ENCYCLOPEDIA OF SUSTAINABILITY news
BOTH ENDS
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People can make the difference

The roads to Rio, ten years ago, were many, and unique. The Brundtland Report helped us to share the perspective of that one destination, with the awareness that, when we want, people can really make the difference.

On the way to Rio we learned that, whether of North or of South, we could not talk only of The Environment, or only of Development. We accepted our interdependence and arrived at 'sustainable development'.

Those were exciting times, with emotions shifting as much as policies. The West was unceremoniously confronted with its responsibilities: past and on-going environmental degradation, depletion of raw materials, and helping the South's development with new funds, transfer of technology, education and more. The South, in turn, would come to see that these processes had to embrace and integrate environmental issues.

The wave started in Rio

Equally exciting was that Rio was not a conference of governments alone. Trade unions, employers, scientists and civil society bodies all participated in preparatory conferences. Sometimes there was confrontation and dissent. And diplomats not sure what had hit them. But it all worked out in the end.

Anyone who was in Rio knows something special happened at the NGO conference. That encounter of North and South was never going to be easy. Many Northern NGOs spoke only of environment, not development. They knew it all so well, until that moment when they were faced with the grassroots groups of the South. I am convinced that a fantastic wave of energy was unleashed in Rio that could be tamed no more. Sometimes it may appear to have faded, but looks can deceive. Have no doubt, it will always be there.

That wave, that energy, is the reason why I still believe Rio was a success. Something started there that cannot stop. A great many countries have begun work under Agenda 21 and the Conventions on Climate, Biological Diversity and Desertification - with some success.

JNB = Energy again

After Rio, we had a phase of defining obligations: what did 'sustainable use of biodiversity' actually mean? Is desertification just happening in Africa, or in Europe too? What became clear is that many measures adopted then are more drastic than was hoped for, or seen, at the time. Many are in fact about economic behaviour and distribution. Here, Brundtland's point is still valid that much can be achieved. True, but only with massive investments in renewal, innovation, technology and in changing processes. And only if it is clear that it is people who make the difference. We seem to have ground to a halt at this point, and we must fervently hope that 'Johannesburg' will release our energies again. Promises are for keeping and the West should really be ashamed for not keeping its pledges to the South. Less, not more, finance has been made available, much of it tied. Those solemn words still ring, emptily, in my ears of when the world promised, again, to meet its target of 0.7% ODA. Not a single word has been kept. The Third World is right to wonder if we really want sustainable development.

Make the difference

In front of us stand tremendous challenges. Combating poverty is an absolute necessity, and structural in nature. The combat against desertification commands our attention. Just as the restoration of degraded land, and its use for food production, calls for our action. Of course, these commitments must be made in international conferences for people can draw hope from them. But it is even more in concrete projects and information exchange that these commitments should be rooted.

That wave of energy is on the move and it shall stop no more. Riding on it, we need people who are open to each other, willing to go that extra mile, and willing to go with new flows. People, who can make the difference.

Hans Alders

Chair Both ENDS
Governor of the province of Groningen
Former Minister of Housing, Spatial Planning and the Environment



Photo: Furare, Ecuador

Editorial

What's happening

It has been a decade since world leaders and organisations agreed upon Agenda 21 at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992. The chair of Both ENDS, Hans Alders, represented the Netherlands at UNCED as Minister of the Environment. His comments on this page about the wave of energy that started in Rio underline the evolving role of Both ENDS to this day, and, we hope, tomorrow.

Now, in the year 2002, in Johannesburg, the world is to take stock and renegotiate old promises. We need to go further than that process and that city. We need to go to the field, for it is there that we can learn from concrete experiences, failures and successes in sustainable development. This, the third Newsletter of Both ENDS' 'Encyclopedia of Sustainability', provides a partial field visit.

The Encyclopedia highlights innovative, peoples-oriented initiatives in land and water management, which provide answers that are even more impressive than the problems and conflicts they face. Both ENDS identifies such initiatives and encourages those involved to document their experiences and share them with others. The ultimate goal is to inspire and encourage policy makers, NGOs, other institutions and citizens in general. With concrete examples we can visualise 'sustainable development' in practice, and distil general insights and recommendations. With analyses of similar cases, we and our partners can nourish and influence policy discussions at the local, regional and international level.

To date, some 60 initiatives have been selected and 40 documented. Both ENDS provides them with capacity building, assistance in fundraising and facilitates networking, and sometimes financial support through small grants, sponsored by Novib. The Encyclopedia encompasses five themes: Integrated River Basin Management, Food Sovereignty, Land Rights and Natural Resource Management, Non Timber Forest Products and Ecological Restoration. Many issues are interrelated and also linked to emerging themes, such as urban agriculture and energy, and the cross-cutting issues of gender and economic viability.

This newsletter covers Ecological Restoration in drylands, water and forest. We hope it inspires, and we invite you to broaden its already wide circulation. Your comments, and your actionss, are welcome.

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Ecological restoration

Ecology includes people

Ecological restoration is not at all people-free. On the contrary, people are part of the solution.

All ecosystems are subject to disturbance. First from occasional and sometimes catastrophic events such as floods or hurricanes. But they are increasingly affected by large-scale and intense human practices. Monoculture plantations, mining, cattle ranching, road building, high-input farming and animal herding methods can all be devastating. Threats also come from climate change, affecting soil fertility, biodiversity and food security; desertification threatens large populations.

Some ecosystems are now so degraded that they cannot directly sustain the local communities that have come to depend on them. Ecological restoration and rehabilitation are increasingly important. Restoration helps ecosystems to emulate their former functions. Sometimes rehabilitation is more appropriate, creating space for natural processes, including regeneration, such as those institutionalised in the rituals of indigenous peoples.

The restoration agenda of the Encyclopedia of Sustainability encompasses both social restoration and ecosystem management. The former occurs when marginalised communities can negotiate with dominant groups and regain control over their own destiny. Ecosystem management uses physical and biological interventions, ranging from drainage systems in waterlogged lands to planting nitrogen-fixing trees to increase soil nutrients. Negative conditions have to be dealt with too by preventing, for example, extractive industries and monoculture plantations from undermining recovery efforts.

Social justice and equity are integral components, at times even overriding ecological principles. In this respect, official policies are needed that both favour community development and protect ecosystems.

There are many components, and no single solution, in ecosystem restoration. Starting with an analysis of the ecosystem to be revitalised, followed by a diagnosis of causes of degradation, it concludes with prescriptive measures. In this, forging partnerships between researchers and community practitioners is critical.

This newsletter highlights cases where communities are undertaking ecological restoration in forests, river ecosystems, and dry lands. They show that community involvement is a prerequisite. The real challenge, to dominant development paradigms, is that restoration assumes that people are part of the ecology. Just like it used to be.

Dryland

Dryland, My Land

Often parched and dusty, but far from barren, drylands cover 40% of the world's land surface. Mistreated, they can turn to desert. Treated with care and caution, they can be arable and fertile, within limits. Three tales from Tamil Nadu in India, and Brazil's Bahia.

Most people expect drylands to be lifeless, unproductive ecosystems. It ain't necessarily so. They are characterised by a scarcity of water, with a mean annual rainfall of between 50 and 100 cms. The uneven and unreliable distribution of rain fosters a unique flora and fauna. It is not the most welcoming environment to settle in, but it can be home.

Humankind's longest relationship has been with drylands: after all, *Homo sapiens* evolved in the drylands of Africa. For thousands of years, human societies have managed to grow food crops and raise livestock in drylands, with sound land-use systems ensuring food supply and access to water. They have made the best of scant natural resources. Not that such resources are 'meagre': many important crops - wheat, barley, maize, sorghum and millet - originated in drylands.

Today, in a destructive equation that combines excessive land-use and ever unreliable climates, more than 250 million people in 110 countries are directly affected by desertification today; another one billion are at risk, according to the United Nations Convention to Combat Desertification.

The precedent of Tamil Nadu

In Asia, the Green Revolution has had an enormous impact on drylands. True, it has boosted short-term food production but longer term effects have been counterproductive. It has destabilised communities, reduced soil fertility and thus heightened food insecurity. It has disrupted the traditional knowledge-base of local farmers, and the position of small farmers, landless workers and, in particular, women who often form half the agricultural labour force. Chemical pesticides and fertilisers have contaminated water and depleted biodiversity.

In the state of Tamil Nadu, India, dryland areas constitute half the cultivable area and produce 40% of its food. With their acute vulnerability to the Green Revolution, ways had to be found for more sustainable farming. A local NGO, Care India , introduced Integrated Crop Management (ICM) and Biological Pest control. These approaches include intercropping, or mixed cultivation, where combining two plants has the beneficial effect of increasing soil fertility, water retention, and pest control - by selecting a plant whose natural insect allies are the predators of the other plant's natural enemies. They reduce chemical inputs and help to restore farmers' control over their resources.

A related problem - the lack of soil moisure - had arisen from monoculture systems. Their use of chemical fertilisers and well pumps has depleted and polluted ground water, and led to the neglect and silting of some 40,000 ancient water tanks. In 1990, the NGO Kudumbam introduced the Low External Input and Sustainable Agriculture (LEISA) concept: organic mixed agriculture, alternative land use and ICM practices. They also set about restoring the water tanks, once the only basis of irrigation. Now 10,000 farmers have adopted LEISA, persuaded by the results of improved water management.



Polyculture in Bahia, Brazil Photo: Instituto de Permacultura de Bahia

Polyculture in Bahia

Although best known for its rainforests, Brazil contains a large semi-arid area in its north-eastern Bahia region: 900,000 square kilometres and still spreading! Much is severely degraded, due to large-scale deforestation, irrigation- and chemical-fed cultivation, ploughing and goat herding beyond the land's carrying capacity.

This calls shrilly for an alternative, and the Polyculture approach could fit the bill, especially for millions of small farmers without access to water. Developed by the Instituto de Permacultura de Bahia, it imitates a natural ecosystem in harmony with climatic variations and adapting itself over time. The model integrates low, medium and tall (legume) plants, with plants of varying life cycles including fruit and timber trees. Since the soil is not exposed to the sun, it saves water, and increases fertility.

One plant is castor, a major cash crop since the early 1900s. Its abundant seeds have a rich yield in oil which is widely used, in airplane lubricants and biodegradable plastics. When castor was included in a Polyculture project, output - and income - doubled in the first year. Results continued to flourish and now, besides rescuing degraded lands and guaranteeing production, it is boosting farmers' self-esteem and professional pride.

Oasis of Green

In India and Brazil, the restoration agenda is reversing the impact of agricultural systems introduced from outside. It embraces three thrusts: the re-introduction of traditional techniques, reorganising local farmers and introducing new concepts such as polyculture.

It is but a short step from dryland to desert, and drylands cannot take any more abuse. Using them judiciously could help in the recovery of their soils, water tables and biodiversity. The localized efforts in India and Brazil, if repeated, and the resulting oasis of green, could go a long way in combating the global problem of drylands and desertification.

Initiatives Worldwide

- Ecological Restoration
- Integrated River Basin Management
- Food Sovereignty
- Non Timber Forest Products
- Land Rights and Natural Resource Management



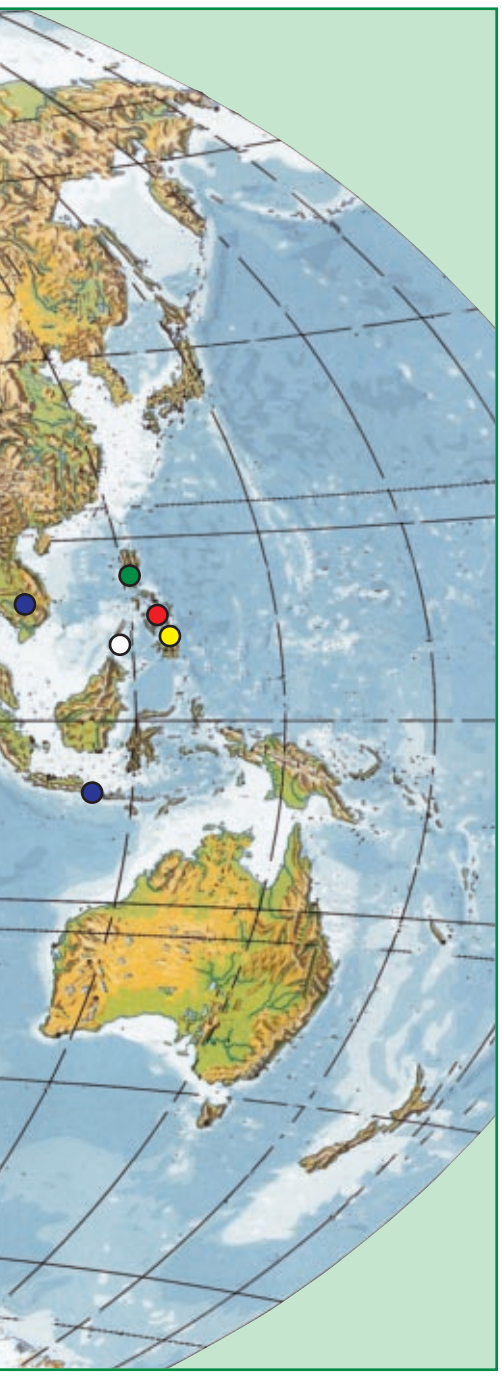
Water management

It's a management issue

Some societies - in the fertile deltas of northern Europe and southern Asia - have long defied the logic of water, so far with short-term success. Others have easier, but still hard, choices to make. A look at winning ways with water in Kenya, India, the Philippines and more.

In the Ewaso river basin in Kenya water scarcity and distribution problems in the flood plains downstream are a source of increasingly violent conflicts among pastoralists and with agriculturalist settlers. This is especially in the dry season when scarcity threatens the survival of local people along the banks of the river. The Friends of Nomads organisation (FONI) is working with Boran pastoral communities to undertake new initiatives to revitalise traditional institutions and arrangements for water distribution. At a higher level, it enters into dialogue with key players upstream: e.g. the government, the large-scale horticultural industry and designers of large dams.

On the crestline of the Western Ghats (='steps') in India, the restoration of communal 'sacred grove' forests is lending a helping hand to river basin management. Local tribal communities in remote villages scattered high in the mountains of the State of Maharasthra suffer from serious water scarcity during the dry season. Two organisations - Gomukh and Econet - work with them to creatively link the restoration of water sources with the protection and restoring of the sacred groves. These ancient patches of forest, believed to host spirits and deities, are often the last resorts to find water during drought. Hydrological techniques introduced by the NGOs, together with a revival in traditional ones, are underpinning efforts to revitalise local co-operatives and committees.



Philippines, South Asia

In the Mindano Sea, the people of the small Apo island are working to restore their coral reefs. Such reefs, throughout Asia and the Pacific Rim, are a source of animal protein for more than a billion people. Unfortunately, coral habitats are extremely vulnerable; in the Philippines 90% of the reefs face destruction, mainly through ill-designed coastal development schemes and unsound fishing methods. The Apo islanders decided to reverse the situation, on a small-scale. In 1984, assisted by researchers of the Silliman University, they created a marine reserve with a fish sanctuary along a small part of the coast, where all fishing was forbidden. Traditional fishing was allowed in the rest of the island's reef area which became a managed reserve - declared a National Protected Area in 1986. Women have played a key role in guarding the reefs, fending off trespassers, while working on the beaches to repair fishing gear. Fish stocks have now increased considerably, meeting Apo's demands. This approach bears witness to how a harmonious division of labour between men and women, as well as partnerships between local communities and scientists, can create new opportunities for restoration.

And so the examples continue. Early work on compiling the Encyclopedia led to a joint project by Both ENDS and Gomukh, supported by the Netherlands Ministry of Foreign Affairs (DGIS), designed to examine and strengthen several integrated river basin activities around the world, described in the remainder of this article. The experiences are to be pooled, so a clear overall analysis and recommendations for policy change can emerge.

In Bangladesh, the CEGIS research organisation is facilitating a local solution for water logging in the Khulna-Jessore districts. With local partners, it is building management structures that allow for the direct participation of local stakeholders in regional decision making. Gomukh itself is working at the upstream end of policy development, seeking to translate its work in sub-catchments of the Bhima river basin for regional and national policy discussions.

South America, South Africa...

In central Bolivia, the Centro AGUA is working closely with local irrigation committees in a multi-stakeholder effort to develop an alternative to water privatisation in Cochabamba.

In neighbouring Peru, AEDES is focussing on the potential of sustainable resources management in the country's most poverty-ridden area, Cotahuasi, aiming at up-scaling their approach from a sub-catchment level to the entire Ocoña basin.

Across in South Africa, participation and integrated river basin management are now obligatory by law, and the AWARD agency has been at the forefront of facilitating community involvement. And, finally, to south-east Asia where local initiatives are striding ahead in the Mekong delta. The AMRC and Se San Protection networks have drawn up their own management plan, not waiting for the Mekong River Basin Committee to take the lead. They aim thus to set the framework for discussion, giving new meaning to the expression 'go with the flow'.

First empowerment. Then talk.

What emerges from these and other cases, is that empowerment of local communities is the only way to ensure their proper participation, and the end objective: sustainable water resource management. It involves awareness campaigns, resource literacy, discussions and public meetings, procedures for negotiation and conflict resolution. Once empowered, they can be fully involved in the simultaneous application of techniques in water harnessing, forestry, agriculture, animal husbandry, and agro-forestry that recognise the impact of each on all others. All this requires a negotiated approach among community stakeholders, local governments, national agencies, financing agencies, banks and regulatory bodies.



Ocoña River Basin, Cotahuasi, Peru
Photo: Danielle Hirsch

Encyclopedia of Sustainability on the Web

A comprehensive overview of all selected initiatives with detailed accounts is on the Both ENDS' website: **www.bothends.org**. Sustainable Land Use and Water Management is the 'umbrella' theme. Sub-themes are:

- Ecological Restoration
- Integrated River Basin Management
- Food Sovereignty
- Non-Timber Forest Products
- Land Rights and Natural Resource Management

All case studies are in English, and where appropriate are also in Spanish, French or Bahasa Indonesia.

We welcome your contributions at: encyclopedia@bothends.org or by mail.

The Encyclopedia of Sustainability project is supported financially by The Netherlands' Ministries of Environment (VROM) and Foreign Affairs (DGIS), and Novib.

Useful Websites

www.cgiar.org/iwmi/dialogue/Index.htm

forests.org/links/

www.forestgarden.org

www.forestpeoples.gn.apc.org

www.iied.org/index.html
International Institute for Environment and Development

www.riodccd.org
International desertification network

www.i-sis.org.uk/desertification.php
Institute of Science in Society

www.unccd.int

www.undp.org/seed/unso

ecologicalrestoration.info
University of Wisconsin - Madison Arboretum

www.ser.org
Society for Ecological Restoration

www.wrm.org.uy
World Rainforest Movement / Global Forest Coalition

www.wri.org/wri/biodiv/ecorest.html
World Resources Institute

Forest

I once had a forest in my world

Since long before we created agriculture 13,000 years ago, we have used the forest as our kitchen garden and much more. To this day, in-forest and neighbouring communities still do. Not for much longer, unless drastic steps are taken.

As people with a life to live, our most ingrained skills include those of farming the forest. We use them for harvesting game, wood, cork, bamboo, medicines, fodder, spices, honey, fruits and vegetables, resins and essential oils, to mention but a few basketfuls, headed for local or export markets. For local communities, in particular women, the forest is a source of household items, and income.



Phase 1. In the beginning in Jane Nona's garden on Maragalakanda (Sri Lanka) there were few trees, poor soil and no shade. Photo:

These forest farming skills have been developed over the millennia with sustainability in mind. Of late, as people on a much-pestered planet, we have recognised, not a moment to soon, that our other interventions in forests are barely sustainable.

The forests are in big trouble. The most recent analysis, in the FAOís Global Forest Resources Assessment 2000, dismayingly reports that 16.1 million hectares - about 1% - of the world's natural forests (90% in tropical zones) were lost each year of the 1990s. Nine-tenths were deforested (by logging and clearance for mines, dams and roads), the rest converted to plantations for monoculture and industrial agriculture, and homogeneous tree crops. Such conversion is often promoted by financial institutions and governments to encourage exports, under the pretext of reforestation, land restoration and adding carbon sinks. The replacement, though, is not as sound as the replaced.

Unabated, this rate of destruction will accelerate. Forest clearance only facilitates or provokes more clearance. The forest's fabric is destroyed, for starters, its own regeneration crippled. And then, displaced communities have to move elsewhere to regain their livelihoods, often facing land distribution issues. Many are forced to clear forest for arable land and pasture.

The role of reversal

Many NGOs strive to this trend, and re-establish community control over forest land. In Ghana, the NGO Rudeya is promoting recovery through community forest committees. With the government keen for a fresh approach, new legislation recognises community user rights and prescribes logging quotas, royalties and felling procedures. In building the committees, Rudeya seeks the support of village chiefs and women's participation, involving them in preventing illegal logging and ensuring them a share of royalties.

It is often, though, not just a question of community involvement. Techniques are needed for restoring deforested and degraded areas. In Sri Lanka, the Neo Synthesis Research Centre (NSRC) has developed the 'Analog Forestry' (AF) method, which mimicks the architecture of natural forests, with trees, plants and organic crops. This reduces erosion, permits soil formation, enhances water quality and biodiversity, and provides livelihoods. In the Mirahawatte area, more than 600 AF farmers produce tea, cardamom and vegetables certified under Forest Garden labels, officially recognised. Their experiences have been shared with farmers elsewhere in Asia and in Latin America, by NSRC with Both ENDS support.

In Ecuador, Analog Forestry has been adopted by farmers and ranching families in the Nuevo Mundo and Ganadero Orenses communities, after introduction by the NGO FURARE. Income from handicrafts and ornamental plants such as orchids has reversed the expansion of cattle ranches and the sale of timber, with farmers using the FURARE arboretum and information centre set up with Both ENDS support.

How green is our mine, how green our valley

Analog forestry is also a solution in forest areas devastated by industrial mining. In Colombia's Chocó region, gold and platinum deposits have long been mechanically mined. Raw, greedily. With the Fundación las Mojarras, an local umbrella body, the Fundación Amigos del Chocó (Friends of Chocó) has revived artisanal techniques. From pits dug up to 18 metres deep they manually bring out the gold-bearing stratum and pan it, or wash it in ponds, using no mercury or cyanide. The key to success has been the "Oro Verde" (Green Gold) labelling system. Local NGOs help communities gain recognition of their land rights; they certify miners, market Green Gold, and introduce Analog Forestry. Income from Green Gold stays, unusually, in the community, with some revenue accruing to local government. In the long-term, they will shift to sustainable Forest Garden and non-timber forest products. Both ENDS assists Amigos in gaining access to international markets, financial support, trade partners and certification.



Phase 2. Three months later, the farmer began to earn an income from the sale of crops grown from pioneer trees planted using analog forestry. Photo: NSRC

The land management part of the successful Chocó equation reappears elsewhere. In Bangladesh's Chittagong Hills, the Synergy Foundation has enabled tripartite contracts between government, landless farmers and absentee land owners. There, landless farmers are granted long-term leases, which they pay through rehabilitating the land with agro-forestry.



Phase 3. One and a half years later, more than 25% shade were established, the streams that once had been dry were flowing again and most of all the frogs were back! Photo: NSRC

In Costa Rica, the Arbofilia farmers' organisation is restoring *cuencas* - springs and watersheds - degraded by cattle ranging and monoculture plantations, with pine, gmelina trees, coffee and pineapple. Arbofilia provides farmers with seedlings from its AF nursery, now the country's largest collection of fruit trees. It caters for other species too, with migration avenues for the region's rich and threatened biodiversity.

All in all, these cases show that we can maintain environmental integrity and diversity, whilst achieving appropriate forms of economic development. It's a question of combinations: restoring degraded forests alongside livelihoods; indigenous expertise with modern scientific knowledge. The challenge now is replication.

Sixteen other case studies are featured in **'Forest for the Future'**: Local Strategies for Forest Protection, Economic Welfare and Social Justice', compiled by Both ENDS and Econet. ZED Books, London, 1999. 288 pages. ISBN: 1856497577. US$ 25. A Spanish translation will be available in autum 2002.

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Colophon