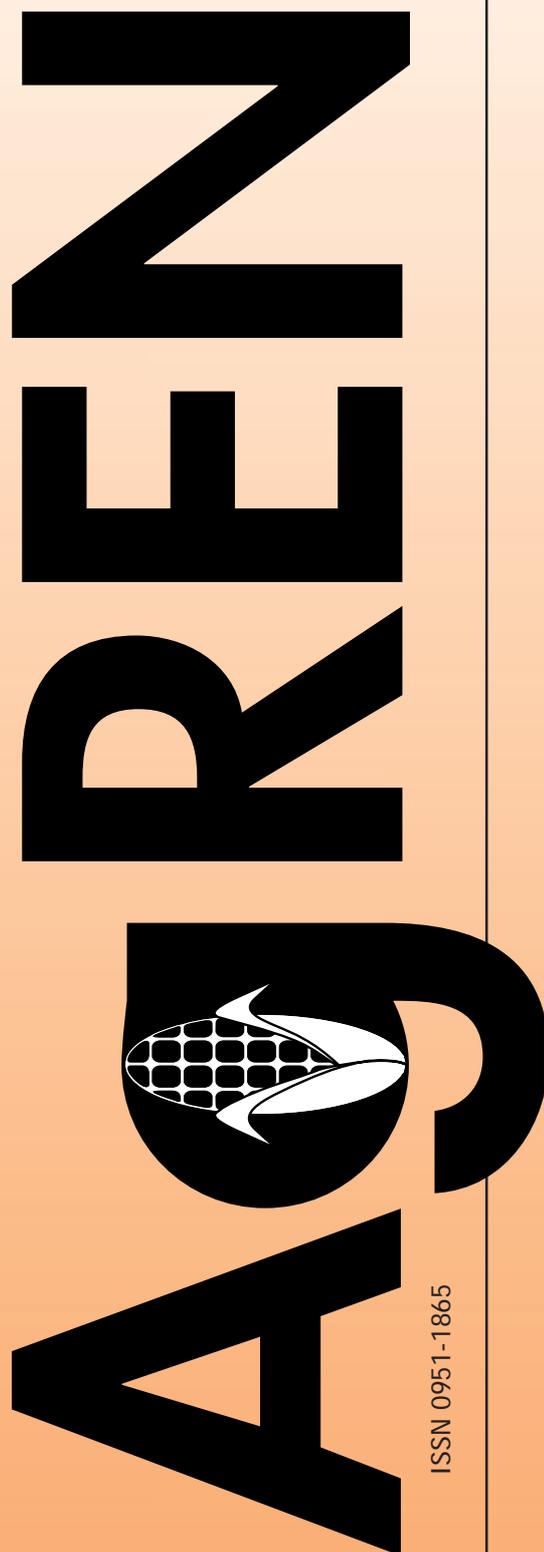


# Agricultural Research and Extension Network

*Newsletter No. 47     January 2003*

## Contents

<b>1. From the AgREN Coordinator .....</b>	<b>2</b>
<b>2. Contributions from members .....</b>	<b>2</b>
Sweetpotato farming in wastelands and riverbeds .....	2
World Neighbors approach to small scale agriculture .....	3
Poverty and deforestation in Peru: A research update .....	4
Ethnobotanical studies for sustainable agriculture .....	5
Developing a toolkit for assessing the wellbeing of smallholder organic farmers and plantation workers .....	6
World Neighbors-Ivwa Pilot Project .....	7
Promoting economic growth in small-farm communities of El Salvador through sustainable pest management .....	8
Global Facilitation Unit for Underutilized Species .....	9
Land degradation on forest lands of Brazil .....	10
Private extension in India: Recent initiatives .....	11
Recycling wastewater helps poor urban households in Vietnam raise incomes .....	12
Bush-fallow gardening systems: Lihir Islands, New Ireland Province, Papua New Guinea .....	13
Adapting agricultural institutions to the changing rural development context in West Africa .....	14
Options for sustainable livelihoods in a wetlands area .....	15
Prospects brighten for the world's mountain ecosystems .....	16
The Nicaragua Agricultural Technology Project .....	17
<b>3. Websites .....</b>	<b>18</b>
<b>4. Announcements .....</b>	<b>19</b>



ISSN 0951-1865

## **Papers with this issue**

125. Improving farmers' access to advice on land management: Lessons from case studies in developed countries – Chris Garforth, Brian Angell, John Archer and Kate Green.
126. Pesticide provision in liberalised Africa: Out of control? – Stephanie Williamson.
127. Rural radio in agricultural extension: The example of vernacular radio programmes on soil and water conservation in N. Ghana – Robert Chapman, Roger Blench, Gordana Kranjac-Berisavljevic' and A.B.T. Zakariah.

**Agricultural Research and Extension Network  
Overseas Development Institute  
111 Westminster Bridge Road, London SE1 7JD, UK  
Tel: 44 (0)20 7922 0300 Fax: 44 (0)20 7922 0399  
Email: [agren@odi.org.uk](mailto:agren@odi.org.uk) Website: [www.odi.org.uk/agren](http://www.odi.org.uk/agren)**

---

## From the AgREN Coordinator

---

### The prospects and limitations of private extension delivery: An email discussion

One of AgREN's current areas of focus is public extension reform. In order to generate information and promote debate and analysis, AgREN will host an email discussion on the subject of private extension delivery. We would like to invite you to participate in this discussion, March 10–21, 2003.

As traditional public agricultural extension comes under increasing pressure, and there is agreement that the funding and the delivery of extension are separate issues, the theme of private extension delivery is gaining increasing prominence.

The email discussion will seek to (a) understand the range of activities that are included in the area of private extension delivery, (b) explore how efforts at private extension may expand the diversity of extension providers, (c) describe the degree to which such efforts provide additional choice and empowerment to farmers, and (d) identify the limitations and drawbacks of private extension.

Several types of activity can be considered as private extension.

- It can include governments or donors contracting private individuals or agencies to provide a service,

but we are particularly interested in the development of markets for such services.

- The funds for such contracting can be completely external, but we are particularly interested in cases where the user (the farmer) has some discretion or choice regarding the type of service and/or the type of provider.
- The funds may also be partly or wholly provided by farmers, who may contract private or public entities for extension services.

If you would like to participate in a review and discussion of these types of private extension activities, please join us in March. To register for the email discussion group, send an email to [majordomo@rimisp.cl](mailto:majordomo@rimisp.cl). The body of the text should say: **subscribe agren**. Please do not write on the "subject" line of the email. (Your registration message must be sent from the email address that you wish to use to participate in the discussion.)

AgREN looks forward to your participation in the discussion of the future of private extension delivery. We also welcome any communications to the newsletter or longer papers on this subject.

---

## Contributions from members

---

### Sweetpotato farming in wastelands and riverbeds: a sustainable livelihood in Aringay, Northern Philippines

Aringay is a town traversed by two river tributaries originating from the highlands of the Cordillera and exiting to the China Sea. The river overflows during the typhoon months from June to September. Cascading floodwaters had destroyed the rice paddies near the riverbanks turning them into virtual wastelands and riverbeds. Diminishing farmlands coupled with increasing population, left households with no choice but to cultivate these wastelands and riverbanks/beds. The crop they find most suitable is sweetpotato, among other crops such as cassava, peanut and some vegetable intercrops. The advantage of sweetpotato is its low cash input and labour requirement, and the presence of sweetpotato traders.

Early planting of sweetpotato in wastelands starts in October and in the riverbanks/beds in January. Vine cuttings used as planting materials are obtained from their 'patamian' (nursery). Wastelands are ploughed first while the sandy riverbanks are planted outright. Farmers spend about US\$40 per hectare for ploughing and apply some inorganic fertiliser costing US\$13–72 per hectare. Seldom do they irrigate (once or twice only in wastelands). They harvest after 3 months

depending on market demand as communicated by the village traders. Sweetpotato is considered a cash crop, generating an income ranging from US\$287 to US\$696 per hectare, contributing up to US\$1.24 per man-hour labour of the farmer in tending to his sweetpotato crop. Yields range from 3.6 to 8.7 tons per hectare, providing additional income by cultivating wastelands and dried riverbeds.

The potential of increasing sweetpotato yield and wasteland productivity is promising, but as it is, the farmers are satisfied. They say that they cannot fight nature, but they know how to utilize what nature gives them.

#### Further information

\*Note: This is part of a baseline information in an on-going project that aims to strengthen sweetpotato production, processing and marketing linkages.

**Betty T. Gayao**, Associate Professor, Northern Philippines Rootcrop Research and Training Center, Benguet State University, La Trinidad 2601, Benguet, Philippines.  
*Email:* [ipomea2@skynet.net](mailto:ipomea2@skynet.net)

---

## World Neighbors approach to small scale agriculture

In India's Northern Karnataka, nearly 80% of people live in communities that solely depend on agriculture for their livelihood. Of this rural population, about 85% are marginalised farmers and 4-5% are landless agricultural labourers. The annual rainfall of the area is very low (<650mm), ill distributed and erratic, leading to low crop yields, low income and poverty. Severe droughts occur occasionally in a cycle of five years and seasonal migration of small farmers to big towns in search of food and jobs is very common. Further, this migratory life and lack of awareness of improved dry land technology has made the life of marginalised farmers more risky.

To address the issues concerning dry land farming and the marginalised farmers WN-India (branch of WN-USA) initiated activities in Northern Karnataka in 1988 by identifying local NGOs as partners.

The WN-India approach is to build capacity of marginalised farmers by forming issue based groups of 15-20 families. When a group is formed the members select their leader and start with savings and credit, as access to money is a major constraint to taking up development activities. Further, this activity will also help to bring the members closer.

WN-India provides three days of intensive participatory training in technical and community organisation skills once a quarter to the field level worker of the NGOs. Trained workers then pass on these skills to the group leaders. In the training, the important technical topics covered are low-cost, no-cost and farmer-friendly dry farming practices including soil and water conservation, dry land horticulture, animal rearing and watershed approach. The training also provides the members with knowledge in holding meetings, decision-making, maintenance of financial and other records, fund raising, cooperative group action and evaluation. In addition the training provides an opportunity for the field level workers to share their success and failures in implementing the programme. This type of learning and sharing will help them to gain knowledge and confidence. The training is organised in different locations and with different hosts, thus providing opportunities for the trainees to visit other communities. Generally a WN partner works intensively with a group for three to four years, gradually phasing out by allocating staff time to newer groups and communities. Experienced groups and leaders are tapped to support new emerging groups in the area through interaction and visits. In the first year,



*Subsistence farming for sustained yields*

group members learn to participate in group activities and get involved in the decision-making process.

For sustainability the programme is likely to go through the following stages:

**a) Initiation stage:** Needs assessment, baseline survey, initial awareness building, and motivating farmers to form self-help groups to address their perceived needs.

**b) Consolidation stage:** Training, monitoring and evaluation of the ongoing programmes by groups and NGOs and incorporating their experiences into future plans as Action Learning.

**c) Sustainability stage:** Once the capabilities of the groups are built, they try to consolidate in order to achieve sustainability and local autonomy. To reach this stage, it usually takes three to four years and at this point NGOs decide to phase out from such groups and allocate their resources to new groups and communities. Phasing out of a group is a slow and planned process and during this period the NGO maintains a minimum level of contact with developed groups. The NGO meets the groups once in two to three months, allows group leaders to attend

NGO level meetings and training, helps them to establish links with banks and contacts with other government departments.

To phase out of a village, the strategy is to reach 30% of the marginalised farming community and for this more than 30% of marginalised farmers have to be members of a farmers group. In a village with around 150 marginalised farming families about three to four groups have to be formed. Approximately six to seven years are required to phase out of a village.

At present, across seven NGO partners in 30 villages of five districts, around 1,150 farming families belonging to 72 groups are enjoying the benefits of this programme.

### Further information

**Subhash Gumaste**, World Neighbors Country Director, India, Plot No 31 Siddrameshwar Colony, Near Bharti Nagar, Dharwad 580-001, Karnataka, India. *Tel/Fax:* 91 836 777 023,

*Email:* neighbor@sancharnet.in

**Jagdish Ghimire**, World Neighbors South Asia Area Representative, Nepal. *Email:* info@wnsa.org.np

**Peter Gubbels**, World Neighbors International Programme Director, World Neighbors International Headquarters 4127 NW 122 Street, Oklahoma City, OK 73120 USA.

*Tel:* 1 800 242 6387 or 1 405 752 9700, *Fax:* 1 405 752 9393, *Email:* pgubbels@wn.org

---

## Poverty and deforestation in Peru: A research update

Agricultural expansion, primarily by smallholders, is the proximate cause of at least 50% of the deforestation in tropical forests. Understanding how these households make agricultural production and investment decisions is critical if policy makers wish to influence the rate of tropical deforestation in a cost-effective manner. Equally important is the relationship between poverty and deforestation; governments are likely to be at least as concerned with increasing the incomes of rural households as slowing the rate of deforestation, since the environmental benefits of tropical forests are overwhelmingly global in scope. A recent review of the empirical deforestation literature, by scientists at Center for International Forestry Research (CIFOR), suggests that a lack of evidence on the impact of poverty on deforestation is a shortcoming of existing research.

This research investigates whether the poverty of households in the forest region of Peru exacerbates or constrains the rate at which these households clear forested land. The contention that poverty causes households to degrade the environment has been made in several contexts. If this is true in the case of deforestation, then policies that raise the income or wealth of the poorest smallholders in forest regions may generate that elusive policy outcome – a scenario in which, at least in some range, there is no uncomfortable trade-off between environmental protection and poverty reduction.

Despite claims to the contrary, it is not obvious that a household at the forest margin that receives additional resources will choose to invest in the quality of land currently under cultivation instead of choosing to undertake additional conversion. From the household's private perspective, the choice depends on the relative price and riskiness of intensification and clearing, the availability of hired labour, and other factors. In this research, the author models the land-use decision taking into account key characteristics of smallholder agriculture to show that the relationship between poverty and deforestation is theoretically ambiguous. The relationship between income and land clearing is then investigated empirically, using panel data from the forest region of Peru. This data, covering three years (1994, 1996, and 1997) contains households in both the mountain forest region (the Selva Alta) and the Amazon basin (the Selva Baja).

Studies such as this one using household-level panel data remain rare. Most previous research on the causes of land-use change in the tropics using household-level data has relied on cross-sectional data or constructed panel data gathered using systematic oral recall techniques. The use of panel data is critical to ensure that results are not driven by unobserved ability bias.

By focusing on the relationship between poverty and agricultural production and investment decisions, this research also contributes to empirical

microeconomic research on the behaviour of rural smallholders in poor countries. In contrast to much of the land-use literature, this research emphasises the incomplete markets that rural smallholders face and the implications of these incomplete markets for agricultural decisions. Poverty can and does affect the agricultural production and investment decisions of the rural poor, and labour market imperfections can affect land use.

In this analysis, the author takes as the benchmark what he calls the 'poverty-deforestation hypothesis'. For clarity, a 'strong' version of the poverty-deforestation hypothesis is defined as the following: increases in household income will be negatively correlated with land clearing and will be positively correlated with the use of inputs that increase or maintain yields. If this hypothesis is correct, the data should show a negative income elasticity of land clearing and a positive income elasticity of input use for inputs that increase yields or maintain soil quality. A 'weak' version of the poverty-deforestation hypothesis might predict that both income elasticities will be positive, but the income elasticity of land clearing will be smaller than the income elasticity of input use. In this research, the author is unable to accept a strong version of the poverty-deforestation hypothesis. Instead, evidence is provided that land clearing is positively correlated with income, but at a decreasing rate. Rather than the relationship predicted by the poverty-deforestation hypothesis, the land-clearing decision depends on household size. Because of labour supply constraints, households with more members per unit of cultivated land are more likely to clear land at any income level, and large households may be particularly likely to spend increases in income or credit on land clearing.

The results of this research suggest that mutually-reinforcing policies to reduce both poverty and deforestation may exist, but marginal increases in the incomes of poor smallholders at the forest margin will be unlikely to reduce deforestation. More promising interventions to increase incomes of the poor while minimising associated increases in deforestation are likely to be improvements in local labour markets. Increased off-farm labour opportunities can raise incomes and encourage households to value their own labour supply at an outside wage rate, enabling them to substitute intensive techniques for extensive production more efficiently.

### Further information

**Alix Peterson Zwane**, UC Berkeley, Department of Agricultural and Resource Economics, 207 Giannini Hall #3310, Berkeley, CA 94720, USA.

Tel: 1 510 642 7628,

Fax: 1 510 643 8911,

Email: [zwane@are.berkeley.edu](mailto:zwane@are.berkeley.edu)

---

## Ethnobotanical studies for sustainable agriculture

The international development organisation VECO assists a total of 45 local NGOs in Indonesia in the implementation of sustainable agriculture programmes with a focus on low external inputs (LEISA). All farmers involved in these programmes are interested in using organic materials, preferably locally available ones, to replace commercial, chemical inputs such as fertilisers and pesticides. On the relatively advanced island of Java there is a need for alternatives to the expensive (and less effective) agrochemicals used since the beginning of the Green Revolution, while on the 'forgotten' islands of Flores and Timor farmers face soil fertility and pest problems but have never been introduced to remedies, even commercial fertilisers and pesticides.

As a result of a general bias in literature towards very few botanical species which could be used by farmers for soil fertility improvement, all partner programmes have only focused on leguminous species such as *Gliricidia sepium*, *Calliandra calothyrsus* and *Flemingia macrophylla*. Information on pesticidal plants is even more scarce, and limited to a few species such as tobacco or chilli peppers.

In order to increase the number of potential species for soil fertility management or natural pesticides, ethnobotanical studies were introduced to several of the partner organisations. Characteristics and processes of natural ecosystems can be used as the basis for designing sustainable farm systems. However, this requires observation and collection of information to learn about beneficial features of natural products. Other expected results from these studies are the inclusion of more indigenous knowledge in the programmes, increased experience with participatory approaches, and more information on local plant species.

Each ethnobotanical study involves programme and/or field staff of different partner organisations. The first day is reserved for an introduction to the topic and for planning the field study. The ethnobotanical study is introduced as the collection of information from local people about plants growing locally and the utilisation of collected information by programmes implemented by the NGOs. The importance of both local plant names and botanical (or Latin) names is also discussed.

The hosting organisation then presents available biophysical and socio-economic information on the proposed study area. This is followed by discussion about possible approaches for an ethnobotanical study and planning of the fieldwork for this study. At this stage the participants look into aspects such as the number of informants needed for the study, the necessity of a questionnaire or data collection form, methods for implementing the study in a participatory way, and the reason for collection of samples of some plants.

After four ethnobotanical studies (on the islands of Flores, Java, Sumbawa and Sulawesi) it became clear

that with a group of 15 to 20 participants, subdivided in research groups of three to four people, during a period of three days in the field, information can be collected from 50 to 150 community members on as many as 250 to 350 plant species.

The final days of the study are used for consolidation and analysis of the information collected in the field and for writing a detailed report on the study. A central feature of this report is a table presenting the local and botanical (if known) names of the plant species encountered, as well as information about specific growing areas (around the house, in the field, along the roads, in the forest, etc.), their uses mentioned by the local community and also an indication of abundance of the species in the region.

The studies have produced a wealth of information. A promising candidate tree species for shade in coffee and cacao plantations was found in a *Ficus* which is almost leafless during the rainy season but full of leaves during the dry season. In South Sulawesi a stunning example of an undervalued resource was discovered. A herbal species indigenous to the region and bought by traders cheaply from the community turned out to have various unrecognised medicinal applications. On Sumbawa Island, a hardy local species, *Feronia limonia*, was identified as a close relative to the Citrus group of species. Citrus has been wiped out on several of the Indonesian islands because of a viral disease which infects plants starting from the roots. This discovery introduces opportunities for grafting Citrus species on *Feronia* rootstock, with a good possibility that the viral disease can be contained.

Furthermore, a lot of information was collected on medicinal uses of plants; species with fodder value for pigs (South Sulawesi), goats (Flores) and cattle (Sumbawa); and species which could play a role in soil fertility enhancement or as natural pesticides for agricultural crops.

### Further information

**Rik Thijssen**  
Advisor Sustainable Agriculture  
VECO Indonesia  
Jalan Letda Kajeng 22  
80234 Denpasar  
Bali  
Indonesia  
Email: fadori@denpasar.wasantara.net.id

---

## Developing a toolkit for assessing the wellbeing of smallholder organic farmers and plantation workers

The wellbeing of producers in organic agriculture has historically, if surprisingly, been neglected by the organic movement. Although certification procedures for the verification of organic produce are well established, as EU Regulation 2092/91 and a host of independent labels testify, no such procedures exist to verify the wellbeing of organic producers, save for a couple of scattered privately developed examples. Now however it seems likely that social certification will indeed become standard.

It can be argued that producers, including smallholders and workers on plantations, must be involved in the debate on social certification in organic agriculture since the concerns that can be considered more or less important can only be defined in a particular social context according to each group's value system. If not, the danger is that the demands of social certification will merely represent an imposition on the farmers, rather than providing the means not only to measure, but also to enhance, wellbeing.

The challenge is to develop a 'quality of life toolkit' flexible enough to be used anywhere, specific enough to produce unique meaning in a particular situation and yet universal enough for the results to be understood and operationalised by other stakeholders, such as large organic retailers sourcing from small farmers. Such a toolkit should be able to answer the questions: 'Does involvement in producing certified organic goods bring about positive change in the lives of women and men producers? How can we know this?'

The author has been working in Madagascar to develop and trial such a toolkit. During summer 2001 research was undertaken at two sites on the country's rainy and fertile east coast, firstly with independent smallholder farmers at Brickaville, who harvest wild-sown and plantation cinnamon for distillation into essential oils, and secondly with plantation workers at Plantation MonDésir (PMD) working on a Malagasy/European owned plantation growing black pepper and a range of essential oils.

The toolkit included well-known participatory methods such as seasonal calendars and transects. The theory here was that quite simple, easy to use tools could create a complex picture if used flexibly and imaginatively. Thematic apperception tests, adapted from Murray (1943 in Nazarea, 1998<sup>1</sup>) were also used. Individual respondents were asked to tell stories about relatively ambiguous photographs showing local scenes, so revealing their own self-concepts and deep wishes. The hope here was that this less constrained and bounded method could enable new and surprising knowledge to emerge. A Malagasy team worked alongside the author to elicit and help analyse the data on an on-going basis. The whole process was designed to be gender sensitive.

Bitty pieces of information coalesced into broad themes as fieldwork progressed. It became clear that concepts of well-being were not totally uniform in the two research sites, though many were shared.

For instance, the geographically isolated smallholders at Brickaville prized independence from wage-labour. A necessary, and greatly treasured, precondition for this was food self-sufficiency. The farmers (men) tended to view cinnamon harvesting more as a spare-time activity for when small amounts of cash were required. These findings do not indicate that money was unimportant to a sense of well-being – other cash crops (usually dual purpose food/cash) were grown. However food production and a choice in when to work was more important than accruing money. Policy implications, particularly for large retailers sourcing from smallholders, could be considerable.

The plantation workers at PMD were inserted into wage labour relations, though all sought to achieve food self-sufficiency through renting plots of land. Time was a major consideration. 'Clock-time' as demanded by management did not harmonise well with the polycyclic rhythms of the workers' lives, in which festivals, pregnancies, agriculture and various social obligations had to be accommodated. This requires a more plastic personal approach to time management, and workers, particularly women, struggled to develop strategies to manage the complexity of their lives.

Thus the quality of life toolkit generated very rich baseline data. The next move is to develop ways of analysing the data with the respondents themselves, to come up with sets of indicators and the means of operationalising these, so as to form a workable set of social standards to be met. Creative lateral thinking would be a way to reveal or create 'surprise'. This approach is potentially useful to both the researcher and respondents as it is a way of 'alienating' the information provided and so 're-newing' their thoughts on wellbeing.

The findings and analyses outlined here are currently being taken into account in work with German consumers, aiming to discover how they might add value to organic products in the form of social labels. Through helping create a more transparent production to consumption chain, this work might enable 'more than purely price' values to be rewarded in the market place. Work will also continue on revising and streamlining the quality of life index itself.

### Further information

**Cathy Farnworth**, Doctoral Candidate at the Department of Development Studies, Swedish University of Agricultural Sciences, Box 7005, 750 07 Uppsala, Sweden  
Email: cathyfarnworth@hotmail.com

<sup>1</sup>Nazarea, V., Rhoades, R., Bontoyan, E., and Flora, G. (1998) 'Defining Indicators Which Make Sense to Local People: Intra-Cultural Variation in Perceptions of Natural Resources', *Human Organization*, Vol. 57, No. 2

## World Neighbors-Ivwa Pilot Project

In 1990, World Neighbors and its partners hired two consultants to evaluate their agricultural programme in Haiti. They found that the technologies being promoted were effectively addressing environmental and production problems. However, the technologies were being presented with little effort to help people understand how they worked or how to adapt them to the local context. The underlying principles of resource management and soil conservation were not explained, making the results seem 'miraculous'. The consultants recommended that the programme emphasise the underlying principles behind the techniques and shift its focus from targeting individuals to working with groups in order to have a greater multiplier effect.

The new strategy placed a stronger emphasis on building the capacity of local people to solve their own problems rather than relying on technological solutions. While local groups had been seen primarily as vehicles for implementing programme activities, under this new approach the programme activities would be vehicles for strengthening local organisational capacity.

A five-year pilot project was initiated with several communities in the 8th Section Akaye, a mountainous region with approximately 10,000 residents. Agriculture served as an entry point, with the programme addressing critical problems such as low production, soil erosion and lack of access to seeds and tools. These problems were addressed initially through agricultural trainings, exchange visits and demonstration plots, resulting in tangible improvements that generated enthusiasm. As the programme expanded, community members gradually engaged in a broader range of activities to address the root causes of the problems faced.

For example, one of the most critical problems was indebtedness to moneylenders. Analysis revealed that the root causes included lack of access to affordable seeds, low agricultural production and high medical expenses. While the programme was not designed to 'integrate' health and agriculture, over time all of these causes were addressed through collective seed banks, improved agricultural practices and access to local and affordable health services.

By the end of 1995, 14 small groups of 8 to 15 members were formed. Members contributed both grain

and money (US\$0.30 – \$1.60) to a collective fund that was used to carry out group activities such as buying bulk seeds or sharing tools. When a village had several active groups, they joined together to form a 'bloc'. Blocs served to coordinate and support the efforts of the groups, increase the sense of solidarity and carry out larger community-wide projects. By the end of 1998, 815 men and women were organised into 60 group and 10 blocs. In November of that year, these members formed the Organization of Peasant Groups for the Development of the 8th Section, Akaye (OPD-8).

These members received training in agriculture, health and organisational capacity. The agriculture practices promoted in these trainings have been widely adopted by members. Farmers have reported significant increases in production (from 25% to up to 300%) while at the same time have reduced the amount of seeds required for planting due to improved seed selection. Many of the priority problems that members had identified, such as erosion, poor harvests and debt, have improved.

Agricultural training and access to credit remain important motivating factors for both new and current members. Over the last five years, OPD-8 has increased its organisational capacity to continue to carry out and expand these activities. In anticipation of World Neighbors' withdrawal, OPD-8 has organised a corps of volunteer trainers who can continue to provide the basic agriculture, health and organisational training formally provided by staff. OPD-8 is also exploring new trainings to offer to members who have already mastered the practices presented in the basic trainings. For example, they are negotiating with Heifer Project International to provide trainings on animal health. World Neighbors has officially phased out of the programme, but will continue to provide indirect support, including facilitating linkages with other organisations and funders.

Practices	OPD-8 Members (%) (n=15 in each village)				Non-members (%) (n=15 in each village)			
	Sibas	Kafo	Tiren	Av.	Sibas	Kafo	Tiren	Av.
Soil conservation techniques	87	100	80	89	0	0	0	0
Use of organic matter	33	100	87	73	0	54	14	23
Not burning fields	93	100	93	95	0	0	7	2
Planting trees	67	95	79	80	7	47	7	20
Model gardens	73	84	71	76	0	0	0	0
Tool credit	100	70	71	80	0	0	0	0
Seed credit	100	95	67	87	0	0	0	0

Table 2 Average production (measured by 'marmits') in two sample villages (1999)

Crop	1996		1997		1998		1999	
	Sibas	Tiren	Sibas	Tiren	Sibas	Tiren	Sibas	Tiren
Corn	127	65	101	122	124	142	162	-
Millet	73	38	91	36	60	53	131	-
Peas	39	-	43	-	38	-	84	-
Beans	-	-	-	35	-	38	-	39

(n=6 in each village, a dash signifies no data available)

### Further information

**Catheryn Koss**, Communications Associate, World Neighbors  
 4127 NW 122, OKC, OK 73120, USA.  
 Tel: (405) 752 9700  
 Fax: (405) 752 9393  
 Email: order@wn.org.

---

## Promoting economic growth in small-farm communities of El Salvador through sustainable pest management

During the early 1970s, the Valley of Zapotitán in El Salvador was developed into an irrigation district to provide the nearby national capital, San Salvador, with basic foodstuffs. The idea was also to create new income-earning opportunities for small farmers living in the 3,020 ha valley. About 67% of these farmers have less than 2 has, as is typical in Central America's most densely populated country, where more than 80% of the scarce agricultural land is occupied by farms of less than 3 has.

With ready access to the large market in San Salvador, small farmers thus gained the additional advantage of an abundant water supply during the five dry months of the year. Not surprisingly, these farmers diversified traditional subsistence cropping (based on staples such as maize and common bean) by adopting high-value, horticultural crops, including tomato, sweet pepper, and cucumber. By 1975 more than 500 hectares of horticultural crops had been planted in the valley.

Then, between 1975 and 1985, Latin America suffered a severe economic recession, which, among other effects, resulted in substantial downsizing of national agricultural research institutions. This left most small farmers without technical assistance to manage the many disease and pest problems associated with horticultural crops. Consequently, these growers resorted to indiscriminate use of pesticides, which agrochemical companies marketed aggressively as the only alternative for protecting farmers' investments and livelihoods.

Despite widespread pesticide use, whiteflies and whitefly-transmitted viruses caused major production losses. This eventually led to a drastic reduction in the total area planted to common bean and horticultural crops – from 1,350 hectares in the early 1980s to less than 78 hectares in 1999. Crops such as common bean, tomato, and pepper practically disappeared from the Zapotitán Valley during the dry months of the year (December–May), when whitefly populations reach a peak.

Since market prices are highest in the dry season (e.g., tomato prices average US\$7.25 per 22 kg box in the rainy season, compared to \$23.50 per 22 kg box at the end of the dry season), the virtual elimination of production during this period caused a drastic decline in household income. Traditional crops, such as maize, provide no more than \$100 per month on a small farm of about 2 hectares, whereas the same area planted to both staple and horticultural crops can produce a monthly income of \$1,000.

To help overcome the problem, the Crop Protection Programme of the UK's Department for International Development (DFID) funded a pilot project in El Salvador, aimed at recovering dry-season production of common bean and various horticultural crops in the Valley of Zapotitán. The project was fully supported by El Salvador's National Center for Agricultural Technology (CENTA), which has assigned top priority to the recuperation of San Salvador's 'granary' in its

agricultural research agenda. This pilot project is also part of a larger initiative of the Global Whitefly Integrated Pest Management (IPM) Project, which is coordinated by CIAT, sponsored by the Consultative Group on International Agricultural Research (CGIAR), and funded in its current, second phase by DFID.

One of the first IPM measures implemented was the use of new bean genotypes possessing resistance to whitefly-transmitted viruses as well as the red seed colour demanded in the San Salvador market. The line selected, EAP-9510-77, was developed by the Pan-American School of Agriculture in Honduras from various sources of resistance identified by CIAT and national programmes in the region. Replicated trials in Zapotitán were planted at the beginning of the dry season under high whitefly/virus pressure. The local red-seeded bean cultivar 'Rojo de Seda' served as the control, and all trials received only one insecticide application, compared with 15 to 30 applications typically applied by local bean farmers. The trials were observed throughout the growing season by farmer groups organised by the CENTA Extension Agency of Zapotitán. While 'Rojo de Seda' yielded less than 100 kg/ha, on average, the EAP line yielded over 800 kg of good quality grain.

In the case of tomatoes, the main IPM measure consisted of using 'microtunnels' made of anti-whitefly mesh to protect seedlings and young plants up to 30 and 60 days after transplanting. The control consisted of the same tomato variety planted in the traditional open-field manner. These unprotected plots were totally destroyed by whiteflies and viruses. The protected plots, in contrast, produced 12.8 MT/ha for the 30 day protection treatment and over 60 MT/ha for the 60 day treatment (the national average is 20 MT/ha). Both trials were carried out with only one application of a systemic pesticide at sowing and one additional application at transplanting, compared with more than 50 applications usually applied to tomato crops in a single growing cycle. Discounting the cost of the protective mesh, the profit per hectare exceeded \$10,000.

These preliminary results show that the livelihoods of small-scale farming communities can be greatly improved by providing proper technical assistance in crop protection. Mixed cropping systems provide small farmers with food security and opportunities for increasing incomes. Farmers often grow other crops, such as maize, which are not damaged by whiteflies, as an additional risk-aversion strategy. The national programme is now planning to transfer these simple technologies to other agricultural regions of El Salvador.

### Further information

Dr. Francisco Morales, Virologist and Coordinator, Tropical Whitefly IPM Project, CIAT, A.A. 6713, Cali, Colombia.  
Tel: 57 (2) 4450000 (direct) or 1 (650)8336625 (via USA)  
Fax: 57 (2) 4450073 (direct) or 1 (650) 8336626 (via USA)  
Email: f.morales@cgiar.org

---

**Global Facilitation Unit for Underutilized Species:  
A new multi-stakeholder initiative to support and facilitate the development of  
underutilized species in order to contribute to food security and poverty alleviation  
of the rural and urban poor.**

### **What are underutilized species?**

In the context of this initiative underutilized species (both plant and animal) are those with a potential, not yet fully exploited, to contribute to food security and poverty alleviation. Examples of such underutilized species include hulled wheats in the Eurasian region, Pili nut in the Philippines, Quinoa in the Andean region, many traditional African vegetables, the grasscutter or cane rat in West Africa and the I-pig in Vietnam. These species tend to be neglected by research, extension services, policy- and decision-makers, donors, technology providers, consumers, farmers and socio-cultural practices. Many of them were once more widely used but have fallen into disuse for a variety of reasons, endangering their existence and the genetic base for future crop and animal breed improvement.

### **What is the Global Facilitation Unit for Underutilized Species?**

The Global Facilitation Unit for Underutilized Species is a multi-stakeholder initiative established in June 2002 under the umbrella of the Global Forum on Agricultural Research (GFAR) and currently hosted by the International Plant Genetic Resources Institute (IPGRI) at its headquarters in Rome, Italy. The Unit supports and facilitates the work on different aspects of underutilized species at different levels by networks, organisations, agencies and others around the world. The initiative aims at strengthening these stakeholders and encouraging new commitments for the development of underutilized species. At this initial stage the focus will be on plant species.

The main activities of the GFU include:

- providing improved access to information (making use of traditional and modern media);
- creating a platform for discussion of concepts, strategies and instruments to promote and facilitate the sustainable use of underutilized species;
- facilitating stakeholders' access to financial resources;
- developing a self-sustaining mechanism to support work on underutilized species.

### **How has this initiative evolved and how will it develop?**

During the first GFAR-Conference in 2000 a working group recommended that GFAR addresses underutilized species in order to increase the visibility and valorize the work already done in this area and to stimulate further activities at regional level. It also recommended the establishment of a global Facilitation Mechanism. In two follow-up meetings representatives of FAO, IFAD, IPGRI, the International Centre for Underutilised Crops (ICUC) and BMZ (German Federal Ministry for Economic Cooperation and Development) developed this idea further. BMZ provided funds for the establishment of a Facilitation Unit. In July 2002 a Steering Committee

was appointed to give overall guidance and support to the Facilitation Unit. It is expected that with time individual stakeholders will take over tasks from the Unit, being the first step towards the development of a self-sustaining mechanism.

### **Why is there a need for such an initiative?**

Humankind has, at one time or another, used over 7000 edible plant species. Agricultural research, however, has concentrated on a few crops and breeds. Over 50% of humankind's requirements for protein and calories are now met by just three crops – maize, wheat and rice – while 95% of the world's food energy needs are provided by just 30 plant species. The narrowing base of global food security is limiting livelihood options for the poor. The chronic food shortages present in many developing countries demonstrate clearly the fragility of food security based on a few staple food species. Agrobiodiversity is a necessity for the survival of poor communities and the stabilisation of agroecosystems. Many underutilized species are particularly useful in marginal lands where they have been selected to withstand stress conditions and where they contribute to sustainable production with low-cost inputs. However, because they have been neglected by researchers in the past not enough is known about their agronomy, yield improvement potential and quality. Little has been done to identify markets and ways to commercialise them. No policy frameworks exist to promote their use and maximise their economic value. Both the Convention on Biological Diversity (CBD) and the Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture recognise the vital role of a diversity of wild, semi-domesticated and underdeveloped species in food and livelihood security and their potential for further development and wider use. The World Food Summit Plan of Action also encourages the production and use of culturally appropriate, traditional and underutilized food crops.

This initiative offers to all stakeholders the opportunity to join forces in steering the process of promotion and development of underutilized species for the benefit of the rural and urban poor people.

#### **Further information**

**Irmgard Hoeschle-Zeledon**, Coordinator GFU for Underutilized Species, c/o IPGRI, Via dei Tre Denari 472a, 00057 Maccarese, Rome, Italy  
Tel: 39 06 6118 292  
Fax: 39 06 6197 9661  
Email: i.zeledon@cgiar.org

---

## Land degradation on forest lands of Brazil

The Atlantic Rainforest of Brazil is an area of exceptional biodiversity, severely threatened, and now reduced to only 7.5% of its original extent. The principal causes of its destruction have been its exploitation for industrial development and agriculture, especially coffee cultivation.

The Iracambi Atlantic Rainforest Research and Conservation Center has been undertaking a series of empirical trials on different technologies to find more sustainable land management methods. A first priority is to understand the causes and effects of land degradation. The Center's work focuses on the development of technology for better land management and the creation of value for biodiversity conservation.

In land management technology, the main focus is on the maintenance of soil fertility and soil and water conservation, the objectives of which are to reduce soil loss water run-off and maintain water resources by improving the recharge aquifers and protecting water courses.

Iracambi has successfully used *Mucuna* and *Canavalia* as a green manure in maize and beans, but they did not do well as a catch crop on residual moisture where the fields are invaded by very aggressive *Brachiaria* grasses. It is a local custom to clean weed coffee, exposing the soil to erosion. Farmers are concerned about nutrient competition from weeds, but resultant nutrient losses are far lower than the less easily perceived losses from erosion. Evidence from elsewhere indicates that these could be as high as 90 tons per ha per annum. Vegetative erosion barriers using Vetiver grass (*Vetiver zizanooides*), have been successfully used in Central America and in the State of Espírito Santo, but the grass has not developed well on Iracambi's very acid soils

Iracambi has also worked on agroforestry. It has experimented with *Piptadenia* spp. in pastures. *Leucaena* grows well in the areas of lower altitude, but its sensitivity to acid soils is well known, and on Iracambi's soils it has not done well: both species are highly susceptible to attack by *Atta* ants. *Erythrina*, some varieties of which grow locally, will be tried further, as the species generally has good nitrogen fixing capacity. An important element of the association of trees and pasture is the potential of the tree as a protein supplement for cattle. More understanding of the potential of non-nodulating leguminous trees for this purpose is important.

There has been little practical experience of minimum tillage and direct seeding in the study area. Iracambi's experiments have been promising on certain types of soil that do not dry out too much during the winter. On newly cleared forest land minimum tillage would be the best method of planting to replace the traditional slash and burn. On lateritic soils, we have found that the ground is too hard to direct seed by hand (the topography does not allow mechanical seeding) and by the time the rains have softened the soil, the weeds have become uncontrollable.

In forest management, we have experimented with reforesting degraded pastures of *Brachiaria* and

molasses grass (*Melinis minutifolia*). This did not prove a successful, low input, method as the depleted soils with very low organic material contents are not a favourable environment for most forest seedlings; the competing grasses either hinder root development (*brachiaria*) or overgrow the seedlings (molasses grass). In both cases the new seedlings are very susceptible to *Atta* ant predation. Trials of pre-establishing shade, using a mixture of guapuruvu (*Schilozobium parahyba*) and guava (*Psidium guajava*), show promise, and jatobá (*Hymanea coubarii*), a climax forest species with a valuable timber and important medicinal uses, has proved resistant to *Atta* attack. Enrichment planting under regenerated forest is more promising: it is less labour demanding, and the survival rates of seedlings is better. Ingra (*Ingra edulis*) is a useful tree for reforesting gallery forest on river banks: it is fast growing and tolerant to water logging, Bamboo has also been successfully used as a fast growing plant to provide shade for other slower growing species.

The other main focus of the Center's work is on developing the awareness of the value of forest biodiversity. Economic losses to Brazil from deforestation have been estimated at US\$500–\$1000 million, but the more immediate concern for local farmers is their own subsistence. Iracambi has therefore focused its attention on the value of forests in the conservation of water resources, and the potential value of biodiversity as a source of income generation for small-scale landowners. The Center's programmes therefore emphasise the role of forests in water conservation and how deforestation damages the water cycle.

As part of its search for alternative sources of income, the Center is studying the use of plants for medicinal purposes. A database has been established of local plants and their traditional uses: the areas of main occurrence of these plants and their associations catalogued. Five species have been identified as having particular potential. The next phase of this work is to test potential products and markets.

The Center also runs an environmental education programme for local school children, giving a basic introduction to the concept of conservation in the context of their daily lives and showing why biodiversity conservation matters.

The reaction of other research institutions has been highly encouraging, strengthening Iracambi's belief that it is on the right track. The positive response of the local community caught Iracambi by surprise and has pressured it into broadening its activities into the education and extension activities much earlier than it had planned. As a consequence, Iracambi plans to expand its capacity to attend to local demand and seek other research partners.

### Further information

R.J.G. Le Breton, Director, Iracambi Atlantic Rainforest Research and Conservation Center, Fazenda Iracambi, Rosario La Limeira, 36878-000 Minas Gerais, Brazil.  
Email: research@iracambi.com

---

## Private extension in India: Recent initiatives

Private extension initiatives have been expanding in India. Notable among them are recent efforts by several Indian agri-business firms. All of these models are new experiments and the firms are still developing their strategies. This note summarises information about three of the major initiatives.

Mahindra and Mahindra Limited, India's leading tractor and utility vehicles manufacturer, has entered the private extension scene through a subsidiary that opened its first centre (Mahindra Krishi Vihar, or MKV) in Madurai District of Tamil Nadu in October 2000, primarily to cater to paddy growers. Encouraged by the success of this new approach, new centres are being established in other districts of Tamil Nadu and in various other states. Though started initially as joint ventures with its existing tractor dealers, the company is presently expanding its operation through franchisees. The centres provide the following services:

- sell quality farm inputs (seeds, fertilisers and pesticides);
- rent out farm equipment (tractors, harvesters, dryers etc);
- arrange credit (in partnership with ICICI bank);
- offer farm advice by trained field supervisors who visit fields and supervise the critical farm operations; and
- buy the produce (through contracts with processing units).

In Madurai, within a year, the paddy area registered with the company increased from 797 acres to 2000 acres. In paddy, the services are provided at the rate of Rs500 (approximately US\$10) per acre per season. The company has expanded its services to other crops such as sugarcane, maize and wheat.

Rallis is one of India's leading agri-input companies, supplying pesticides, fertilisers and seeds. The company initiated the concept of Rallis Kisan Kendra (RKK) to provide integrated services to farmers. Currently the company has established 10 RKKs in wheat, soybean, vegetables and fruits in five states. RKKs provide the following services to farmers:

- visit by agronomists to the fields of farmers at regular intervals (on an agreed schedule);
- facilitate credit to farmers (through ICICI and other banks);
- provide all farm inputs (seeds, fertiliser and plant protection chemicals);
- soil testing;
- procure the entire produce of the grower (on behalf of other market partners).

The first RKK was established at Panipat district of Haryana in July 2001. Starting with 584 farmers in the first year (with a registered area of 3600 acres of basmati), the scheme expanded to 725 farmers in year two (with a registered area of 5000 acres of basmati). The enrollment fee charged is Rs100 (approximately US\$2) irrespective of the size of holding. (The charges vary by crop and the nature of services provided.)

Indian Tobacco Company (ITC) is a market leader in tobacco products, hotels, and packaging, and its International Business Division is one of India's largest exporters of agricultural commodities. ITC's new extension effort revolves around *e-chaupals*, which are village internet kiosks that enable access to information on weather, market prices and scientific farm practices. Launched in June 2000, the company has so far established 1200 *e-chaupals* across four states (Madhya Pradesh, Karnataka, Andhra Pradesh and Uttar Pradesh). The services reach more than 750,000 farmers growing soyabean, coffee, wheat, rice, pulses and shrimp. Each kiosk is run by a local farmer (*sanchalak*), selected from the village and provided with short training. The services offered to farmers through the *choupal* include:

- information on all aspects of cultivation through the ITC website in the local language;
- daily information from different markets of the state and the price ITC offers for the produce for the next day;
- a forum to post and receive farming queries via email;
- detailed district-specific weather information (sourced from the state Department of Meteorology);
- an assured price at ITC's procurement centres, proper weighing, and immediate payment;
- quality inputs and services (offered by various partners).

The company provides the infrastructure for the *choupal*, including a computer, a printer, UPS system, solar panel and internet connectivity through VSAT. The *sanchalak* provides the space and has to meet other operational expenditures such as electricity charges. The *sanchalak* has a transaction-based income. Farmers are free to use this facility and there is no fee or registration charge.

These institutional innovations are less than three years old, but they provide indications of potential advantages for private extension services in India:

- a) a clear win-win situation for both farmers (access to quality inputs and services, enhanced productivity and better prices) and the agri-business firms (lower transaction costs, access to better quality produce, and better corporate image);
- b) the value of partnerships among different firms to provide farmers a wide range of inputs and services at a single point;
- c) farmers willingness to pay for quality services;
- d) preliminary evidence of increases in productivity when farmers are supported with information, field visits, quality inputs, reliable access to output markets, and non-exploitative and timely credit.

### Further information

Dr. Rasheed Sulaiman V, National Centre for Agricultural Economics and Policy Research (NCAP), PB No 11305, New Delhi 110 012 India.  
Email: nagma@bol.net.in

---

## Recycling wastewater helps poor urban households in Vietnam raise incomes

In Vietnam's densely populated Greater Hanoi region, thousands of peri-urban households rely on starch processing as an important source of employment and income. Starch processing from cassava or canna (a starchy root crop) is a complex multi-tiered industry through which villagers supplement their meager farm earnings. They supply crude starch to wealthier enterprises that refine it or turn it into finished starch-based products, including noodles, maltose and medicines.

In some cases, starch processing more than doubles villagers' incomes. The extra cash earned directly from the starch, plus the value added to pig production using the by-products as feed, more than offsets the reduction in income caused by diverting labour away from crop production and other activities. But this income-generating activity has a major downfall: pollution.

Large amounts of water are used to process starch, producing a runoff that carries a high proportion of suspended solids. CIP surveys in three villages found that a single season's processing generated some 1.45 million cubic metres of wastewater containing physiochemical and microbiological contaminants in addition to nutrients such as nitrogen and phosphorus.

Since most of the households engaged in processing also raise pigs, the runoff also contains the bacterium *Escherichia coli* and a high count of worm eggs, both dangerous to human health. Human excrement and household wastes make the mixture even more potent. To make matters worse, most processing is carried out in the dry season, so the effluent is little diluted with rainwater.

With this in mind, CIP – working under the Systemwide Initiative on Urban and Peri-urban Agriculture (SIUPA) – together with its local partners are searching for ways to clean up the environment for the benefit of the public at large without prejudicing the economic interests of the individual processor.

Working with Vietnam's Institute of Ecology and Biological Resources, CIP scientists began investigating the effluent problem of four neighbouring villages in Greater Hanoi: Cat Que, Duong Lieu, Minh Khai and Son Duong. Three of the villages are centres for starch processing while the fourth, which lies further downstream, was the main recipient of the industry's negative externalities.

The project's main focus has been to search for ways to clean the wastewater and use it productively. Scientists found that the best potential use appeared to be as nutrient-rich irrigation water for dry-season crops. The idea is for nitrogen and other nutrients in the water to replace some or all of the purchased chemical fertilisers and manure that farmers apply to these crops. This would not only help clean up the village, but also boost the income of poor urban households by lowering crop production costs.

In order to achieve this without increasing the risks to human health – a major challenge – scientists conducted two sets of experiments.

The first involved applying concentrations from 0 to 100% of wastewater to potted plants to determine how well the crops would perform and what would happen to the soil. In the second experiment, researchers tested the effects of timing and frequency of wastewater applications in farmers' fields. They were interested in seeing whether it was better to apply the wastewater to young plants during the first part of the growing season or to more mature plants later in the season, and whether weekly or fortnightly applications were better.

A further important aim was to find out the effect of settling on the quality and nutritive value of the water. To gauge this, the water was passed from one field to another over successive weeks. In the pot trial, the results were uniform across all the crops tested: the plants irrigated with 80–100% wastewater had the highest yields. The soil's organic matter content increased, suggesting that these yields could be sustained or raised still further over time.

The results of the field trial showed that in terms of plant growth, wastewater was most effective when it was applied once a week during the early part of the growing season. This trial also shed light on best – and safest – practices in use of wastewater for growing human food crops.

Researchers found that the window of opportunity comes after one week of settling, when the amount of *E. coli* bacteria and worm eggs is greatly reduced, but a sufficiently high nutrient content remains to make a difference in yields. After two weeks of settling, the microbiological contaminants have all but disappeared but the wastewater has also lost much of its nutritive edge over ordinary irrigation water.

Two crops used mainly to feed pigs, kangkung and water taro, responded particularly well to the trials. In the case of kangkung, yield rose to an astounding 130 tons per hectare – more than four times the yield achieved without wastewater. Water taro showed similar, though less spectacular, gains.

While these yield increases could lower the cost of feeding pigs, which seem to be immune to *E. coli*, they also suggest another promising way forward: the safest and most productive use of wastewater could be achieved by passing it through a bed of kangkung or water taro for a week, on its way to a rice plot. This cleans the water in a way that adds no risk to human health while providing the rice with water that is still fairly rich in nutrients. Research of the best irrigation practices for different crops continues.

With half the of world's population living in towns and cities, and more expected in the near future, the

CGIAR Future Harvest centres are intent on helping to meet the growing demand for food and employment in urban areas around the world. In many cases, such as in Vietnam, this involves finding mechanisms to curb health and environmental issues brought forth by activities that urban farmer livelihoods depend on.

#### Further Information

**Gordon Prain**, leader of the CGIAR Strategic Initiative on Urban and Peri-urban Agriculture Project (SIUPA), CIP, P.O. Box 1558, Lima 12, Peru  
Tel: 51 (1) 3496017 or 1 (650) 8336635 (via USA)  
Fax: 51 (1) 3175326 Email: G.Prain@cgiar.org

### **Bush-fallow gardening systems: Lihir Islands, New Ireland Province, Papua New Guinea**

A study on Lihir Islands aims to improve understanding of traditional gardening systems – with a view to working with local clans to overcome problems of vegetation and land fertility decline. The discovery and mining of gold in Lihir has led to increase in pressure on land for gardening since 1995 – especially on small islands, where fertility is declining and yields of traditional staple root crops (various *Dioscorea* species) are dropping. The reduction in food produced per head is countered by families with members that work in mining, by the purchase of rice imported to Lihir. However, this change in human diet does little to reduce the pressure on the land and farming system.

Where the crop/ fallow cycle used to be two years of gardening and 10–20 years fallow, this has shortened in some areas to two years garden to three years of fallow. This increase in crop frequency arises in the cycle from four factors: (1) rapid population growth, (2) decline in soil fertility, and hence (3) discarding of land of depleted nutrient status, and (4) an increased intensity of ‘feast gardens’ – since mining started. The land pressure is not as severe on the largest island Niolam, but people from other islands and regions are increasingly taking up the land of their clan members on Niolam, and this is resulting in rapid deforestation.

Tests of soils on small islands have shown low levels of major nutrients and low pH. Farmers are being asked to participate in trials to test the response of garden crops to fertilisers and to composting techniques adopted from other parts of Papua New Guinea. The planting of fertility-enriching tree species is another possible intervention that needs local testing and development. There are farmers willing to take part in trials, but clans own all land and control land allocation and use – so any trials need the support of clan leaders. Another issue in the design of trials, is the highly traditional way in which yams and mami crops (all *Dioscorea* sp.) are planted and maintained in the cropping cycle. There are various taboos regarding the planting, tending and harvesting of mami that would make trials very difficult. It is envisaged that initial trials will involve crops such as sweetpotato, cassava and bananas, the growing of which involve fewer traditions and prohibitions.

Initial studies show that the major root crops of yams and mami in Lihir are never sold, they are kept for

consumption at feasts and at home. Some other crops (such as sweetpotato) are much higher yielding than yams and mami but are less popular as food or for gifts at various ceremonies. The crops most prized are very large yams (more than a metre long) for gifts at feasts, and people have special techniques for producing such yams in their gardens. Gifting helps to secure a man’s status. The importance of feasting is such that, on the smallest islands, the best portions of the land are reserved for production of yams for feast in the first year. After that, the same block of land is used for food crops (like cassava, sweetpotato, banana), prior to turning to fallow for a few years. But the amount of this ‘best’ land is declining, as more areas become infested with undesirable grass and fern species which prevent the re-establishment of the desired forest precursor species.



Clearing of new field for a feast garden on Mali Island.

The study to date has involved participatory mapping with communities at research sites on each island, and then transect walks with local gardeners to observe land and vegetation types, land use and gardening and fallowing practices. Informal interviews were held with clan leaders and teachers. The local

agricultural extension service does little work on traditional gardening systems, because it sees greater scope for improvement through promoting intensive enterprises such as vanilla and broiler production. The research reported here is supported by the mining company, which is concerned that land availability and fertility are becoming major social issues in the vicinity of the mine where population is growing so rapidly. This work is seen to be very relevant to numerous other island areas of the Papua New Guinea and the Pacific where bush-fallow gardening is still the major farming system.

#### Further information

**R. John Petheram**, University of Melbourne, Institute of Land and Food Resources, Creswick, Victoria, 3363 Australia.  
Email: johneth@unimelb.edu.au

**Bazakie Baput**, Creswick Capus, University of Melbourne, Australia 3350. Email: b.baput@pgrad.unimelb.edu.au

## Adapting agricultural institutions to the changing rural development context in West Africa: A participating framework offered by the Research-Extension-Producers organisations partnership Network in West Africa (REPO-Net)

Socio-economic and policy reforms induced by structural adjustment policies, liberalisation of trade, and democratisation have modified the institutional environment in the countries of sub-Saharan Africa. The disengagement of the state and decentralisation have favoured the emergence of new actors: producers organisations, the private sector, local authorities.

Meanwhile, in order to tackle the key questions related to poverty alleviation, new challenges have emerged in the agricultural sector, particularly on issues related to the provision of agricultural services, promotion of specialised production and the impact of agricultural institutions.

Facing these multiple questions, many reforms have been initiated by governments in collaboration with different development partners. These initiatives have generated convincing results in some contexts, but remain in most cases at the experimentation stage; hence no clear conclusions can be drawn.

The main objective of the sub-regional consultation network on partnership between Research-Extension-Producers' organisations (REPO-Net) is to organise reflections on such issues affecting the impact of agricultural services. The objective of the network is to analyse and capitalise on on-going experiences in participating countries in order to provide decision-making tools to different target groups: research and agricultural extension institutions, producers organisations, development assistance agencies. The network is the fruit of commitment of countries in West and Central Africa, and development partners. Countries having already been involved in the network's annual

reflections since its creation in 1997 are: Benin, Burkina Faso, Ivory Coast, Guinea, Mali, Senegal, Chad and Togo.

### Activities

The reflections within REPO-Net are organised annually, and the topics tackled during the last three meetings are: (1) sustainable funding mechanisms of producers organisations needs for research and extension services, (ii) strengthening producers organisations capacities for formulation of research and extension needs and improvement of their institutional and economic capacities, (iii) the POs and professionalisation: implications for agricultural research and extension institutions.

### Some outputs

Reflections produced many outputs. In the area of agricultural extension some lessons emerged from the last three reflections (see figure below), on the role of rural producers organisations (RPO) and the key factors that affected RPOs in agricultural extension.

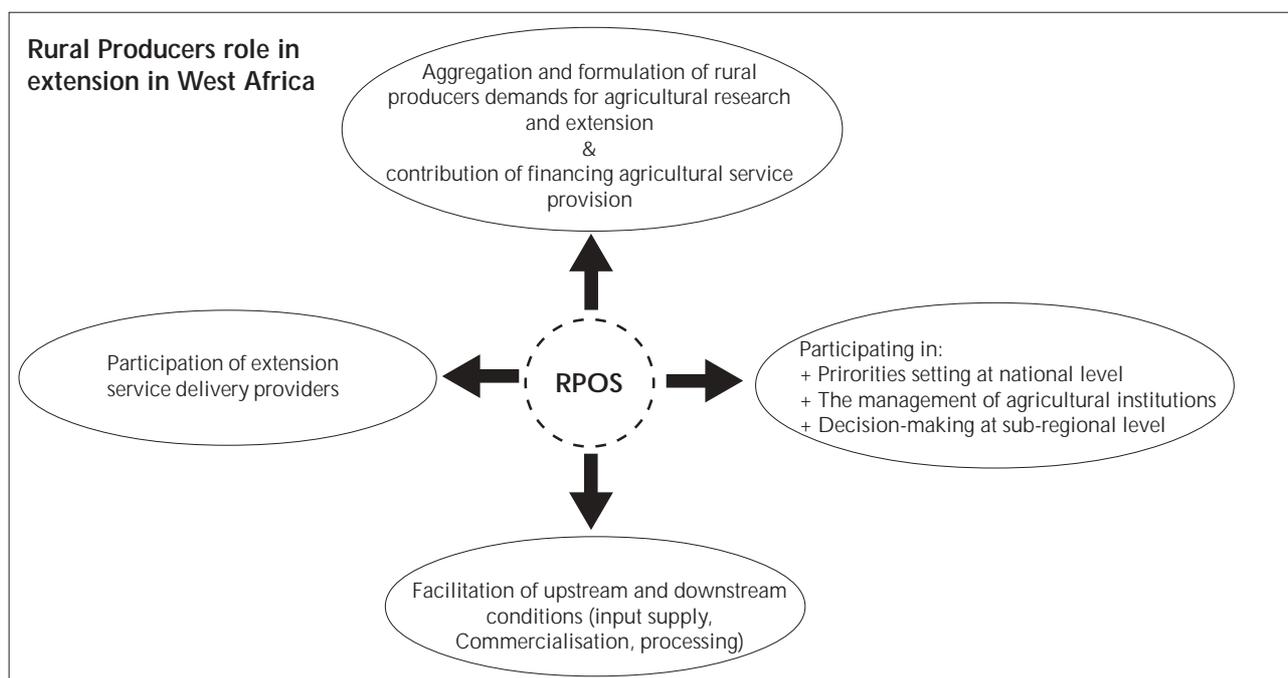
### Further information

**Dr Jean Sibiri Zoundi**, Animal Scientist, Chief of Research and Development Liaison Service, Institute for Environment and Agricultural Research (INERA, Burkina Faso), Actual Coordinator of REPO-Net.

04 BP 8645 Ouagadougou, Burkina Faso, West Africa

Tel (Office): 226 340270 or 226 347112

Email: zoundi@hotmail.com or zoundi@fasonet.bf



---

## Options for sustainable livelihoods in a wetlands area: Experiences in the design of a sustainable development programme for La Mojana, Colombia

### Context and local economy

This article summarises information gathered for the design of the Sustainable Development Programme for La Mojana (SDPM). La Mojana is the main wetland area of Colombia, located in the northwest of the country, covering 11 municipalities and populated by 320,000 inhabitants. The area includes 500 square kilometres in a dry and humid tropical zone. The target population for the SDPM is 25,000 poor people, scattered in 200 villages (*corregimientos*) with less than a thousand inhabitants each. This vulnerable population mainly consists of fishermen, rural women, smallholders, indigenous people, landless and people at risk of flooding. It is one of the poorest areas of the country, where poor households depend on natural resources to survive (fisheries, hunting and agriculture) and have an annual income below US\$ 586. Moreover, La Mojana has a non-equitable land tenure, is affected by an annual cycle of flooding, and is strategic to the country since it serves as a diversion for waters of the two main national rivers, therefore preventing flooding down-stream.

The liberalisation of markets promoted since the early 1990s has had a negative impact on competitiveness of crops such as rice, sorghum and maize. In addition, since 1998 the country is suffering its worst economic crisis in history. The institutional setting for natural resource management in the region could be considered precarious. Local and regional (public and NGO) institutions have not been able to tackle crucial problems, such as property rights, unsustainable hunting, mercury contamination of waters by mining upstream, and over-fishing at swamps.

### Strategies and expected results

To achieve sustainable livelihoods at La Mojana, the SDPM has proposed some strategic tasks during the next fifteen years. There are plans to achieve an integration of the territory by basic infrastructure at ports and main roads. The land management component is oriented to clarify land tenure and to improve access to land for poor people, mainly through land rent contracts. At an institutional level it is important not just to strengthen environmental and agricultural institutions but to establish a semi-private system of agricultural extension supported by private financial resources. Similarly, There is a capacity building strategy for the strengthening of grassroots level organisations. This is considered as a precondition to sustainable development. Moreover, it is vital to improve the access to financial resources. Credit has to be channelled through the formal credit system and will include regional NGOs and Coops and the establishment of new microcredit schemes like those used by local NGOs. Education and communication should be considered as crosscutting strategies.

Sustainability of natural resources must be ensured, both through a massive communication campaign and by implementing local natural resource co-management initiatives. The recovery of much of the wetland ecosystem needs to unblock the rivers network, then generate massive employment. Moreover, recovering of fisheries to 1970s standards would need a fishing prohibition covering the whole watershed of the Magdalena river, and requires the participation of national environmental authorities.

On the other hand, agriculture intensification through an increase in rice productivity seems to be a possible income-generating alternative, although it is not competitive at international levels. It is more likely that promoting diversification and other strategies could improve the welfare of local populations. Main alternatives are tropical fruits, horticulture and livestock; the latter in particular may be a way of giving poor people access to a low risk enterprise.

Furthermore, non-farm income and employment as well as diversification of the local economy as a whole is an issue that can have an important influence on poverty reduction in La Mojana. Petty trade, small business, local trade, fuel oil selling, transportation and other services are activities that are considered by locals as profitable businesses. In fact, human capital has to be oriented to improve their skills and abilities, not just in agriculture, but in gaining new capabilities related to eco-tourism, micro-enterprises and small business management.

Despite the possibilities mentioned, it is also crucial to link poor rural households to the economic networks in small neighbouring towns, through agriculture, services, petty industry and trade markets. Additional investments should be oriented to the development of health, education and other public services at regional epicentres (middle sized towns). This supports the migration of rural poor population, which can lessen pressure on natural resources.

### Further information

**Rodolfo Rodríguez** is Consultant in Participation for Development and Social Feasibility of the Sustainable Development Programme for La Mojana (SDPM). FAO-DNP Mojana Project.  
Apartado Aereo 55613,  
Bogotá,  
Colombia  
Email: rodolfo121@hotmail.com

---

## Prospects brighten for the world's mountain ecosystems

A set of innovative projects involving two Andean trademarks – alpaca and quinoa – is helping poor rural households in Peru's highlands to significantly increase their incomes while protecting the natural resource base.

Alpaca is a camelid traditionally kept in large herds that graze the region's natural pastures while quinoa, a millet-sized grain, is an important food crop grown in the Andes. While these two products have been around for thousands of years, pioneering projects implemented by CIP and its partners have shown what can be achieved by linking poor producers – who have few options for earning income – to expanding global markets. It also demonstrates how new ways of working can enhance impact.

The effect on the livelihoods of farmers involved in alpaca wool production, for example, can be substantial: a woman trained to produce sweaters on a plant's new machinery can add up to US\$400 yearly to family farm income, nearly doubling it; for families also involved in quinoa production, the gain is even greater.

These two enterprises – alpaca and quinoa production – form part of a series of efforts coordinated by the *Centro de Investigación en Recursos Naturales y Medio Ambiente* (CIRNMA), an NGO based at Puno on the shores of Lake Titicaca in southern Peru. CIRNMA explores opportunities to raise the incomes of rural households. One of those opportunities involves improving production of fibre from alpaca.

The first step of the project involved convincing herders to improve their pasture land and grazing habits in order to obtain higher quality fibre. But these improvements didn't catch on because people were not being offered a premium for quality.

In order to convince herders of the benefits of raising one well-nourished alpaca rather than two thin alpacas with poor-quality hair, project coordinators added in two key elements to the equation: add value to the alpaca fibre by processing it; and market alpaca meat alongside the fibre. CIRNMA was formed in 1992 to pursue these objectives.

CIRNMA began by developing the know-how and installing new equipment in order to produce a higher-value mixed wool and alpaca product. Combining alpaca and sheep's wool results in a more practical and durable garment.

The next step was to break into the emerging international market for alpaca sweaters. The organisation would guarantee quality and supplies while strengthening producers' bargaining power.

Ten years later, CIRNMA has become a flourishing small business. The main alpaca fibre producers are women who work in their own homes in around 40 local communities. Wool is knitted into sweaters at a new central processing plant near Puno, from which CIRNMA markets its products to both domestic and export outlets.

The export market is growing rapidly, especially for mixed wool and alpaca sweaters. Today up to 7,000

sweaters are sold annually to buyers from North America and Europe.

CIRNMA has also turned its attention to quinoa, an important Andean food crop. This nutritious grain's protein content boasts high amounts of lysine, an amino acid in which most other cereals are low. Quinoa makes good flour and a tasty flake that can be eaten as a breakfast cereal. There is an expanding market for organically grown quinoa among health-conscious consumers in Europe. But breaking into this market required radically different production and processing methods than those used traditionally.

CIRNMA began by obtaining improved varieties of quinoa from the national agricultural research institute. By using the new seed in combination with organic manure and more effective weeding, the organisation's researchers were able to double average yields, to about 1200 kilos per hectare. The surplus is crucial to subsistence farmers who seek to enter the market.

Following introduction of the improved production package through participatory research, nearly 900 farmers are now doubling their yields. After harvest, the grain is taken to the processing plant, where it is carefully sieved to remove impurities, and then washed to rid it of saponin, an anti-nutritional compound that can give it an off-taste. The quinoa is then either milled and flaked for export, or sold whole on the local market.

To help replicate institutional innovations of this kind, CIP and its partners founded the Consortium for Sustainable Development of the Andean Ecoregion (CONDESAN) in 1992.

CONDESAN is an umbrella association of public- and private-sector partners who work together on the full range of issues affecting rural livelihoods and environments in the Andes. The idea is to integrate research with development in just the way that CIRNMA does, but on a larger scale.

Today, CONDESAN is widely recognised as a highly effective model for integrated rural research and development – one that could prove useful elsewhere in the developing world.

### Further information

**Oscar Ortiz**, leader of the Consortium for the Sustainable Development of the Andean Ecoregion (CONDESAN) Project, CIP, P.O. Box 1558, Lima 12, Peru  
Tel: 51 (1) 3496017 or 1 (650) 8336635 (via USA)  
Fax: 51 (1) 3175326  
Email: H.Cisneros@cgiar.org

---

## The Nicaragua Agricultural Technology Project

Nicaragua has experienced wide policy shifts over the last two decades. State intervention characterising the Sandinista period (1979–90) was followed by drastic reduction in credit, curtailment of government advisory services, and market liberalisation. In 1993, the Government articulated a strategy that included the Agricultural Technology and Land Management Project (ATLMP), establishing the Nicaraguan Institute of Agricultural Technology (INTA) as major provider of agricultural advisory services and with the simultaneous exploration of cost sharing strategies. At the end of the '90s, the situation was as follows:

- Less than 15% of farmers used advisory services, half of which were provided by the government.
- Many, scattered research activities funded by government and donors, often without coordination between Universities, INTA, and NGOs were pulling the technological agenda without a strategic vision.
- Lack of an effective technological information system to meet the information needs of farmers, advisors, researchers and government agencies.
- High illiteracy (32% in countryside and 40% amongst the poorest in 1993), and limited schooling (62% of 15–39 year-olds only attended three years) were one of the causes of delayed adoption of innovations.

Furthermore, the number of rural households has almost doubled since 1963, while the cultivated land increased by 63%. Peasant holdings are becoming smaller and the agricultural frontier is expanding, reducing forest coverage and leading to dramatic environmental problems.

In 2001, a long-term agricultural technology programme was launched with the purpose of integrating public and private research, extension, education and training within a coherent agricultural knowledge and information system.

Key areas of the programme are: (i) strengthening of an integrated institutional framework promoting synergetic inter-relations among multiple public and private actors (ii) redefinition of the State's role in service provision, gradually transferring delivery to private sector and empowering farmers' organisations; (iii) establishment of a Directorate of Agricultural Technology in a modern Ministry of Agriculture, (iv) definition of the responsibilities, role, activities and financing of INTA and INATEC (the National Institute for Technical Education) for the future; (v) expansion of private sector participation through technology development programmes co-financed with the private sector; (vi) strengthening of producers' organisations and agribusiness associations with increased awareness of and access to environmentally friendly innovations; and (vii) contracting of services through competitive funds.

Through the Directorate of Agricultural Technology, MAG-FOR is designing and implementing agricultural technology and training policies and is coordinating and monitoring publicly funded research, technical assistance and agricultural technical education and training activities.

The *Fundacion Nicaraguense de Tecnologia Agropecuaria* (FUNICA) was established in 2000 and

is now fully operating. FUNICA serves as a permanent forum for discussion on technology and manages a competitive fund facility. One initiative finances research projects: the first call financed five projects out of 55 proposals whilst a second call is being prepared with a new, fast-track procedure that allows the financing of projects within six months. Another facility for validating existing technologies is also receiving proposals. Under this scheme, eligible amounts are smaller (mini-grants) and are approved within 30 days. Currently being researched is a third initiative which would provide mini-grants to less favoured areas. Here also operates the second window, stimulating competitive, private advisory services. Contracts have been signed with about 30 groups of producers (30% women) for advisory provided by independent agronomists or by NGOs.

With a staff of around 600, INTA is still the main institution responsible for innovations generation and diffusion. INTA is gradually withdrawing from its traditional role as direct field provider of advisory services while strengthening its role as main provider of strategic and adaptive research, technical assistance with positive externalities; basic and registered seed and second-tier services to other agricultural service providers. At present, INTA provides co-financed technical support to 11,343 families and other 16,577 families receive cost free information through mass media and mass contacts. Additionally, 13,412 families receive co-financed technical support from private suppliers and NGOs, contracted by INTA.

INATEC is also running up in order to keep the pace with the other Institutions, but it has not yet launched new curricula. NGOs and Farmers Unions, of all political affiliations, have been largely involved in the process, not only as sources of insight information, but also as members in decision-making and advisory boards. Private Input Suppliers, Output Traders and Food Processors are now being contacted, in order to strengthen the existing network and to attract private resources into the system.

An agricultural technology information system (SIA) is being piloted. This provides timely information on market trends and opportunities, agro-meteorology, agricultural services, business opportunities and best practices to: (i) agricultural researchers, technical staff, subject matter specialists and trainers at all levels, to improve the quality of their professional services; (ii) farmers, directly or through development agents, to enhance their decision-making ability; and (iii) policy decision-makers and programme design and monitoring units.

### Further information

**Fabio Maria Santucci**, Rural Communication Specialist, Development Communication Division, Environmental Communication Unit, MSM U11-1106, 1800 G Street NW, Washington DC, USA. *Tel:* 1 (202) 473 3695, *Fax:* 1 (202) 522 2654, *Email:* fsantucci@worldbank.org

**Norman Bentley Piccioni** is a Senior Agricultural Economist at the World Bank.

---

## Websites

---

### **International Rice Research Institute (IRRI) ([www.irri.org](http://www.irri.org))**

IRRI is a non profit agricultural research and training centre whose purpose is to increase total food production from rice-based farming systems, while protecting the environment and sustaining resources. IRRI stresses the communication of the results of rice research and of new production technology through books, conference proceedings, periodicals, and other instructional materials.

#### **[www.irri.org/pubcat2000/pubcontents.htm](http://www.irri.org/pubcat2000/pubcontents.htm)**

This online bookstore page provides links to useful summaries of all IRRI publications currently available, indexed by Author/Editor, Subject, and Title, along with ordering instructions.

#### **[www.irri.org/pubcat2000/newtitles.htm](http://www.irri.org/pubcat2000/newtitles.htm)**

This page lists new publications, including document summaries and full publication details.

### **Livelihoods approaches to information and communication in support of rural development and food security ([www.fao.org/waicent/portal/outreach/livelihoods/index-en.html](http://www.fao.org/waicent/portal/outreach/livelihoods/index-en.html))**

The Food and Agriculture Organization (FAO), Department for International Development (DFID) and the Overseas Development Institute (ODI) undertook a study in 2001–2002 which included a literature review and field trips to three countries to analyse the role of information in livelihoods, and make recommendations on how agencies can capitalise on and integrate the best elements of traditional communication methods and the ICT revolution technologies within the livelihoods approach. This website presents the key findings, including a series of more detailed country reports for Ghana, Uganda and India.

### **REinterface.net ([www.reinterface.net](http://www.reinterface.net))**

'REinterface.net' is an internet facility, hosted by the Swiss Center for Agricultural Extension, for farmers, researchers and extensionists concerned with improving the ways they work together.

For many years improving the interface between farmers, researchers and extensionists has been made in a fairly stable policy and institutional environment, with 'T&V' (Training and Visit) styled extension, 'FPR' (Farmer Participatory Research) styled research, and 'FFS' (Farmer Field Schools) styled farmer groups. During this time problems were diagnosed and solutions developed step-by-step in order to improve this interface. Today, we find ourselves in a very different environment. Policies of decentralisation,

privatisation of government services as well as democratisation and good governance are all forcing a rapid pace of change in farmers, researchers and extensionists. In such an unstable environment our step-by-step improvements cannot keep pace. We need to see beyond the present setting and think of future visions from which we can then deduce how this interface can work in support of decentralisation, democratisation and good governance. Our improvements to the interface then become not the solution of today's problems but the transformation of today's institutions to realise the vision for the future. Thus the challenges explored in this internet facility are:

- What could the farmer-researcher-extension interface look like in a world of decentralisation, democratisation and good governance?
- How could existing institutions change the way they work to support future visions?

You are invited to use the [www.reinternet.net](http://www.reinternet.net) facility to:

- Challenge other development professionals with issues that interest you;
- Share what you are doing to improve farmer-researcher-extension interfaces;
- Exchange 'good' practices for improving farmer-researcher-extension interfaces;
- Access relevant on-going discussion forums and lists hosted on the internet;
- Meet colleagues from the same country or having the same interests.

To use this facility send an email with following information to: [join@reinterface.net](mailto:join@reinterface.net)

- Your name
- Your address
- Your email address
- Your website address
- Your country(ies) of concern
- What challenges for the farmer-researcher-extension interface interest you
- What are you doing that can contribute to improving this interface

For further information on the Swiss Center for Agricultural Extension, LBL, see [www.lbl.ch](http://www.lbl.ch) or contact Ueli Scheuermeier or Clive Lightfoot, LBL, CH-8315 Lindau, Switzerland. *email:* [eza@lbl.ch](mailto:eza@lbl.ch)

### **AgREN website on globalisation ([www.rimisp.cl/agren](http://www.rimisp.cl/agren))**

Members are reminded that a summary of last year's e-mail discussion on globalisation and pro-poor agricultural development is available on the website at [www.rimisp.cl/agren](http://www.rimisp.cl/agren). A similar website will be developed in conjunction with the March 2003 discussion on private extension delivery (see page 2 of this newsletter).

---

---

# Announcements

---

## New publications

### Agri-Culture

***Agri-Culture: Reconnecting people, land and nature. Jules Pretty. Earthscan, £14.95, US\$24.95, ISBN 1 85383 925 6***

Something is wrong with our agricultural and food systems. Despite great progress in increasing productivity in the last century, hundreds of millions of people remain hungry and malnourished. Can nothing be done or is it time for the expansion of another sort of agriculture, founded on more ecological principles, and in harmony with people, their societies and cultures?

This book draws on many stories of successful transformation. A sustainable agriculture making the best of nature, of people's knowledge and collective capacities has been showing increasingly good promise.

Everyone is in favour of sustainability, yet few go seriously beyond the fine words. This book shows that there is no alternative to radical reform of national agricultural, rural and food policies and institutions.

Ten free copies of this book are available to members in the South. Please contact Jules Pretty at: Centre for Environment & Society, University of Essex, Wivenhoe Park, Colchester, CO4 3SQ, UK, or send an email to: [jpretty@essex.ac.uk](mailto:jpretty@essex.ac.uk)

### Participatory action research

***Participatory action research in natural resource management: A critique of the method based on five years' experience in the Transamazonica Region of Brazil. Christian Castellanet and Carl F. Jordan. Routledge, US\$50.00, ISBN 1 56032 979 3***

This work evaluates the merits of participatory action research (PAR) in Natural Resource Management, a new application for a widely used approach that strives to link researchers with farmers and other local residents whose lives are affected by long-range conservation programmes. The authors begin the book with the history of PAR, and then use a variety of case studies that chronicle sustainable development efforts in Brazilian Amazonia. They evaluate the strengths and weaknesses of these efforts and suggest specific ways to improve on future PAR efforts.

### Farmer participatory research

***Investing in Farmers as Researchers: Experience with Local Agricultural Research Committees in Latin America***

This recent publication on farmer participatory research is now available in both English and Spanish as PDF files on the website of the Colombia-based International

Center for Tropical Agriculture (CIAT):  
[www.ciat.cgiar.org/downloads/onlinepublications.htm](http://www.ciat.cgiar.org/downloads/onlinepublications.htm)

### New book on small scale horticulture production

***Interactive design of farm conversion: Linking agricultural research and farmer learning for sustainable small scale horticulture production in Colombia. Lee, R. A., (Phd thesis; Wageningen University, Wageningen, The Netherlands)***

Economic and ecological pressure on small farmer production in Colombia has increased since the globalisation of trade in the early 1990s. Although the climate allows for year-round production, the farmers live precariously due to a high dependence on external inputs, poor access to different sources of information on production technology and lack of control over market prices.

This book describes an innovative situation where agricultural research provides a viable methodology for moving towards sustainable agriculture involving new (technical) learning for the farmers and parallel capacity building to ensure long lasting effects of these efforts, at both farm and landscape level, using a case study approach.

Some copies of the book are available through Wageningen University, Group Communication and Innovation Studies, 'De Leeuwenborch' Hollandseweg 1, 6706 KN Wageningen, The Netherlands, or online at: [www.agralin.nl/wda/](http://www.agralin.nl/wda/). The author also can mail a copy (price depending on mailing costs), please contact R. A. Lee on: [suamena@yahoo.ca](mailto:suamena@yahoo.ca).

### Developing capacity

***Developing capacity through technical cooperation. Country experiences. Stephen Browne (ed), published by UNDP and Earthscan***

This book is the result of a research programme on reforming technical cooperation for capacity development. The first book '*Capacity for development: new solutions, old problems*' was launched at the Monterrey Conference on financing for development in March 2002. This book is about the experience of developing management capacities through technical cooperation over the past decade in six countries namely Bangladesh, Bolivia, Egypt, Krgyz Republic, Philippines and Uganda. The issue of technical cooperation in agriculture is dealt with specifically in the chapter on the Philippines and elsewhere a range of other sectoral analyses (such as health and private sector development) help to illustrate both the challenges and the opportunities for improving technical cooperation. For further information see [www.earthscan.co.uk](http://www.earthscan.co.uk)

---

## **ODI/CKP Community Knowledge Partnerships**

ODI has created a research programme to investigate the role of information in rural development with a particular emphasis on new information and communication technologies (ICTs). The Community Knowledge Partnerships (CKP) Research Programme aims to undertake research around the theme of local access to agricultural information and investigate new opportunities to generate more appropriate content locally and to extend the reach of existing knowledge systems. Some of the current experiences in this area are described on the website and new research projects are being designed with partners.

Visit the project website at [www.odi.org.uk/rpeg/maps/CKP/ckp\\_home.html](http://www.odi.org.uk/rpeg/maps/CKP/ckp_home.html) or contact: [r.chapman@odi.org.uk](mailto:r.chapman@odi.org.uk)

An ODI Working Paper on the role of information in rural development will be published shortly and will be available electronically on the ODI website: [www.odi.org.uk](http://www.odi.org.uk)

## **Linkages between agricultural research and rural radio**

ISNAR is coordinating a project entitled '*Linkages between agricultural research and rural radio*'. The project is hoping to improve the sharing of knowledge between farmers and scientists. The project, launched by ISNAR in 2000, aims to link agricultural researchers with radio broadcasters in an effort to strengthen the institutional capacity of both groups. A training workshop took place in Kumasi, Ghana in July 2002 to test the projects' skills development guide which has been published as a training module:

ISNAR/ University of Guelph/ DCFRN (2001) *Training needs and organisational constraints assessment for linking agricultural research and rural radio*. Training Module, The Hague. Other recent project publications:

- Odame, H. and Kassam, A. (2002) Listening to Stakeholders: Agricultural research and Rural Radio Linkages. *Briefing Paper 48*, ISNAR, The Netherlands.
- Odame, H., Hafkin, N., Wesseler, G. and Boto, I. (2002) Gender and Agriculture in the Information Society. *Briefing Paper 55*, ISNAR, The Netherlands.

For more information on this project visit the website: [www.isnar.cgiar.org/activities/radio.htm](http://www.isnar.cgiar.org/activities/radio.htm) or contact: [h.hambly@cgiar.org](mailto:h.hambly@cgiar.org)

## **Apple production in the Himalayas**

### ***Warning signals from the Apple Valley of the Hindu Kush-Himalayas: Productivity concerns and pollination problems. Uma Partap and Tej Partap***

One of the most rapidly increasing and widespread cash crops in the HKH region is apple, with an estimated annual production of over 2.2 million tonnes, which helps bring in an income of over US\$450 million per year to farmers and others involved in apple farming and marketing. However, over the last decade there has been a steady decline in apple productivity, both

in yield and quality of fruit. Studies indicate several constant factors affecting productivity, but the one that has changed over recent years is the level of adequate pollination.

This publication presents the findings of a series of studies, coordinated by ICIMOD, in selected apple-growing valleys of the five countries in the HKH region – Bhutan, China, India, Nepal and Pakistan. The studies assessed the problem of declining productivity, the pollination situation, factors responsible for inadequate pollination, and the farmer's management approaches; and aimed to suggest ways of tackling the pollination problem.

Part I contains an introduction to apple pollination issues and a brief account of the scale, definitions and concepts related to the problem. The programme is described, along with ICIMOD's focus on creating awareness about 'managed pollination' and the use of honeybees for pollination to improve crop productivity. A synthesis of the results and implications of the regional case studies are also given. The research methodology and detailed findings from each of the field studies are contained in Part II. An abridged version of the book is also available containing only Part I.

This publication is intended to raise awareness among agricultural planners, policy makers and researchers about the pollination problems faced by mountain farmers, as well as suggesting strategies for change.

Copies of the book and accompanying video can be obtained from: Ms Nira Gurung, Distribution Officer, ICIMOD, PO Box 3226, Kathmandu, Nepal, email: [ngurung@icimod.org.np](mailto:ngurung@icimod.org.np)

- Full Book: US\$20 (for developed countries) / US\$15 (for developing countries) / US\$10 (for Hindu Kush Himalayan region countries)
- Abridged book: US\$10 (for developed countries) / US\$7 (for developing countries) / US\$5 (for HKH region countries)
- Video: US\$10

## **FAO State of the world food insecurity 2002**

Launched at ODI, this annual report summarises the latest statistics on undernourishment around the world. There is a special section to coincide with the International Year of Mountains to address issues of food insecurity in mountainous areas. A series of five concise articles discuss the commitments made at the World Food Summit in the Plan of Action (WFS, 1996) and the progress that has been made in the run up to this year's summit (WFS: five years later). The articles discuss the impact of issues such as conflict, land reform, malnutrition and financing for agricultural development.

Published by the FAO, Viale delle Terme di Caracalla, 001100, Rome, Italy. The report is also available on the website: [www.fao.org/sof/sofi/index\\_en.htm](http://www.fao.org/sof/sofi/index_en.htm)

A selection of fact sheets relating to the WFS: *Five Years Later* are also available at: [www.fao.org/worldfoodsummit/english/fsheets.htm](http://www.fao.org/worldfoodsummit/english/fsheets.htm)

---

## FAO Report

### ***FAO's Annual: The state of food and agriculture, 2002***

The UN Food and Agriculture Organization (FAO) released in September its report on *The State of Food and Agriculture 2002 (SOFA 2002)*. The report includes sections that review the current global and regional agricultural situation and look at the world economy and agriculture, including world trade, commodity prices and the implications of the fourth World Trade Organization Ministerial Conference for agriculture.

The report is available on the FAO web site at: <http://gilws05.fao.org/docrep/test/fao/004/y6000e/y6000e00.htm>

## Environment symposium

### ***4<sup>th</sup> International Symposium Agroenviron – 2004. Role of multi-purpose agriculture in sustaining global environment. 20–24 October 2004, Udine University, Udine (Italy)***

The university of Agriculture of Faisalabad (Pakistan) organised the first Agroenviron Symposium in 1998. It proved to be an important forum to share ideas, exchange knowledge and develop international links between organisations involved in agro-environmental issues. The second symposium was hosted at Trakya University, Tekirdag (Turkey) in 2000 and the third by the National Authority for Remote Sensing and Space Sciences (NARSS), Cairo (Egypt) in 2002. The University of Udine (Italy) will organise the fourth symposium of this series in October 2004. The organisers of this event are hopeful that the series will continue in future and involve more and more scientists, engineers, planners, institutions and countries on agro-environmental issues for sustaining the environment of this globe. The symposium will provide an insight into important issues related to agriculture and should help in setting directions for the future in sustainable agriculture in this millennium.

The proposed topics for presentation in Udine include: land, water, air pollution in agricultural areas; precision agriculture and yield forecasting; landscape ecology; forestry and range land management; climate changes and global agricultural environment; biotechnology and agricultural biodiversity; desertification and land degradation control; agricultural waste reuse and field management; wetland and coastal ecology in humid environment; RS/GIS techniques in agriculture; current advances in restoration of rural areas for sustainability.

Participants are invited to submit papers or posters consistent with the above objectives that will be published in the proceedings. Submit a 250 word summary (no figures or references) by November 30, 2003 to:

Prof. Dr. Giuseppe Zerbi, Symposium Secretary General, University of Udine, Udine, Italy, *Email:* zerbi@dpvta.uniud.it, or Eng. Sajid Mahmood (Azeemi), International Coordinator, University of Agriculture, Faisalabad, Pakistan, *Email:* smahmoodpk@yahoo.com.

## Analysis of Farmer Participation in a Mixed Meeting

Groups have many advantages in extension. People join groups in order to achieve goals that they cannot achieve by themselves. Learning in a group typically produces higher achievement and more positive relations. Groups help people share experiences, costs, and resources. Although we tend to believe in the group approach in extension, the methodology also involves challenges that need to be addressed. While carrying out my research work for a degree in Agricultural Extension Education, in suburban villages around Kampala, Uganda I noted some very important issues that we tend to ignore when carrying out group activities.

For example, in a meeting where men and women are represented there may be issues which occur that deter the group from making appropriate decisions. Individual farmer's status or role in the community also affects their participation in group meetings. The recent action research, carried out among the Kyaterekera farmers group in Lusanja, revealed that informal events at the side of a group meeting, such as 'murmuring' and 'mini meetings' make crucial contributions to decision-making in a mixed meeting. Such activities help those who cannot express themselves in a group. Such presentations or expressions in a meeting should never be discouraged or ignored.

For more information or a full report, please contact Louise Pearl Kibuuka, P.O.BOX 30182, Kampala, Uganda *Email:* lkibuuka@avu.org

## Globalisation highlights

### ***Oxfam Publications***

Oxfam has produced a series of briefing papers highlighting the impact of northern agricultural policies on developing country farmers as part of a campaign to make trade fair:

- Oxfam (2002) Stop the Dumping! How EU agricultural subsidies are damaging livelihoods in the developing world. *Oxfam Briefing Paper 31*. Oxfam GB.
  - Oxfam (2002) Cultivating Poverty. The impact of US cotton subsidies on Africa. *Oxfam Briefing Paper 30*. Oxfam GB.
  - Oxfam (2002) Death on the doorstep of the summit. *Oxfam Briefing Paper 29*. Oxfam GB.
- Papers are available at: [www.oxfam.org](http://www.oxfam.org)

### ***FAO Report***

FAO launched a new report entitled 'World Agriculture Towards 2015/30'. This includes a useful section summarising trends in international agricultural trade and globalisation. [www.fao.org/docrep/004/y3557e/y3557e00.htm](http://www.fao.org/docrep/004/y3557e/y3557e00.htm)

### ***Biothechnology policy***

What is the relationship between science, policy and regulation in the context of debates about the future of agricultural biotechnology? This series of papers

---

produced by the Environment Group at IDS explores the real world of policy-making and regulation surrounding agricultural biotechnology and outlines some of the challenges for regulatory policy in developing countries:

- Newell, P., (2002) Biotechnology and the Politics of Regulation, *IDS Working Paper* 146, Biotechnology Policy Series No. 2.
- Scoones, I., (2002) Agricultural Biotechnology and Food Security: Exploring the Debate, *IDS Working Paper* 145, Biotechnology Policy Series No. 1.
- Scoones, I., (2002) Science, Policy and Regulation: Challenges for Agricultural Biotechnology in Developing Countries, *IDS Working Paper* 147, Biotechnology Policy Series No. 3.

IDS Environment Group: [www.ids.ac.uk/ids/env/pubs2002.html](http://www.ids.ac.uk/ids/env/pubs2002.html)

## **Water in agriculture**

### ***Global challenge program on water and food: The water productivity challenge: Growing more food with less water***

CGIAR recently launched a proposal for a Global Challenge Program on Water and Food: The Water Productivity Challenge: Growing More Food with Less Water. Some 200 researchers, representing 20 countries and 50 institutions contributed to the discussion, brainstorming, drafting and research planning sessions that led to the creation of this proposal. The Challenge Program on Water and Food proposes to launch an ambitious research, extension and capacity building programme that will significantly increase the productivity of water used for agriculture. For further information see [www.cgiar.org/iwmi/challenge-program](http://www.cgiar.org/iwmi/challenge-program)

## Guidelines for contributions to AgREN publications

AgREN members and others are encouraged to submit material for publication in both the Newsletter and as Network Papers. The type of material that is most suitable for submission is described below. Articles submitted as potential Network Papers will be assessed by an Editorial Committee and, where necessary, guidance will be given to authors in revising their papers for publication.

**a) Newsletter Contributions:** AgREN welcomes news from members that describes their work relating to the development of small-scale agriculture and sustainable rural livelihoods. AgREN would particularly like to hear about specific, on-going projects which are particularly innovative or other activities of interest to AgREN members. Contributions to the newsletter should be no more than 800 words, and may include photographs or illustrations. Shorter contributions are also appropriate. Please note that articles may be edited prior to publication.

**b) Network Papers:** AgREN Papers are broadly concerned with the design and promotion of appropriate agricultural technologies, with specific attention focused on the methods, processes, institutions and policies that promote pro-poor technical change and support equitable improvements in agriculture for developing countries. The principal focus of AgREN Papers should be adaptive research, extension or supporting mechanisms such as credit, marketing and producer organisations. Network Papers should seek to explore and promote the role of increasing agricultural productivity, resource conservation and farmer empowerment in the context of diversified rural livelihoods.

### Content:

- Papers should focus on practical experience in research and extension methods as well as innovations in the public or private provision of other agricultural services.
- Papers may make reference to current theoretical issues in the field of rural development, but their principal focus should be on the provision of well-written descriptions of practical and innovative experience that will be of use to other practitioners.
- Although AgREN has an interest in novel diagnostic and evaluation methods that help practitioners understand farmers' priorities and contexts, papers that follow through on such diagnosis and illustrate applications and outcomes are particularly welcome.
- Papers may be based on a broad range of sectors relating to agriculture, e.g. crop and livestock production, aquaculture, agroforestry, extension, natural resource use, environmental management, credit supply and marketing.
- Most AgREN papers describe an experience from a particular time and location, but they are written in such a way that practitioners on other areas can draw useful implications.

### Word length and referencing:

Network Papers should be between 6,000 and 12,000 words long, and include an abstract of 500–750 words highlighting research findings and policy implications. References should follow the examples below.

#### Books:

Carney, D. (1998) *Sustainable rural livelihoods: What contribution can we make?* London: DFID.

#### Journal articles:

Sanchez, P.A. (1995) 'Science in agroforestry'. *Agroforestry Systems*, No. 30, pp. 5–55.

### Other information:

- Material submitted to the Network will be considered for publication on the understanding that it has not been submitted elsewhere.
- Material published by AgREN may, with acknowledgement to ODI, subsequently be published elsewhere.
- Contributors will be asked to sign a form transferring copyright for published material to ODI. This enables us to give others permission to photocopy Network material.
- Newsletter items may be submitted to the Network at any time. If it is not possible to include an item in the next newsletter it may be held over for use in a subsequent edition.
- Photographs may be submitted to accompany newsletter items. These should have a minimum resolution of 200 dpi.
- Papers should be submitted both in hard copy and on 3½" disk or by email, in one of the widely used word-processing packages.
- All material should be submitted to the Network Coordinator at the address given below:

Agricultural Research and Extension Network, ODI,  
111 Westminster Bridge Road, London SE1 7JD, UK. Email: [agren@odi.org.uk](mailto:agren@odi.org.uk)