kalimantan and representatives of the local *Dayak* communities.

Other GPI Projects in Indonesia (Sumatra) focused on community-based peat fire prevention, including capacity building, awareness drive and extinguishing fires in critical areas as well. The peat fires in South-east Asia have a huge impact on the local economy as a result of resource destruction, as well as impact on transport, health and life. The GPI projects were some of the first to actually set examples on how this major problem can be addressed through bottom-up approaches involving local communities and other stakeholders.

PES: An IUCN endeavor in Vietnam

The loss of Vietnam's mangrove forests is a complex issue. To blame the farmers who are clearing mangroves whilst ignoring government policy and an expanding aquaculture

industry is to blame the victims. In the context of ever increasing shrimp exports, simply moving villagers and planting mangrove trees is unlikely to solve the problem

IUCN, through the Wetlands Education Network of Viet Nam (WENVN), partnered with the Can Gio protection forest management board to organize the meeting in Can Gio District, Ho Chi Minh City, to identify options about Payments for Environmental Services (PES) system for the nation's wetlands, and specifically for Can Gio's mangroves. PES is a resource management tactic that aims to put the environmental benefits of a given ecosystem on par with other remunerative uses by giving those services a market value. It requires the beneficiaries of a given ecosystem, who receive services like clean water, fisheries, disaster mitigation or ecotourism opportunities, to compensate local communities and others who are responsible for maintaining ecosystems. As such, it acknowledges the role people play in protecting ecosystems and provides them with an incentive to do so, rather than exploiting the environment for short-term economic gain. IUCN helped pioneer PES in Viet Nam, by assisting the government in drafting the Law on Biodiversity containing a related article. The WENVN contributes to the management, conservation and sustainable use of wetlands in Viet Nam through education, awareness and communications activities. It does so partly by creating a forum where organizations can share information on wetlands conservation, this time about PES.

The consultation meeting of IUCN introduced the concept of PES to stakeholders in Can Gio. About 40 participants from government agencies, academic institutions, tour companies and conservation groups brainstormed and evaluated the services the local mangrove forests provide, and discussed who benefits from those services, as well as which groups are in the best position to protect them. Participants said they expect the findings from the consultative workshop to contribute considerably to efforts to identify options and craft proposals for suitable and effective PES mechanisms for wetlands in Viet Nam. More recently PES system with community partnership has shared the challenge of conserving the mangroves.

Community Forestry Initiatives: BIORIGHTS in Philippines

The reforestation initiative of locals in Philippines were responsible for the vigorous growth of a robust young mangrove forest through wise-use and adaptive management. Their lively hood has been very much associated with the sea and was included in the category of fisher folks. The edible organisms that thrive successfully in this mangrove forests are species of shelled mollusks and the crab. The ecological parameters such as prevailing ranges of temperature, salinity and all other physical and biological components seem to suit the growth and development of the edible crab and mollusks leading to their continuous production and harvest. These serve as food for the local community especially during emergency. The community was also able to establish a netted pond and allowed commercial brackish water fishes to grow and proliferate. In exchange for maintaining the mangrove, the caretakers were given crabs, mollusks and also fishes by the community manager. Though they do not belong to the poorest of the poor but it is exhilarating to know that they are earning money and at the same time helping in the maintenance of the ecosystem of the reforested mangrove making it ecologically healthy and economically sustainable. The municipal government and an NGO are behind the initial implementation and their continuous support as well as the proper maintenance of the will soon make this mangrove area not only as a food depot for humans but as a pioneering model for economic sustainable development and healthy ecosystem rolled into one.

India's First BIORIGHTS Project in East Kolkata Wetlands – A Threatened Ramsar Site

East Kolkata Wetlands: Ecological Profile

Sometimes called the “kidneys of Kolkata (Calcutta),” the East Kolkata Wetlands (EKWs) are the largest resource recovery system of their kind in the world that recycles 780 million litres of raw sewerage per day. It covers an area of 12,500 hectares which were designated as a Ramsar site in August 2002, owing to its unique multiple-use resource recovery system sustained by the fishermen community. The wetland lies east of the city and includes a garbage dump known as Dhapa Square Mile, a mosaic of vegetable fields, a series of 264 odd fishponds connected by major and secondary canals, rice fields and vegetable gardens and 43 villages with 90,000 people in all. The EKWs extend almost equally on both sides of a Dry Weather Flow Channel, which discharges into the Kulti Gang (the wastewater outfall of Kolkata 28 square kilometers to the east). The area is divided into eleven zones and includes four major sub-regions: freshwater fishponds, brackish fishponds (both of which are known as *bheris*), garbage farms, and paddy lands. Some thirty kilometers eastward, the river Kulti-Bidyadhari drains into the Bay of Bengal. Underneath the city these wetlands retain a large supply of groundwater. Over the surface the fishponds produce some 13,000 tonnes of fish annually, whose yield are 2-4 times higher than average fish ponds, is among the best of any freshwater pisciculture in the country. 11,000 tonnes of rice per annum and some 150 tonnes of vegetables per day are harvested from small-scale plots irrigated with wastewater. The vulnerable ecosystem harbours 206 species of wetland flora and fauna that includes the Red Listed Marsh Mongoose and Mud Turtle, 52 endemic species of fish and nearly 20 mammals. 40 migratory birds has been reported to visit these wetlands in recent past.

Economics & Land Ownership:

There are various types of land ownership of fish ponds. Many are owner-managed. Some 17 Cooperatives with about 900 fishermen and women operates the cooperatives that function well without any external assistance. Only five ponds are under the direct control of State Government run Fisheries Corporation.

Much of the land is also leased out by absentee landowners, some of which are further sublet. The opportunity cost and economics of waste water production has not been studied extensively, and the reliability of existing data is poor, as private farmers may not disclose everything to researchers, and the State-managed fishponds are too few to fully represent the entire area. Despite their potential to provide multiple natural and social services, the wetlands are an informal system. Under the BIORIGHTS project the ‘Community-ecosystem’ approach of study on transformation of nature services to alternative economic opportunities in various peri-urban wetlands of East Kolkata enables all stakeholders to concentrate on one problem at a time and allow rectification through adaptive management practices over time and space.

Urban Development and Encroachment Issue

With encroaching eastward development of the city, there is speculation that certain areas will succumb to development. Whether or not this happens, this speculation alone is a threat to the future of the wetlands as it makes locals wary of investing their labour in long-term

maintenance and upkeep of the ponds. Some unregulated industries, such as tanneries, have been releasing untreated effluent directly into the wetlands, further threatening the water quality. Siltation of the ponds is due to construction of concrete structure, marble factories and also through natural processes, the build up of silt has reduced the capacity of fish ponds over time. Some, originally six feet deep, have silted up to two feet from the surface, which has reduced fish production by two-thirds. The dredging and transport needed to clean out the larger ponds requires a large investment, even though the silt can be used for landfills planned for new townships north of the city. As this is an urban area, there are more competing, conflicting interests and agencies than would be found in a village. Moreover, unlike rural development, the issues are less black-and-white, for example, income opportunities exist locally whether or not the wetlands are preserved. However, the income and quality of life for those who depend on the wetlands might change dramatically if they were to disappear.

The Biorights Project at East Kolkata Wetlands

The first Biorights project in India, launched at East Kolkata Wetlands on 2nd February World Wetland Day 2007, by South Asian Forum for Environment (SAFE), a non governmental non profit registered organization working towards sustainable environmental development through community based participatory programmes and partnership in Indian eco-region, SAFE had proposed to design a concept on Biorights project that can assure sustainable fish production and biodiversity conservation at EKW along with a task to alleviate poverty in East Kolkata Wetlands. The pilot project intends to transform nature-services like *Ecotourism* as a financial tool for poverty alleviation and sustainable environment development in peri-urban wetlands of East Kolkata through community participation and partnership. The specific objectives of the project funded by Innovative Challenge Fund, KUSP of Change Management Unit of KMC are as under:

- To identify economically beneficial nature-services in the area through cost benefit analysis
- To expand economic opportunity & capacity building among local stakeholders for livelihood
- To en suit sustainable conservation objectives with poverty alleviation strategies through revenue generation in eco-friendly process
- To create awareness among local stakeholders about restoration of East Kolkata Wetlands

Projected Impacts On Community

- Improve livelihood status through awareness, literacy, basic livelihood facilities
- Develop knowledge on wetland ecosystem to adopt eco-friendly opportunities of revenue generation
- Active participation and empowerment of the fisherwomen, capacity building
- Reduction in social abuses and other incoherent social attitudes

Community Involvement

The dwellers will be involved through participatory partnership in the project, as it would have an integrated approach. The whole community shares the responsibility of validating and evaluating the scheme thus they will be part of the decision-making system in adaptive project management. In sociometric studies, impact assessments and feedback, the community involvement will be obvious and altruistic. It would include the students from Bidhannagar College of Salt Lake.

Sustainable Replication

Replicability requires an integrated approach to clarify the trade-offs between economic, equity and environmental criteria that comprise the “bottom lines” of sustainable development. Strategic Impact Assessment already functions as sustainability mechanisms in this project and further adaptive management augments it across space and time. That it is a low investment and high return assuring endeavor; it has a common acceptability feature. The project would also testify potentials of “Bio-Rights” in risk coverage through group insurance schemes, which would endorse better adoption of the scheme by dwellers those who are cognizant.

The partnership initiatives

A baseline survey on rural community partnership has revealed an amazing 93.7% positive response in favour of the project. The community accepts this as a major endeavor for the first time in East Kolkata Wetlands that takes care of their livelihood through spreading the financial risk of fisheries by recovering the loss with another economic opportunity.

The urban response on Biorights is equally amazing. Survey results on low volume higher value tourism shows a general consensus in willingness of paying approximately 18% higher value than normal tourism in the wetlands. This excess revenue will be utilized for **micro insurance** coverage of the wetlanders with a premium as low as Rs 7.50 per month per family against health and wetland related diseases. This has been highly appreciated by the Ramsar Secretariat as the theme of this year’s World Wetlands Day is “Healthy Wetlands Healthy People”. Many corporate insurance organizations like Max New York Life and ICICI Prudential have come forward to share and discuss this win-win situation. It’s important to note that SAFE has already got tremendous assistance from Rotary International for providing eco-sanitation facility and health camp services to the wetland dwellers. This would also be a important segment of the present project on Biorights.

The formation of Self Help Groups that SAFE could establish with the supports and funding from NABARD will be further strengthened with this project. The fisherwomen will be exposed to catering and hospitality training and young men will be trained in marketing skills. In the days ahead, **micro financing** for these groups, which is being assured from nationalized banks like SBI and Indian Bank, will ensure more economic stability and empowerment. It is expected that all such endeavors will help in bringing attitude change and raise the livelihood status of the wetlanders.

CONCLUSION

This ecosystem at EKW shows the significance of reuse in waste disposal and sanitary engineering which has not been well appreciated otherwise. It’s been shown that integrated resource recovery and institutionalization of urban solid and liquid waste management can reduce costs to municipalities by 30-90%. If the wetlands fall prey to urban expansion, the results will be not only the loss of food and livelihood, but will require the construction of an expensive sewage treatment facility to replace the services it currently offers. This case demonstrates the value of “invisible services” such as waste management, food production and livelihood, and it highlights how nature provides these services on a relatively large scale and in an urban environment. However, the integral part of this system is the wetlanders who through a community-ecosystem partnership ensure the sustainable development. But owing to urban encroachment their existences are at stake, though the wetlands are more significant to the urban growth and development issues. In the given situation the concept of BIORIGHTS has not only assured the alternative economic opportunity to the community but has also accentuated the urban partnership through the compensation points.

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