



Spotlight on viable alternatives

“The Encyclopedia of Sustainability shows that alternative development initiatives are as good as today’s mainstream development plans, and sometimes even better,” says Dr. Vijay Paranjpye. “Many initiatives in the Encyclopedia are related to water, and can be an integral part of a global water vision for the future.”

Paranjpye is director of Econet, an important NGO in India active in natural resource management in both rural and urban areas, described in this issue (page 3). He is also a member of the international advisory group for the Encyclopedia, and as such is a key partner of Both ENDS. He says: “Many people think that alternatives are experimental and marginal, and cannot be widely adopted in mainstream development plans. The beauty of the Encyclopedia of Sustainability launched by Both ENDS is that it shows a whole range of alternatives that have been tried and tested and are being replicated on a large scale.”

Key to their success, Paranjpye stresses, is that they are rooted in

local peoples’ knowledge and are managed bottom-up. “They take local people seriously and give them a mandate. And the initiatives are validated in both scientific and technological, and economic and financial, terms.”

Alternatives today, mainstream tomorrow

Paranjpye is very enthusiastic about the Encyclopedia of Sustainability. “The overall collection of viable alternatives is fascinating. While they are all different, in different continents and countries, they follow a certain pattern,” he says. “They’re based on people’s experience and practical knowledge and they encourage participation of disadvantaged communities. And the organiza-



tions behind them are all fairly independent in terms of administration and technology.”

Above all, asserts Paranjpye, the initiatives selected for the Encyclopedia are highly innovative in nature. That’s why he is pleased Both ENDS is helping to spread their good news, and make them widely known and understood in various circles, ranging from community groups to politicians and policy-makers, enlisting the support of communicators and journalists in the process. “The result

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shows we don’t always have to rely on new technologies. Here in the Encyclopedia we have many excellent examples of initiatives that respond to the objectives of local communities and sustainability everywhere.” ●

Editorial

A new mainstream?

This is the first Newsletter of the Encyclopedia of Sustainability, a collection of forty innovative, people-oriented environment initiatives, described in digital form and on paper.

Many local NGOs and grassroots organisations in the South operate in isolation and anonymity, and they rarely have time and

resources to analyse, record and report their often valuable experiences. Both ENDS launched this project to draw attention to many such locally rooted environment initiatives. They would otherwise remain unknown, and inaccessible for others to follow as examples, to replicate, to learn from, to exchange experiences with.

‘Locally’ born projects can present viable alternatives to today’s mainstream, large-scale development projects. But they will never

form part of tomorrow’s mainstream approaches if policy-makers, politicians and decision-makers remain unaware of their achievements and potentials. That is why this Newsletter has been made available not only to our partners in local initiatives, but also at key international fora – such as the World Water Forum in The Hague in March 2000 and the UN Commission on Sustainable Development in New York, April 2000. We hope it encourages our

partners at all levels to seriously consider the visions, practices and techniques emanating from Southern NGO’s and grassroots organisations.

The Encyclopedia of Sustainability focuses on issues related to Sustainable Land Use and Water Management. This first issue pays particular attention to water issues; the next issue will address ‘Ecological Restoration’, in the second half of 2000.

The making of an ambitious project

Early in 1998 Both ENDS embarked on an ambitious project, together with some long-standing partners. We knew from our day-to-day practice that there had long been a wealth of 'sustainable' practices of natural resource management, since a long time before the word 'sustainability' became fashionable. They were inspiring and successful initiatives, yet very few people knew about them.

We knew too that viable, sustainable alternatives were much needed. The eighties and nineties had seen tremendous ecological damage wrought by mainstream 'development' projects; mega-projects such as dams had swallowed up billions of dollars, drowning fragile ecosystems, aggravating the plight of the poor, displacing untold thousands of people, consistently violating their human rights, and eroding local knowledge systems, pockets of which

could still be traced. It was shameful, it was late, but not too late.

In tune with local needs

We wanted in particular to track down and highlight initiatives which could compete with – or even emulate – mainstream projects on their – technical, financial and economic – terms. Too often the environment movement had been accused of simply adhering to the adage 'small is beautiful', without showing that 'alternatives' can be viable too. Our ambition was to offer realistic alternatives to deal with the growing problems of water scarcity, floods, pollution, erosion, deforestation, and loss of biodiversity. It meant a new type of search, for methods, technologies and practices in tune with both the prevailing local ecological circumstances and the priorities of the people.

Cherish or perish?

It was time to tear ourselves away from our daily work and set aside some time to think about how best we could tell the world about these alternatives. Many discussions with colleagues and partners, in particular in India, followed and led to the idea of an "Encyclopedia of Sustainability" of local development initiatives. We would not simply present them, but also support and cherish them, enable them to grow and flourish and stand a chance in this hardening world of market competition and economic liberalism. In early 1999 the first 'cases' were selected.

To aspire is to inspire

The tenuous task of documenting, data gathering, and identification began. In the subsequent twelve months, 40 initiatives have been taken on board and co-operative arrangements have been set up

with the initiative-takers (NGOs and local community organisations), with scientists and other stakeholders. They are concrete examples of how local people can control and manage flood plains, forests, fishing grounds and other natural resources. They show how fragile ecosystems can be preserved and restored while catering for the needs of local people. They can serve as a source of inspiration and as a practical example to follow. The Encyclopedia's objective is to support and exchange such experiences with other NGOs and grassroots groups. And to bring these examples to the attention of policy makers, donors and the private sector. ●



The Restoration Agenda

1. Explore, record and maintain **local knowledge systems** and practices of river basin management, which are in danger of disappearing into oblivion. Often applied at the micro level, they have great potential use in large watersheds and river basins
2. Safeguard and restore **ground water sources**. Most water potential lies outside the actual rivers, in watersheds and upstream areas
3. Support **pastoral systems in dry-land environments**. These intricate survival systems are endangered by the expropriation of land and water, and by government efforts to 'develop' the pastoralist economy through well-digging and the enclosure and privatisation of common grazing lands
4. Assist rainfed farming by **upgrading water harvesting and storage**, and encourage the preservation of traditional drought-resistant crop varieties
5. Fully rehabilitate **irrigation from tanks and ponds**. These artificial water storage systems are often still the centre of the village economy in large parts of Asia. They can help revitalize sustainable farming and are a key source of drinking water for humans and cattle. It requires, however, that the government stops promoting privately owned borewells, which destroy communal and hydrological systems
6. Encourage the **use of moisture, sediments and nutrients** which remain after seasonal floods ('flood recession farming')
7. Maintain and **restore watersheds in their entirety**, including their forests, wetlands, and water sources. It is the only viable way to avoid floods and erosion and preserve biodiversity, and offers people a variety of food, medicines and source of incomes. This calls for a ban on destructive logging, and a halt to investments in other destructive enterprises
8. Promote **mechanisms of flexible funding and research** for agricultural and land restoration techniques, such as terracing, agro-forestry, livestock management, and the development of fisheries and non-timber forest products, benefiting marginalised groups
9. Set up **training and education programmes** for government officials, local people and voluntary workers, involving local experts and resource persons
10. Assure **more equitable gender arrangements** in all proposed actions. A more equitable division of labour, knowledge, responsibility and control between men and women will enhance the survival of entire households and communities.

River Basin Management with People in Mind

Serious degradation of a river ecosystem has a direct impact on the livelihoods of most rural households, and indirectly on the lives and welfare of many urban dwellers. The problem is widespread, with countless examples of the urgent need for concrete action to address these problems. Using the Encyclopedia of Sustainability as a basis, with its descriptions of real alternatives, Both ENDS has collaborated with local groups to draw up regional perspectives on the future management of river basins. The result, after wide consultations with a large number of NGOs, scientists and grassroots groups, is an NGO Vision: 'Towards People Oriented River Basin Management'.

It is widely accepted that the well-being and survival of a people is best ensured by their access to and control over natural resources, so as to be able to meet their basic needs. The NGO Vision paper and related case studies call for models of water management which serve 'sustainable livelihoods' and the integrity of the ecosystem.

The wrong way, backwards

This renewed emphasis of keeping local people in mind has not always been central to water basin management. Three prevailing approaches have, in the past, stood in the way of sound, people-oriented policies:

- The notion that 'development' can be achieved through economic growth, which views natural resources, such as river ecosystems, as mere commodities. This attitude fails to take into account that most rural people cannot satisfy their basic needs through the market place. They depend largely on sharing common property resources within the river basin: grazing lands, forests, and reservoirs.
- The principle of 'eminent domain' which assumes that the state has a legitimate right to override local objections and expropriate private or

communal property in the name of 'national interest'. There is a strong bias towards centralised and capital intensive structures to transfer water to urban and export-oriented industries.

- Insufficient opportunity for meaningful participation by local stakeholders, in particular women and disadvantaged groups. With different gender roles, women and men are affected differently by new water projects. Women are especially hard hit and marginalised, with their water management roles insufficiently acknowledged and supported.

The future deserves more inclusive approaches, and the Encyclopedia of Sustainability presents case studies on water management which offer viable alternatives. They provide replicable examples of new and traditional appropriate methods, strategies and techniques which successfully deal

with problems of water shortages, floods, and social and economic losses. They include the traditional 'subaks' irrigation systems on Bali, tank irrigation schemes in India and Sri Lanka and the 'Rios Vivos' coalition campaign to save the ecosystem and local economies and cultures of the Paraná and Paraguay river basin in South America.

Common to these experiences is the need for massive revitalisation and protection of river basins and related ecosystems, with the full participation of local people. They call for the strengthening and adaptation of traditional and new techniques for water and land use. Such a 'restoration agenda' should be the basis for future planning and investment. ●

Water Websites

International Rivers Network
www.irn.org

European Rivers Network/RiverNet
www.ern.org
www.rivernet.org

River Network/RiverWatch Network
www.teleport.com/~rivernet/
www.riverwatch.org

International Network of Basin Organizations
<http://www.oieau.fr/riob/friobang.htm>

International Water Resources Association
www.iwra.siu.edu/about/index.html

World Water Council
www.worldwatercouncil.org

World Water Vision Project
www.watervision.org

World Water Forum
www.worldwaterforum.org

Global Water Partnership
www.gwpforum.org
www.gwp.sida.se

FAO: Water Resources, Development and Management Service
www.fao.org/waicent/faoinfo/agricult/agl/aglw/aglw.htm

No way, Hidrovía waterway (South America)



South American NGO-coalition blocks large infrastructure project

In the mid-1990s, some 300 organizations from five different countries in South America joined forces in the cross-border Rios Vivos (meaning Living Rivers) coalition, to protect the huge La Plata River Basin which crosses Argentina, Bolivia, Brazil, Paraguay and Uruguay. The coalition succeeded in blocking the Hidrovía project, a large-scale infrastructure plan. It would have canalized the Paraguay and Paraná rivers to become a major shipping artery, initially to transport cargoes of soya.

The coalition partners came from indigenous peoples, farmers, development organizations, nature protection groups, scientists and others from different cultural, economic and ethnic backgrounds. The coalition managed to persuade the Brazilian Government and the Inter-American Development Bank to withdraw from the Hidrovía project in 1996. It exposed serious errors and flaws in the official environmental impact assessments and feasibility studies, by mobilising well-documented counter-expertise.

Now Rios Vivos has turned its attention to developing practical guidelines for sustainability in the basin, taking the local ecology and the views of local people as their basis. By the strength of its arguments, the coalition is pro-actively helping policy makers and international donors to revise the assumptions behind unsustainable models of economic development, and is supporting grassroots communities to take part in decision making processes.

www.riosvivos.org.br/, www.irn.org/programs/hidrovía/index.html

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The Hidrovía Paraguay-Paraná Waterway Project

Stretches of river to be dredged

- A Cáceres - Corumbá: 6,575,000 m³
- B Tamengo Channel (18 km): 2,564,275 m³
- C Corumbá - Apa River: 3,664,701 m³
- D Apa River - Asunción: 8,197,691 m³
(and 606,891 m³ of rocks to remove)
- E Asunción - Paraná River Confluence: 3,956,303 m³
- F Paraná River Confluence - Santa Fé: 1,365,330 m³

- 0 - 200 m
- > 200 m
- International Boundaries
- Protected Area

0 250 km

Source: Relatório Internave.



Building on Indigenous Knowledge Systems

Participatory river basin management in India

In the early nineties, the Indian NGO Econet developed a comprehensive development plan for the Banas river basin, covering a very arid area in the state of Gujarat in Western India. The plan brings together dozens of techniques for local water management, some centuries old and some modern, and sews them into one ingenious, integrated scheme, like a patchwork quilt. As well as a study covering the entire basin, Econet prepared a detailed management plan for three villages in different catchment areas of the river, each with their own specific social and physical characteristics. The variety of methods and solutions tested makes this approach relevant for other areas.



The Banas Plan was developed largely in response to the plans for extremely damaging and costly large-scale development projects, such as the Narmada Sardar Sarovar dam and irrigation projects. Since the 1950s, the Government of India has spent well over 10 billion US dollars on large-scale dam construction and centralised water distribution, mostly to benefit urban areas and industrial zones. Unfortunately, these investments have not solved even one of the most critical problems of the rural poor, such as insufficient supply of drinking water and irrigation in drought-prone areas. At the same time, the very same poor suffered most from the many negative impacts of these projects, with massive forced displacements heading the list.

Local materials, local methods, local people

In the three villages, villagers and Econet workers together identified the most suitable techniques, structures, and designs for water management such as small dams and storage ponds, and their most appropriate locations. It was an

integrated approach: the construction of small check dams in the upper parts of the catchment area allows water to percolate, increases soil moisture and reduces erosion. Better groundwater conditions make it easier for villagers to reforest catchment areas. And rich tree cover stabilises the soil, as well as producing a variety of useful forest products: fodder for cattle, green manure for fields, medicines, fuel food, wood and bamboo for mat weavers and other craftsmen. It also provides

shade and space for recreation and religious ceremonies.

The villagers and Econet also paid attention to rainfed farming on higher slopes, communal grazing lands, and expanding the variety of water sources and storage. This helped to widen the range of crops and other sources of food, shelter and income considerably.

Securing livelihoods

The Banas plan is based on the ecological restoration of degraded watersheds, securing livelihoods

for the poor and applying state-of-the-art techniques. The starting point is local people and locally available skills and materials. Because of a 'smart meshing' approach which combines dozens of water management methods, and applies them in large watershed areas, the various interventions fit well into one large and integrated ecosystem. As well as providing drinking and irrigation water, the plan meets the area's energy demand.

Benefits and Costs: a comparison

The Sardar Sarovar Dam project versus the Banas River Basin Management Plan

<i>Description</i>	<i>Benefits and costs</i>	
	Sardar Sarovar Dam	Banas Plan
Drinking water supply	No provision	100% cover for people and cattle
Irrigation	113,000 ha.	92,000 ha.
Total land area irrigation treated	130,000 ha.	260,000 ha.
Energy generation	25 MW	92.8 MW (energy plantations: 29,000 ha.)
Costs of energy generation	Rs. 5.6 crores/ MW*	Rs. 3.6 crores/ MW*
Displacement of people	400,000 people	nil
Duration of the project	33 years	5 to 8 years

A crore of Rupees is approximately 3000 US\$

The Narmada river runs through the neighbouring states of Gujarat, Madhya Pradesh and Maharashtra.

Source: Econet, *Banas River Basin Development Plan*, India 1991

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Keys to success

Essential features of genuine sustainable and participatory river basin management are:

- the total catchment area is taken into account, acknowledging the interdependencies between all ecosystems within the watershed
- full participation of the local population, creating space for disadvantaged groups such as women, marginal farmers and landless people to fully engage in decision making
- a plan based on the needs and priorities of those who will live with it
- optimal use of (past and present) local knowledge, management capacities, technologies and materials

Superior performance

Compared to the performance of the largest dam in the area, the Sardar Sarovar Dam Project on the Narmada river, the results of the Banas River Basin Management plan are impressive. It has already

become clear that the alternative watershed approach is not only cheaper, but it also brings many benefits to marginalised people in rural areas, and is ecologically sustainable.

Achievements thus far

- Following the experiences gained in, amongst others, the Banas Development Plan, Econet has been invited by the Chief Minister of the state of Madhya Pradesh to participate in a Task Force to develop alternative strategies for the Narmada Valley Development Project (NVDP).
- Micro-watershed development projects are being implemented in one thousand villages in the state of Maharashtra and about 400 villages in the state of Gujarat.

There is growing interest in the Banas experience outside India, as exemplified by the presentation of



the Banas case during the World Water Forum in The Hague, the Netherlands, in March 2000. ●

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Consolidating the Subaks (Bali)

On the Indonesian island of Bali, the Wisnu foundation is developing a sustainable management plan for the Yeh Ho river basin. The two-pronged goal is to ensure Bali's biodiversity, and enough water for the local communities. Because of an increasing water shortage resulting from a rapid growth of tourism, local people's rice production is falling.

Key to Wisnu's strategy for integrated river basin management is the strengthening of the 'Subaks'. These traditional institutions, which bring together 30 to 40 land-owning farmers, used to have the task of distributing water from upstream to down-stream. This role decreases with the introduction of technical irrigation alongside the construction of World Bank sponsored dams on the island. Their diminished role weakened traditional values of mutual co-operation. Local communities, excluded from access to sufficient water, now turn to unsustainable farming and irrigation techniques. Unless such values can be reinstated, there will be little prospect of sustainability, reasons Wisnu. It aims to enable the Subak institutions to strengthen themselves and respond more adequately to the causes of acute water scarcity.

Wisnu Foundation

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Something old, something new (Kenya)**Revitalising traditional water management**

The pastoralist group FONI (Friends of Nomads International) have formulated concrete management agreements for the Ewaso Ng'iro North River Basin in Kenya. By organising meetings between community elders, government officials, women group leaders, and NGOs, FONI seeks to mediate in conflicts over the use of scarce water from the Ewaso Ng'iro floodplains, over an area of more than 2,200 sq km. The floodplains form a very fragile ecosystem, especially during the dry season.

The meetings organised by FONI are meant to solve problems of over-exploitation caused by overgrazing, water-intensive agriculture and tourism. FONI brings the different parties together to help restore and strengthen the 'Chaffa', the institutions which traditionally supervise the use of critical areas of the floodplain, and the fair distribution of water during dry spells.

FONI's initiative is a very positive step forward since nomadic societies in large parts of Africa are increasingly threatened by the 'enclosure' of their traditional grazing lands by agriculturists and large river infrastructure projects. FONI is also promoting the rehabilitation of the 'Chaffa' as a viable alternative to governmental plans for dam construction further up the Ewaso Ng'iro river.

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Analogue Forestry (Sri Lanka)



Biodiversity returns to Sri Lankan forests

Starting in 1980, the Neo Synthesis Research Centre (NSRC) in Sri Lanka has developed the 'Analogue Forestry' method to restore deforested and degraded lands and to offer local people new sources of income, food and other essential needs.

In the Analogue Forestry approach, local people are encouraged to recreate a forest type environment, by mimicking the 'architecture' of the local natural forest through the planting of trees, plants and organic crops, with natural regeneration helping to re-introduce biodiversity. The method has seen the return of growing numbers and varieties of birds, mammals, insects, amphibians and reptiles.

Inspired by Sri Lanka's legendary tradition of 'home gardens', the approach means that local people select subsistence or cash crops according to specific needs and preferences. Producers of tea, cardamom, vegetables and other crops who follow the principles of Analogue Forestry get their crops certified as 'Forest Garden Products', a government-approved label with independent certification which enables better marketing.

Many observers see Analogue Forestry as a better alternative to the monoculture tree plantations sponsored by government and private sector. The approach has been successfully adopted elsewhere in Asia and Latin America, under various ecological and climatic conditions. Analogue Forestry holds enormous potential to rehabilitate and use deforested land which are now laying waste, whilst also enabling poor colonists to settle down and develop their land.

www.forestgarden.org/ www.ntfp.org

Neo-Synthesis Research Centre, p/o Kamal Melvani, Ranil Senanayake,
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Ranil Senanayake of the Neo-Synthesis Research Centre (Sri Lanka) explains the principles of Analogue Forestry

Biological pest control (Bolivia)



PROBIOMA has recently developed, produced and distributed so called bio-regulators. Based on the principle that in nature, all organisms have one or more antagonists that attack the organism itself or its population density, the micro-organisms used as 'bio-regulators' are innocuous. Their production is organic, and given the right circumstances, they can reproduce themselves in the environment.

Described by some as revolutionary products for biological pest control, they replace the agro-chemicals which have the effect of reducing biodiversity. They make farmers less dependent on external inputs and help to re-establish the equilibrium in the ecosystem.

The key to success for bio-regulators is to win official approval, so that they can be marketed openly and fairly. In the case of PROBIOMA's products, some large scale agro-chemical producing companies persistently tried to exclude them from the national and export market, but PROBIOMA succeeded in getting them officially registered and certified.

PROBIOMA's research is carried out in the Centre for the Analysis and Production of Bio-regulators, which through detailed studies of pests, their natural enemies and their interactions with their environment has also identified their weaknesses. There are five different kinds of bio-regulators which together control 40 pests and eight diseases and are applicable to 38 crops.

Women have played a major role in the pilot project, testing the bio-regulators on their own plots, while being trained in technical knowledge of agriculture and marketing. In 1999 the industrial production of bio-regulators took off. So far, the bio-regulators have been adopted by at least 1400 farmers in 60 villages. The system has also been transferred to Chile, Costa Rica, Ecuador and Brazil.

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Encyclopedia of Sustainability on the Web

A comprehensive overview of all selected initiatives with detailed accounts will be presented electronically on Both ENDS' completely renewed website:

www.bothends.org (starting the end of March 2000). Sustainable Land Use and Water Management is the 'umbrella' theme. Sub-themes are: >



Ecological restoration



Integrated River Basin Management



Biotechnology



Non-Timber Forest Products



Land Rights

We welcome your contributions at:

encyclopedia@bothends.org

or by mail.

Colophon



BOTH ENDS SUPPORTS INSPIRING
ENVIRONMENT INITIATIVES ALL
OVER THE WORLD

**Encyclopedia of Sustainability
NEWS** is an irregular newsletter
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