

Small-scale agriculture for a sustainable society 09 | 2010 - 26.3

# FARMING MATTERS

Formerly known as LEISA Magazine

Collaboration and  
co-operation

## Negotiating the waters

■ Upscaling success ■ Traditional water governance  
in Nepal ■ Holland's water boards

# Thirsty agriculture



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**A**s I am writing this editorial, Pakistan is being hit by the most serious floods in 180 years, while Russia suffers from an unprecedented drought. Unequal distribution of water is not new, but the ferocity of fluctuations and contrasts between situations is. Water is being referred to as the new oil, even though there are a few crucial differences that need to be highlighted. First, water is a resource that every living being needs in order to survive. Hence it has much more than an economic value. Access to water is a basic human right. Yet we have to manage with a limited amount of water. Here is where the water challenges lie.

Agriculture is the biggest user of water, and modern technology has made agriculture thirstier. But even more water is needed if we are to increase production for a growing population. So how do we increase the efficiency of water use in agriculture? There are two major routes to more efficient use: 1) stop over-exploiting water from concentrated sources, and 2) improve the use of rainwater. There is a big potential here, keeping in mind that 70% of agriculture in the world is rainfed, and that there is still much local water wisdom waiting to be uncovered and given a boost.

But as this issue of Farming Matters shows, efficient use of water is about much more than adapting agricultural methods. Being a finite resource means that struggles for water are bound to happen, within households, within and between communities, watersheds, countries and regions. Last month we visited some Maasai villages in southern Kenya together with our partner organisation, ALIN. We met community leaders who complained about the fact that entrepreneurs had started floriculture projects in their area, resulting in an increased shortage of drinking water for their cattle. This is just one out of a myriad of examples of competing claims for water. Building new systems of water governance and learning from age-old systems are the key to a balanced and inclusive development of agriculture. This issue of Farming Matters shows practical experiences and background information on how negotiation for water happens in different parts of the world. It provides examples of local solutions to global challenges and aims to stimulate you to reflect on what happens in your area!

*Edith van Walsum*

Edith van Walsum, director ileia



# Reaching "another level"

**M**r Saruni Duya's eight-acre farm, near the village of Nguruman, in southern Kenya, produces mangos, bananas, cucumbers, and also many different "Asian vegetables", most of which are meant for the market. He farms the same land that his father farmed for many years, and his grandfather before him, but the few innovations which Mr Duya has introduced have brought about big changes. "We grafted some mango trees, and now they produce much more". He has planted trees along the contours of his farm, and some have already provided timber. He has also designed a detailed crop-rotation scheme and successfully combines different

crops so as to make the most of the limited space and available water. Naturally, there are some difficulties, the largest of which is marketing his products. Without a strong farmer organisation in this area, middlemen pay very low prices for the vegetables. But in spite of these problems, "this is a profitable business", and one that makes Mr Duya very proud. Logically, he expects his children to farm this same land in the future. "Farming is good, but they have first to complete their school. Just as I've made some improvements, they will then be able to take this farm to another level".

Text: Jorge Chavez-Tafur Photo: Susan Mwangi



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## The role of a local committee in changing times

Traditional water management systems in Nepal have been efficient mechanisms for distributing water. But currently they are threatened by new developments such as migration, or even by development projects. How sustainable are these traditional systems, and can they maintain social capital while promoting greater equity?



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## Land grabs are cheap deals for rich countries

A recent report from the Oakland Institute shows the important role that the World Bank and its institutions have played in the processes of land acquisition (or land grabs) recently experienced in many countries. In an interview with Farming Matters, its executive director, Anuradha Mittal, questions the role of such institutions and calls for policies which focus on food sovereignty.



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## Running water uphill with a ram pump

Using ram pumps is a simple way of getting water uphill. But, as AIDFI's work in the Philippines shows, it is crucial to involve all stakeholders in the process of building and installing such pumps. By working closely with villagers and professionals, AIDFI has helped to increase the availability of water in many villages, and is now also working in other countries.



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## Holland's centuries-old water governance

A large percentage of the country is below sea level. Keeping the land dry requires a comprehensive system of dykes and dams, which have made Holland famous. But water management is also based on traditional governance structures. While the Dutch water boards are centuries old, they still have the responsibility for preventing floods.

# WATER: THE NEED TO WORK TOGETHER

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**FARMING MATTERS** informs readers about sustainable, small-scale farming. It offers discussions, background to the news, opinions, research findings, and practical examples of how sustainable, small-scale farming contributes to providing food security, social justice, a healthy environment and development. Farming Matters is for policy makers, researchers, practitioners, educators, farmers, and everybody else interested in agriculture and development.

Farming Matters is published four times a year and has subscribers in more than 150 countries. It is the global edition of the worldwide AgriCultures Network, a network of eight organisations, of which the other seven members publish regional editions, in ten languages. Together, the magazines reach more than 50,000 subscribers. For more information, see [www.agriculturesnetwork.org](http://www.agriculturesnetwork.org).

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Farming Matters welcomes comments, ideas and suggestions from its readers. Please send us an e-mail to [ileia@ileia.org](mailto:ileia@ileia.org) or write to P.O. Box 2067, 3800 CB Amersfoort, the Netherlands.



## Local resources

Greetings from Flores, Indonesia. Your most recent volume was particularly interesting, so I'd like to share what we do with many farmer groups in our area. We prefer to mobilise local resources. We have set up Saving Loan Units (or UBSPs, Usaha Bersama Simpan Pinjam), and they all run on their own funds. We merely provide trainings, follow up visits and advice. And gradually their savings become bigger! To give the UBSPs money from outside would be just like "pouring a lot of water into a small half-full glass": it can damage the glass itself. Very often we see that problems arise not only when there is no money; but often when there is too much money, but no good plan for using it wisely.  
 Tarsis Hurmali, Ayo Indonesia Foundation, Flores Organization for Rural Development, Flores, NTT, Indonesia

## From the Brazilian GMO campaign

Your latest issue of Farming Matters described the efforts that AS-PTA and other partners at the GM Free Brazil Campaign are engaged in in order to stop the dissemination of GM crops. Readers may be interested to know that a court ruling now prohibits Bayer from marketing Liberty Link maize – which is resistant to the herbicide glufosinate – anywhere in the country. The federal judge Pepita Durski Tramontini from the Curitiba Environment Court also specifically revoked authorisation for the crop's release in the north and northeast of Brazil due to the

absence of any studies to show the potential impacts of this technology on the regional biomes. The ruling sets a R\$ 50,000 per day fine for Bayer should the company fail to suspend the marketing, sowing, transportation, import and even disposal of Liberty Link maize with immediate effect. The court has also ordered the National Biosafety Committee to make companies' applications publicly available. You can read more here: <http://www.aspta.org.br/por-um-brasil-livre-de-transgenicos/updates>  
 Gabriel B. Fernandes, AS-PTA, Brazil, via e-mail

## Payment for Environmental Services (1)

This proposal is really a good way to improve or conserve biodiversity in developed countries, or in countries where the government and people are not corrupt. But in most developing countries, where there are very few efforts to conserve biodiversity and the environment, the governments are usually corrupt. This can be a serious problem as the PES approach is hardly possible without government involvement.  
 Edison Purba, University of Sumatera Utara, Medan, Indonesia, on our Open Forum

## Payment for Environmental Services (2)

I'm not sure I understand why farmers in developing countries should be compelled to enter into these arrangements, which

basically just seem like a way to make them clean up the mistakes of the industrial world. My questions would be, who makes the rules for what they do with their land? What kinds of stipulations are there? Why are they being made to fit into some scheme developed by the west? Honestly, I just see the potential here for more imperialist development schemes, and more exploitation (eco-friendly exploitation...ecoploitation?), whereby farmers lose their sovereignty (or any sovereignty that they have left). Who decides what has value? I really just see these payments for services arrangements as another way to control people, and to perpetuate a Euro-centric notion of what both the problems and solutions are.

S. White, on our Open Forum

## More to read

Thanks for a nice "Money for farming" issue. As your magazine points out, value chain finance is a good way of increasing access to finance and reducing risks and costs. For those interested, a new book is now available from the Food and Agriculture Organization of the UN (FAO) and Practical Action Publishers. "Agricultural value chain finance" reviews many different experiences, and presents lessons drawn from several countries.  
 Calvin Miller, Group Leader of the Agribusiness and Finance Group, FAO, on our blog

For more letters, see [www.ileia.org](http://www.ileia.org)

# Water is everybody's business

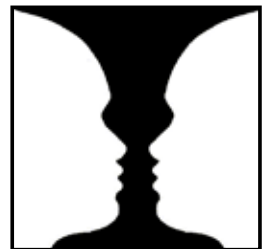
We all use water: we drink it, use it to grow, process and cook food, to make other products and cool things down. Water also plays a key role in conserving nature: ecosystems depend on flows of water. The availability (and quality) of water is of concern to everybody. But different uses and different interests and priorities have led to many tensions, conflicts and scarcities all over the world. Water is a resource we need to care for, nurture, manage and govern. Doing so involves getting everybody around the water table.

Text: Peter Laban

**W**e all use water, but we all have different interests and different priorities. Israeli settlers on the hilltops of the Occupied Palestine Territories consider a swimming pool to be a priority, while the people down hill need to harvest rainwater to irrigate their fields. Farmers need a lot of water for their crops, but in most urban areas drinking water is becoming scarce. Some say that water is becoming a more important reason for going to war than oil. Sharing water across national borders is becoming a hot issue with all the complexities that it involves. These difficulties are compounded by naturally imposed scarcities. Where countries like Jordan and Yemen have simply too little water resources to respond to the needs of their population, in other countries these constraints are the result of war, conflict or occupation. Poor management practices, lack of institutional co-ordination, policy deficiencies, power relations at the local level, or the inappropriate (application of) technologies, are all adding to situations where water is inaccessible to the poorer people in urban settings and to small-scale farmer families in the rural areas. In addition, climate change now poses a threat, changing seasonal and annual rainfall patterns, causing floods or droughts, or increasing temperatures. Water pollution by industry, intensive agriculture and households can further add to the problems.

## Different scales, different stakes

We all have our own perceptions and ideas of what should take priority, and most of us find it difficult to consider the views of others. As the diagram shows, it is often difficult to see the two (or more) sides of the same situation at the same time. Dialogue is needed to recognise each other's points of view, to jointly analyse problems, and come to shared solutions. This requires a process of negotiation in which all relevant stakeholders participate. This is particularly important when talking about the availability and use of water. Water resources are managed at different levels and scales, from the village level to a watershed, and from local to national and even larger scales. The articles in this issue of *Farming Matters* show how people are engaged in managing water resources at different scales. In the arid rain shadow region of the Himalayas of Nepal (page 10), local organisations maintain traditional irrigation systems. Auke Idzenga looks at the dissemination of low-cost technologies for pumping water uphill in the Philippines, focusing on the interactions required among stakeholders (page 26). In Guatemala (page 18) different actors have come together to improve watershed management, taking into account downstream and upstream interests.





**Negotiating scarcity** The importance of bringing different actors together is especially clear in the countries of the Middle East, where I have worked for the last eight years. Different programmes for participatory planning and management of water resources have shown the importance of engaging in transparent, stakeholder-led, processes that cover these different levels and scales. For example, a process of stakeholder dialogue and concerted action (SDCA) in villages in Jordan, as part of the regional EMPOWERS programme, led to remarkable results. The governorate water department claimed that it provided 150 litres/person/day to villages in the Jordan Valley while, in reality, villagers only got 50 litres. Stakeholder dialogues between villagers and government officials resulted in the village taking the decision to take responsibility for eradicating the theft of water. The water department committed itself to repair the old and rusty pipes. Sufficient water now reaches the villages where such dialogue has led to concerted action.

In Palestine, the IUCN REWARD Programme worked with seven village committees and local government agencies to establish a Watershed Committee in the Marj Sanour watershed, which has since been endorsed by the Ministries of Agriculture and the Interior. This committee will help to ensure local responsibilities for managing the available water resources through soil conservation techniques, ground water recharge, flood prevention, and the combined use of ground and surface water. In other parts of the world, the IUCN Water and Nature Initiative (WANI) has been working in different transboundary water management programmes in West and Eastern Africa, the Mekong and Central America. Their eight-year experience has shown how important it is to jointly involve local communities and local authorities.

**Facilitation, accountability and rights** Programmes like these show us that new technologies are not necessarily the most appropriate solution to water related problems. Enhanced collaboration and negotiating different interests between different parties is often more effective. Drip irrigation may be seen as a solution for problems related to inefficient water use. But bringing people together to analyse the real problems and explore shared solutions may deliver low-cost solutions that rely more on better organisation and task division. In many instances, tighter accountability for water management, and ensuring poor peoples' rights and access, work better. Accountability and rights are both a key prerequisite and should be an integral part of all stakeholder negotiation processes. There is an equally clear need to support stakeholder

negotiation processes through conducive policy and regulations. Many countries still need to do much in this area. Special efforts are needed to ensure that national water strategies take into account the multiple dimensions of water resource management, in a way that the interests of small-scale farmers are also taken into account. Fortunately, there are positive examples. In Egypt, for instance, EMPOWERS and REWARD have been working on a pilot scale in two water districts in the Nile valley on participatory planning processes, developing tools that have helped farmers and local government officials make appropriate decisions, agree on their implementation, and serve as example for up-scaling this to other 200 water districts.

Finally, the experiences of EMPOWERS, REWARD and WANI show that professional and transparent facilitation is an important key for success, especially when projects are run by people or organisations who do not have a direct stake in the outcome. This can be local development organisations when dealing with problems at the village level. At larger scales of operation, or when many actors are involved, experienced facilitators may be needed to provide credibility and impartiality. Such facilitation is an important way for empowering local communities and making negotiation possible.

Peter Laban lives in Ramallah, Palestine and works with the Al-Sahel Company for Institutional Development and Communications. For the last seven years he was the Regional Coordinator of EMPOWERS and REWARD programmes, implemented by CARE and IUCN in Egypt, Jordan, Palestine and Yemen. E-mail: p.laban@palnet.com



**Farmers in Marj Sanour, Palestine, prepare for complementary irrigation** Photo: Buthaina Mezyed

The role of a local committee  
in changing times:

# Irrigation management



The Trans-Himalayan region of Nepal is often referred to as the country's desert. Water is a scarce resource that has traditionally been managed through local norms and institutions. The remoteness of the region has limited the role and influence of the central government. Although the locally managed irrigation system has been running for centuries, recent developments make people wonder if this approach is sustainable in the long run.

Text and photos: Nilhari Neupane and Gopal Datt Bhatta

# in the Himalayas

**M**ustang, in the Trans-Himalayan region of Nepal, is one of the country's most remote districts. The upper part of the district, at altitudes that start at 3,800 metres above sea level, looks like the Tibetan Plateau, with wind-eroded, rolling, yellow and grey hills. Rainfall is less than 200 mm per year, so even though farmers have sufficient land, they must keep part of it fallow due to the shortage of water. The upper Mustang area used to be headed by a local king called Jigme Palwar Bista, but since 2008 (when Nepal became a republic) his role is now chiefly ceremonial. Local people respect him, and he still plays a significant role in the distribution of water, as part of a system that builds on the local hierarchies and stratification which divides society into an upper ruling class and a lower working class.

Lomanthang is one of the many villages in this district. As in most villages, it has an irrigation committee which, in this case, consists of nine members. While the local king is its head, the committee is run by a chairman known as the

Ghempo. There are two Mithue or secretaries (one of whom is appointed by the king and the other one by the Ghempo), and six Tshumies or messengers. After the King, the Ghempo is the person with the most influence, and he is the authority in issues related to irrigation and agriculture. All cases of conflicts, fights and robberies are brought to the Ghempo to adjudicate on. Ghempos are always members of the Bista family, and although they do not get a salary, they receive 25 percent of all the fines imposed. The Mithue are next in the chain of command: only literate males are appointed to this position. Serving as secretaries to the Ghempo, the Mithue keep all the records related to the irrigation system. They also have the responsibility of managing the committee's finances. They do not get a salary for this work, but do not have to contribute any physical labour. The Ghempo also appoints a number of Tshumi who act as the supervisors of the irrigation system, and as such they have important responsibilities. They have to stay close to the canals during irrigation (even during the night), and are responsible for reporting anyone caught stealing water to the Ghempo. Similarly, if

they find livestock grazing in a field with crops, their owner is also taken to the Ghempo. They are also responsible for collecting all the fines, by going door to door. While they don't get any salary for their work they do receive part of the collected fines. Being part of the committee brings them prestige, as well as giving them priority in the irrigation rota.

### **Water allocations and local culture**

An efficient allocation system is essential when rainfall is limited. In general, the most common method in the upper Mustang region is a lottery. The Ghempo throws the dice in the presence of the Mithue, Tshumi and all the local villagers to determine the sequence for distributing water. However, the Ghempo can give priority to a specific plot regardless of the results of the lottery. Members of the committee and other upper class farmers have priority over other villagers. Water allocation also depends on the type of crops cultivated. The first priority is given to wheat and naked barley, followed by peas, buckwheat, mustard and potato. All the villagers know that wheat and barley are highly sensitive to water stress, and that yields suffer if irrigation is delayed (showing that the water allocation patterns have a scientific basis). Another reason for giving priority to these crops is that they are the main staple foods in the region, and are also used for making chhyang, a popular drink. But the committee's roles extend beyond the allocation of water. One frequent concern is to ensure the maximum efficiency when watering plots, diverting the water to the next plot as soon as possible. In addition, the committee members need to

be permanently alert in taking care of the irrigation infrastructure. The sandy soils which predominate in the region mean that the canals frequently break, and the committee needs to respond to this immediately. If there is a small breakage, the Tshumis have the responsibility of repairing it. But if they cannot, then they ask each household to contribute with labour. Those who refuse to help have to pay a fine, or run the risk of being excluded from the system altogether.

### **Unequal relationships**

Critics of this system point out that it is based on an unequal or asymmetric relationship between the upper class villagers, who run the system, and the lower class farmers. Others argue that this is justified as farmers depend on the upper classes for food in times of scarcity, and also for loans and land. The irrigation canals were built on the initiative of the upper classes, and they still play a crucial role in the day-to-day management of the system, in terms of decision making and networking. While farmers provide the manual labour, the upper classes provide the necessary cash and infrastructure. This mutual interdependency has kept the system functioning as an efficient way of dealing with water scarcity. According to Narendra Lama, leader of the Annapurna Conservation Area Project, the system is based on local knowledge, and because of this it works efficiently. At the same time there are also many voices demanding that farmers get more water, that their income increases, or that roles and responsibilities within the village change, giving them a stronger voice. Irrigation projects and programmes, in Mustang

## **Culture and traditions**

For the local population water is both a utilitarian and a symbolic resource. Besides being used for drinking, cleaning and irrigation, water is also seen as a divinity, and plays a central role in all village rituals. Most villages have constructed a *chorten* near the source of water, on top of which they fly a flag. These *chortens* are small edifices made of stones and mud, and have different styles which reflect the local architecture. Villagers also plant various cold-tolerant species around the sources of water. These plants are considered to be sacred and are never cut. This is all done to ensure that the gods won't become angry and to avert drought.

The clearest example of how culture governs the management of water is seen during the Sakaluka festival which is celebrated on the third day of the first Tibetan month (February/March), and represents an auspicious moment to begin the agricultural activities of the new year. During this day, all villagers go to the king's fields. They plough the field, add manure, and start the agricultural season by sowing wheat seeds. Both the king and the queen take part in the festival. And then the new irrigation committee is formed, and the coming year's water allocation schedules are hammered out. The whole village is ready for a new agricultural year.

and in other parts of Nepal, have tried to improve the availability of water. Running with the support of the national government or of donor organisations, they all hope to benefit farmers. But they seldom recognise the existing, locally-sanctioned norms, so they run the risk of destroying the social capital that has developed over centuries. Many studies show the crucial role that such social capital plays in the governance of common resources. It takes a long time to develop accepted rules and norms of governance for these resources, but relatively little time to erase them. A frequently mentioned example is the tank irrigation systems in southern India, which were based on social

very well.” There is a general feeling that, in the past, nobody dared to violate the rules, but that this is not so anymore. These changing attitudes are partly related to the interest of the younger generation in migrating to the cities and not wishing to continue farming. More difficulties may emerge as a result of the stronger presence of the government in the area, and the increasing presence of development projects.

**A balancing act** The Lomanthang irrigation system has developed over hundreds of years and is rooted in a specific political, social, cultural and economic environment. It has proved to be an



**The challenge Lomanthang faces is to develop more equitable rules on the basis of local social capital.**

hierarchy and were the prevalent mode of irrigation before British colonial rule. When the British government implemented a new set of formal rules, it completely wiped out the existing social capital (based on the informal relationship between the ruling and the working class), and the authorities were unable to replace it and keep the irrigation system working. The challenge today is to develop more equitable formal rules that build on existing social capital.

Others recognise additional risks elsewhere. Amji Bista, the Ghempo in Lomanthang, has expressed his concerns about the future. Many young people are reluctant to follow the traditional regulations and norms, and he sees increasingly frequent violations of the irrigation norms giving rise to conflicts. “The irrigation system used to function properly in the past because of a strong internal cohesion and because the different groups of people understood each other

efficient model for a semi-arid region. The social hierarchy and the informal rules and relationships ascribe different roles and responsibilities to different social groups. However, the changes occurring recently in Nepal are undermining the hierarchical organisation and the social capital on which this system depends. A difficult balancing act must now ensure that private and public efforts succeed in improving the livelihoods of the population, while at the same time ensuring that water continues to be available, and that farmers are able to irrigate their land.

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Land grabs:

# Cheap deals for rich countries



Based in Oakland, California, the Oakland Institute is a policy think tank with a mission to increase public participation and promote open debate on important social, economic and environmental issues. It aims to stimulate public discussion and debate and to “reframe the basic terms on which public debate takes place”. Anuradha Mittal established the institute in 2004 and is now its executive director.

Interview: Mireille Vermeulen

**A**s a native of India living in the United States, Anuradha Mittal finds that it is useful to be in “the belly of the beast”, building an international chamber for progressive ideas and helping influence policy. She stirred up a heated debate with “(Mis)Investment in agriculture”, published last April by her institute.

### **Why this publication on the role of the World Bank in global land grabs?**

Access to natural resources such as water, land and seeds, is of utmost importance for small-scale farmers. The sharp rise in food prices in 2008 and the financial crisis gave rise to an unprecedented increase in hunger, resulting in renewed calls for investment in agriculture. But indiscriminate foreign investment in land has resulted in land grabbing – the purchase or lease of vast tracts of land in poor, developing, countries. In recent years food-insecure nations and private investors have acquired nearly 50 million hectares of farmland. The impact of this global phenomenon on small farmers is huge and negative, as they lose access to, and control over, natural resources. Our report provides evidence of the key role that the World Bank Group has played in land grabbing. The International Financial Corporation has actually increased the ability of foreign investors to acquire land in developing country markets by promoting profitable deals, creating “investment promotion agencies” and rewriting national laws. As a result, fertile land has been offered, or given away, to investors at ridiculously low prices, especially in Africa. In promoting land investments, the World Bank has overlooked the urgent problem of hunger that persists in client countries, and lost sight of its main mission, which is to alleviate poverty. We felt that it was extremely important to highlight the role of multilateral investment and financial agencies in facilitating this trend so they can be held accountable.

### **And what has been the reaction of the international audience?**

We have been successful in getting our message

heard. While the media has helped highlight the trend and impact of land grabs, our report is unique in that it shows that it’s not just China or Saudi Arabia creating this trend, but international agencies are involved as well in promoting it as a development paradigm.

The report is now being used by campaigners who work on international financial institutions. Usually, civil society tends to focus on projects by the World Bank, but this time we’re looking at the broader provision of technical advice, which is a growing field in the World Bank’s portfolio. The performance standards of IFC are under review as well. So our report came out at a perfect time and is helping question the application of performance standards to the advisory services of the IFC. In the Philippines and Laos, for instance, groups are questioning what the performance standards imply when there is so much devastation in their countries caused by the so-called investment advisory services. They are demanding that the mandate to end poverty should be applied to all services of agencies such as the IFC.

### **Can you give me an idea of how important the problem of land grabbing is for small-scale farmers compared to water, climate change, global pricing and competition?**

Seventy-five percent of the world’s poor are small-scale farmers. We have an agricultural system which is upside down and backwards, which has replaced diversity with monocultures and self-sufficiency with increased dependency on markets. It has created the myth of cheap food, without taking into account the destruction of the environment and the livelihoods of small scale farmers, for whom access to land is a matter of life and death. Some of the land deals involve the best agricultural land, not degraded soils. Land grabs also raise concerns in terms of climate change. These deals are about creating large monoculture farms, where the work is done by machines. Scientific assessments have already shown the large social and environmental footprint of agriculture, including its contribution to climate change and the degradation of natural resources: the loss of habitats and biodiversity, and increased water scarcity. Take the case of the Addax Bioenergy

**“The voices of smallholder farmers are the most important when talking about feeding the world in 2050”**

project in Sierra Leone, where cassava and sugarcane are grown, with an enormous amount of pesticides and chemicals, to produce ethanol for Europe. This does not meet the food needs of local people. The company does not employ many local people and when their lease expires, in 99 years, they will leave a barren land with loads of chemicals. Industrial farming is a recipe for disaster when it comes to climate change.

### **So is foreign investment a recipe for disaster too?**

We are not against foreign investment, but you have to question who benefits. In the foreword to our report, Howard Buffett, the eldest son of billionaire Warren Buffett, tells of a deal that he was offered by a government prepared to provide 70 percent of the financing and all utilities, a 98 year lease requiring no payment in the first 4 years, and all this at the cost of US\$ 2.91 per acre per year. This is not investment; it's exploitation, depleting the resources of third world countries. If the World Bank is advising governments of poor nations to provide these schemes for the rich, why can't they be advised to support smallholder farmers to grow food on their fields for their families and communities?

### **Don't you believe in the good intentions and corporate responsibility of large companies?**

The Oakland Institute is not in the business of judging big corporations, but we do believe it is important to question why foreign investors take precedence in land acquisition in poor countries where so many people lack land rights. If land can be found to provide ethanol for Europe, why can't measures be taken to deal with food insecurity among local communities? Is there any evidence that land deals are transparent or democratic? And, even with a brilliant code of conduct, what kind of measures will be taken to minimise environmental and social damage? None of these questions have been answered by any of those involved. And these same questions apply to contract farming. What is

grown? For whom? And how? For us, it is important that the benefits first accrue to the local population. Africa has been repeatedly colonised and exploited. This is not a new trend. There is 400 years of history!

### **The IFC plays an ambiguous role. What does this say about the World Bank as an institution?**

Don't get me started. I think it shows that an agency which at the time of the food price spikes committed itself to putting in place policies to mitigate hunger and improve food security, is just doing the opposite. The policies promoted by the World Bank over the past 20-30 years have in fact undermined food insecurity in developing countries. Net food exporters have turned into net food importers. And now there is talk about the vast amounts of unused arable land in Africa: but what is this unused land? Is it the corridors that pastoralists need for moving? Is it the land left fallow for conservation? Or is it the 800,000 hectares of prime land in Ethiopia, where the government owns all the land and where they can decide to lease it? It's astonishing that promoting investment in developing countries is done by ranking countries on the basis of labour laws: if labour is paid well, the country gets a low ranking. But a country with a corrupt government, where workers' rights and environmental standards are not respected, gets a good business ranking, because business is conducted easily. That's not the world we want to live in!

### **Your report says that the IFC should be held accountable when its advice leads to land grabbing. How can this be realised?**

There are several ways in which this could be done. One is through the Compliance Advisor Ombudsman of the IFC, an independent accountability mechanism. They have done a brilliant job in the past. For example, the Ombudsman investigated community complaints about palm-oil plantations in Indonesia funded by IFC, and this led to all funding for palm-oil plantations by the entire World Bank Group being suspended. So we are asking for an investigation into the advisory services of the IFC.

**"Africa has been repeatedly exploited. This is not a new trend"**



The World Bank Group states that its mission is to end poverty, so let's question their role in causing poverty. Our publication has mobilised a lot of civil society groups. We have put the agencies on alert, and the most beautiful thing is that grassroots communities around the world are questioning the IFC during the consultations about technical advisory services and performance standards. It's almost like dragging Dracula into the sunlight. People have always been focused on projects, and suddenly the entire portfolio of giving advice to developing countries is being questioned.

### **What can be done to stop land grabbing?**

When the first reports came out, FAO and other UN and World Bank agencies expressed their outrage. But they soon changed their tone and started talking about concerns that can be turned into opportunities. I think we must question this whole jump into creating "win-win situations" and a code of conduct. We also need to question the role of private investors and other agencies. Non-agricultural actors and hedge funds are getting into the business, because they see that there is money to be made. We need to talk about these cases, in terms of what is really happening and the implications for local people, and not dress it up as a win-win situation. FAO should hold sessions in Ethiopia and Sierra Leone and ensure that the concerns of the local population are being heard, to make sure that all the projects provide detailed and accurate information to local communities and get their free and prior informed consent. And, of course, we should provide support to movements for land rights. Grassroots organisations are struggling for land, people are dying for it. But what is even more important, is that poor nations get the space to draw up and implement policies that benefit their own people. Governments have a role to play in this, although we cannot ignore the fact that African governments often lack the means to play that role. That's what the IMF's structural adjustment programmes have caused. Many corrupt regimes have been supported by western powers.

### **And how can smallholders be supported to play their role?**

It's very important, whether we are civil society, donors or academics, to acknowledge that the voices of smallholder farmers are the most important when talking about feeding the world in 2050. It's incredible how the voices of poor farmers are left out. Instead of designing plans to feed the world in Geneva, Brussels, Washington DC or Seattle (in case of the Gates Foundation), the solutions have to come from farmers' groups themselves. The questions and solutions are there! Except that they do not have a



**Is this really "unused" land?** Photo: Jorge Chavez-Tafur

platform to stand on to be heard and they don't get any funding. You'll find that the big money goes to promoting technological solutions that put farmers on the track of chemical inputs and GMO seeds. But it should be about social reform and connecting farmers' organisations. It's also to our benefit to listen to small scale farmers. The social inequality that brings about land grabs is not going to bring long-term prosperity to anyone.

### **How can developing countries move towards food security?**

There are several ways. We can start by looking at the recommendations of the IAASTD report from April 2008. This very clearly stated that business as usual is not an option and outlines the options for governments. We have just released a new report "The high food price challenge", which shows that countries that ignored the World Bank's advice at the height of the 2008 food price crisis did much better in combating and controlling hunger. So I think it is very important that countries have the policy space to define self-sufficiency as a policy goal. At the end of the Cold War, food self-sufficiency was not considered to be a priority. The free market and the free movement of commodities was to allow every country to meet its needs. Therefore, all services to support small farmers were dismantled: extension services, credit facilities, assuring markets for small farmers. Countries should be allowed space to draft policies which focus on food sovereignty. Another way would be to set food prices differently so that they include the costs of air, soil and water pollution. We need multi-stakeholder processes at local, national and regional levels to discuss this. It may be time-consuming, but I cannot think of better work for governments: it's what democracy looks like. ■

# PES= profits equally shared

From farmers to hydroelectric power stations, the number of downstream water users is large and diverse. But the quantity and quality of the water they receive depends on what is done upstream. Upland communities can now get compensation for their role, following business agreements from which everybody benefits.

Text and photo: Julio Tresierra



Better farming practices that bring multiple benefits.

It is widely estimated that, during the last 30 years, the world has lost between 30 and 50 percent of its biodiversity – as a result of urbanisation, industrialisation, or our overall interest in improving living conditions. It is frequently argued that biodiversity cannot compete with the economic value of alternative land uses, such as agriculture or mining, which generate incomes. However, it is also recognised that natural ecosystems produce a wide range of environmental goods and services with an economic value, such as food and non-timber forest products, and others whose value is not always economically recognised, such as carbon sequestration or the regulation of water quality and quantity. Payments for Environmental Services (PES) seek to address this problem. PES schemes are finance mechanisms designed to transfer rewards from those who benefit from environmental services to those who ensure that these benefits continue to be provided. The beneficiaries can include the private sector, such as industries or farmers, or public sector institutions, such as drinking water utilities. For those communities that manage land and other resources,

PES is increasingly seen as a potential source of income to improve their livelihoods. Since 2006, WWF and CARE have been working on an innovative finance programme called “Equitable payments for watershed services”, running pilot projects in Tanzania, Indonesia, Guatemala and Peru. Equitable PES schemes differ from regular PES mechanisms in that they aim to bring substantial benefits to the poor. These can include infrastructure at a community level, such as schools, hospitals and roads, or income generating activities. But the benefits can be much broader, including community empowerment, reduced vulnerability to climate change and more stable social, cultural and environmental conditions. Second, equitable PES schemes aim to make payments to the poor in a just and equitable way. This implies putting the priorities and needs of the poor centre-stage, incorporating local values, knowledge and practices into natural resource management regimes, and ensuring that women and marginalised groups play a central role in the PES schemes. This explicit focus on reducing poverty in rural upland communities involves inviting these and other groups to take a seat at the negotiating table, to discuss with stakeholders downstream the best way to manage a watershed for mutual benefit. A change from subsistence practices towards more sustainable land use could improve the livelihoods of poor upland farmers while, at the same time, protecting the environment and providing a reliable and continuous supply of quality water to users downstream.

**A business proposition** In the negotiation process, the service providers and users (or the “sellers” and “buyers”) establish long-term business agreements. These are based upon baseline studies on hydrology and community livelihoods, as well as legal, institutional and economic analyses. These studies help put a price on the costs and benefits involved. They also help identify potential buyers, such as food or drink processors, hydroelectric companies, associations of water users, or governmental water utilities. Small-scale farmers in upland communities take a seat at the negotiating table, together with downstream commercial, industrial and domestic users. They talk as equal partners and negotiate a Memorandum of Understanding. The negotiation process is to “restore” or improve a watershed system. Signing this Memorandum marks the end of the first phase of the project. The second phase involves implementing the agreed land use changes in selected “hot spots”, and the monitoring and evaluation of the impact of these changes. A third phase will start when buyers and sellers of watershed services establish legally binding agreements. By this time, it is expected that there will be sufficient local capacity in place to

## Checking erosion in Teculután

Flowing to Guatemala’s southern Atlantic coast, the Motagua and Polochic rivers are part of the larger Mesoamerican Reef Ecosystem river basin. Both run down from the tropical cloud forests within the Sierra de las Minas Biosphere Reserve, one of the most biodiverse regions within Mesoamerica. The reserve is one of the largest unbroken extents of cloud forest, covering around 1,300 km<sup>2</sup>, of which some 65 percent is primary forest. The project focuses on the Teculután watershed, one of the 63 sub-basins of the Montagua-Polochic complex which covers an area of approximately 200 km<sup>2</sup>.

There are many and diverse water users in this watershed, including coffee processing units, bottling and paper industries, large and small-scale farmers, and also private households, most located in the town of Teculután. The forest and freshwater habitats in this region have been affected by changing farming practices (steep hills, cattle ranching, and slash and burn) and there is also severe pollution, resulting from the use of chemical pesticides and fertilisers and from domestic and industrial effluents. Deforestation in a hilly area, where rainfall reaches up to 2,000 mm/year, has had an enormous impact on the soil. It is estimated that more than 20 tonnes of soil are lost per year as a result of erosion. Sedimentation, pollution and turbidity mean that there is less water available for human consumption or for industrial and commercial uses. Erosion is also threatening biodiversity in the wider Mesoamerican Reef system. The local municipality recognised that there was a clear problem of water quality as a result of erosion and sedimentation. In addition, changes in land use were leading river flows to change drastically, and increasing the extremes of high runoff levels in winter and low summer flows. As a result, many downstream communities had little water, of poor quality, for much of the year.

The first step in the project was to identify the communities that were contributing most to the problem: El Astillero, Las Anonas, Las Minas, El Arco, San Antonio and El Oreganal. With a total population of 3,000 people, they mostly cultivate maize and beans in the upper parts of the watershed (covering a total of 224 hectares). All the community members belong to the Association

for Community Development (ADICOMTEC) and all were included in the business agreement as “sellers”. Being responsible for providing safe water to 18 communities (with approximately 13,000 inhabitants), the Municipality of Teculután was included as the “buyer” in the watershed business model.

The city had two options for solving the water problems it was facing. One was to invest in water treatment plants and distribution systems, and to buy water to supply communities in times of shortage or excessive sedimentation. This was a short-term and unsustainable solution. The second option was to set up a compensation programme for watershed services, to encourage farming and other practices that were compatible with the integrated and sustainable management of the watershed – something that could bring about a medium and long term solution. Arguments were made that changes in the current agro-cultural practices could improve the ground vegetation cover and reduce erosion, and that this would reduce the sedimentary load in the surface water. The municipality opted for this alternative.

As part of the project, ADICOMTEC has set up a tree nursery and is planting out trees over an area of 400 hectares. The nursery has over 75,000 native species plants from the region. The planting programme involves local villagers who have received training in forest management and reforestation. Men and women are participating in the reforestation, even though conditions are harsh (mainly because of the rocky soils and the lack of water sources). Another specific component of the project focuses on agricultural practices and is promoting the production of high-profit crops such as okra, watermelon and oriental vegetables. The municipality has provided 35 hectares of land for these crops, of which 20 are now used for growing okra. Women play an important role in the cultivation of okra and benefit economically from this. Another agricultural experiment is being carried out with different high-yielding maize varieties, applying various cultivation techniques. A small experiment was carried out on two hectares of land, comparing the productivity of these varieties to those commonly sown, and showing that the new ones produced up to seven times more. In total, profits on the 35 hectares were more than US\$ 70,000 in 2009. In addition, the promotion of better land use practices has also led to the creation and training of fire control brigades. Although the project is not yet finished, farmers have seen their incomes increase, and the municipality has more and better water.

manage the mechanism, allowing external agents, such as donors, to leave.

## An enabling environment

The results of the first phase of the WWF-CARE programme have shown some of the key conditions for equitable PES. There must be:

- a clear willingness (and capacity) to pay and for people to sell ecosystem services;
- well-defined property rights;
- a good understanding of environmental characteristics and linkages;
- the possibility of keeping transaction costs low by concentrating on groups;
- mechanisms for regular and contingent payments;
- appropriate legal frameworks; and
- willingness to talk to each other, engage in dialogue and participate.

The biggest challenge in establishing a Payment for Watershed Services project is that of generating initial interest from a buyer. The emphasis in many PES schemes has often been on seeking the engagement of service providers. But in such cases it is often difficult to convince buyers that the opportunities are ecologically or economically justified. To involve potential buyers, the WWF-CARE project has developed compelling business cases which quantify the problems associated with land use in the upper watershed and provide rigorous financial cost-benefit analyses. The strength of these financial arguments led buyers at all sites to contribute to the development of the project long before, and without any certainties about, the delivery of watershed services started. Another challenge has been ensuring social justice and equity, as poorer households tend to have little or no land and no influence on decision-making at community level. This issue requires continuous attention and identification of special compensatory or enabling measures. Partnering local communities, local and national NGOs, the private sector and governmental agencies offers a key to success.

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## More information

Apart from Guatemala, the WWF-CARE project has also had positive results in the Jequetepeque river basin, in northern Peru, and in the Uluguru Mountains, in Tanzania (see [www.wwf.nl](http://www.wwf.nl)). Similar approaches are being tried by other organisations. In Kenya, the World Soil Information Centre (ISRIC) and IFAD are collaborating in a green water credits programme, in which farmers in the Upper Tana catchment area are rewarded for sustainable land use by the hydro-electric company KenGen ([www.greenwatercredits.info](http://www.greenwatercredits.info)).

Alongside the large-scale floods that fill the news these days, millions of hectares and people around the world are being affected by drought, with large areas suffering from severe drought and fires. The current tenor of these tragedies can be summed up as the result of water wasted during surplus months and used wastefully in scarce months.

Once the water problem was much less severe: population pressure was low and needs were limited – societies not only had reservoirs to conserve water sources. It is not for nothing that every mountain peak from which a stream flows is considered sacred almost all over the world. Buddhist teachers preached the need to conserve even a drop of water more than 2,000 years ago. Nobody could have imagined that, in many places, water would cost more than milk in 2010. Water is becoming an increasingly scarce resource. And yet so many people waste so much of it every day. How has this come to be?

Let us go into the past and try to understand why institutions for common property resource conservation emerged in the first place thousands of years ago. People seemed to have converted problems of risk into ones of uncertainty and tried to reduce their control, by creating randomness in the way resources were accessed. My feeling is that the elders realised that by creating an artificial scarcity of resources through institutions, they could justify allocative rules that were fair and just. Also, if communities were to be created, then water points could become meeting points where social and cultural exchanges took place and communities created. Shared futures were thus designed.

The introduction of markets made the individualisation of resources inevitable. Immediate consumption replaced deferred consumption. Satisfying all our needs at our own place rather than at our communal place became a lifestyle, a power and status symbol. Wasteful and redundant usage became the next logical step.

We have now reached a point in which negotiations to find any common ground for our shared resource use have become so difficult that wars seem the only alternative. Yet, I submit that peace is possible - through shared use patterns, and the creation of frugal cultures that impose an artificial scarcity on those who are used to wasteful resource use. We have to create new rituals, new institutions, new fashions and new trends. Water is too precious to be wasted on the altar of consumerist urges gone haywire.

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# Water, Wisdom & Wars

# Agricultural heritage systems for food security

In our June 2005 issue, an article explained how GIAHS (Globally Important Agricultural Heritage Systems) was being developed to safeguard the world's most valuable traditional agricultural systems, reflecting rich biodiversity, knowledge systems and cultures. David Boerma, now working on a large GIAHS initiative funded by the German government in Tanzania and Kenya, explains how the concept has moved on since then.

**P**rotecting special agricultural systems is not easy. It starts with proper recognition, which according to Boerma is a major challenge: "One of the biggest lessons from the pilot project was that in order to maintain these systems, you need to spend an enormous amount of time sensitising governments to put the farmer at the centre." In places with top-down governments, a whole change in thinking needs to take place. "In Africa you have to work hard to get rid of the deeply engrained prejudices about small-scale farmers and traditional systems being backward." GIAHS is a concept that crosses many sectors, and this involves learning how to bring together different government agencies to work towards a common goal. Boerma works in two countries with a mixture of ministries and agencies, with responsibilities for agriculture, livestock, the environment, wildlife services, heritage, tourism and natural resources. He insists that all the team members attend all the meetings, which has paid off: "nobody blocks the process because everyone is included." The first step is getting people to recognise the importance of GIAHS: after that the protective policies can (eventually) be put in place.

Farming communities are often confused by conflicting advice, much of it telling them to abandon their old ways. Boerma works from the principle of "free prior and informed consent" in guiding communities to come to informed decisions about the consequences, good or bad, of different choices, as well as the risks involved. Establishing exactly what to preserve is often a major discussion point. While the World Heritage Convention seeks to preserve sites exactly as they are, GIAHS is based on the concept of "dynamic conservation". This means supporting the continued existence of a special landscape or agro-ecosystem, but allowing it to adapt so as to ensure

food security and sustainable livelihoods for farmers. Boerma explains: "These systems are innovative because they are able to adapt to specific ecological and cultural processes in the area." For example, the Maasai's rotational grazing system in Kenya and Tanzania is under pressure because of a decreasing land base for pasture and a lack of access to water. By building water points and starting sustainable tourism activities the project is trying to prevent this unique GIAHS from disappearing. (MS)

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Maasai pastoral system at Engaresero, Tanzania.

Photo: David Boerma, FAO

## Solidarity subscriptions

A few weeks ago we sent out our electronic newsletter and invited readers to take out a “solidarity subscription”. We have already received many positive reactions – and many readers have taken a paid subscription. They will receive a full year of *Farming Matters* and, at the same time, enable us to send the magazine for free to people or organisations lacking the means to subscribe. Interested in joining this campaign? Send us an e-mail and help us keep this campaign going!

## New East African magazine

Our partners in Kenya, ALIN, are merging the production of the regional edition of this magazine, *Kilimo Endelevu Africa*, with the other magazine they produce, *BAOBAB*. The new publication will be called *BAOBAB*, and will contain articles, news items, interviews, and lots of information on small-scale farming in the region. Readers of *Farming Matters* in Kenya, Tanzania and Uganda will also receive *BAOBAB* during 2010, and will then be asked to opt for one of the two magazines. We will be very interested to hear your comments and opinions!

## Our December issue: Partnerships for learning

When talking about small-scale family farming, many different people and organisations can be labeled as “stakeholders”. But what do they learn from each other? And how do they learn to work together to create more sustainable agriculture? These are some of the questions we want to address in our next issue. Be sure you get your own copy. Fill in the subscription form if you still haven’t done it.



## Readers' panels

During 2009, both *ileia* and our partner organisations carried out a series of impact studies. These studies looked at how the magazines are used and how the information in them helps increase yields or improves livelihoods. Continuing these studies, and as part of the regular evaluation of our magazine, we are planning to set up a readers' panel. This will help us look at the articles, the overall themes, the layout and presentation, and – most important – the use given to every issue. Interested in joining and sharing your opinions? Please get in touch with the editors.



Photo: Jorge Chavez-Tafur

# What does good water governance mean?



**T**his August, the Niger river reached its highest level in a century. Homes have been swept away and horticultural crops – the lifeline of many households – destroyed. Some people blame climate change and the heavy rain, but I think there is another reason. If you check, the amount of water flowing through the river is not extremely high. But the water is muddy and carries silt into the river bed, causing the present flood. Rather than climate change, it is the degradation of the land upstream that is causing these floods.

The root cause of this is that people in this country are cutting down too many trees. The story is well-known: people are poor, they cut trees for sale or for home use, the land degrades, production goes down, and people get poorer. Interestingly, when

you ask the farmers you will find that everybody knows this. So it is not just a question of education, because if one farmer stops cutting and another continues to do so to make some money, the problem doesn't go away. Similarly, if one community preserves trees in the landscape, another may come and cut them down. Pastoralists are very mobile and if the situation is not regulated jointly with farmers, no tree will grow to maturity. Thus restoring the landscape and preserving the soil is a real multi-stakeholder task. Local level joint action (such as Integrated Water Management) can provide the basis for such a response. People need alternative income sources, and trees may well be a good means if they are allowed to grow long enough. But local level action is not enough. The task is so vast that even our organisation, with 60,000 members, can hardly start to address the problem. We all have a role to play, but it takes a strong, respected actor to ensure that everybody takes part and nobody takes a free ride.

Who has the power and the

authority to address the problem at this vast scale? Who can coordinate farmer organisations and inspire local governments and traditional chiefs to actively support initiatives? I think that the state is the sole actor with such powers and means. Without the firm and active involvement of the state, nobody can solve the land degradation problem. We, farmer organisations, are prepared to play our role in this enormous task. Yet we need the state to back us up, to make funds available, to pass legislation, enforce the rules and help and support local authorities to carry them out.

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**“Without the firm and active involvement of the state, nobody can solve our problems”**



The livelihoods of small-scale farmers depend on fair access to water, yet their interests are often not taken into account, nor their voices heard. What does good governance mean in terms of water management? Should the focus of governance efforts be on drafting new legislation? Or is good governance reflected in the enforcement of the law? Join the debate at [www.ileia.org](http://www.ileia.org)  
> Open Forum



**T**he world's problems relating to water are well known. Statistics reveal that thousands of children die before the age of 5 as a result of diseases caused by poor water quality. At the same time, water is becoming increasingly scarce, particularly for small-scale producers. Ecosystems that provide water are degraded or drying completely. Climate change is already having an effect on the world's hydrological cycles, and millions of people have seen their livelihoods affected by floods or droughts, with many forced to migrate to other areas. Many countries, particularly in South America, have recently modified their legislation on water, announcing an innovative approach that is simultaneously multi-sectoral, decentralised, participatory, environmentally sustainable, equitable, and which

also gives due recognition to the customary rights of peoples. The recently passed law in Peru includes all these principles. But, in spite of the lofty words, there are some serious gaps in the legislation and there are articles that specifically contradict these principles. Even more importantly, there does not seem to be a serious interest in enforcing these principles and benefiting those who most need support, such as small-scale farmers. One of the major flaws is that this law, like others, does not require or impose a thorough land planning process, which makes watershed management virtually impossible. Large-scale operations, such as mining concessions, know no boundaries. Much land that is currently used for food production is vulnerable to being displaced by agribusiness, biofuel enterprises, or mining projects, all of which compete for the land and the water sources on which farmers depend. Unlike small-scale farmers, many of these large-scale projects are subsidised or receive financial benefits from the state. Moreover,

they benefit from preferential water rights, which the state is now granting under the same law. Disregarding traditional use, the new law is "assigning" water as if it had never been used before. This will place food security in Peru at serious risk for decades. It is hardly surprising that the accumulation of land and water rights in countries like Peru is the cause of more and more socio-environmental conflicts. The authorities need to move beyond the discourse they are currently engaged in and begin to practise what they preach. While the new legislation is welcome, it needs to be enforced in a way that takes all stakeholders into account, and not just the strong and powerful. And legislation needs not only to take water management theory into account, but also the practices and needs of millions of farmers.

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**“Legislation needs to be enforced in a way that takes all stakeholders into account, and not just the strong and powerful”**



# Running water uphill with a ram pump

Gravity makes water run downhill, so people and communities living in mountainous areas often have more difficulties in accessing sufficient water. As this example from the Philippines shows, simple technologies can be a great help – but their application requires co-ordinated efforts among all stakeholders.

Text and photos: Auke Idzenga

**L**ife in mountainous areas can be hard: access to water sources is often difficult, soils are easily eroded, there is a lack of electricity and the roads are poor or non-existent, making it expensive to transport goods. Fetching water is a time consuming activity. Children sometimes miss school because they have to fetch water. Many old people who can no longer make the arduous trips down to the streams, have to pay others to get water for them. Women take their small children with them to do the washing, and spend much of their precious time.

**High and dry** In the Philippines, as in many other countries, the lowlands are generally occupied by richer landowners, while small-scale farmers and their families are found in the higher areas. They often have to make daily trips to fetch water. These efforts demand much time and energy, and result in a reduced consumption and use of water (estimates suggest that where water has to be carried by 100 metres, consumption is limited to 40-60 litres per day for a family of six). A lack of water can lead to many problems: skin diseases, diarrhoea and malnutrition. Water shortages also limit agricultural production: most upland farms rely on rainfall, which limits production to one crop per year. They also limit the possibility to raise livestock, to practise aquaculture or to process food products. In short, water shortages pose a significant constraint to practising

or electric power. The hydraulic ram pump is not as well known, but it is definitely the best option in terms of initial investment, operating costs and the availability of parts. The only condition is that it needs to be located close to free flowing water, as a ram pump utilises the energy of flowing water to pump a portion of the water running through it to a higher elevation. No electricity or fuel is needed. For every metre drop from the source to the ram, a ram can pump the water up to 30 times higher. For example, with a drop of 4 metres, a ram can pump water up to 120 metres – and for 24 hours per day.

**Working with pumps** The ram pump is a technology which seems to have been bypassed by the industrial revolution. But its enormous potential lies in its simplicity. AIDFI's starting point was to work with locally available materials and parts (including spares), and also to generate local employment through manufacturing and installing the pumps, so as to make this technology cheaper and more easily available. AIDFI started by visiting other ram projects and learning from the experiences and mistakes of others. It then started its own design process, following the idea coined by Antoine de Saint-Exupery, who stated that "a designer knows he has achieved perfection not when there is nothing left to add, but when there is nothing left to take away". The ram model uses ordinary door hinges (available anywhere in the world) and a check valve made



According to Roberto Barganio, secretary of the Water Committee in Anangue, "The young ones are now able to wash their hands and faces. We eat better because we have more vegetables from our gardens and we can also keep more animals".

diversified or integrated farming. The Alternative Indigenous Development Foundation (AIDFI), a local NGO based in Bacolod City, on the island of Negros, has been working with small-scale farmers for many years. Seeing and hearing about the recurrent water problems faced by many farmers, AIDFI decided to concentrate on addressing their basic need for water for drinking and irrigation. Since 1990 AIDFI has been working on different types of water pumps and now its flagship is the Hydraulic Ram Pump. Pumping devices are usually based on wind energy, solar, diesel

from a piece of a car tire. Adopting the ram to other countries is easy: it just involves adapting it to the locally available door hinges. As seen in the villages of Murcia, in Negros Occidental, the installation of a ram pump starts with a demand for water. In some cases this comes from an individual client or an NGO, while in others AIDFI takes the initiative to start talking about water in a community. In Anangue, for example, the first step involved talking with the leaders of the community about the importance of an autonomous but democratic structure for managing a water project. We then invited

all villagers to see a ram pump working, with a miniature model demonstration. The next step was to set up a water association, which plays a key role, distributing roles and responsibilities and deciding who will be the contact point with AIDFI. The whole group also decides which villagers will be trained to become the local technicians. The technicians report to the association, which pays them for their services usually on a monthly basis, using the fees paid by all users. Each association decides how much this fee should be and how much to pay the technicians. A percentage of the fees collected are also meant to cover repair costs, spare parts and the general maintenance of the pump, things which are all arranged by the association. The training of the technicians goes hand in hand with the installation of the pump. In Anangue, AIDFI staff came to the village for 3 or 4 weeks to build and install the pump. The local technicians worked with the project team during this period, learning how to operate, maintain and repair it. In some cases, these villagers have some technical background, but this is not necessary. The pumps are fabricated in one place because this requires precision skills and machines, but spare parts can be readily bought from local hardware stores and replaced.

**Always more** One of the most common results we have seen is that villages never have enough water: the need for water seems to increase in line with its availability. Once the pump starts working, all sorts of “new” uses are discovered, and demand grows. This is why the association needs to develop strict regulations which ensure equal sharing among all – for example by establishing common tap stands in the community to provide drinking water. Irrigation is often the main water use and this water has to be shared and distributed evenly. Setting up irrigation schedules and internal regulations is one of the most important tasks of the water associations. AIDFI supports all the associations that ask for help in drafting these regulations, but feels that it must not interfere further; nor has this proved necessary. Conventional pumps and dams have caused conflicts among many communities as they block some users’ access to water (for example, those farming downstream). This is an important factor to consider in all discussions involving upstream and downstream users. But, unlike other forms of water pumping, the ram pump only pumps up a certain portion of the water passing (between 5 percent and 40 percent). The rest of the water goes back to the stream. During dry seasons it is important that small streams are not emptied by individual villagers pumping up too much water from the dam or stream; the ram pump leaves enough water to flow downstream. This makes more elaborate systems possible: in Murcia there is a system with 11 kilometres of pipelines coming from four ram pumps. It passes

## Water tips!

- Keep the design as simple and basic as possible, taking local materials as your starting point.
- Use a miniature of a ram installation during community orientations and for display purposes, at trade fairs, forums and workshops.
- The best promotion is an actual installation in the field. Imagine a site where people had to go down 100 metres daily, to collect a maximum of 40 litres, whom now have ten times as much free flowing water at tap stands near their homes.
- Have a good website and be at “places to be”. For example, AIDFI took a demonstration ram pump to a Techno Park and welcomed 3,000 visiting farmers, associations, cooperatives, NGOs and government agencies since November 2008.
- Aim at different funding sources to avoid that the project is claimed by one group.

through several different villages, each one with a reservoir and series of tap stands, controlled with gate valves. One water association covers these different villages, as there is a strict implementation of rules needed. Villagers are allowed to open the tap stands only at certain agreed times.

**Scaling up** AIDFI has continued expanding its production and installation of ram pumps. This now accounts for almost 90 percent of all our work. Some installation teams have gone to work on other Philippine islands. We work with individual farmers, farmers’ associations, co-operatives, large and small NGOs and governments. The advantages of ram pumps have also been noticed abroad. This has led us to become active in Afghanistan, Colombia and Nepal. In Cambodia we have worked with a local NGO to set up a drinking water system in Koulen, a mountain village. Work proceeded in a similar way: the only difference was that women played a role in the construction of the pumps, while in the Philippines that is seen as men’s work. But to get all stakeholders to work together remains of central importance.

**Auke Idzenga** is a marine engineer who has lived in the Philippines since 1985. In 1991 he helped found AIDFI. E-mail: [aidfi@hotmail.org](mailto:aidfi@hotmail.org) ; [www.aidfi.org](http://www.aidfi.org)

## Cast your vote!

AIDFI and its hydraulic ram pump programme was selected as one of the 12 finalists for the BBC World Challenge 2010, and shown on a half hour documentary programme. The winner will be decided by public voting, which can be done online on [www.theworldchallenge.co.uk](http://www.theworldchallenge.co.uk) from September 27 till November 12, 2010. Go online and cast your vote!

# Watersheds and other water issues



When Project WET first began in north central United States in 1984, it aimed to find tools to explain about groundwater processes to schools and communities. Now, 25 years later, the centre produces a wide variety of water resource materials and training programmes for educators in over 50 countries. Sandra DeYonge, Vice President of publications, explains the universality of teaching this subject: "Regardless of culture or geography, one thing that connects us all is water!"

Text: Mundie Salm Illustration: Fred Geven

**P**roject WET is mostly aimed at educators and students in primary and middle schools. However its resources, which include curriculum guides, booklets of activities, games, posters and other materials, can be used much more widely. The topics cover all the basics about water – from hygiene and water quality, to learning about the water cycle, watersheds, groundwater and floods. The concept of watersheds is close to DeYonge's heart: "A saying that holds true for everyone is that 'we all live downstream'. We all live within a watershed and I firmly believe that when people understand what this is and how we are all connected by water, then they will behave more responsibly in taking care of it." This underlines the importance of taking a "watershed approach" when addressing environmental problems.

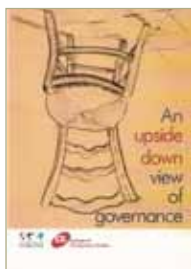
**Watersheds as "sum of the parts"** Watersheds are a difficult concept to explain. Project WET defines a watershed as "an area of land that drains into a specific body of water like a river, stream or lake" and includes everything within its borders. A large watershed, such as the Nile's watershed in northeast Africa, can also contain many smaller watersheds around streams that drain into the Nile river. But what about people who live in a less obvious watershed? A simple exercise can be used to explain the concept of watersheds anywhere: all you need is a mound of clay, a cup and some water (see illustration, and see box to download the full activity). Project WET uses this simple tool to get people to

simulate water falling down slopes, to understand how water drains down a slope in a particular direction, and how watersheds have boundaries and can also consist of smaller watersheds.

DeYonge hopes that such simple exercises can help people better understand basic concepts about water and apply this understanding to water resource issues in their community. This is central to Project WET's "ActionEducation" programme, which encourages schools and communities around the world to organise educational workshops and events, and to then apply their knowledge to help solve a local water resource issue. She explains about a recent festival at a middle school in the United States which stimulated students to set up a recycling programme at their school. Getting serious and difficult concepts across does not have to be boring. To DeYonge, simple games and investigative exercises help show that "learning can be fun" while also going a long way to get people to use shared resources in a responsible way. ■

For more about Project WET and their publications, visit [www.projectwet.org](http://www.projectwet.org), where you can download the "Sum of the parts" exercise and the free booklet "Healthy water, healthy habits, healthy people." Other publications are available by clicking on STORE, or by writing to: Project WET Foundation, 1001 West Oak Street, Suite 210, Bozeman, Montana 59715, U.S.A.

## MIND! > NEW IN PRINT



### **An upside down view of governance**

**Institute of Development Studies, 2010. IDS, Brighton, U.K. 85 pages.**

OECD governments spend over €7 billion a year to improve governance – yet for many, governance is a vague concept. This book explains what practitioners know from experience: local power structures matter, and can help or hamper development. It provides practical tips on how to relate between formal and informal governance structures, and shows the importance of being clear and precise in the use of language. Understanding these concepts is particularly important in the agricultural sector, where many traditional arrangements over issues such as water use, can clash with formal forms of governance.



### **Diet for a hot planet: The climate crisis at the end of your fork and what you can do about it**

**Anna Lappé, 2010. Bloomsbury USA, New York. 312 pages.**

This inspiring and easy-to-read book explores the links between our food systems – from seed to plate to landfill – and climate change. Lappé addresses three questions: Why does our food system play such a significant role in climate change, accounting for over 30 percent of human-induced greenhouse gas emissions? How can food and farming be part of the solution? And, how can people change their diets to become more climate-friendly? She confronts several “myths”, devoting two chapters to the “hunger” and “technology” myths that see industrial agriculture and biotech crops as the only solution for feeding ourselves and saving the planet. Lappé argues against these myths, bringing together evidence that leads her to conclude that agroecological methods are our best option.



### **Ecological farming: Drought-resistant agriculture**

**Reyes Tirado and Janet Cotter, 2010. Greenpeace International, Amsterdam. 15 pages.**

We increasingly hear in the news about extreme weather events, be they floods in Pakistan, forest fires in Russia or droughts in Niger. This short report looks at how farmers can adapt to changing rainfall patterns. It focuses on strategies based on biodiversity and creating a healthy soil. It also reviews the potential of conventional breeding methods, including marker-assisted selection (MAS) to produce drought-resistant crop varieties. The authors conclude that MAS is a better option than genetic engineering, as it is better at selecting complex traits such as drought-resistance, and avoids the risks entailed in artificially transferring genes between organisms. It shows examples of successful conventionally bred drought-resistant maize, wheat and rice.



### **Dead planet, living planet: Biodiversity and ecosystem restoration for sustainable development**

**C. Nellemann and E. Corcoran (eds.), 2010. UNEP, GRID-Arendal, Norway. 109 pages.**

This beautifully illustrated report, a contribution to the UN's International Year of Biodiversity, highlights the many benefits that flow from restoring the world's ecosystems, such as forests and wetlands. It draws attention to the services provided by healthy ecosystems. These extend beyond direct resources, such as food or water, and include services such as climate or water regulation, soil formation and photosynthesis, as well as cultural services. The authors translate these services into monetary figures to show the strong economic benefits of ecosystem services. They also provide thirty case studies of widely-ranging ecosystems that have been successfully restored following disruptions such as agriculture or mining. The report concludes with eleven policy recommendations.



## Negotiate: Reaching agreements over water

John Dore, Julia Robinson and Mark Smith (eds.), 2010. IUCN. 120 pages.

If negotiation is the key to fair, effective and sustainable water management, then the world certainly needs a lot of it. The importance of talking, bargaining, sharing perspectives, searching for solutions and coming to collective decisions, are clearly presented in this book. Examples from around the world show the benefits of a "negotiation approach", which the authors argue is an indispensable aspect of water governance. Ideas on how to negotiate include taking the four Rs (rewards, risks, rights and responsibilities) into account, as well as "constructive engagements" to help reach a necessary agreement, whether this becomes a contract, law or code of conduct. Policy-makers and practitioners alike will find this an easy-to-read and very interesting book.



## Out of the mainstream: Water rights, politics and identity

Rutgerd Boelens, David Getches and Armando Guevara-Gil (eds.), 2010. Earthscan. 366 pages.

This book explores the world of water rights and policy regimes, examining national water policy-making in the light of local "water cultures". The contributing authors in this academic collection focus mainly on countries in the Andes (especially Peru, Chile, Ecuador and Bolivia), with some experiences from elsewhere in Latin America and the southwest United States. While many new water policies are based on universal, "mainstream" principles and the concept of individual rights, the authors show that legislation does not reflect successful local systems, based on collective rights and practices. This book calls for policy-makers to look more carefully at the valuable context-specific aspects of local water users' management systems and to move away from setting one-size-fits-all regulations.

## More on water management

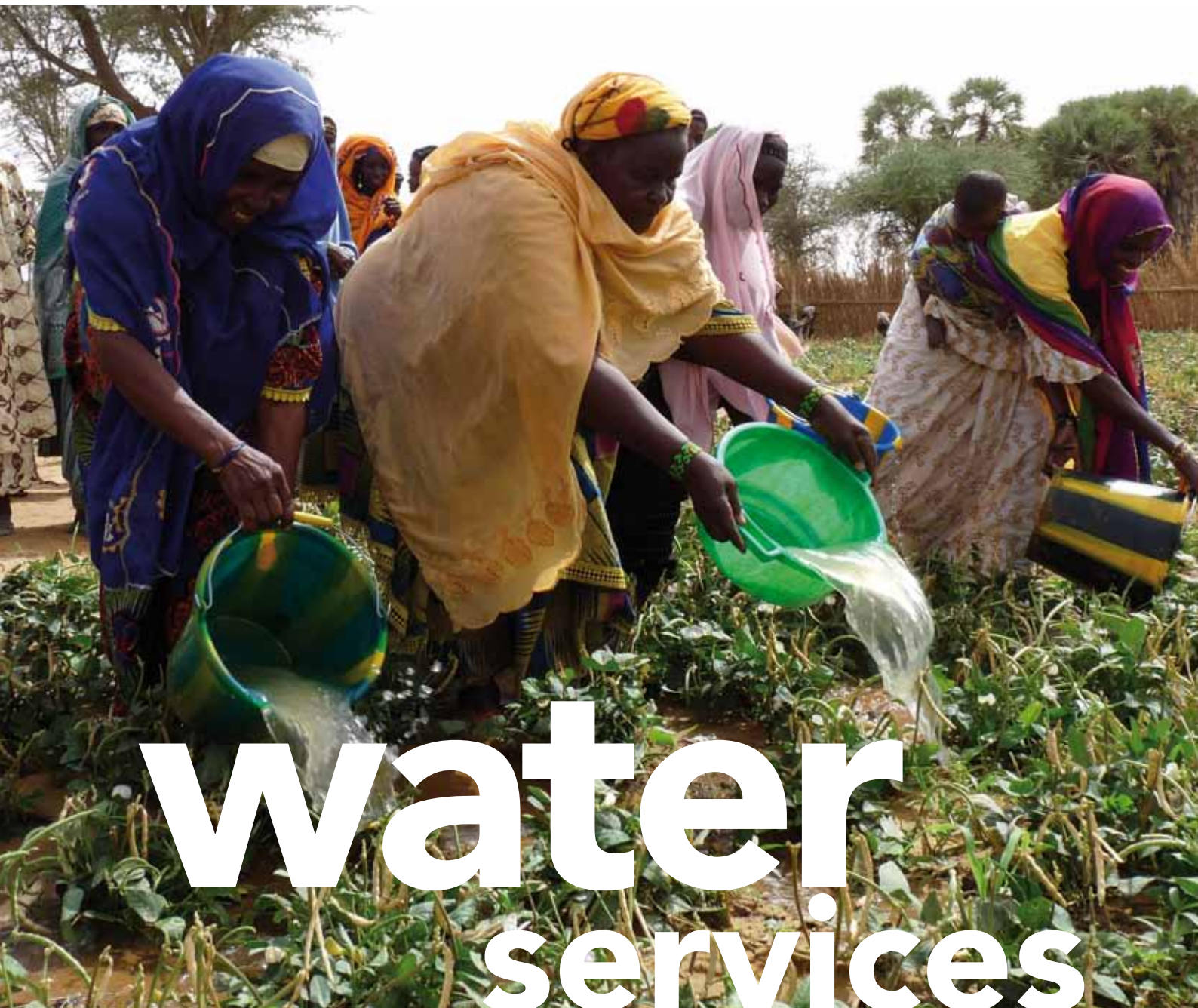
There is a wealth of documentation and information on water management to be found on the web. Key sites include the United Nations' "Water for Life Decade" pages, those of EMPOWERS, the IUCN/REWARD programme and those sponsored by the International Water and Sanitation Center and the International Water Management Institute. A very thorough publication, also to be found online, is the result of a comprehensive assessment that started in 2001 and has involved more than 700 scientists and practitioners: "Water for food; water for life" (2007)

In "Rule: Reforming water

governance" (IUCN, 2009), Alejandro Iza and Robyn Stein look at the role played by policy, laws and institutions in water governance, while the policy experiences of OECD countries are analysed in detail in "Sustainable management of water resources in agriculture" (OECD, 2010). The relationship between climate change and water availability is covered in detail in "Climate change adaptation in the water sector" (Fulko Ludwig et al., Earthscan) and also in "Water ecosystem services and poverty under climate change" (James Mayers et al., IIED). Both of these were published in 2009.

Another recent publication is "Climbing the water ladder" (Barbara van Koppen et al.), where the authors argue for a multiple-use water services (MUS) approach as the best alternative for peri-urban and rural areas. More on MUS can be found on [www.musgroup.net](http://www.musgroup.net)





# water services

that address  
different  
priorities



Water is generally taken from different sources, and used for multiple purposes. The multiple-use water services approach, MUS, contrasts sharply with the sectoral divides that are common within the water sector, which view domestic use, irrigation and sanitation in isolation rather than as a whole. Pilot projects in different parts of the world show the many advantages of integrating multiple uses and priorities.

Text and photos: Barbara van Koppen

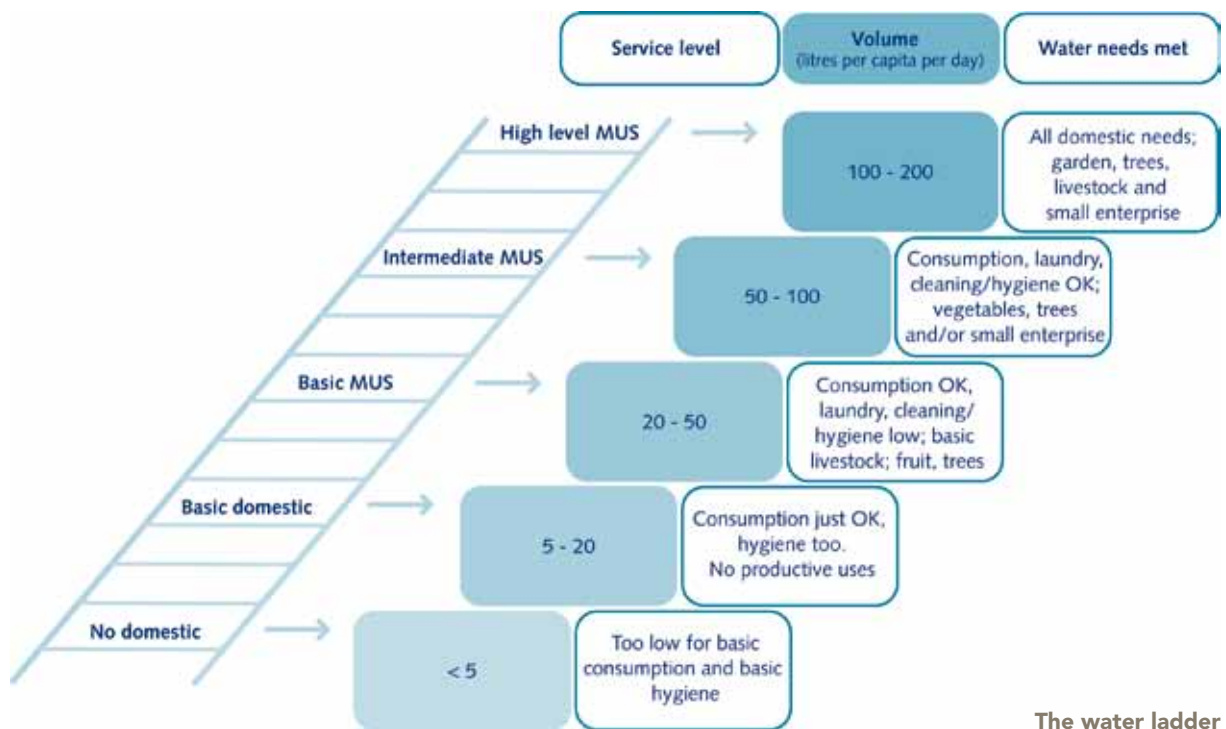
**N**egotiations about water are not only about users, but also about the priorities of each user. In rural and peri-urban areas, people's diversified livelihoods create many water uses. Water is used for drinking, sanitation, other domestic uses, livestock, gardening, irrigation, forestry, fisheries, brick-making, crafts, small-scale enterprises, and even has cultural and ceremonial uses – all of which are vital for health, food, income and freedom from drudgery. In the informal water management system seen in most communities, water is typically taken from multiple sources, and infrastructure is developed for different uses. Integrating the use and management of these water sources for integrated livelihoods brings life-saving resilience.

In a sense, water users worldwide have always negotiated, silently but successfully, with public-sector planners and engineers: they often make multiple use of water schemes designed for a single use, whether in a “legal” way or not. However, such strategies can cause problems if they are not planned for. Cattle may damage irrigation canals; getting water for gardening from a communal piped system designed to provide small quantities of drinking water, may deprive downstream users or other community members. Planners, in government programmes and NGOs, can solve these problems and respond to these silent negotiations by planning public water schemes for multiple uses, according to people's priorities.

**Multiple-use water services** In recent years, this new water services approach has been piloted and disseminated as “multiple-use water services” or MUS. An international core group of 13 partner organisations (the International Water and Sanitation Centre, International Water Management Institute, Winrock International, Rain Foundation, ODI, Pump Aid, IFAD, FAO, Challenge Program on Water and Food, World Fish, Cinara Colombia, WEDC, and Plan International), together with 300

other members, have been bringing experiences together from their various pilot projects, identifying lessons and exchanging ideas. Projects always begin with participatory planning at the community level, which is used to identify the main priorities of all users, including women and other marginal groups. This helps projects come up with technical designs that accommodate all uses and anticipates, and as much as possible avoids, possible conflicts between users. The participatory planning process is also used to establish rules and enforcement procedures. MUS is good news. By installing water infrastructure or technology, it focuses on providing a “service”, offering water resources to people – in the right quantity and quality, at the right site and at the right time. But, unlike conventional public investments in single-use water infrastructure, it makes additional investments in water supply systems, reservoirs or irrigation schemes which generate many more benefits. Building on people's own needs and practices increases the likelihood that the systems will be more sustainable. Water provision for domestic and productive uses at homesteads ensures that users can “climb the multiple-use water ladder”, moving from using 25 litres per person per day to between 50 to 100 litres per day (see figure on page 34). While people may only need between 3 and 5 litres of water per day for drinking and cooking, moving up the ladder allows households to meet their other domestic needs, rear livestock, irrigate their fields, or even start a small enterprise.

At a community scale, MUS considers all water users, uses and sources: rainfall, surface streams, ponds, lakes, wetlands, and groundwater, in a holistic manner within the spatial layout of a community's land and waterscapes. The planning and design of water infrastructure for multiple uses is facilitated in a participatory and integrated way by water service providers from the local government, line agencies, NGOs, or by community mobilisers themselves. MUS takes an integrated approach to water development and management, integrating domestic, irrigation



The water ladder

and other uses. Potential conflicts arising from competing claims for different uses are anticipated and addressed, paying special attention to the needs of the marginalised. Experience shows that, almost anywhere, the available water resources are sufficient to ensure that everyone can have access to between 100 and 200 litres per person per day – if the infrastructure is available.

### Pilot cases in southern Africa

Several community-scale MUS pilot projects have been implemented by the Southern Africa Development Community (SADC), supported by the Danish International Development Agency (DANIDA). Between 2004 and 2009, SADC/DANIDA tried out this approach in seven communities in Malawi, Mozambique, Namibia, Swaziland and Zambia. A participatory process helped communities make their own spatial assessments of all the existing water resources, water technologies, their uses and users, as well as of the existing institutional arrangements. The main problems in each community were identified, and a long-term vision was formulated that took into consideration how the community wished to develop and manage its water resources. This generated a number of options for short-term intervention. Representatives from each group in the community, women and men, the poor, crop cultivators and cattle owners, irrigators and farmers of rainfed land, members of the traditional chiefs' clans, and elected political party members in local government, negotiated a ranking of all these priorities. Activities were then selected within the available budget and time frame. After developing

concrete action plans, with price tags, the budget allocation was finalised and transparently spent as the action plans were implemented.

The seven communities prioritised a wide range of interventions: in Ndonga, in Mozambique, villagers chose to have new boreholes with hand pumps for multiple uses. Villagers in Namwala, Zambia, opted for the rehabilitation of a dyke in a flood plain, while in Maplotini, in Swaziland, they planned a communal garden and irrigated sugar cane. The list of priorities also included rehabilitating existing boreholes and wells, constructing and rehabilitating dams for cattle and other uses, upgrading village reservoirs, building a new weir in a hill stream, improved toilets, piped water supplies to homesteads for multiple uses, electric boreholes for both domestic uses and gardening, a communal solar pump and individual petrol-driven pumps for field irrigation, or even the eradication and commercialisation of invasive tree species.

A key lesson was the importance of involving the marginalised from the outset. For example, women give more priority to water for domestic and other uses than men. By planning together, women can convince the men of the importance of this. Without an understanding of the local hierarchies and without reaching out to include representatives of the marginalised groups in the planning process, the process is always vulnerable to being captured by an elite who favours technologies that suit them best, and look for a way of getting the “communal” technology sited near to their properties. If this happens the participatory community-based approach will hide, and legitimise, the elite’s appropriation of project resources meant for everybody. Similarly, there is a

strong need for transparency about budgets and how they are spent – especially as there are no standard procedures for checking this. Special implementation agencies were recruited for these pilot projects, but in general it is better to integrate such projects with the local planning processes, run by local governments. The integrated water development process then becomes part and parcel of the re-iterative local development plans.

**Hybrid systems in Nepal** Another example of a community-scale MUS was tried in the middle-hills of Nepal, as part of a project run by the International Development Enterprise, the Smallholder Irrigation and Market Initiative, Winrock, and the MUS project of the Challenge Program on Water and Food. This project started with the goal of improving poor smallholders' value chain of cash crops, using micro-irrigation technologies, such as drip kits, as entry-points. Suitable patches of unirrigated land for vegetables were near the homesteads.

People's water needs also differed, according to the crops they were growing. As a result, and in spite of the high costs, people opted for household storage jars for productive and domestic uses in the dry season. An already existing domestic water system, with a very limited capacity, was reserved solely for drinking water. After some time, the community extended the MUS system by channelling additional water from another spring. They continue to plan and lobby to develop additional sources of water to meet their multiple needs.

**The key role of local government** A key finding in both examples has been the pivotal role that local government plays in facilitating and delivering integrated multiple-use water services. There are many reasons for this: it has a permanent presence; it knows local needs; it maintains a good relationship with community leaders (and can therefore mobilise contributions in cash and kind); mediates for conflict resolution; and is, in principle,



Participatory planning and action in Dzimphtsi, Malawi; Maplotini, Swaziland and Katuba, Zambia.

Springs and mountainous streams provided water year-round, but the flows were low in the dry season. From 2004 onwards, 70 gravity surface water schemes were implemented. These were designed for both domestic and productive uses around homestead land, according to the communities' (and especially women's) priorities. The communities' suggestions on how to effectively use multiple sources strongly influenced the technical design. For example, in the water-scarce village of Karre Khola (in the western district of Surkhet) traditional irrigation canals to more distant plots were lined to reduce seepage. The water saved was diverted to a newly constructed storage tank connected to multiple use tap stands. But despite these improvements, the water rotations took too long during the dry season and were unreliable.

able to call upon technical expertise where needed (for issues such as dam safety). Local governments can also coordinate the allocation of donor and government funds; share expensive construction equipment, and can monitor the maintenance and repair of infrastructure. Empowering local governments, while ensuring accountability to local communities is, therefore, a key aspect of MUS and is one that is in line with the global move to encourage decentralisation, which increasingly devolves responsibility and resources to local governments.

Barbara van Koppen ([b.vankoppen@cgjar.org](mailto:b.vankoppen@cgjar.org)) is Principal researcher at the Southern Africa Regional Program, International Water Management Institute, Pretoria, South Africa.

Managing a scarce resource such as water requires innovative practices, and collaboration and co-ordination at different levels. These are some of the many interesting examples we have found from different parts of the world.

## More efficient laws

In spite of being a country with abundant water (including, for example, the source of the Blue Nile river), many parts of Ethiopia have regularly suffered from drought and severe famines. Nowadays, demand for water is growing at an alarming rate, responding to the needs of millions of people. As a result, water management is one of the country's top priorities. In recent years, the government has developed a legal framework which it hopes will improve efficiency and serve the needs of its population. This approach adopts the hydrologic boundary or "basin" as the fundamental planning unit. As a federal country, co-ordination efforts are needed between the different states, regions and central government, as well as with the local authorities. The Ethiopian Water Resources Management Policy has been established

to try to achieve this, and to involve different specialists (economists, soil scientists, hydrologists). Given that no one knows more about their own environment, this is also to include representatives of farmer organisations and villagers. More water is expected everywhere!

To find out more, contact **Gebremikael Gebrehiwot**, chief co-ordinator of Natural Resource Management, City Government, Addis Ababa, Ethiopia. E-mail: [gmakel14@yahoo.com](mailto:gmakel14@yahoo.com)



Photo: Mundie Salm

## Making irrigation more effective

When it first started working, the Traditional Irrigation and Environmental Development Organization (TIP) focused on improving the traditional irrigation systems by constructing new intakes and improving the lining of canals. But it gradually changed towards advising farmers to conserve their land. Farmers are encouraged to put into practice soil and water conservation measures such as terraces (popularly known as *fanya juu*), tree planting, grass tips and contour planning, and then fields are prepared to receive an increased volume of water. TIP's approach involves

different specialists: an agronomist to train farmers in selecting seed varieties and in crop husbandry; a land use planner to recommend specific measures for particular locations, an irrigation engineer to design and supervise the construction of irrigation facilities, and a Community Development Officer to conduct awareness meetings to present and discuss the advantages of this more complete approach. As a result, there is less erosion, and yields are higher. Small-scale farmers living on the slopes of the Pare and the Usambara mountains, in northern Tanzania, have seen their livelihoods improve.

To find out more, contact **I.H. Kawa**, Executive Director, TIP, Moshi, Tanzania. E-mail: [ihkawa@yahoo.com](mailto:ihkawa@yahoo.com) ; [tip@tiptz.org](mailto:tip@tiptz.org)



Photo: Jorge Chavez-Tatur

# India

## A simple, yet very efficient practice

**W**hen a mountain area suffers from deforestation, rainwater flows off the mountain rapidly, carrying valuable top-soil with it, causing land erosion and also devastation downstream. This is the situation in the northern Indian state of Uttarakhand, where the much-needed water is becoming increasingly scarce. But there is a traditional practice which can still be found in the Tehri and Uttarkashi districts. It is known as *kulwal*, a term that describes a shallow, narrow drain that carries water from an available source (spring, fall, lake, stream, etc.) to the fields. These channels are collectively owned by the villages, which are collectively responsible for their repair and maintenance. Each village appoints a team of 2 to 12 members for one year, who are known as *kulwala*. It is their responsibility to ensure that water reaches all the fields equitably. This practice relieves individual families from worrying about irrigation, which can be problematic and also engender conflicts. The villages



Photo: Michael Scalet

which practise this traditional management system hardly ever report conflicts, which is remarkable given the scarcity of water. As water is becoming even more scarce, traditional practices are proving their value.

**To find out more, contact Biju Negi, at the Beej Bachao Andolan (Save Seeds Movement) in Uttarakhand, India. E-mail: [negi.biju@gmail.com](mailto:negi.biju@gmail.com)**

# China

## Recovering ancient waterways

**T**he rapid industrialisation and urbanisation of China is having a serious impact on the quantity and quality of the country's water resources. Since 2008, the World Wildlife Fund for Nature (WWF) has been running the Natural Ecosystem Rehabilitation Pilot Project, with the specific aim of "recovering" the Youzi River. This is an important source of water for the whole Chengdu region and the main waterway for Yuantian, a village in Western Sichuan. The project works with local governments, villagers, wetland, gardening and river



Photo: WWF Beijing

specialists, and local NGOs (such as the Kangmei Community Development and Marketing Service Center). To strengthen the public's conservation awareness, the project involved many villagers, volunteers and students in dredging and widening the ancient Youzi river channels. This work helps to prevent the river being blocked by mud and garbage and prevents harmful substances from floating to the surface of the river during the rainy season. Other activities have included establishing courtyard wetlands and building rural biogas digesters with the aim of building a regime of communal environmental management. The villagers of Yuantian are not only one of the groups of stakeholders involved, nor just beneficiaries. Having participated throughout the process, villagers are now the custodians of their river.

**To find out more, contact Chen Can, Chengdu Programme, WWF Beijing Office, China. E-mail: [cchen@wwfchina.org](mailto:cchen@wwfchina.org)**

## CALL FOR CONTRIBUTIONS

# The role of a new generation of farmers

As agreed by the UN General Assembly, the year starting on 12 August 2010 has been proclaimed as the International Year of Youth. Twenty-five years after the first International Youth Year was celebrated, the world has seen many changes. What impact do these changes have on the younger members of the 400 million farmer families all over the world? The March 2011 issue of Farming Matters will look at the specific role which youngsters play in family farming.

Youngsters form the largest population group in many countries, and their numbers and relative size keep on growing. What is the capacity of agriculture and small-scale family farming for attracting and "absorbing" them, providing them with work, income and a decent livelihood? Recent decades have seen a strong trend of migration. With more young people moving to the cities, what is the future of family farming?

We want to look not only at the roles and responsibilities of young people, but also at the contributions that they can make. Youngsters are known to be much more interested in (and knowledgeable about) mass media tools and communication devices than the older generation. What benefits can the information highway bring to farming? We are also interested in youngsters' own perspectives on farming, the specific difficulties they face and the steps needed to solve them.

We welcome your suggestions and contributions on articles, photographs, contacts of people you think have expertise in this area or ideas for other topics you think we should address. Please write to Jorge Chavez-Tafur, editor, [j.chavez-tafur@ileia.org](mailto:j.chavez-tafur@ileia.org) before November 15th, 2010.



Photo: Rik Thijsen

## Share your ideas on Progreso Network

Progreso Network connects producer organizations and their business partners in the coffee sector worldwide. The online community has more than 550 members and is growing every day.

Relevant articles from Farming Matters are published on our site: you can comment them and share your ideas with all members.



### You are invited to:

- Meet:** producers, traders and NGOs
  - Discuss:** experiences, ideas, opinions
  - Publish:** news, articles, videos, photos
- Upload your profile and get to know a great number of colleagues!

**Join us at:**  
[progresonetworkenglish.ning.com](http://progresonetworkenglish.ning.com)

Spanish-speaking visitors can also join us at:  
[progresonetwork.ning.com](http://progresonetwork.ning.com)

This issue of Farming Matters contains many examples of people working together to manage their water resources in an efficient way. The message is important. We live in a world where the pressure on water resources is growing and where many of the surface water resources are overcommitted. Yet there are still many opportunities that are not utilised. It is this gap between crisis and opportunities that should concern us.

Although there are many such opportunities, one of them is to make combined use of surface and groundwater. It is not much reported that, during recent drought periods, agricultural production in several of south Asia's mega irrigation systems went up, rather than down. This was because farmers made more effective use of shallow underlying groundwater, and suffered less water-logging. Another option is flood-based farming systems, such as spate irrigation, currently used by millions of farmers. Better use of groundwater buffers is equally important. Discussions on the use of groundwater have often been limited to its overuse, yet much can be gained by focusing on recharge, retention and reuse efforts (the three Rs). This, in turn, is linked to moisture conservation. There is much potential to increase yields in rain-dependent areas by better soil water management, using a range of techniques, although little systematic support is given to this issue.

The common denominator is that these systems are a little more complex than conventional approaches: they involve an interaction between different forms of water and land. They require us to look at what happens on the ground and learn from local realities – and to see the ingenuity of local management or the potential for it.

This calls for an overhaul of the way we approach water management. The water harvesting community is in danger of locking itself up into seeking to “upscale small-scale solutions” and not seeing a bigger picture, where water can be buffered at scale. The irrigation and drainage community has not been as innovative as it might have been, and is not coming to terms with the multiple functions that irrigation systems serve. The Integrated Water Resources Management community has focused overly on the process side. A huge range of opportunities is seen between and not within these communities of practice. There is a need for a new élan in water management, a need to learn from the evidence of what is already happening on the ground, and to better understand the science behind it so as to seek new applications.

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# Crisis and opportunities



Modern system built on a centuries-old system

# Holland

Holland is famous for its *polders*, or reclaimed land below sea level. The shaping of the Dutch landscape goes back to the 12th century, when rising water levels threatened agricultural land. In response, farmers formed water committees that constructed channels, dykes and windmills to keep land arable and inhabitable. Even though the Netherlands is now an industrialised country, society is firmly built on the traditional water governance practices.

Text and photos: Frank van Schoubroeck



**T**he Netherlands is a country shaped by the Rhine and other rivers flowing into the North Sea. A thousand years ago this area consisted of swampy lakes with an occasional dune or sand bank. People settled on the sandy land, and drained the swamps so that they could grow crops. But water was a permanent threat, both from the rivers and from the sea. As a response, farmers formed water committees to put up small dykes. This worked out well for a century or so, but as soil levels lowered further (peaty soils compress easily when dry), these small committees could not manage the threats anymore. In the 13th century, Count Floris the Fifth ordered the building of larger dykes – along with strict rules to keep people responsible for their maintenance. At the time, windmill technology for grinding flour had already been developed. This technology was modified so as to use wind power for pumping water, allowing larger stretches of land to remain dry and arable. This is how the large, flat polder landscape with an occasional windmill was formed – which you can still see in Holland.

Many of the features of the modern industrialised state of the Netherlands can be traced back to these early farmers' innovations. One of these, for example, is the milk value chain. Farmers noticed long ago that the peaty wet soil was not fit for crops but good for cows, and started to produce milk for the nearby cities of Amsterdam or Utrecht. They figured out that you could prepare cheese with the help of fluid from the cow's stomach, and keep the nutritional value of milk for much longer. The process first took place on individual farms, but more than one hundred years ago the first co-operatives took over the processing of milk and the production of all sorts of cheese. Now, cheese manufacturing in the Netherlands is one of the richest aspects of the country's food culture. Every town has a weekly market with cheese stalls, and supermarkets sell more than a hundred different kinds of milk products, with new kinds of cheese being developed every year. The dairy sector today has an annual turnover of almost a billion euros, employs more than 60,000 people, and sells its products all over the world.

**Old and modern** The early water control committees became permanent water boards, with responsibility for keeping the land free from flooding. The water boards are the oldest form of governance in the Netherlands, and comprise all the institutions that have an interest in maintaining the water level. Low water tables are good for grass, and thus for farm production. But they also cause the oxidation of peat, causing it to compress and thus lowering the soil surface. High water tables are good for minimising this and also for biodiversity, as most wild field

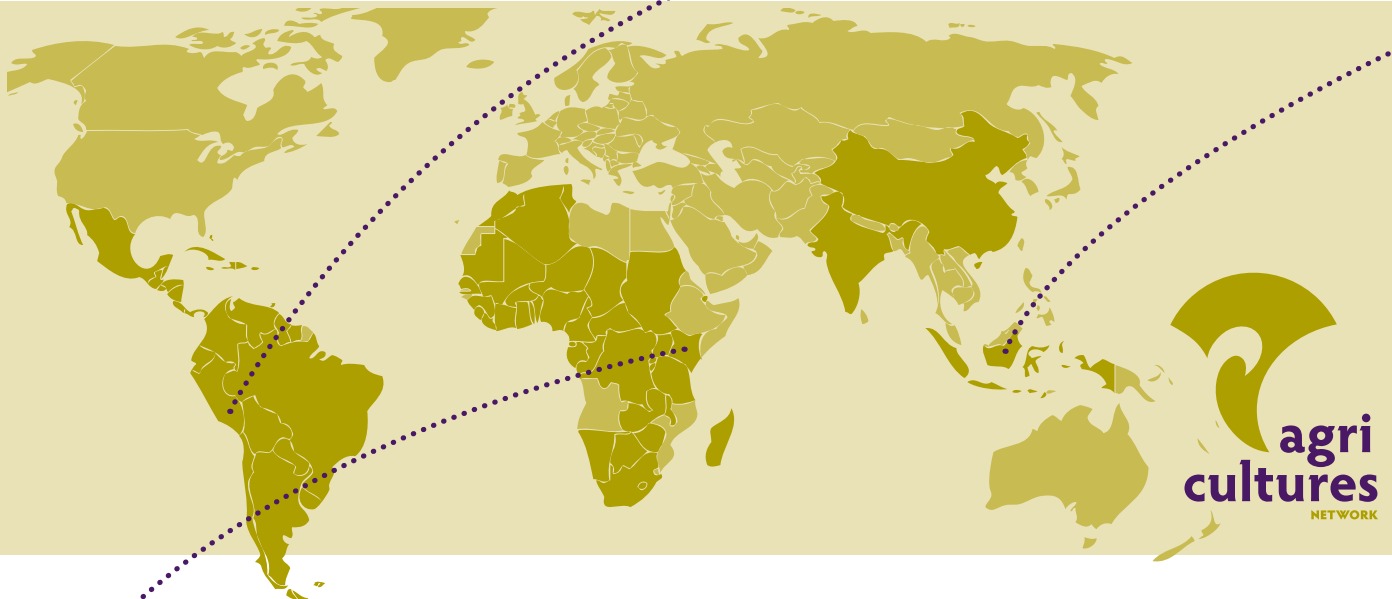
species are water-loving. The water boards weigh these interests and regulate water tables accordingly. They have helped develop a large-scale market driven agriculture, as well as a small-scale multi-functional agriculture with diverse economic activities.

Water boards were organised in a similar way to many water user committees in Asia today: richer farmers took the lead in setting up and maintaining the necessary water regulation infrastructure. Since their establishment, these boards have been handed to the local population – in clear contrast to the country's political structure. While they are still functioning, they often clash with the local governance structures (such as municipalities). For example, the provinces regularly propose to take over the water boards themselves; but the water boards in turn want to take over water regulation functions from the provinces and municipalities. Dutch people experience a regular tug-of-war between traditional and modern governance structures.



**Similar options** The Dutch approach to managing water shows that traditional governance structures can be vibrant drivers of technological and institutional development – if they adapt to new circumstances. In much of Africa, traditional chiefs continue playing an important role, even when ministries and local governments have taken over power. Is it possible that traditional chiefs play a role in the development of the farming sector in Africa? In many cases they already do. Chiefs can develop constructive working relations with locally elected governance bodies and develop accountability to their people. For some tasks, traditional forms of governance are better equipped than elected governments, as in principle they can serve the interests of all people – men, women, rich and poor – in the area under their authority. The history of the Dutch water boards shows that this is a real possibility.

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Do markets work for small-scale farmers? HIVOS and IIED are planning a series of provocative seminars, to take place over the coming months, in order to encourage a debate on the policy priorities and practices around this controversial issue. These seminars will involve different stakeholders and will be reported on in this magazine. We asked different network members about the issues that need to be considered in this debate.



Photo: Susan Mwangi

**Susan Mwangi: "The importance of communications"**

In Kenya, as in the East Africa region in general, small-scale farmers have difficulties accessing markets. Susan Mwangi, editor of *BAOBAB*, argues that this is because there are no good transport or communication facilities in rural areas. Brokers or middlemen serve as a bridge between the rural areas and larger markets in the cities, but they

are known to exploit farmers by buying their products at a very low price and then selling them on at a very high profit. To maintain their profitable business, they frequently try to block the access of farmers in remote areas to large-scale buyers. "Small-scale farmers definitely want to have better access to national markets, and would also like to export their products. They know that they are being exploited by the middlemen and would want to avoid them and have access to markets directly, and thus get better prices for their products. Secure access to markets would encourage them to produce more, or to invest money." But, first they need to know about the existing possibilities. Susan highlights the importance of

information, as a major ingredient. Recently there has been much interest in Kenya in using ICTs to provide this information, helping secure access to markets and also helping farmers get ideas and advice. The Arid Lands Information Network has developed an online system that farmers can use to market their produce and link up with buyers. The system also makes it easier to transfer money to farmers. "More systems like this need to be developed to make it easier to sell off-farm produce and improve farmers' livelihoods."

**Teresa Gianella: "The emergence of local organisations"**

Small-scale farmers in Latin America have always had access to local markets. They are the main providers of fruits and vegetables in towns and villages, and also supply tubers, grains or other staple crops. They are generally the only



producers of medicinal plants. Teresa Gianella, editor of *LEISA revista de agroecología*, thinks that this has not changed in the last thirty years, in spite of the strong trend of urbanisation seen in the continent (as a result of which up to 75 percent of the population lives in urban areas). “The link between the rural areas and many urban citizens remains, and small-scale farmers provide most of their food, especially to households with lower incomes.” What is visible nowadays is that small-scale farmers are now also accessing other markets. Whether this is through “ecological fairs” or through supermarkets or large retailers, there is an increasing demand for organic products from small-scale farmers. Much of this is

the result of the efforts of farmers in establishing local organisations, and in working together to market their products. “Working together can help farmers, for example, become certified organic, which brings many benefits.” But just as small-scale farmers are getting organised to sell their products, Teresa also points to the need of having consumer organisations which “can push for better policies, and thus ensure the supply of better products.”

### Shintia Arwida: “Possibilities for fair prices”

According to Shintia Dian Arwida, editor of *Majalah Petani*, most small-scale farmers in Indonesia are not able to reach the cities, so they sell their products to middlemen. While, to a large extent, “the market is there”, the problem is that they get a very low price for several different reasons. One of these is because farmers do few post-harvest treatments to their products (like sorting or cleaning), nor do they process or transform them in any way. Just as important, perhaps, is that many farmers owe money to these middlemen, so are obliged to sell their produce to them. In addition, farmers have very little information of what a

fair price should be. Although access to markets is an important issue for small scale farmers, many would say that their main problems are securing fertilizers, fighting pests and diseases, or the erratic weather. But farmers would definitely welcome fair prices and, in many ways, are struggling to get them. Some initiatives show that this is possible, for example via co-operatives, a bidding system or via specific contracts for organic products. “The key factor is that farmers need to work together and search for information. Focusing on the local market can be a way of getting better prices, rather than focusing on trying to send their products abroad.”



## COLOPHON

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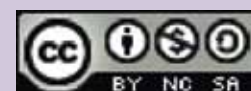
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# “WATER IS THE ULTIMATE COMMONS”

Novelist Barbara Kingsolver, referring to the 1968 paper written by Garret Hardin, “The tragedy of the commons” and to how “the pursuit of individual self-interest can lead to collective ruin”. National Geographic Magazine, April 2010.

## “PUTTING A PRICE ON WATER WILL MAKE US AWARE OF THE SCARCITY AND MAKE US TAKE BETTER CARE OF IT”

Angel Gurría, secretary-general of the OECD, quoted in The Guardian. “Experts call for hike in global water price”. April 27<sup>th</sup>, 2010.

## “Although the Water, Land and Trees Act is one of the best pieces of legislation on groundwater use, it has not been effective on the ground because of lack of coordination between departments”

Palla Narendra, hydrologist and associate professor at the Tata Institute of Social Sciences in Hyderabad, India, referring to the Andhra Pradesh legislation enacted in 2002. Down to Earth, “Ground reality”, July 2010.

## “IF WE DON'T HAVE AN AGREED CO-OPERATIVE FRAMEWORK, THERE WILL BE NO PEACE”

John Nyaro, Kenya's Director of Water Resources, talking to the BBC before the meeting in which representatives from Uganda, Rwanda, Tanzania and Ethiopia signed an agreement to seek more water from the river Nile - a move which is strongly opposed by Egypt and Sudan. BBC News, “East Africa seeks more Nile water from Egypt”, May 14<sup>th</sup>, 2010.

## “The local diet has become more varied, those crops that need most water have yielded to others that need less... This is because the scheme puts the people who invest the money, grow the crops and live or die by their efforts in charge of their most crucial resource; they are all barefoot hydrogeologists”

John Grimond, in The Economist's special report on water (May 22<sup>nd</sup>, 2010), describing the successes of a water-management project implemented by the Bharati Integrated Rural Development Society in Mutyalpadu, Andhra Pradesh, India.



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