# Fair Share of Water: Ensuring access to water for family farming in the South



Coordination SUD
Solidarité Urgence Développement

## Coordination SUD
(Solidarité Urgence Développement)

Created in 1964, Coordination SUD (Solidarity– Relief–Development) is the national umbrella organization for more than 130 French development and relief NGOs. It has set up several working groups as part of its role in supporting its members' advocacy campaigns.

One of these working groups is the Agriculture and Food Commission (C2A), which brings together international solidarity NGOs working to establish the right to food and to increase support for family farming in policies that have an impact on world food security.

The members of the commission include 4D (Dossiers et débats pour le développement durable), Artisans du Monde, AVSF (Agronomes et vétérinaires sans frontières), AITEC (Association internationale de techniciens, experts et chercheurs), CARI (Centre d'actions et de réalisations internationales), CCFD–Terre solidaire (French Catholic Committee Against Hunger and For Development–Terre solidaire), CFSI (Comité français pour la solidarité internationale), CIDR (Centre international de développement et de recherche), CRID (Centre de recherche et d'information pour le développement), GRET (Professionnels du développement solidaire), IRAM (Institut de recherches et d'applications des méthodes de développement), MFR, Oxfam France, Peuples Solidaires with Action Aid, Secours Catholique-Caritas France, and Secours Islamique France.

The Commission's objective is to coordinate the work undertaken by its member organizations and to facilitate mutual consultation on their advocacy work with various stakeholders and international policy-makers.

The members of the Commission agree on Coordination SUD's representation with a range of organizations (CONCORD–European confederation of NGOs, FAO, WTO, UNCTAD), and share information on current international issues. The Commission is mandated by Coordination SUD to formulate the positions taken by the group at key institutional meetings on the subject of food and agriculture.


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"If you drink water from the valley, respect the laws of the valley."

Tibetan proverb.

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# Abbreviations and acronyms

| | |
|---|---|
| AGTER | Améliorer la gouvernance de la terre, de l'eau et des ressources naturelles |
| AVSF | Agronomes et Vétérinaires sans frontières |
| C2A | Agriculture and Food Commission |
| CCFD-Terre solidaire | French Catholoc Committee Against Hunger and for Developement |
| CESA | Central Ecuatoriana de Servicios Agricolas (Ecuador) |
| CGAAER | French General Council for Food, Agriculture and Rural Spaces |
| GRET | Formerly Groupe de recherche et d'échanges technologiques |
| IA | Irrigatoirs Association |
| ICD | Initiatives, conseils et développement (Mali) |
| ICESCR | International Covenant on Economic, Social and Cultural Rights |
| IMCA | Instituto Mayor Campesino |
| IPCC | Intergovernemental Panel on Climate Change |
| IRDF | Integrated Rural Development Foundation |
| MAAPRAT | French Ministry of Agriculture, Food, Fisheries, Rural Affairs and Rural PLanning |
| NGO | Non-Governemental Organization |
| ODA | Oromia Development Association |

# Summary

Water is an essential asset on which peasant societies of the South strongly depend for their sub-sistence and, more generally speaking, for the production of food products. But competition for water is constantly becoming more intense due to demographic growth, industrialization, urbanization, and modes of food consumption that require an increasing amount of water. Agricultural water is becoming increasingly monopolized by other economic actors, with no regard for the historic rights of family farming, which is often weaker and less organized politically.

But faced with the 925 million of the world's people who suffer from hunger, 75% of whom live in rural areas, it's urgent to guarantee family farming access to water. This is because family farming has huge potential for responding to issues of food security, social equity, and environmental sustainability. In 70% of cases, the people suffering food insecurity in the world are poor farmers. Yet, they provide up to 70% of global food production and 80% of that of developing countries! The 1.8 billion family farmers long ago developed agricultural practices and simple techniques of water management that are appropriate for adaptation to climate change and for irrigation development. Yet, investments do not yet meet the needs—far from it.

This report, which is focused on the issues of family farming access to agricultural water, asserts that the question of water for agriculture cannot be dealt with by either the "water efficiency" approach or the "more cash per drop" approach. Water is a common good that concerns all the stakeholders of a country and its citizens. Any consideration of agricultural water must take into account that, for peasant farmers, it represents an essential guarantee for food security: their own of course, but also that of cities. Agricultural water is also an essential element of adaptation to climate change. Social justice in water issues and guaranteed access to water for peasant farmers are therefore not illegitimate demands, but legitimate rights. The right to adequate food, which is rooted in international law, requires sustainable access to water supply.

Far from providing "ready-made" solutions, and announcing the false ideas too widely spread on agricultural water, this report highlights three fundamental points for guaranteeing family farmers access to water:

– investing intelligently in agricultural water for family farming, through the dissemination of simple techniques for water harvesting, storage, and distribution, as well as through the promotion of suitable infrastructures;
– protecting rights of access to and use of water for production, faced with the rise of large-scale land and water-resource grabbing;
– encouraging concerted and democratic water management by promoting dialogue that seeks fair distribution of water among users, sectors of activity, cities, and the countryside.

Finally, it's important to strengthen mobilization by users and by civil society. The accountability of the authorities in charge of water towards users and citizens is not a spontaneous process. Social struggles and well-organized representation of peasant-farmer users in the various negotiating arenas will make it possible to change the rules, to assert their rights, and to influence the development of new frameworks for more inclusive public policies.

# Introduction

Water is a vital asset: Family farms in the South depend heavily on it for their subsistence and especially for food production. Water is essential for irrigation, for livestock, as a constituent element of halieutic eco-systems, and as a social tie in rural communities. While the potential for improving rainfed agriculture is considerable, irrigated agriculture remains the most significant means for diversifying, intensifying, and securing production. All the dynamic and very active hydraulic societies throughout the world bear witness to this.

But competition for water among users, sectors of activity, and countries is constantly intensifying due to demographic growth, increased industrialization and urbanization, changes in food habits, and methods of agricultural production requiring increasing amounts of water. There are more and more examples of conflicts—sometimes violent ones—involving farmers; stockbreeders; mining, forestry, or agro-industrial companies; other fast-growing sectors; and cities.

The foremost victims of this competition for water are family farms from the South. As they are often politically weak faced with other more organized and powerful users (especially those in urban areas), they suffer twofold social injustice, which is manifested by increasingly limited access to water and frequent despoiling of their historical shares or quotas (water rights) of access to both underground and surface water. Current events attest to the growing difficulties peasant farmers from the South have in accessing water as a means of production, be they farmers, stockbreeders, or fishermen. The indicators of this discontent are varied: marches, protests, violent confrontations between peasant movements and police, water-resource grabbing, etc. Further, they demonstrate the profound distress of a category that is too often neglected by the public authorities: peasant and family farms.

925 million people in the world suffer from hunger, three quarters of whom live in rural areas. Faced with this alarming figure, it's urgent to defend and guarantee this essential right of access to water for family farms of the South. This is crucial for increasing food production, thereby avoiding future food riots, and for enabling people to remain on their land when faced with the new threats of climate change. Family farms possess a huge potential for meeting the great challenges of food security, land-use planning, the protection of ecosystems and biodiversity, adaptation to climate change, and the sustaining of jobs in rural areas.

Besides providing food, family farms generate positive externalities in terms of maintaining the social fabric in rural areas or of providing environmental services. These are too often neglected or even unknown by the other actors. They are not measured and are hardly taken into account in development indicators. Yet, the disappearance of family farms and of their positive externalities would lead to significant but largely underestimated extra cost for States. Guaranteeing family farms access to water thereby provides a key solution to these issues, provided that there is real political will from States and the sources of international aid.

## The issues of the study…

Whereas access to drinking water is a cause that has strongly mobilized international organiza-tions, NGOs, and States, the question of water for agricultural production has long remained neglected. Faced with this situation, Coordination Sud's Agricultural and Food Commission (*Commission Agriculture et Alimentation*, "C2A" as it's known), which is already active in advocacy for family farming, "wished" to go more in depth into the issue of "agricultural water", which is too often ignored yet vital.

Increased competition for water, the growth of water grabbing often carried out by investments in land, and the acceleration of technical and social changes are creating the need for new approaches to water governance and management. Water policies, which are developed generally for implementing standardized solutions, do not make it possible to respond either to the complexity of the problems or to the diversity of local contexts. The water policies and solutions proposed are often presented as the fruits of enlightened knowledge and of neutral analyses, even though reality shows that "*policies and laws concerning water are the result of formal and informal, legal and illegal, as well as open and hidden processes of interaction and negotiation between interest groups with the objectives, skills, and means to make them be understood as different.*"[1].

In reality, family farms are too often "forgotten" or kept out of these processes. The resulting policies inadequately respond to the real needs of people and to the real issues at hand. Short-term corrective measures (food aid, crisis-response cooperation tools) make it possible to solve urgent problems (for example the food crises of 2007-2008) but do not enable countries to develop coherent and long-term agricultural policies.

The objectives of this advocacy project are to show that securing family farms' rights to water is worthwhile and to sweep away certain preconceived notions on the use of water for agriculture. It also seeks to put forward clear recommendations intended for the actors of rural development and for decision-makers, in order to improve family farming's access to water, by demonstrating that applying the principle of social justice to water is relevant.

With their vast experience in water management and natural resource governance, AVSF, AGTER, CCFD-Terre Solidaire and GRET have carried out this collective work within the framework of Coordination Sud's Agriculture and Food Commission (C2A). This study is based on bibliographic research, and six case studies were carried out by AVSF, CCFD-Terre Solidaire, GRET, and their partners around the world. The case studies document the experiences carried out in the Philippines, Cambodia, Mali, Ethiopia, Ecuador, and Colombia. (See Figure 1).

This summary document is organized into four parts:

The first part will cover current observations on family farming, its needs and its effective uses of water resources in the world. This part, which denounces certain preconceived notions such as "poor management of water by peasant farmers" or "increased water efficiency by commoditizing rights to water," lays the foundations for new reflection built around proposals stemming from analysis of the case studies.

The second part will cover the issue of investments required for ensuring family farms' access to water and for improving the conditions of water use for agricultural production and stockbreeding.

The third part will take up rights to water for family farms and will propose ideas for acknowl-edgment of local rights.

1. Long and Van der Ploeg 1989, Thomas and Grindle, 1990 in Zwarteveen, 2005, p. 267.

Finally, the fourth and last part will deal with inclusive governance of water resources through concerted and democratic management.

As for the annexes, they will present summaries of the case studies we have used in this document.

**Figure 1: Table showing the six case studies carried out in this advocacy project**

| Continent | Country | Partners | Themes covered |
|---|---|---|---|
| Africa | Mali | AVSF and ICD | Pastoral hydraulics |
| | Ethiopia | Gret and ODA | Small-scale irrigation |
| Latin America | Ecuador | AVSF, CESA and Interjuntas | Concerted management and sharing of water |
| | Colombie | IMCA and CCFD-Terre solidaire | Referendum and privatization of resources |
| Asia | Philippines | IRDF and CCFD-Terre solidaire | Privatization of water and large-scale irrigation |
| | Cambodia | Gret | Water management in large-scale hydraulic projects |

CHAPTER I

# Observations

## The big potential for family farming in the South

Family farmers represent 98% of agricultural producers in the world. In developing countries, family farming concerns nearly half the population and 1.5 billion workers, and it represents between 50 to 70% of global food production. These farmers own small farms or are landless peasants. Many studies and authors[2] (including previous findings[3] of Coordination Sud's Agriculture and Food Commission) have shown that these family farmers have the triple advantage of:

– producing sufficient quantities for local markets and for a growing population, by improving productivity with techniques suitable to their environment;
– controlling rural exodus by generating stable and numerous jobs in the countryside, and fighting against poverty when agricultural prices are lucrative;
– managing natural resources sustainably, by maintaining a strong social connection enabling people to coordinate these resources.

The existing relationship between economic activities and the family structure allows family farms to employ their own labor for optimal enhancement of available production factors. Family farms being rooted in their territory enables rural areas to be economically lively and dynamic, makes for strong concern about preserving soil fertility and natural resources, and provides for better management of agro-biodiversity. Family farms hold a long-term view of their activities, by encouraging sustainable renewal of their production factors. The social, environmental, and economic advantages produced directly or indirectly by family farming are thus undeniable.

Despite these observations, family farming is still suffering from the negative images of "inefficient" and "outmoded". This can easily be seen in the agricultural and rural development policy orientations of many developing countries, where so-called "modern" capitalist agriculture is given a prominent role in boosting agriculture and the economy. There are many examples throughout the world (See Example 1).

2. Griffon M., *Pour des agricultures écologiquement intensives, des territoires à haute valeur environnementale et de nouvelles politiques agricoles*, Groupe ESA, Angers, 2007. World Bank, *Rapport sur le développement dans le monde 2008 : l'agriculture au service du développement*, Washington, 2007. CIRAD, *Agricultures familiales et Mondes à venir*, Paris conference, Paris International Agricultural Show, 2005. Dufumier M., *Agricultures et paysanneries des Tiers-mondes*, Karthala, Paris, 2004.

3. http://www.coordinationsud.org/document-ressource/document-de-positions-defendre-les-agricultures-familiales-lesquelles-pourquoi/.

**Example 1: When national policy withdraws support for family farming**

In the Philippines, the Biofuels Act voted in 2006 mandates (as does the European Union) fuel at the pump to include 10% ethanol. Shortly after the Act was adopted, a joint venture between a Japanese company and a group of Taiwanese investors was formed in order to produce 54 million liters of ethanol and 19 megawatts of electricity per year by recycling cane sugar bagasse. To do so, this joint venture rented 11,000 hectares in Isabela Province, on so-called "unused" land. Yet, this province is the no.1 producer of corn and no.2 for rice! Today, sugarcane plantations have largely replaced food-crop fields. This is one of the reasons why the Philippines is now the world's largest importer of rice.

The case of Ethiopia is an especially good example of the "stigmatization" of small-scale peasant farmers, with a government that no longer believes in its family farms. The leasing-out of land and the shift towards large-scale agriculture are presented by the Ethiopian government and international institutions such as the World Bank as essential measures for agricultural modernization and the improvement of productive effectiveness. It has also been alleged that this will lead to a rise in food production and to economic growth (MOARD 2008, World Bank 2010 In: Dessalegn Rahmato 2011). The government has already transferred more than 3.5 million hectares of land to investors, and the measures currently in force will enable the transfer of another 3.5 million extra hectares to investors over the next five years. By 2015, the agrarian structure of the country will have deeply changed and will pose threats to rural economies, the means of subsistence of peasant farmers and stockbreeders, and food security (Dessalegn Rahmato 2011).

In Benin, the strategic plan for boosting the agricultural sector (PSRSA) has made the choice of big farms based on intensive and motorized agriculture, with heavy emphasis on the agro-industrial and bio-energy sectors. In Madagascar, the agricultural development strategy is also marked by promoting agribusiness and by opening up the country to foreign investments. Many other countries around the world could also be mentioned….

*Reported by Céline Allaverdian (Gret) and Hatim Issoufaly (CCFD) for the Philippines.*

Yet, above and beyond the qualities already mentioned above, family farming also enjoys undeniable advantages over capitalist agriculture in terms of reduction of inequalities, job creation, and resilience. This last point in particular is one of its major advantages. Agribusinesses, which are very sensitive to variations in prices of raw materials and inputs linked to the price of oil, may abandon their agricultural activities as soon as the latter become insufficiently profitable. In contrast, family farms diversify and adapt their production as needed, to reduce their vulnerability faced with market variations—not to mention climatic risks. Adaptation capacities are also developed thanks to the ongoing experimentation by farms, in innovative practices and in optimal use of surrounding resources.

Despite these undeniable comparative advantages, the current policies do not allow family farms to express their potential. Those who defend this production model are also rarely listened to in the political spheres. Nevertheless, support for family farming cannot be ignored if we want to resolve the current ecological crisis, all the while meeting the challenges of food for the future. The recommendations[4] made in a previous study for Coordination Sud to support family farming are based on several themes: ensuring lucrative prices through developing markets (national and regional) and networks, guaranteeing fair access and sustainable management of natural resources, investing in the public good, (training, access to

4. *Quelles politiques publiques pour les agricultures familiales du Sud*; http://www.coordinationsud.org/document ressource/2009/.

credit, advice, etc.) that is the responsibility of the State or of regional integration organizations, and reinforcing peasant organizations to orient policies.

Agricultural water, an essential factor of production, came up already in these orientations: guaranteeing fair access to and sustainable management of water; furthering investments, be they hydro-agricultural infrastructures or the setting up, continuation, or reinforcement of bodies for concerted management of water. Ensuring that water-management support and institutions that already exist are maintained and made permanent is also important.

The stakes are high. Family farms, whether they be in rainfed, irrigated, or mixed systems, can indeed provide a big portion of the extra food humanity will need in the upcoming decades. Agricultural water is also an essential element for maintaining the social fabric in rural areas, woven around infrastructures, institutions, and collective rules. Finally, family agriculture is more respectful of the sustainable nature of the cycle of water that is taken and then given back downstream in sufficient quantity and quality to meet the needs of other users, as well as those of flora and fauna.

# Family farms vulnerable to climate change

## Climate change and water

According to the TEC (Global Water Partnership Technical Committee) and the IPCC, climate changes will have an increased effect on the water cycle, with possible direct impact on:

– the quantity of precipitation, with average rainfall levels rising or dropping (estimated at up to 20% in many regions);
– extreme climate events, with tornadoes and more powerful flooding, as well as longer and more intense droughts;
– the frequency of extreme events, possibly increasing tenfold (from once every 50 years to once every 5 to 10 years for example).

Water availability will be affected by the following aspects:

– Precipitation.
– Increase in aridity (through increase in temperatures and thus of evapotranspiration) in many regions.
– Runoff water and streamflow: According the IPCC, decrease in runoff water will be the greatest impact by global warming on the water cycle. In some dry regions, reductions of more than 50% in river flows have been reliably estimated; these will have devastating impacts on human activities and the natural environment.
– Floods and losses of reserves, along with the melting of glaciers and snowfields.

## Climate change and family farms

In reality, agriculture is the economic sector most vulnerable to climate change. The peasant farmers of the South are among the first people affected by its effects, especially in flood zones, semi-arid or arid zones threatened by desertification, as well as mountainous zones. Peasant farmers in marginal zones affected by erosion and soil salinization, overuse of groundwater, and overgrazing are especially vulnerable to climate change (FAO, 2003). Increase in aridity would especially intensify the vulnerability of certain zones with a

Mediterranean-type climate (in Europe, Australia, and South America) and of arid or semi-arid tropical regions, especially in sub-Saharan Africa[5]. Socio-economic pressure will also lead to increased competition between irrigation needs and demand from non-agricultural sectors, and will potentially reduce the availability and quality of water resources for agricultural production.

Irrigating communities located in regions with significant climatic variability know how to manage a certain level of "risk" or unforeseen events (of the n years out of x type, for example 1 year out of 5). The rules of management and sharing they shape, often empirically, are generally adapted to this variability and to the distribution of the shortage. But while family farms are relatively resilient because of their cultural practices, their diversified production, and their capacities for autonomy, they are made fragile—especially in times of crisis (for example harvest losses in the event of drought or flooding, etc.)—by difficulties in access to water, this latter being an indispensable factor of production. If climatic variability intensifies, local systems of management and family farms will have to adapt in order to deal with it.

Adaptation to climate change cannot be limited to supplying technical solutions. It also requires improved knowledge of water cycles as well as institutional progress in water management. It's also important to invest in water and agricultural policies that take into account family farming needs[6] and that are able to finance priority actions.

**Example 2: Indonesia: agriculture, climate change, and vulnerability**

The 240 million Indonesians are big rice consumers, with an average consumption of 135 kg of rice per year per person, compared to 60-75 kg per person in other Asian countries such as Thailand or Malaysia, where rice is a basic food staple. Indonesia's rice production increases 2.5% each year, but, given the existent deficit, there is the risk that production will be insufficient for feeding a population that grows 1.6% per year.

Indonesian rice cultivation is moreover vulnerable to the effects of climate change, especially faced with extreme temperatures and flooding, the rise in sea levels, and the arrival of new insects and diseases. Farmers generally plant rice in paddies at the beginning of the dry season, which stretches from April to August. However, rainfall is increasingly irregular, with unexpected torrential rains that destroy the first seedlings and dry spells during the rainy season. For 2012, for example, the Ministry of Agriculture estimates that only 50% of the rice paddies of the country can be planted, due to abnormal meteorological conditions.

With economic activity concentrated along the coasts and strong agricultural dependency, Southeast Asia is one of the regions most vulnerable to climate change. If global greenhouse gas emissions continue to increase, the annual average temperature could also increase 4.8°C on average by 2100, compared to the 1990 level. This could intensify water shortages during the dry season, increase the risks of flooding during the wet season, and in the long run prevent the production of rice, whose blossoming is heat sensitive.

*Reported by Hatim Issoufaly (CCFD).*

5. IPCC, 2008.

6. The report by O. De Schutter, the United Nations Special Rapporteur on the Right to Food, shows how agro-ecology that is resilient to climate change and how the forms of production chosen by family farming can double agricultural production without new pressure on the environment. http://www.srfood.org/index.php/fr/rapports-publies.

# Not all peasant farmers waste water!

Around the world, irrigation represents 70% of fresh-water withdrawal from rivers and water tables, for 40% of global agricultural production and 20% of cultivated land (MAAPRAT - CGAAER, 2012). Agriculture is thus often accused of being the greatest waster of water in the world. But it's important to qualify these claims by recalling the water cycle and the varied forms of hydric consumption depending on the agricultural models. Further, criticism is often aimed at users, when it should target the resource managers.

Let us recall first of all that water is a flow that connects users upstream with those downstream. Water consumption for irrigation in fact often allows the water to be returned to the waterways and water tables[7]. Drainage water is not necessarily "wasted" and can be the object of social management, with negotiations between upstream and downstream peasant farmers. This sharing of water can also be put into different categories of beneficiaries according to the level of use of the water: those who have the right to "first" waters and those who have the right to outlet water coming from these "first" irrigations. With adequate agricultural models, peasant farmers have a fundamental role in the sustainable management of water on a regional scale, with restoration of good-quality water. Sometimes this even leads to the creation or maintenance of special eco-systems, such as mangrove zones or the wetlands in the French Camargue region[8].

## Different types of agriculture, different forms of water consumption

What kind of agriculture do we mean when we talk about waste? It's important to differentiate the different agricultural production models; this is because they don't all use natural resources in the same way, and they restore water with more or less degraded quality. For example, water consumption by a Sahelian smallholder producer who waters his vegetable garden by manually drawing it from a well cannot be compared to that of a French irrigated corn producer or that of a farm contractor pumping from the deep water tables of Marrakesh to irrigate tomatoes.

Far from systematically wasting water, the agricultural sector can on the contrary be a means to preserve this resource, on the condition that suitable agricultural models are used—especially family farming, which benefits from collective and individual know-how on the use and distribution of water (catchment, gravity irrigation, etc.) and is environmentally friendly.

It's not a matter of idealizing family farming, because sometimes it does adopt non-sustainable production methods (as seen by the evolution of watermelon and melon production methods in the Kairouan plain in Tunisia). Individualization of water pumping is especially a factor of non-sustainable management of water resources. But studies[9] show that family farming often uses production methods that are more ecological and sustainable, labor-intensive, more autonomous in inputs, and less likely to pollute water.

7. This observation is nonetheless not new. Cf. C Riaux J. 2007. "La reproduction des eaux par les arrosages. Historique et actualité d'une théorie". *Conserveries mémorielles, Journal de la Chaire d'histoire de la mémoire U. Laval 2*.

8. See the findings by Bernard Picon.

9. Coordination Sud, 2007.

## Public benefit of gravity irrigation

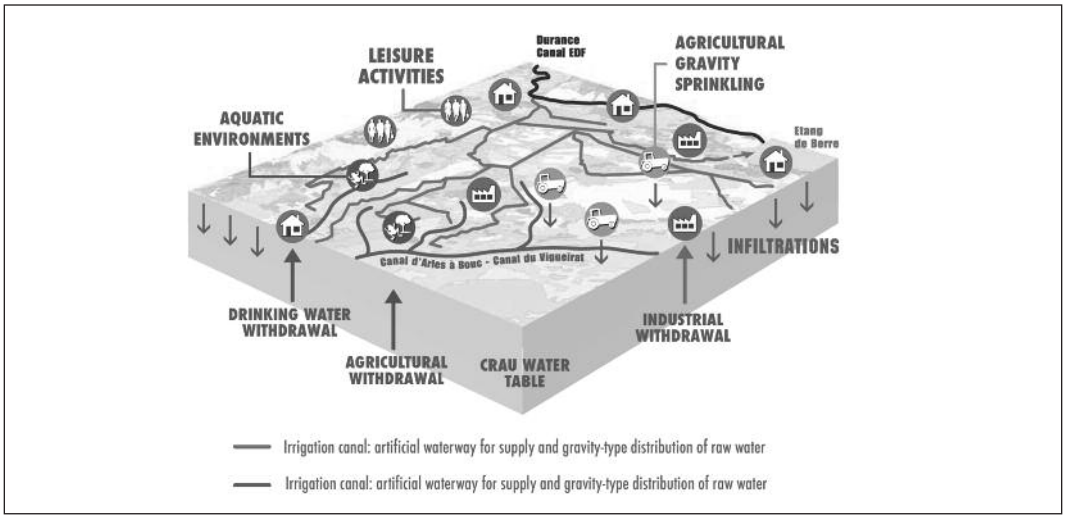
Gravity irrigation is the most common form of irrigation used by family farming. While current arguments advocate water economy, the limitation of water withdrawal for irrigation, and the promotion of so-called modern irrigation techniques, it's important to qualify criticisms of gravity irrigation, which is judged as not very efficient. Let us recall that the circulation of water must be considered in an overall way. The usefulness of "leaks" from gravity irrigation must be emphasized, starting with resupply of water tables that feed other uses downstream, especially for drinking-water supply, and (non-gravity) withdrawal for agriculture and industry. It's also important to clarify the environmental effects of gravity irrigation: it can guarantee the existence of wetlands that are home to rich and diversified fauna and flora. Other arguments of a cultural nature can be added, such as the maintenance of landscape heritage that furthers tourism.

For example, a study based on a campaign of debit measurement organized by ADASIA[10] between 2001 and 2003 in the Roussillon region of France highlights the public interest of canal irrigation. This latter makes it possible to resupply the water tables that feed the drinking-water sources of many villages of the area. This study also shows that the water withdrawn from the waterways sees threefold or even fourfold usage, via infiltration and recovery. This is also shown in the case of the Crau-Sud Alpilles area, shown below.

## The case of Crau-Sud Alpilles

The Crau area is characterized by the ancestral agricultural system combining Crau hay production (enjoying a certified geographic label) and sheep raising. In this semi-arid zone, water supply by gravity irrigation directly supports the Crau water table. It helps to supply more than 300,000 people and the main industries of Fos-sur-Mer and Marseille. It also enables pressurized irrigation for fruit-tree growing, leisure activities (kayaking, hiking along the banks, etc.), and the maintenance of wetlands (See Figure 2 below).

**Figure 2: Geography of water flows linked to irrigation in Crau and Sud Alpilles**

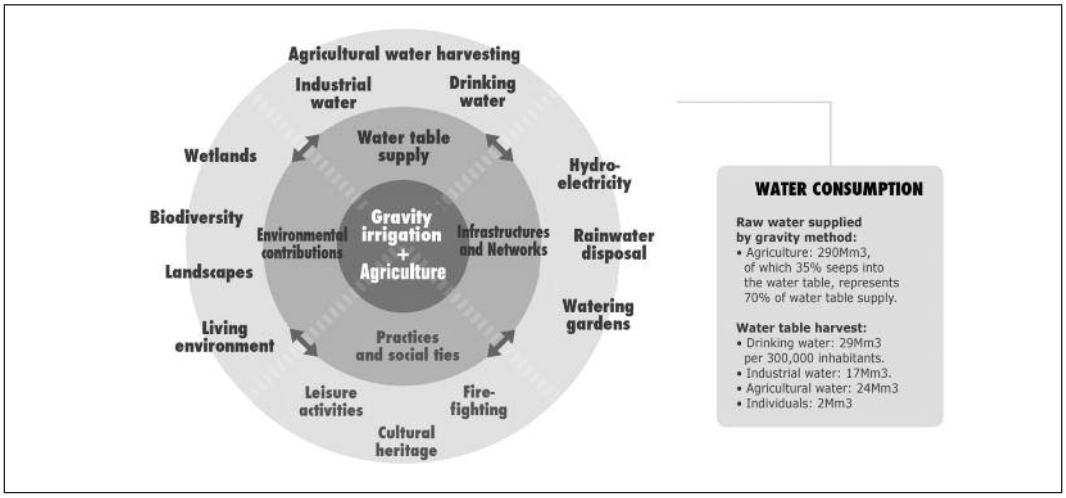



*Source: Charter of objectives of the Crau-Sud Alpilles canal contract (2011).*

10. ADASIA. 2004. "Étude moratoire sur les flux hydrauliques des canaux d'irrigation des Pyrénées orientales," Documents 1, 2, 3 and 4. *GAEA expertise report.* Perpignan: ADASIA.

The figure below highlights the many benefits of gravity irrigation in this area. This undermines the principle of water productivity, which is in practice limited to measuring agricultural production relative to amounts withdrawn. This principle never manages to take into account the positive externalities stemming from irrigation.

**Figure 3: The direct and indirect benefits from gravity irrigation in the Crau and Sud Alpille areas**




*Source: Charter of objectives of the Crau-Sud Alpilles canal contract (2011).*

**Example 3: The spread of drip irrigation: miracle solution for savingwater, or not such a good idea?**

The modernization of irrigation through the promotion of the drip method is too often seen as THE solution for saving water and increasing productivity per amount consumed. The specialized water companies often remind us of this insistently. While drip irrigation is appropriate and effective in certain circumstances (rarity of water, topography, etc.), the technique shows its limits in taking into account ecological, agronomic, social, and economic constraints of types of agriculture around the world, especially when they are associated with individual pumping.

In the Maghreb countries, this technology makes it possible to irrigate land that could not be irrigated using the old gravity system, leading to uncontrolled spread of irrigated surfaces by farmers and farming companies that have the resources to invest in drip irrigation. It leads to in-depth modifications of water discharge and increased problems of soil salinization, as well as marginalization of less well-off farmers.

Furthermore, drip irrigation is mentioned by Thierry Ruf (2009) as a "*tremendous instrument for breaking up social solidarities related to water and the deterioration of arable land over the long term due to lack of salt management. The drip irrigation users no longer participate in collective efforts* (Ed.: maintaining traditional collective networks for water harvesting, transport, and distribution). *They are no longer motivated to maintain surface networks useful for everyone.*"

Finally, in the countries of the South, if drip irrigation is poorly disseminated and too generalized, without the setting up of manufacturing chains and local distribution with suitable and inexpensive material, it often puts family farms into situations of increased industrial and energy dependency vis-à-vis suppliers and distributors, thereby limiting their autonomy and worsening economic risks.

*Prepared by Frédéric Apollin (AVSF).*

## Peasant farmers' know-how in water management and use

Irrigation and management systems for water and soil that are ingenious and fine-tuned to local conditions are often encountered in dry or mountainous regions, where they allow for a diversity of crops and stockbreeding that takes best possible advantage of these environments.

The FAO has studied the ingenious systems of rural agricultural heritage[11] and has listed the most important ones: (i) qanat, which are underground systems of water harvesting and distribution and are the basis of diversified crop systems in Iran, Afghanistan, and other Central Asian countries; (ii) the Maghreb oases in the deserts of North Africa and the Sahara; (iii) the traditional valley bottom and wetland systems such as those encountered along Lake Chad or in the Niger river basin and interior delta, which are based on floating or deepwater rice; and (iv) many other ingenious irrigation systems in the Bamileke region of Cameroon, of Dogon tribes in Mali, of Diola tribes in Senegal, as well as the village tank system in Sri Lanka and India.

Various techniques around the world have been developed to limit runoff and erosion and to further water penetration into soils to increase the rate of humidity. These include the diverse forms of barriers crossing slopes: leveled terraces in contour lines, stone barriers, *fanya juu*, etc. Some of these techniques, such as stone barriers, have been heavily disseminated in arid regions by international organizations and NGOs in the fight against desertification and have enjoyed significant success. In addition to limiting soil erosion and excessive runoff of rainwater, this technique has the advantage of restoring the absorption capacity of soils (by increasing or improving the useful reserve) and thus over the long term of improving its fertility. Of course, the dissemination of techniques must be well-thought out and suitable, because disseminating all techniques regardless of the context and needs is not appropriate, as witnessed by the widespread construction of benches that have led astray the traditional technique of *tabias* in Tunisia.

Other practices such as the *zaï* (special form of plant-pit system commonly practiced in Burkina Faso) have also proven their effectiveness. It can be mechanized through donkey or cattle traction, making it possible to recover very deteriorated soils and to increase cereal yields strongly, via better infiltration of rainwater. The setting up and maintenance of hedges have also proven effective in more arid zones. Agro-ecological practices such as compost and straw mulching also make it possible to limit water evaporation.

This know-how is not limited to the mastery of techniques. It is also formed by social capital and the capacity for water resource management by local communities. Their forms of water management change constantly, along with adaptation of rules and the creation of new standards and new institutions relative to a changing environment.

The case study in Ethiopia shows how, in a century during which demographic pressure exploded, an irrigation scheme was set up and evolved to meet the needs of as many people as possible. It spread along with the construction of new canals and the inclusion of new users. A timetable of water turns was set up, and this regularly changed to deal with new needs due to the rise in number of users and to new crops consuming more water (potatoes for the market, etc.). New rules were set up to manage the maintenance of canals, penalize the theft of water, and settle the conflicts that break out during droughts, etc. All these local resources need to be acknowledged to better support it and help it to adapt to new exogenous constraints. There is also real local hydraulic knowledge. The peasant farmers' empirical knowledge about the "resource" often clashes with the knowledge produced by admi-

11. Koohafkan P., Altieri, M. *Systèmes ingénieux du patrimoine agricole mondial. Un héritage pour le futur.* FAO 2011..

nistrations or scientists. Nevertheless, this hydraulic knowledge plays an important role in the management of "risks" (floods or droughts) and the methods of collective management of these risks.

Many types of traditional collective and individual know-how and practices have thus proven themselves in sustainable water management issues. They are worth being acknowledged and promoted, faced with the dominant agricultural model, which is intensive in both capital and in water consumption.

# Water sharing cannot be dictated by the market

In this context of water scarcity, many actors—be they water multinationals, international institutions, development banks, or non-governmental organizations—advocate various legal forms of commoditization and negotiation of access to water rights, stipulating that the mechanisms for setting prices would enable water to be put to its most "productive" use and thus avoid any waste. This commoditization of water favors uses that have strong short-term economic profitability, at the expense of family farming, whose positive externalities are obvious but hard to quantify. In this way, in an open water market family farming is marginalized by its limited financial capacities and its weak power of negotiation faced with agro-industries, the mining or tourism sectors, or municipalities. In the long run, it's the question of the general interest of all human societies that is penalized by this system that simplifies the issues of water management to the extreme

**Example 4: The water law in Chile: gaps are widening…**

In Chile, the water law of 1981 set up negotiable rights to the use of water. These rights were based on a principle of private property and not on concession, and could be traded as a commodity. The aim of this law was to enhance the value of water and encourage investments to increase the effectiveness of water use by industry and agriculture. The reform did enable gains in effectiveness, but at what price? Equity was sacrificed: the proportion of rights belonging to the poorest third of farmers has dropped more than 40% since 1981. Smallholder farmers have been marginalized, and indigenous communities have lost their usage rights to mining companies[12]. Overexploitation of water and pollution by mining industries have dried up or made unusable the water of rivers in some villages[13].

Some countries of Latin America, such as Bolivia, Peru, or Ecuador, try to imitate the Chilean model, which was used as an example by neoliberal economic thinkers. But these systems have turned out to be exclusive, ineffective, and contrary to general interest. To defend their own access to water, the indigenous and peasant movements of the Andean countries have determinedly opposed these attempts to reform legislation on water over the last 30 years, with success.

12. UNDP. Human Development Report, 2006.

13. http://www.nytimes.com/2009/03/15/world/americas/15chile.html.

## Water: a complex asset, but an asset of public interest

Rights are social constructions that reflect relations and balances of power. Thus, the notion of private property as an exclusive use and absolute right is far from universal and cannot be implemented everywhere. This is also the case for the notion of water as a marketable good.

The systematic use of the market in the name of a supposed "modernization" and "water economizing" cannot be considered as a solution that is effective and in harmony with the general interest. In reality, water resources are a complex asset that can be shared in various forms. These forms of water sharing can coexist and function with contributions from farmers in varied forms, according to rules that are often collectively defined and socially recognized at the scale of the geographical area at which the resource is managed. Such water rights can be linked to monetary contributions, contributions in kind (e.g., supplying materials for preparing construction work), or contributions through labor (e.g., supplying labor for collective maintenance).

In each case, water allocation requires regulation by authorities that are socially recognized, legitimate, and capable of imposing sanctions, because water is above all a public asset that must serve the general interest. It must be physically and economically accessible to all, without exclusion.

Is the State best suited to ensure this regulation and the defense of the interests of the weakest? The response depends on its own commitments to the general interest, the quality of its institutions, as well as the legitimacy and accountability of these latter. The example below highlights the link between State withdrawal in the management of irrigation infrastructures and the drastic drop in price production in the Philippines, which within 15 years has switched from being self-sufficient in rice to being the world's biggest rice importer.

**Example 5: The impact of water deregulation in the Philippines**

The Angat reservoir supplies irrigation for around 30,000 ha of riceland from the Maasim River, as well as provides electricity and 97% of and drinking water for the population of metropolitan Manila. In 1997-1998, following the recommendations of the World Bank and Asian Development Bank, the State decided to deregulate the water sector. It privatized the management of this reservoir, by reconsidering the water rights traditionally divided between the hydroelectric dam, the drinking-water distribution network, and the irrigation scheme that depended on this reservoir. The two companies that took over management of the hydroelectric dam and drinking-water distribution recovered from the government 22% of the water rights traditionally allocated to farmers who irrigate their land in the dry season. At the same time these rights were reallocated, the functions for managing the irrigation canals and for collecting fees were delegated to irrigators associations (IAs) that up to then had never been trained in canal maintenance and in fee collection. This new organization of sharing and managing water resources was decided on unilaterally by the government.

Even though all farmers pay fees to the national irrigation agency, this latter pays back only a small percentage to the IAs. That amount is largely insufficient and is not enough to maintain the canals or to train managers so that they can take care of their new administrative tasks. The unequivocal result was that farmers saw their production level reduced by half in several years. This privatization established a vicious circle: the farmers became considerably poorer and could no longer manage to pay the fees to maintain the canals. In 2010, faced with the imminence of large-scale agricultural losses for the country, and under pressure from peasant orga-

nizations, the Supreme Court ordered water to be released from the dam in order to irrigate 25,000 ha of rice about to wither in the fields.

Even though the IAs were responsible for managing the water resources (which seemed insufficient from the beginning), we can see through this case study that without State intervention and guidance measures, there can be no effective transfer of skills. It's thus not very accurate to generalize—as the World Bank has often done in order to pursue and justify its policy of privatizing water resources around the world—that IAs and farmers in general do not know how to manage water resources.

*Based on the IRDF/CCFD-Terre Solidaire case study.*

Chapter 2

# Invest intelligently in agricultural water

## Adoption of another investment policy is urgent

### For a different type of rainfed and irrigated agricultural "modernization"...

In order to respond to the major issues of food security and environment, governments and international cooperation agencies (bilateral, multilateral, decentralized, etc.) should reinforce their support to programs to improve access to water by family farms. This means investing to achieve a "different modernization" of agriculture that takes into account local know-how and practices in (collective or individual) water management: social management among users of water by gravity irrigation, management of groundwater or of ponds and wells in desert zones, etc. It's also important to improve or adapt existing practices of the resource management and to promote forms of fair and effective management[14].

The investments have to take into account the following elements:

*The hydraulic culture of the local populations*

Intervention must take into account the "water culture" level of the local populations. This is because irrigation development projects may be carried out in "hydraulic societies" that already master irrigation and water management (such as rice growers in the high plateaus of Madagascar and in many regions in Asia), in rainfed agricultural zones with few irrigation practices, or even in pastoral areas. Each of these contexts requires adjustments and variable guidance for the peasant farmers and for the water-management institutions, in interaction with the other water and land users of the area.

*Suitable management methods*

Irrigation investments must also be thought out according to the method of infrastructure and water management planned for the irrigation scheme. This is linked with the size of the irrigation scheme, among other things. Indeed, small irrigation schemes more easily enable local and autonomous water management and self-financing, with limited public intervention. On the other hand, heavy construction necessarily involves intervention by a public power, as much for financing the maintenance of the infrastructures (channels, embankments, primary or even secondary canals) as for the overall management of the water (for example, the management of water levels upstream, or allocation of the water for the sectors in the area).

14. Even if these forms of management are not entirely fair and democratic from a Western point of view.

### To enhance the investments made in irrigation..

It's also important to recall that investment in irrigation cannot be directed solely towards new irrigated systems. And likewise to enhance already existing irrigated systems.

Much of the land currently underused can be irrigated by restoring out-of-order irrigation systems. An evaluation of irrigation projects in the Oromie region in Ethiopia in 2006 indicates that 40% of irrigation schemes were underused, 50% of the land developed was effectively irrigated, and 15 schemes (representing 2,112 ha) were abandoned. Other studies on small-scale irrigation show that the lack of skills and resources among technical services as well as the lack of interface between them and users represents a major obstacle to the sustainability of structures.

The Philippines case study shows a direct tie between the level of maintenance of irrigation schemes and the productivity per hectare of the irrigation schemes. Out of the 3.13 million hectares potentially irrigable, less than half (1.43 million hectares) of the land is equipped with irrigation canals. Out of this surface area, only 24% of the land (750,000 ha) is effectively irrigated each year. This gap between land used and land effectively irrigated can be explained by the disrepair of infrastructures and their lack of maintenance by the National Irrigation Agency. Even though massive investments by the World Bank in the 1970-80s allowed the Philippines to obtain food sovereignty (no rice imports between 1980 and 1983), the abandonment of public investments in the agricultural sector and the gradual withdrawal of State agencies are now obliging the Philippines to import more than 440,000 tons of rice (2011), making it the number one rice importer in the world[15].

Acknowledgment of this failure does not make irrigation in the country any less relevant and must not discourage investment in irrigation. Improvement of water access for family farms must also be made by investments in building and restoring hydro-agricultural infrastructures. But these must be adapted to local management capacities, to existing practices and know-how, and of course to the availability of the resource. These investments must be made jointly with technical, organizational, institutional, and political support. The example of the restoration of hydraulic infrastructures of the Prey Nup polders in Cambodia (See Annex 1) shows how a process that is admittedly long and complex—but that includes all of the irrigators of the area—can make infrastructure restoration sustainable and profitable for all.

Finally, acknowledgment of this failure emphasizes, on the contrary, the urgency for different and more suitable investments designed and implemented under certain conditions so that they are relevant, sustainable, efficient, and effective.

## Supporting the dissemination of simple techniques

Many techniques that are economically and technically accessible to family farms of the South must be highlighted and better circulated in order to optimize water and to enhance rainfed lands. These techniques may differ according to local contexts and the specific needs of the target groups (different types of peasant farmers, women, etc.).

15. *The Evolution of Rice Production Practices*, Eulito U. Bautista and Evelyn F. Javier, Discussion Paper Series No. 2005-14, http://www3.pids.gov.ph/ris/dps/pidsdps0514.pdf.

## Promoting local knowledge

When it comes to mastering water in wetlands, rainwater harvesting, management of rises in water levels in dry areas, and irrigation in general, farmers have been able to perfect many techniques that are adapted to their agro-ecological environments and their socio-economic conditions. These techniques have proven themselves both in local practice and in broader dissemination. It's thus important to highlight all this knowledge, all the while combining it if necessary with other suitable techniques.

## Optimizing water in rainfed agriculture

The greatest potential for obtaining higher yields is found in rainfed areas, where most of the poorest rural populations live. Water management remains the key for such increases.[16] Support for water management, accompanied by adequate measures to support agricultural development, is thus decisive for ensuring such increases in the volumes produced.

In all the rainfed agriculture regions around the world, what's at stake is to improve agricultural practices and to maintain soil fertility and its capacity for water retention: These enable improved efficiency of water in the cultivated eco-system. The aim is not to harvest all the water that falls on the ground (we must once again think of refilling water tables), but to improve water efficiency in the agricultural production systems by relying on the previously mentioned traditional knowledge.

## Techniques for adaptation to climate change

All the previously mentioned techniques (stone barriers, zaï, agro-ecological practices, etc.) are all the more relevant if they enable agriculture to adapt better to climate change. In the driest and most arid zones, these enable people to maintain a production activity with real saving of available water, and to guarantee jobs in rural areas that are nonetheless fragile.

## Promoting techniques to irrigate small surface areas

While there is significant leeway for optimizing rainfed agriculture, irrigation naturally remains a major issue for food security. Doubling the irrigated surface area in sub-Saharan Africa would increase its contribution to the global food supply by 5 to 11% by 2050. Expanding irrigated zones implies first of all the harvesting and storage of water, and then its use for irrigation.

Simple and inexpensive technologies make it possible to provide this harvesting and storage of rainwater: small dams, collective reservoirs, individual tanks, etc. Besides irrigation, the water can also be used for other productive activities such as fish farming and watering livestock, etc. In the semi-arid climate of Nordeste in Brazil, the setting up of tanks allows each family to recover rainwater from the roofs of houses and enables families to store water for household use and for irrigating gardens. In Madagascar, the establishment of a network of craftsmen who make very simple drip irrigation systems with local materials enables peasant families to irrigate, for a modest investment, their vegetable gardens for family consumption and market sales. (See box below.)

16. FAO. *Eau pour l'alimentation. Eau pour la vie. Évaluation globale de la gestion de l'eau en agriculture.* Rome 2008..

**Example 6: Simple and accessible micro-irrigation techniques**

With funding from the COOPERNIC Foundation, and with assistance from FIDA, AVSF is implementing a drip micro-irrigation development program in Madagascar. It involved the dual challenge of designing and distributing low-cost micro-irrigation kits to peasant families, all the while establishing a network of local craftsmen and distributors who could ensure the distribution and after-sales service on an ongoing basis. These kits are intended to irrigate individual vegetable-crop surfaces of 100 to 400 $m^2$. Each kit is made up of a removable tank (in the form of a plastic bag) placed in an elevated position and connected to a ramp (a PVC pipe) on which flexible pipes that run in the middle of the nursery bed are attached. These have small spigots that can adjust the flow, as well as tricklers.

A kit distribution network was set up: 3 manufacturers, 57 resellers, and 94 technical sales representatives trained to work along with the families purchasing the kits. The kits are distributed with an optional pedal pump enabling harvesting of river water, developed based on Indian models. The cost of the Madagascar pumps and the kits turned out to be 20% less than the imported Indian ones, and they were of better quality according to the users. Market gardening was adopted as the entry activity, as it is a short-cycle income-generating activity that is demanding in water, fertilizers, and sometimes phytosanitary products, which are often over-consumed and poorly used in the beginning. After three years, nearly 9,000 families of more than 60 villages have already adopted these systems. The evaluation carried out with families over the course of two agricultural campaigns shows that this technique makes it possible to irrigate a surface area 5 to 6 times larger with the same quantity of water, to obtain a margin ranging from more than 70% to more than 200% depending on what is produced, and to decrease the use of chemical inputs. This type of kit pays for itself from the end of the first agricultural campaign (representing 3 cycles of crops).

*Based on an AVSF Projet SCAMPIS document – April 2012.*

## Furthering the dissemination and change of scale of these practices

There is often awareness about practices and techniques. Many of them have often been validated at the local level and have already proven themselves. The issue is thus not only to precisely identify and support these practices, but also to enable a real change in scale of their dissemination to the regional and national levels, for increased impact. Integrating the teaching of these practices into the national training systems for managers and technicians, including them in the national agricultural extension systems, supporting the massive dissemination of these techniques through public policies and investments, and directing significant resources from international aid to their dissemination are the required conditions for the desired change in scale.

# Investments for suitable irrigation infrastructures…

**Example 7: "Small is beautiful"…**

In the East Hararghe Mountains in Ethiopia, small-scale irrigation has been used for more than a century by peasant farmers, via spring harvesting, river diversion, and transport of water by earthen canals. In this semi-arid zone, which is densely populated and regularly struck by droughts, irrigation is a tremendous means for intensifying and securing agricultural production. It is in reality a guarantee for food security. It makes it possible to produce two cycles per year (compared to a single cycle on rainfed land) and to secure harvests in the event of unforeseen climatic events. It also makes it possible to diversify crops, combining cash crops (potatoes, onions, coffee, etc.) and food crops (wheat, corn, sorghum, etc.) to better satisfy the needs of agricultural households.

The rehabilitation of the small irrigation scheme of Burka Alifif via protection of the source and the cementing of primary canals makes it possible to limit water loss through soil infiltration. It also makes it possible to increase the number of users and the frequency of water turns among users. Moreover, the increase in the speed of water in the canals facilitates water exchanges between users. Despite all these advantages, the rehabilitation generated technical and organizational upheavals. The local water-management institutions were given support during the adaptation process. They were able to establish new rules for water management, along with the setting up of fees, the inclusion of new users, and an irrigation timetable adapted to the new market-garden crops.

## Beware of megaprojects

Large-scale irrigation infrastructures have not always proven themselves up to now. This can often be explained by a number of reasons: the projects were poorly designed, they were imposed by powerful economic actors and their own interests, lack of political dialogue with civil society, no taking into account all of the needs and constraints of water users. It is often the big projects that are given the attention of these actors, and this for varied reasons[17]: i) the State needs large-scale projects to establish its legitimacy and obtain support from the people it aids; ii) the agencies in charge of water resources need these projects and their resources to continue to exist; iii) local politicians depend on these projects to form an interest group that supports them; iv) consultants and construction companies see work opportunities in them; v) the big projects allow development banks to minimize the risks and management costs. For example, there are many projects around the world whose locations were chosen because "highly placed" persons come from there, and not because of criteria related to technical/economic suitability or local needs.

Through the convergence of interests of these various groups of powerful actors, the implementation of these projects is difficult to challenge, even when they are obviously poorly designed, and this despite growing movements of protest from civil society (there are examples in South Africa, Uganda, the Philippines, etc.). Nonetheless, the consequences of this type of process attest to projects that "*do not have enough water to live up to their ambitions*." They are often oversized compared to the available hydric resources.

17. François Molle (IRD researcher) analyzes the reasons in the article "Why Enough Is Never Enough: The Societal Determinants of River Basin Closure". Water Resources Development, Vol. 24, No. 2, 217–226, June 2008.

Thus, it often occurs that the areas planned for irrigation are not all irrigated; that electricity production from dams is overestimated; and that lowest water flow after withdrawal is less than estimated, drastically impacting downstream populations and the environment. At best, botched policies of management transfer and State withdrawal lead over time to infrastructure problems, resulting in their abandonment and their poor functioning. At worst, the socio-environmental consequences are catastrophic (transformation or deterioration of eco-systems dependent on a waterway, extinction of species, population displacement, etc.).

Furthermore, in these large-scale irrigation projects, institutional management capacity is sometimes lacking in terms of being able to deploy itself over a hugely broad area for water distribution to such numerous and highly diverse users.

## Conditions of success for irrigation projects

It's important nonetheless to qualify the above topic. While small irrigation schemes are often more suitable for local water management, medium and large areas can be an interesting solution for family farms if a certain number of conditions beforehand and in implementation are met: involvement by the users and the national and local authorities, political support to back up the local water-management institutions and make them sustainable, well-defined land tenure status of the irrigation scheme, progressive and long-term institutional support for organizing the water and maintenance service, etc. These conditions are of course also valid for small irrigation schemes.

The aspirations and production projects of the peasant farmers must be at the heart of any irrigation project design, with assurance of technical feasibility from the angle of infrastructures and agronomic aspects also necessary. Besides the sometimes artificial rituals of "participative meetings" with the peasant farmers, the designers of the irrigation scheme must encourage the involvement and active cooperation by the peasant farmers in the technical choices, the determining of water-management methods, and the agronomic projects/estimates.

The irrigation projects must also take into account the socio-economic realities of the peasant farmers. Irrigated agriculture has huge advantages in terms of productivity, diversification, and securing production. But let us not forget that it is more restrictive than rainfed agriculture in terms of labor time, technical mastery, and investment costs. The peasant farmers measure the advantages and disadvantages of irrigated, rainfed, or flood-recession cropping in terms of time, mobilization of the family workforce, investments, security, and various other constraints. For the peasant farmers to maintain their interest in irrigated land, and thus in their financial and labor investments, they must have enough income to pay the fees and still meet their family objectives.

In reality, economic feasibility studies on irrigation projects are generally made from estimations based on often unrealistic projections on the scale of the irrigation scheme, along with hypotheses that are too optimistic and hydraulic data that are questionable. Instead, they should take into account the incomes of the peasant farmers, by finding out the gross margin per hectare of the various crops provided for and the area cultivated per family. It's also important to determine the optimal area per farm for land development, according to the agro-ecological environment and the existing production systems.

**Example 8: For a realistic strategy of public investment in irrigation in Cambodia**

The experience of developing an irrigation scheme of 3,000 hectares in Stung Chinit, Cambodia (implemented by GRET) shows that the establishment and then management of large-sized schemes require the setting up of an extended network of actors who will supply technical, administrative, political, or even financial support at various levels.

Furthermore, it has put forward the following recommendations regarding adjustments to promote:

1) Reinforce participation by future users in the design and management of networks, in order to find technical solutions suitable for local practices and the social construction.

2) Give priority to small, low-cost arrangements that are light and flexible and entirely manageable by associations of water users at the village level, whose conditions for success are currently easier to meet than for big schemes. This process will make it possible to meet the conditions required for participative management of more complex schemes, by instituting a true culture and shared management experience among the State, its services, and the irrigator organizations.

3) Consider major primary developments, first of all in places where they would accentuate existing secondary networks. In each case, their design has to enable progressive adjustment by sub-scheme, facilitating gradual acquisition of management skills by the irrigator organizations.

4) Extend the support to user communities beyond the simple period of project launch and of formal creation of these communities.

*Based on the Stung Chinit capitalization study. Gret, 2012.*

## Some references for designing suitable infrastructures

The above-mentioned capitalization study on Stung Chinit shows that preliminary studies con-ducted before the technical feasibility study can be very helpful, and that it is very important to have a public and/or private body that already exists and that is able to carry them out. It's not a loss of time, as a full and shared diagnostic of the situation makes it possible to adapt the project to realities in the field.

The study recommends that these studies prior to technical feasibility and irrigation network design cover the following points:

- Detailed analysis of the landscape, with the help of aerial photos and pre-existing practices of water control;
- In-depth study of soils and irrigation possibilities when large schemes are planned;
- Analysis of the evolution of traditional water-management methods and their integration into production systems existing in the area;
- Identification of possible transitions towards irrigation that do not affect the other uses of land and water: out-of-season grazing, fishing, etc.;
- Contribution of hydraulic network improvement on the expected evolution of crop systems and modernization of the economic validity of the investment;
- Realistic cost/benefit analysis comparing various types of projects in a given region.

The study also gives recommendations for the feasibility studies:

– Give a prominent role to the future management of the proposed system. The management scenario is to be discussed during the feasibility phase and not afterwards.
– Include a consultation phase in the feasibility study, to test the social acceptance of the project and to modify the proposal if necessary.
– Specify the maintenance costs of the network.

Finally, the study proposes four points to promote when new irrigation systems are designed:

– Suitability between hydraulic system and decision-making power/areas of confrontation;
– Compatibility between the traditional management of irrigation and the new system proposed;
– Anticipated and facilitated transition between traditional management of flooding and irrigation;
– Suitability of the irrigation method with the crop systems desired by the users and with their strategies for risk minimization within the framework of self-sufficient food agriculture.

# Skills before cement

## To reinforce water-management institutions

The investments needed for agricultural water cannot be directed only towards financing infra-structures. In order to ensure the sustainability of hydro-agricultural infrastructures, the invest-ments must provide for substantial support to the institutions in charge of maintaining and managing them. This is because the appropriation of structures and the setting up of new rules, techniques, and practices is not easy, especially for the schemes designed with minimal consideration of future users and managers. Investments must thus take into account the training needs of the actors and managers of water, especially peasant farmers. They must also provide for technical and institutional techniques to reinforce user associations, and possibly the emergence of new multi-actor institutions of water-resource management.

**Example 9: Associations of effective, autonomous, and recognized users in Prey Nup**

The case of the polders of Prey Nup in Cambodia shows that large-scale infrastructures can be appropriated by peasant farmers and improve food security. These polders of a total surface area of 8000 ha were built during the colonial period to prevent sea water intrusion and thus grow rice on low-lying land. They greatly deteriorated after the war due to lack of maintenance, and villagers did not have a tradition of collective organization to take care of them.

This project to redevelop the polders was carried out by GRET and started in 1998. Its success is based on the integrated implementation of various components that are complementary and necessary at the same time: infrastructure rehabilitation, clarification of land ownership, financial support for production (input subsidy, credit access), and institutional development of a "Polder Users Association." Since then, rice production has doubled (from 12 to 25,000 tons). A local autonomous organization of users is in charge of managing the water and maintaining the polders: it determines, manages, and collects the dues from more than 15,000 members. Finally, this innovative project opened the way in Cambodia to the recognition of water users associations that are autonomous and recognized by the public authorities.

*Based on the GRET case study.*

## To support structures that guide user organizations in managing water and suitable services

It's often appropriate to further the creation of permanent structures to guide water-management institutions and user associations when these seem necessary, especially when administrative or decision-making levels are absent or deficient. These can be, for example, irrigator service centers that support water user associations, or water technical services.

### Example 10: Multi-facet service centers

From 2009 to 2012, AVSF, GRET, and IRAM worked to help set up and reinforce service systems for irrigators, for improved and sustainable use of the areas under consideration, in three distinct national contexts (Haiti, Cambodia, and Mali). Different institutional and organizational forms were experimented with to offer permanent services to users. All these experiences showed that the service center is an appropriate and necessary actor, even if it cannot resolve some problems alone, such as irrigation funding.

In Haiti, AVSF supported the creation and consolidation of the "CUDES" consortium of irrigator associations (12 irrigator organizations, around 2,500 irrigated hectares, and about 5,000 users), which pools resources and skills to offer diversified services. In a country where the State remains fragile, the originality of the CUDES approach is to set up useful and appropriate services to irrigators that an isolated irrigators' organization would not be able to manage alone:

• A water-management service: organizing training sessions for associations on their organization and management, creating an annual budget, determining their statutes; supporting the updating of user lists; supporting the establishment of water towers; supporting the establishment and collection of dues to cover certain maintenance costs of the schemes;

• A service to provide technical training in agriculture: organizing training sessions for users on the use of fertilizers and pesticides, etc.;

• A service to manage conflicts: intervention by KIDES during conflicts on the schemes between users, at the request of irrigator associations;

• A service to defend the rights of users against the urbanization of agricultural land: guidance for associations and users before the CASEC, municipalities, and courts;

• A service to support the mobilization of financial resources during natural disasters (hurri-canes, storms, earthquakes, etc.) or of significant repair of systems out of the irrigator associations' reach;

• Finally, a service for grouped marketing of agricultural products thanks to the setting up of a purchasing and marketing cooperative (CAC) and of input supply or an agricultural input shop (BIA).

Chapter 3

# Defending and securing peasant farmers' water rights

Denying rights to water access for family farms equates to denying their means of subsistence, contributing to the economic and social destabilization of countries and regions, and calling into question the food sovereignty of their country. In the name of general interest, the interest of rural populations who live from agriculture and its related industries, and that of city dwellers who need food products at accessible prices, it's thus necessary to defend and secure rights to water by family farms.

## Putting a stop to water grabbing

Land grabbing is also motivated by capturing water flows. Faced with the increasing scarcity of available water, some countries with limited hydric resources have decided to limit irrigated agricultural production on their land and to start agricultural investments abroad. Saudi Arabia has thus decided to suspend wheat production on its territory by 2016 and established a fund for agricultural investment abroad in 2008. As the case study below shows, granting of water rights on lands can increase their financial value (50-fold in the below case). Water is a key element in the profitability of investments and of land speculation.

**Example 11: In Northern Peru, land grabbing goes hand in hand with water grabbing**

Between March 2006 and January 2007, more than 10,000 hectares of land of the Chira-Piura Special Project were sold by the regional government at the rate of $60 per hectare to Maple Ethanol SRL, a subsidiary of the American company "The Maple Companies." These lands were purchased without any consultation of the local populations. Furthermore, some of the land granted was actually already cultivated by smallholder farmers (recorded in the land register, but without deeds), or even occupied by legally-recognized townships. During the investment process, exclusivity of usage of the water of the Chira River waters was also granted to the Maple Companies, thereby multiplying the value of the land 50-fold.

These transactions immediately provoked conflicts, essentially for use of the Chira River water: The users there, such as organizations of smallholder farmers and other small and medium businesses, demanded their rights and fair conditions of use of irrigation water.

*Adapted from "Agricultures familiales et société civile face aux investissements massifs dans les terres dans les pays du Sud" (www.coordinationsud.org/Agricultures-familiales-et).*

Africa uses only 2% of its water resources for agriculture. The continent is thus a privileged target for these investments. Forty-five million hectares of land have reportedly been the object of transactions as part of large-scale agricultural investments (BM, 2009). And for many specialists, this figure is largely underestimated and represents only the visible part of a much greater phenomenon. How many millions of cubic meters of water have also been grabbed away in this process, to the detriment of local populations and the environment?

Water is an essential component of agricultural investment contracts, especially when these latter involve land in arid or semi-arid zones. Investors openly seek to formalize rights of access to water sources, and African States sign contracts to grant them long-term water rights, with little consideration for the consequences on the inhabitants and/or users downstream in the decades to come. Thus, the examples of contracts in Africa show that granting water rights to foreign investors is sometimes made with very few precautions and with a lack of method.

**Example 12: Granting of water rights to investors in Mali**

The IIED[18] has studied agricultural investment projects in Mali that have been signed under the same government and for which the Ministry for Mining, Energy, and Water Resources is officially in charge of water management. The analysis shows a lack of consistency in the regulation procedures for water rights, with different resource billing structures and fee mechanisms. For example, an initial contract was signed in 2008 for 100,000 hectares with the Ministry of Agriculture of Mali. It granted unrestricted access to canal and groundwater during the rainy season and more restricted access in the dry season for crops requiring less water. Water fees were based on a set and renegotiable amount per hectare. In addition, in 2007 a contract with a sugarcane company for 14,000 hectares was signed with the Ministry of Habitat, Land, and Urbanism for the use of canal water at a given flow rate, with billing *by volume*.

Civil society, as much in the North as in the South, must continue to closely monitor large-scale land appropriation. Citizen mobilization already exists in many countries. It focuses especially on land aspects, but it must also keep an eye on water resources. Faced with the increase of large-scale land appropriation manifested in massive water-resource grabbing, rights of existing users, and especially those of peasant farmers, must urgently be recognized. It's also important to make sure that water is taken into consideration more in corporate social responsibility (CSR) and in the FAO voluntary guidelines on land and natural resources.

18. Cotula L. *Land deals in Africa: what is in the contracts?* IIED, London. In: *Are land deals driving land grabs?* November 2011. http://pubs.iied.org/17102IIED.

# Recognizing "water rights"

## Recognition of historic rights of water use and access

The water rights of historic users, who among others include peasant farmers, stockbreeders, and fishermen in the areas concerned, must be recognized. Traditional users of water generally consider their rights to water as secure and thus have little interest in the procedures for formalizing these rights, which are often complicated, inaccessible, or even inexistent. This is not a problem in itself, because communities have their own forms of appropriate water management. Problems arise above all when investors look for and obtain formalization of their rights, which then prevail over those of peasant farmers in the events of competition for the resource and of legal arbitration. Indeed, in cases where customary laws and formal laws disagree, it has been observed that formal laws take precedence.[19]

## Recognition of local forms of water management

In order to prevent despoilment of rights to water access, it's necessary to inscribe peasant populations' rights for agricultural water withdrawal, rights for watering livestock, and rights for fishing into positive law[20] by recognizing local rights and incorporating them into national legislation. The notion of recognition takes into account the material element of the right to water (access to water, right to use a proportion or volume of water, etc.), but it also takes on an agricultural, human, and social dimension. Indeed, recognition of local rights also includes accepting and respecting the varied forms of managing and organizing water.

**Example 13: Water and pastoral development scheme in Mali**

In Mali, from a legal point of view, the right to access to quality drinking water that is used both for watering livestock and for human consumption is secure only insofar as pastoral rights on the land are recognized. In the pastoral area, legal recognition of pastoral land as a form of land use is thus necessary to guarantee the right to water.

The concerted working out of the Pastoral Development Schemes, which have now been recognized and legalized by elected representatives, technical services, and the administration, is a first step in this direction. The Pastoral Development Scheme is a decision-making tool for coherent development of rural areas, and for pastoralists it remains a reference tool in the development of village land and communal land, especially via the geo-referencing of needs for developing resource points (wells, marking of seasonal migration paths, etc.) and stockbreeding infrastructures.

Even if it is still insufficient in terms of recognition of rights, the local actors acknowledge the Pastoral Development Scheme as a step towards the recognition of pastoral land and the securing of water access rights.

*Based on the AVSF Mali case study.*

19. UNDP, 2006.

20. Positive law is made up of all the legal rules in force in a State or in a group of States of the international community, at a given moment, whatever their source.

## Taking into account the complexity of rights

The processes of securing rights to water access are complex. "Water rights" cover several aspects: access rights, usage rights (consumption, irrigation, etc.), usufruct rights (for activities making it possible to generate income from water without consumption, such as a watermill on a river, etc.), and management rights (decision-making concerning the granting of rights, including and excluding users, penalties, etc.). Rights to water are thus many in number and can overlap. The holders of these rights are also diverse. To complicate things, three categories of rights overlap: national rights of the water held by the State, common or customary rights legitimized by local standards, and, finally, private property rights[21].

The very nature of water (which is a flow) further complicates precise application of rights, because this resource cannot be fully mastered and programmed. The availability of the resource and the water needs in an area are in direct interdependence with the climate. The availability of water resources is also determined by how the water is used upstream and downstream from a watershed. This underlines the compelling need for management of water resources on a watershed or territorial scale.

The recognition of rights is not the competence solely of decision-makers and engineers, nor even of formal legal and political institutions. It is built up through broader social, economic, and political processes in which many actors with different interests and powers are involved.[22] In reality, the processes of dialogue and social struggles are decisive elements in the recognition of rights.

## The forms of recognition of water rights

Many forms of recognition of water rights exist. It's unrealistic to think that formalization through the granting of rights by state water agencies or by the commoditization of rights is the only option. It has in fact been shown that other forms of recognition of rights are effective in protecting the rights of the weak, and this at reduced costs.

The recognition of rights can sometimes be done without formalization, following the example of river management in Japan, of which one of the key principles is acceptance of traditional rights to water. This principle makes it possible to assert existing rights in case of conflict. This form of recognition of rights makes it possible to maintain the legitimacy of existing users, all the while reducing the transaction costs related to recognition procedures (Bruns, 2005).

Furthermore, the principle of subsidiarity is relevant in water management and recognition of rights. Indeed, most of the problems encountered in irrigation schemes can be resolved at the local level, without intervention by administrative or legal bodies. Resolution relies on the strengths of local institutions and social capital.[23] In spite of this, recourse to higher levels can be worthwhile in the case of conflicts that go beyond local bodies. These conflicts will have all the more chance of being resolved quickly and effectively if local governance bodies have already been established.

21. 2006 UNDP report on water, Chapter 5 on competition for water access in agriculture.

22. Zwarteveen and al. 2005.

23. Professor Norman Uphoff defines social capital as follows: "*That is just a concept, a category to group somewhat dissimilar, but in certain respects homogenous, things together. The category itself does not exist, only the things within the category exist; and in the GalOya case, what was instilled, or reinforced, in farmers' minds, were knowledge and acceptance of certain roles, rules, precedents and procedures, reinforced by compatible norms, values, attitudes and beliefs*".

Recognition and granting of water rights must be accompanied by other essential measures, so that family farming can benefit from it for agricultural development. It's important to provide family farming with technical and financial support, lucrative prices, and recognition and reinforcement of peasant organizations and water-user associations, etc. These measures must also be taken into account in the processes of decentralization and skill transfer.

## Recognition and redistribution: two pillars for social justice in water issues

Generally speaking, water policies are based only on recognition of rights and of forms of managing the resource. Policies must nonetheless also take into account the notion of socio-economic justice and provide for redistribution of water, rights, and powers. Social justice in water issues can be achieved only through the coordinated use of these two forms of action: recognition and redistribution.[24] The appropriateness of water policy and the effectiveness of its implementation in terms of social justice are measured by the quality of how these two actions are linked.[25] Indeed, the recognition of local identities and thus the acceptance of cultural differences must not create new inequalities. Conversely, the search for fairness through the redistribution of rights must not be made at the price of uniformization of practices and of local forms of water management.

For example, customary law can improve governance through its parsimonious collective management of water and its infrastructures, and through the taking into account of eco-systems and sustainability. But this right does not in itself provide fairness, especially in countries where the caste system and male domination prevail.

In 2006, the UNDP stated that water rights create water-access privileges: i) the rich always manage to protect their interests; ii) the absence of secured rights represents a much greater problem for the poor; iii) the beneficiaries of customary rights may lack legal status, especially in strict interpretation of national laws, resulting in penalization of groups such as farmers, pastoralists, and smallholders. Therefore, if we want water rights to be effective for the poor, they must be associated in forming legislative measures that clarify their rights as well as provided facilitated access to legal mechanisms.[26]

24. According to the theories of Nancy Fraser on social justice (2011).

25. Boelens and al. 2011.

26. 2006 UNDP report on water, Chapter 5 on competition for water access in agriculture.

# For reinforced international rights

## Water for the right to food

Along with the Universal Declaration and its Optional Protocols, the International Covenant on Economic, Social and Cultural Rights[27] (ICESCR) and the International Covenant on Civil and Political Rights make up the International Bill of Rights, the source of all international treaties on human rights. The right to adequate food and the right to water are integral parts of human rights. Their main legal basis is Article 11 of the ICESCR, which acknowledges for each individual the right to an adequate standard of living.

In international law, several covenants have explicitly recognized "right to water"[28], but this is restricted to personal and household uses. It's the right to adequate food[29] that covers the right to water for agricultural production. In 1999, the Committee on Economic, Social and Cultural Rights adopted General Observation 12 on right to adequate food. This requires that sustainable access to water resources be guaranteed for agriculture. International law thus stipulates that a population must not be deprived of its own means of subsistence, including access to water for agriculture.

States and civil society must thus make sure that farmers are not deprived of their means of subsistence. Peasant farmers must benefit from fair access to water and to governance of water-management systems.

## The voluntary guidelines on the governance of land tenure and rights of access to land, fishery, and forestry resources

We must commend the efforts made by the international community to finalize the global voluntary guidelines on the governance of land tenure and rights of access to land, fishery, and forest resources. On May 11, 2012, the Committee on World Food Security (CFS) officially approved these Voluntary Guidelines.

While these directives will make it possible to facilitate the setting up of due diligence in land matters so as to better take into account the rights of local communities, we cannot help but to observe that this guidelines project has not managed to take into account water resources. This highlights the scale of the struggle that remains to be carried out before the international community examines the question of water tenure.

27. ICESCR : http://www2.ohchr.org/english/law/cescr.htm.

28. The full quotations are available in English at the following website: http://www2.ohchr.org/english/issues/water/iexpert/standards.htm.

29. Committee on Economic, Social and Cultural Rights, General Comment 12. 1999. The Right to Adequate Food. http://daccess-dds-ny.un.org/doc/UNDOC/GEN/G99/420/12/PDF/G9942012.pdf?OpenElement

Chapter 4

# For concerted and democratic water management

Water has often been a tool of State assertion and of its power over territories and its peoples (Witfogel, 1964). Big dam projects around the world are examples of this. Water policies have thus long been implemented with top-down and highly technocratic approaches.

Water is eminently linked to power, and in the actual course of events the choice of a management model expresses a political vision. To move towards social justice in water issues, it's necessary to fight the positivist ideas according to which water policies are the fruit of enlightened scientific calculations and of neutral outlooks. Water-management models above all express a political vision and a vision of society that's important to clarify.

Reality shows that fair management of water relies above all on proportionate balances of power, which are greatly facilitated by possibilities of consultation, by public services and water-management institutions accountable to citizens, and by a mobilized civil society.

## Ensuring democratic management of water as a resource of common interest

Water is a resource that concerns all the actors of the area. As it is indispensable and vital for all the inhabitants of this planet—as much for drinking as for other household uses—water should be public property, in other words property accessible to all.

It is used by farmers for irrigation and livestock. This water, as a resource of common interest, is as such often managed by local communities according to their own rules that are all the more demanding when water is rare.

Above and beyond its nature as public property, water is above all of common interest: it's thus necessary to create institutions in a concerted way, and thereby rules that all the actors concerned must adopt.

For example, in the traditional irrigation schemes built by inhabitants, water is often perceived and managed that way. Elinor Ostrom (2009) lists eight key factors of success to describe how to make community-managed irrigation schemes sustainable:

1. The rights and duties regarding access to the network must be clearly defined.
2. The advantages must be proportional to the costs incurred.
3. Procedures must be established for making collective choices.
4. There must be supervision and monitoring rules.

5. Graduated and differentiated sanctions must be applied.
6. Mechanisms of conflict resolution must be established.
7. The state must recognize the organization that has been set up.
8. The whole system shall be organized into multiple layer

These are the principles of water management—when water is considered of common interest—that can and must underlie essential democratic water management for the benefit of all.

**Example 14: For water governance adapted to user organizations**

Based on the results of the ISIIMM (Institutional and Social Innovations in Irrigation Mediterranean Management) project, IRD researcher Thierry Ruf advocates a method and five innovative elements to reinforce relations and coherency in water management between user organizations and other institutions at the regional or national level. He mentions that water governance appears to be the result of two movements: one bottom-up and the other top-down. Hence the rules of management are built in equal measure by the top and the bottom, in the clash of local interests and in the adaptation of water-sharing techniques and standards, within local communities of irrigators. The five innovative elements proposed are:

– Determining areas for mutualizing water management, by taking into account the outflow basin concept.

– The notion of an association-based management scheme of public interest to share the responsibilities.

– The establishment of original by-laws in irrigator organizations, with rights and obligations.

– The acceptance of a time period required for the setting up of new institutions.

*Adapted from the ISIIMM report on 20 irrigation cases in six Mediterranean countries.*

# Ensuring that peasant farmers participate in various decision-making layers

The notion of social justice in water matters goes above and beyond physical access to the resource. Concerted and democratic management of water enables participation in various decisions and especially makes it possible to respond to the four possible levels of water contention, as pertinently distinguished by Zwarteven, Roth, and Boelens[30]:

– An initial level of contention presents itself in terms of rights to water access. Who has access to water, and in what quantities? Who find themselves deprived of water?
– The contention can involve the contents of rules, standards, and laws. What are the criteria of being included or excluded?
– A third level of contention has to do with the decision-makers. Who makes the decisions in water management? Who participates in the decision-making bodies? Who is listened to?
– The last level of potential contention resides in the reasoning used to define water problems and solutions. In reality, each type of reasoning has its own representations of water, its "proper" management and "governance," its tools, and its techniques.

30. *Liquid Relations: Contested Water Rights and Legal Complexity.* New Brunswick: Rutgers University Press, 2005.

The means of democratic management of water are appropriate for finding social consensuses on the four aspects mentioned above, so as to respond above all to the general interest and not to the law of the strongest.

As Osotio and Espinoza suggest, it would seem that, in more specific matters of projects and programs related to water management, *"…community participation is more than just being informed about development plans. Likewise, it's more than simply taking into account knowledge of the local community and their priorities. Carrying out true community consultation means that the community and the planners (…) maintain a dialogue in which the community's priorities and ideas help to shape the projects. The final design of a project reflects the responses the community makes during the consultative process. This latter can give rise to participation in which the community shares the authority and the real powers all throughout the project cycle, from regulatory decisions and project identification up to final evaluation."*

# Defending and promoting multi-actor water management

In the context of heightened competition over the resource, consultation bodies that include all the actors involved in the use and management of water are essential for fair sharing of the resource between users and sectors of activities and between cities and the countryside. This also furthers the collective protection as well as the effective and sustainable management of water resources at the watershed or regional scale.

Water management implies first of all the gathering of information. It's important to specify which data are necessary for making the right decisions, such as the state of the resource, the water needs, or the types of pollution generated, etc. There must be consultation during these stages of reflection and decision-making on the choice of information to gather, as well as on the forms of information gathering and management. Consultation also implies access to information for all the actors. This is because information is an essential element for making balances of power more proportional. There can moreover be consultation bodies for each type of usage, arbitration bodies between usages (especially on the quantities of water for each type of usage), as well as bodies to supervise water quality.

In reality, there is indication (in the texts, at least…) that water policies have a growing interest in involving the stakeholders in democratic processes seeking to improve governance of the resource. Innovative models of sound and fair management of water have also been developed through processes of negotiation and consultation among users, at reduced cost and with shared benefit between peasant farmers and other users (cities, businesses, drinking-water users). This can be seen in the cases of the sharing of water in the Chambo watershed in Ecuador, or of pastoralism in Mali.

**Example 15: A successful concerted management experience in the Central Andes, in Ecuador**

In the Central Andes of Ecuador, peasant-farmer irrigator organizations (which are mostly Amerindian) have fought to assert their rights for water usage on land acquired after the agrarian reform of the 1970-80s. But the fragile balances established after water sharing have now been challenged. Actors with very diverging interests (rural communities; the City of Riobamba, the provincial capital of 150,000 inhabitants; businesses; peasant-farmer families) compete for water access with relations of power that are still very unbalanced.

Since 2007, NGOs have been providing guidance in the creation of a consultation system that enables these actors to negotiate mutually beneficial agreements in the field of water sharing and management, and to pool technical and financial resources for collective protection. In a water political context in turmoil (new state institutions, a new law under discussion, etc.), the results already obtained are promising. A committee on a sub-watershed scale has been created; its members include the different users, especially local communities and businesses. This committee works based on objective diagnostic elements (state of the resource and of concessions, water needs of the various sectors, types of pollution, etc.) to determine the priority actions needed for dividing up and fairly sharing the resource and for efficient usage. Its action should lead to the collective construction of a plan to manage hydric resources on the scale of the area in question.

A financial tool has been set up to finance awareness-raising actions on collective management and water protection that make it possible to counter the widespread and accusatory arguments against peasant farming, which is considered the main water-resource destroyer in higher altitudes. Finally, the beginnings of political agreements between city and irrigators for sharing water have come into sight: the Amerindian peasant-farmer association of irrigators from the City of Llicto may agree to share its water with the City of Riobamba, which in turn would contribute to the very high maintenance costs of the canal.

*Based on the AVSF Ecuador-CESA case study – Frédéric Apollin & Sylvain Bleuze.*

## Not to mention pastoralism…

**Example 16: Water and pastoralism in Mali**

In Mali, stockbreeding represents 13% of national GDP and provides 80% of the income of rural populations living off pastoral systems. Mobile pastoral stockbreeding is one of the production systems best suited to the use of arid and semi-arid eco-systems. This is because the mobile aspect makes it possible to lessen the constraint of unequal distribution of resources, by furthering access to water and to grazing land.

The pastoral well or borehole often determines access to fragile grazing land that is essential to the migrating herds or flocks during the dry season. But these wells are increasingly overused, thereby intensifying pressure on grazing land that is already quite deteriorated, and on conflicts.

For more than 10 years, NGOs have been providing guidance for stockbreeder organizations and local communities to secure the situation of migrating livestock and guarantee pastoral mobility in the Mopti and Timbuktu regions. At the group level (local communities, technical services, stockbreeder organizations), multi-actor consultation frameworks encourage local consensus and make it possible to collectively identify priorities in terms of hydraulic development over a broader territorial scale that takes into account the migratory movements, and it gives priority to demand focused on watering points located on strategic paths. Pastoral development plans

and patterns are thereby created, and these become management and planning tools for local communities. Prior knowledge of the social and historical systems of water resources limits the errors that could be committed by development operators that privilege voluntarism over local consultation.

Finally, in Mali decentralization has re-empowered local communities. But these processes of skill transfer apply to formal institutions and not to customary organizations, even if the latter are better suited to pastoral communities. It's thus necessary to look for a system of water management that is both adapted to the pastoral lifestyle and in accordance with the regulatory framework of the State. This system must also take into account the traditional and pre-existing management structures set up by communities of migrating stockbreeders.

*Based on the AVSF Mali, ICD case study, Florent Cornu.*

# Supporting the mobilization of users

As we have already stated several times, one of the major consequences of the absence of consultation frameworks between water users and public authorities translates into a definite influence by the most powerful actors, such as businesses and industries, on the laws and regulations governing the water policy of countries. To this can be added a frequent lack of knowledge of the needs of actors from rural environments in terms of capacity building, delivery of and access to services, development of infrastructures, or conflict prevention and resolution. The result is too often a lack of consideration (conscious or not) of the needs expressed by the rural environment (farmers, fishermen, indigenous populations), who then increasingly resort to mass mobilization to make their voice heard and to make their rights be respected.

From India to Colombia, several unprecedented mobilization actions have made it possible to stop mining or hydro-electric dam projects that directly threatened the balance of the ecosystems upon which many "users" depended. Furthermore, the democratization of tools such as the Internet makes it possible to expand this mobilization beyond countries and continents, depending on the amount of empathy stirred up by web users. The IMCA case study in Columbia shows that the mobilization of a group of people can spread to all of society when it's a matter of defending a common asset needed for overall well-being. Governments can then no longer ignore the protest movements and must make efforts to come to terms with the interests of various groups and satisfy as many people as possible.

### Example 17: Struggles for the defense of water in Colombia, as an asset of public interest

IMCA is a local NGO created in 1962, supporting the inhabitants of three towns in the Cauca Valley district in Columbia. The dominant agricultural model of the region is agro-industrial cane sugar for agrofuel production. IMCA defends smallholder peasant farmers' access to resources: water, land, and seeds to guarantee their food sovereignty.

The public water service is organized into public, private, or community-aqueduct services, which are at the same time owners of the infrastructures and in charge of management and maintenance. This system goes back to 1930 and was created by coffee producers. The community-aqueduct services are predominant in the villages. In rural areas, the community service manages the multiple usages: drinking water, stockbreeding, gardens, fields, craft industry. The seasonal scarcity of water, the increase in the number of users, infrastructure constraint, and the lack of management know-how sometimes lead the authorities to limit water use for food.

In 2005, a bill sought to privatize the aqueduct service and the water markets. The project was a daring one, because it provided for the expropriation of communities and authorized a private service-provider to manage the resource, all the while setting the fee it wanted. In coordination with the aqueduct-user organizations, NGOs, universities, shop owners, the Church, and associations, IMCA organized the first "Water: Village Heritage" regional gathering in October 2005 on setting up an advocacy campaign.

An initial phase of the campaign consisted in bringing together 17 organizations and in documenting four case studies linked to water management in the area. It was in fact important to understand how the watershed and the micro-watersheds became the stage for a conflict, whose causes were gradually revealed over the course of events to be a complex mixture of private, political, and economic interests, as well as historical revenge and opportunism.

The second phase rallied 24 organizations for a 1,000-person march to Cali. This mobilization led to the first national gathering of community aqueduct associations.

The third phase of proposals followed in 2007, on the occasion of the referendum on the water law. More than 2.2 million signatures were collected for a document asserting that water is a fundamental human right. It also put forward the not-for-profit nature of the aqueduct service, be it public or community-run; how users would be represented in the managing committees; and the protection of the water cycle to protect eco-systems.

This "Water is a Public Asset" campaign saw massive mobilization by civil society in the region. Thanks to it, the bill was withdrawn in the first half of 2010, and the battle led to the creation of a network of community aqueduct associations.

*IMCA/CCFD-Terre Solidaire case study.*

# Conclusion

To conclude this report, we believe it's crucial to restate several essential points on how to guarantee water access for family farming. This report, which focuses on the issues of access to agricultural water by family farms, stipulates that the question of water for agriculture cannot be dealt with through the "water efficiency" or the "more cash per drop" approaches.

Water is an asset of common interest, which concerns all the actors of an area and the people who live there. Any consideration of agricultural water must take into account that, for peasant farmers, it is a guarantee for food security—their own of course, but that of cities as well. It is also an essential element in the adaptation to climate change.

Social justice in water issues and guaranteed access to water for peasant farmers are thus not illegitimate demands, but legitimate rights.

There are of course no standardized solutions to ensure this access to water for family farms. Despite similar causes, water problems are eminently local and specific to each context. Developing support to help improve access to water for family farms requires an analysis of the problems within their context, and this analysis must include balances of power, the historic and current forms and rules of water sharing and usage, and the definitions of rights to water.

Nonetheless, there do seem to be three fundamental principles for guaranteeing family farms access to water:

1. Investment in agricultural water: In order to meet the challenges of food security and climate change, it's necessary to support investments in agricultural water for family farming. First, there should be support for the dissemination of agricultural practices that optimize available water as well as for simple techniques of water harvesting, storage, and distribution, which are especially relevant for maximizing the use of rainfed land. It's also important to support the building and repair of irrigation infrastructures designed with knowledge of local management capacities, know-how, and existing practices. Because sustainable investments must be something more than just cement, it's also necessary to provide capacity building for water-management institutions (associations of water users, etc.) as well as for support structures (service centers, technical services, etc.)
2. Recognition of rights to water for production: Faced with massive water-resource grabbing, it's urgent to recognize the rights of existing users, and especially those of peasant farmers, stockbreeders, and fishermen. To do so, it's important to support the rural development policies in the South that help to recognize and secure all the different kinds of water rights. This also requires recognition of local forms of management. It's thereby important to make sure that water is taken into account more in Corporate Social Responsibility (CSR) and in the FAO voluntary guidelines on land and natural resources.

3. Concerted and democratic management of water: In the context of heightened competition, frameworks of consultation that can include all stakeholders are indispensable. Such frameworks seek fair sharing of water between users and sectors of activity and between cities and the countryside. They also enable conflict resolution and sustainable management of water resources at the watershed or regional scale. These democratic frameworks of water management also make it possible to find social consensuses that above all comply with public interest and not the law of the strongest.

Finally, it's important to reinforce mobilization of users and civil society.

Accountability to users and citizens by authorities in charge of water is not a spontaneous process. Through deliberate public policies, States should secure water resources to benefit the economically weakest and least politically represented users and especially those engaged in family farming—this to support and develop agricultural activity essential for food security and to maintain an activity and social fabric in rural areas that provide many services for the community. But while the State must assume its role in water regulation, civil society nonetheless has an essential role as a driving force for change in the quality and accessibility of services, as well as for improvement of the transparency of political choices made in water policies.

Access to water for family farms will be guaranteed only through new balances of power in favor of peasant-farmer users. This can happen only through mobilizing these user groups. There is no magic recipe to ensure that these citizen-participation processes lead to increased security and fairness in water rights. But we can affirm that only the movements initiated and led by water-user groups have succeeded in defending their rights. Social struggles and well-organized representation of peasant-farmer user groups in the various arenas of negotiation will make it possible to change the rules, assert their rights, and influence the development of new frameworks for public policies.

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Annex 1

# Concerted water management in the Preynup polders of Cambodia

This project initiated by GRET and Action Nord-Sud in 1998 was carried out in a specific institutional and political context: the strong desire by the government to rehabilitate and transfer management of major hydraulic infrastructures to the local level.[31] The Preynup polders, with a surface area of 8000 ha, were built in the colonial period in order to grow rice on low-lying salty land subject to tides. They strongly deteriorated after the war, due to lack of maintenance. The villagers had no tradition of collective organization to take care of them.

The main objective of this project was to create the conditions for effective and sustainable management (from an ecological, economic, social, financial, and institutional point of view) of polders, to benefit the majority of multi-user (agriculture, stock breeding, fishing, etc.) villagers of the region.

The success of this project resides in the head-on implementation of different complementary components that are all required: infrastructure rehabilitation, clarification of land ownership, financial support for production (input subsidies, access to credit), and institutional development of a "Polder Users Association".[32]

This last point was the most time-consuming part in terms of preparation and implementation. However, it was also the stage that enabled such impact for the project. This is because it raised many questions on the decision-making process, on the representativeness of users, and on the form of governance. Furthermore, support from the local (provincial) government as well as a significant phase of consultation with beneficiaries strongly contributed to the consolidation of the institutional architecture and its appropriation by the polder users.

The strength of this project also resides in the fact that it acted as an example for working out national policy to delegate the management of irrigation schemes from the national level to the user level.

Today, the results speak for themselves: Rice production has doubled (from 12 to 25,000 tons), and more than 70% of the land is occupied by rice paddies (compared to 32% at the start). Further, a local autonomous organization (the polder users' community, entirely in the hands of users) is in charge of water management and polder maintenance; it determines, manages, and collects the fees from more than 15,000 members.

The technical performance of the project aside, this innovative initiative in Cambodia paved the way for recognition of autonomous water-user associations by the public authorities, who are responsible for management of hydraulic infrastructures at the local level, and it showed that it was possible to create new viable and democratic grassroots organizations from nothing, on the condition of providing progressive and long-term.

31. A specific Ministry was established.

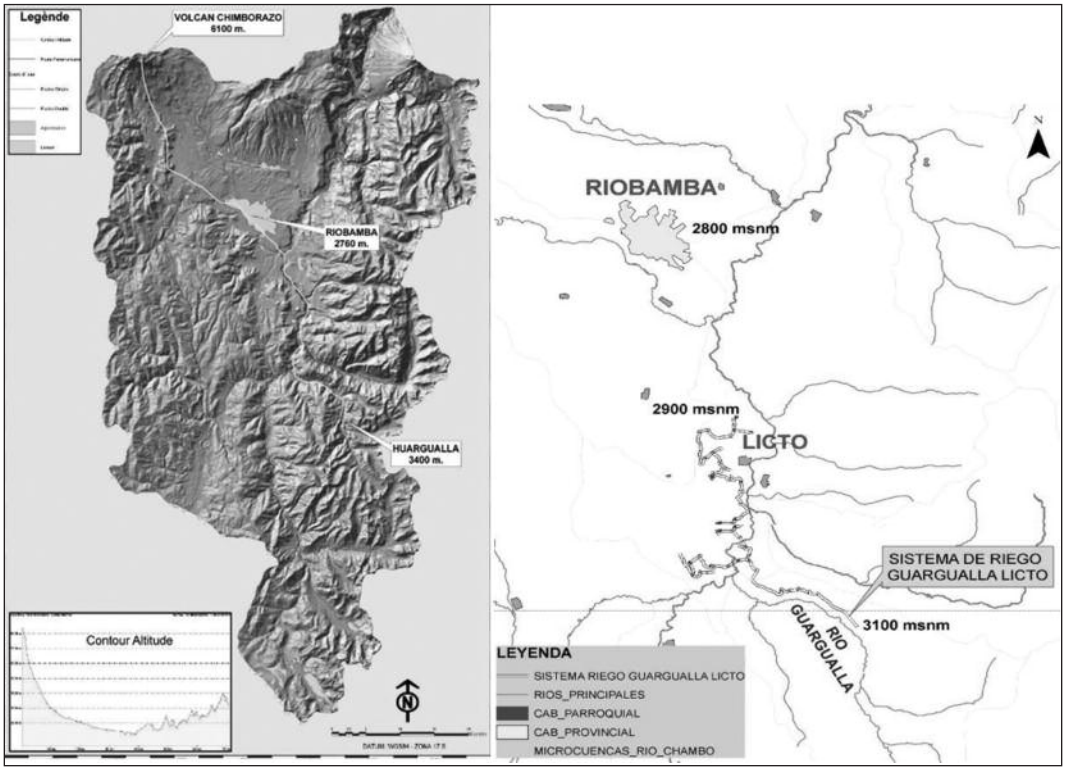
32. This last aspect was the trickiest, because it required a significant and quasi-exhaustive preliminary phase of consultation.

Annex 2

# Protecting, sharing and sustainably managing water resources in the Central Andes of Ecuador: the case of Chambo in Ecuador

## From development to implementation of a permanent institutional system for rural and urban multi-actor consultation and action, to manage the hydric sources of the Chambo watershed…

Ecuador is a middle-income country that traditionally suffers from unequal distribution of water. As in many regions of the world, the problem is much less the quantity of available water than the way in which it is shared and managed.




**Map: Chambo watershed relief map**

In the Chambo River watershed in the Central Andes, the haciendas saw their traditional control of land and water go downhill from the 1964 agrarian reform to the 1980s. Peasant-farmer organizations of irrigators (mostly Amerindian) fought to have access to water rights on newly acquired land. But the fragile balances established regarding the sharing and manage-ment of water are once again put into question today. Actors with quite diverging interests such as rural communities and the City of Riobamba (the provincial capital of 150,000 inhabitants undergoing a demographic boom), businesses, and peasant-farmer

families all compete for water access in relationships of power that are still very unbalanced. At the same time, there has been increased deterioration of surface sources of water, groundwater, and high-altitude supply zones, as much through excessive withdrawal as through absence of any pollution control.

Based on the principle that the problem of water is solved not just through construction projects, from 2007 the rural development NGO Agronomes et Vétérinaires Sans Frontières (AVSF) and the Ecuadorean NGO Central Ecuatoriana de Servicios Agrícolas (CESA) thus decided to provide guidance in the creation of a consultation system designed to enable all these actors to negotiate mutually beneficial agreements in the sphere of water sharing and management, as well as to pool technical and financial resources for collective protection of water resources. Far from being restricted to simple financial cooperation (in the end, costs were minimum), this cooperation was first built based on a diagnostic of the situation and transparent transmission of information accessible to all, which is a vital element for decision-making. It then gave priority to exchanges of experiences in Ecuador, but also exchanges with various water-management actors in France (local communities, user associations, Seine-Normandie water agency, etc.) in the Gapençais, Durance Valley, and Morvan areas, etc.

Through long-term coordination work, this cooperation finally enabled discussion to start up in a calm framework, allowing the actors themselves to perceive concrete possibilities for removing the main obstacles identified and shared by all. Within a context of water policy in turmoil (new state institutions, new law under discussion, etc.), the results have been promising. These latter include the creation of a watershed committee in which representatives of the various users are members, establishment of a financial instrument for awareness-raising actions on water management and protection, the beginnings of political agreements between city and Amerindian irrigators for sharing water, and collective development of a management plan for hydric resources on the Chambo watershed scale.

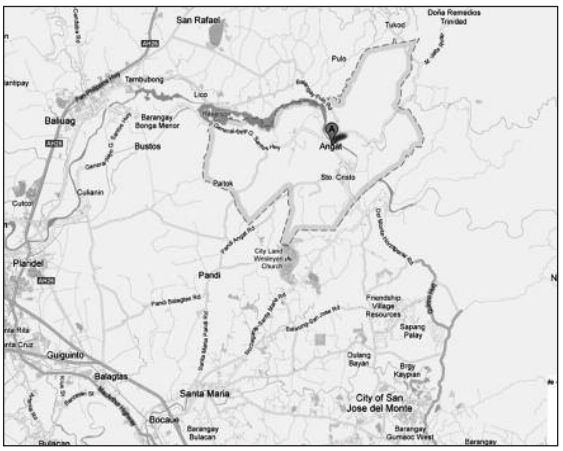
The experience underway shows the importance and relevance of cooperation in the field of social management of water that goes beyond just the construction of infrastructures and that includes support for conflict management, for reform of water-sharing rules, for the redefinition of user rights and obligations, and for the creation of institutions with the authority to exercise efficient control on the management and protection of water resources. From it we can see all the advantages of having the varied skills and experiences of French actors in this field join in the project. In the Ecuadorian case, this technical cooperation is accompanied by especially relevant and necessary financial cooperation. This latter has made it possible to pay costs that are the most difficult for national and local public funds to cover: studies, ongoing and specialized evaluations, exchanges, consultation frameworks, and conflict management. The national budget and those of local communities should make it possible to finance most of the water infrastructures.

Finally, this experience invites actors of development cooperation, especially French local governments and water agencies, to take into account the major challenge of tomorrow regarding water: the fair sharing and protection of water resources, especially between cities and the countryside, to make sure that tomorrow all individuals as well as growing cities are supplied in water, thus guaranteeing peasant farmers access to water.

Annex 3

# Peasant-farmer mobilization against the redistribution of water rights in the Angat Maasim River irrigation system in the Philippines

This study carried out by the Integrated Rural Development Fund (IRDF) clearly shows the preponderant role of International Financial Institutions (IFI: the World Bank and the Asian Development Bank) in the deregulation of the water sector in the Philippines, which is leading to the gradual impoverishment of farmers who depend on water delivered by the Angat reservoir. This latter provides water for the irrigation of 30,000 hectares of rice fields as well as 97% of the drinking water of the population of Manila. These were both traditionally distributed by public companies.




**Map: site of the AMRIS irrigation system (source: Google Map).**

Even though the water rights[33] dating from 1976 met the needs for water necessary for two cycles of rice crops grown by some 22,000 farmers of the area, the extended drought of 1977-1998 enabled the government (under pressure from IFIs) to both privatize management and to increase water rights for drinking water supply to Manila.

This new situation (largely supported by the autocratic elite owning most of the agricultural land), joined with the gradual decentralization[34] of the management and maintenance of irrigation canals, transformed the irrigator associations into tax collectors and infrastructure managers benefiting from no financial and human guidance beforehand. Farmers saw their average production halved in 10 years and were thereby no longer able to pay the irrigation fees needed to maintain the canals. In this vicious circle established while successive governments looked on silently, farmers were dragged below the poverty line.

Faced with this situation, IRDF initially carried out an in-depth study highlighting the responsibility and the role of the structural adjustment policies imposed by the IFIs in the gradual deconstruction of the Filipino irrigation system: elimination of subsidies; reduction of the National Irrigation Administration personnel; privatization of the Manila water supply; revision based on a commercial rationale of attribution of water rights, irrigation, drinking water, and electricity production, etc.

33. RApportioning the volume of water among various users.

34. From the National Irrigation Administration to decentralized government agencies that had no corresponding financial or human resources

This study also shows the consequences on the situation of farmers and on national food production.

In a second phase, after having broadly disseminated the conclusions of the study, IRDF mobilized peasant organizations and civil society actors[35] in order to put pressure on MPs to stop the wave of privatization (and hence the challenging of traditional water rights), which affects all the actors who depend on the Angat reservoir as a water resource.

The immediate results were the Supreme Court's suspension of the process of privatizing the public company in charge of electricity distribution and water access during the 10 critical days of the agricultural season.

Besides these aspects, this study shows that farmers, when left to themselves, are capable of setting up concerted management mechanisms for a collective resource sustainably. It also shows the importance of little-known traditional knowledge and frameworks of consultation that help with dialogue with the public authorities, who are often ignorant of realities in the field.

35. By organizing public and community forums, training sessions, and meetings with the National Irrigation Administration

Annex 4

# Management of water and pastoral hydraulics in Mali

In Mali, stockbreeding represents more than 13% of national GDP and provides 80% of the income of rural populations living from pastoral systems. It also represents the third-largest export product of Mali.

Yet, pastoral stockbreeding is often neglected in budgets allocated by the State to the industry, despite the encouraging political progress in recent years along with the passing of two decrees for the implantation of the Pastoral Charter. Furthermore, mobile pastoral stockbreeding is one of the production systems best adapted to use of arid and semi-arid eco-systems. This mobility requires migration paths with stops fitted out at regular intervals to feed the livestock, and also wells to water the herds or flocks in migration. This mobility makes it possible to reduce the problem of unequal sharing of resources, by furthering access to water and grazing land.

Pastoral wells or boreholes often determine the access to fragile grazing land essential to migrating herds and flocks during the dry season. By marking and securing migratory itineraries towards southern rest areas, pastoral watering points make it possible to take advantage of the seasonal complementarity of grazing spaces. However, these wells are increasingly overused, thereby intensifying pressure on already quite deteriorated grazing land. In the event of drought, conflicts are then numerous. Competition has grown over the last three decades along with demographic growth and the commoditization of resources, which—stimulated by the move to free market economies—has led to strong pressure on land tenure and pastoral resources. This has furthered the reduction of pastoral areas, which was already off to a strong start through agricultural "colonization." Sometimes violent conflicts break out around access to water and other shared resources, changing the stakes and overturning the hierarchy of local authorities.

This is the context in which, between 2007 and 2011, AVSF and ICD implemented a concerted management project (PROSEL) on pastoral resources, especially water, to secure the migratory livestock situation and to guarantee pastoral mobility in the regions in the Mopti and Timbuktu regions. In addition to once again emphasizing the importance of investment in pastoral hydraulics in these Sahel territories, the experiences made it possible to develop an intervention strategy adapted to the reality of pastoral systems.

Knowledge of the social and traditional systems of water-resource regulation is one aspect of this strategy. This limits the errors that could be made by development operators that give priority to voluntarism over local consultation. Another aspect is obtaining the opinion of the main users of the wells and respecting their positions and traditional rules; these are essential conditions for the success of actions to improve pastoral hydraulics. Time for consultation with users is moreover indispensable for finding a compromise on the repair techniques to implement and on the management systems to adopt. Beforehand, multi-actor consultation frameworks at the group level encourage local consensus and make it possible to collectively identify hydraulic-development priorities on a broader territorial scale, taking into account the migratory movements and thereby giving priority to demand focused on watering points on strategic paths, in addition to wells that local communities and private individuals have ties to and have strongly appropriated.

The technical approach on wells must respond to concern for improving the quality of the water, because the pastoral wells are used to supply not only livestock but also people. Water is often the cause of a high mortality rate, due to epidemics of diarrhea (dysentery), typhoid fever, or parasite diseases.

From a legal point of view, right of access to good-quality drinking water is secured only if pastoral right to the land is recognized. The legal recognition of pastoral land tenure as a form of using land is thus needed to guarantee the right to water and recognition of pastoral rights by the State.

Finally, in Mali as in many other Sahel countries, decentralization has given power to local communities. But the processes of skill transfers apply to formal institutions and not to customary organizations, even if these latter are better suited to pastoral communities. It's thus necessary to seek a water-management system that is both adapted to the pastoral lifestyle and in agreement with the regulatory framework of the State, and that takes into account traditional and pre-existing management structures set up by the migratory stockbreeder communities.

In this context, in addition to training for elected representatives and technicians on suitable approaches for concerted planning and guidance for improving pastoral hydraulics and developing the pastoral economy, reinforcement of local and national stockbreeder organizations capable of defending pastoral stockbreeding and the interests of herdsmen faced with both villages and the State, should be a priority included in the support actions for pastoral management.

Annex 5

GRET
Professionals for Fair Development

# Rehabilitation of the Burka Alilif irrigation scheme in Ethiopia

Faced with chronic problems of food insecurity and extreme rural poverty, Ethiopia has set up an irrigation development policy entailing programs to expand irrigated areas and the desire to improve irrigation performances.

Despite the intrinsic appropriateness of this policy, evaluation of irrigation development projects in the Oromia region has shed light on the problem of the sustainability of the irrigation schemes, the problem of which will be analyzed in this case study.

The small Alifif irrigation scheme (440 ha), in the foothills of the Haraghe mountains in Eastern Ethiopia, is located in a semi-arid zone subject to recurrent droughts. With Gret's support, ODA (Oromyia Development Association) set up a project to rehabilitate the irrigation scheme between 2004 and 2007. This area had been irrigated for more than a century. Traditional management of the water was based on rights built over time and was the fruit of gradual adaptation to changes in production conditions in an especially dry environment and the situation of strong demographic growth.

Its organization is based on different levels of flexibility for sharing the water, for organizing maintenance, and for resolving conflicts. These different levels highlight know-how and significant capacities for innovation and adaptation. However, this system reached certain limits, and there was need for technical improvement. Faced with this situation, the project proposed to protect the source, to cement the canals, and to build aqueducts that could cross natural waterways, in order to reduce losses through infiltration in particular.

The feasibility study conducted by the Water Bureau was based only on these technical and topographical factors, without taking into account the population and their practices of water management. Water availability grew as soon as the work was finished, but the traditional management was disrupted, leading to physical, technical, agronomic, and social problems. The consequences of the project made substantial renegotiations of water rights as well as a redefinition of rules for proper functioning of the new management system necessary. Guidance for the process of adaptation to the new institutions was also essential.

Between 2006 and 2009, the project team provided support in this arduous process to the community and to the engineers and technicians of the Water Bureau. This made the stakeholders better able to comprehend the overall functioning of the scheme and to grasp the importance of an approach that is participative as much in the design of the infrastructures as in the phase of guiding the water-management institutions after the construction work.

The work then led to building hybrid water-management institutions: an association of water users formed from traditional water committees and a reformulation of the rules for sharing water, mixing traditional and new principles. This enabled official recognition of the water-management institutions by the State, local political and social support for the new system, and ownership of the technologies by the community. Challenges still remain, especially concerning the management of water fees for maintenance, but the process is continuing. The rehabilitation of the irrigation scheme enabled substantial gains in productivity, agricultural diversification, and greater resilience by local populations faced with drought phenomena.

Several conclusions have been drawn from this case study and other agricultural development experiences in Ethiopia:

– Irrigation is a tremendous guarantee for food security.
– Small-scale irrigation turns out to be the most appropriate scale to successfully carry out sustainable irrigation development projects to support family farming and reduce poverty.
– Peasant-farmers possess water-management know-how that should be better known and acknowledged.

The study also highlights the conditions that contribute to the sustainability of irrigation schemes:

– a conception of irrigation schemes, with real and effective participation by peasant-farmers that takes into account the latter's rules for sharing water, their practices, and their water-management units;
– close technical guidance that creates new forms of water management by first enhancing existing institutions;
– legislation on water-user associations that is flexible and appropriate, rather than copied exactly from the model of cooperatives;
– water technical services that are better trained on the technical level, on participative methods, on the social management of water, and on guiding peasant-farmers in the process of adaptation—the establishment of new infrastructures requires suitable guidance to be provided by the water bureaus of the districts and areas.

Annex 6

ccfd-terre solidaire

# Communauty aqueducts in the Cauca Valley

IMCA is an NGO created in 1962 by the Jesuits. It supports the rural inhabitants of three towns (Buga, Restrepo, Riofrio) of the Cauca Valley district (capital Cali, 48 towns, population 4.4M, of which 0.6M in rural areas).

The dominant agricultural model is that of cane sugar for agrofuel. Agriculture uses up 86% of the water. Underground resources are highly strained, because they account for 84% of national water withdrawal, 93% of which is for agriculture. Peasant-farmers with modest incomes farm hillsides.

The water service is organized into public, private, or community-aqueduct services that are at the same time owners of the infrastructures and in charge of management and maintenance. This system goes back to 1930 and was established in particular by coffee producers. The community-aqueduct services (AGs) are predominant in the villages. Through the AG, the beneficiary population owns the water service and determines usage as well as fees. The AG elects the members of its executive committee. In this democratic-management model, each user has one vote.

In rural areas, the community service manages water for its multiple usages: drinking water, stockbreeding, gardens, fields, and craft industry. The seasonal scarcity of the resource, the growth of the number of users, limits of infrastructures, and deficiency in management know-how sometimes lead to restrictions in using water for drinking.

There is a need for integrated management of water that covers governance, environment, health care, and economic development. Faced with their needs, the villages look for additional resources. Contrary to drinking water, the agricultural uses of water do not require irreproachable quality. Informal small-scale irrigation through sprinkling is widespread but lacks organization and more economical technologies (drip method).

Since 2005, when a bill seeking to privatize the aqueducts and water markets service materialized, IMCA has defended smallholder peasant-farmers' access to vital resources—i.e. water, land, and seeds—to guarantee their food sovereignty. This bill seemed very dangerous because it would have expropriated the communities and authorized a private service provider to set the fee it wanted. In coordination with the aqueduct-user organizations, NGOs, universities, shop owners, the Church, and not-for-profit groups, IMCA organized the first regional gathering of stakeholders in October 2005 on the theme of "Water: Village Heritage." The bill was withdrawn following a "Water is a Public Asset" campaign that massively mobilized civil society.

In terms of mechanism, an initial phase consisted in bringing together 17 organizations to document four case studies (on conflicts related to water management), and a second phase saw 24 other organizations rally for a 1000-person march to Cali. This mobilization led to a first national gathering of community aqueduct organizations. A phase to develop proposals followed in 2007, on the occasion of the referendum on the Law on Water. More than two million signatures were obtained for a document asserting that water is a fundamental human right, that aqueduct (and water-treatment) services are of a non-profit and public or community nature, that water users should be represented in management committees, and that the water cycle should be protected for eco-system protection. Following this, Congress

rejected the bill that sought to privatize water resources and have them be run by a private company from the first half of 2010. This battle led to the creation of the network of community aqueduct associations.

In 2006, CCFD-Terre Solidaire gave a grant to IMCA for the project of integrated man-agement of small watersheds that supply aqueducts in the village of Buga. IMCA orga-nized three annual meetings—each with the stakeholders—to lead to the creation of the Cauca Valley Regional Federation of Aqueduct Associations. The federation established a 5-year action plan (2009-2014).

The main challenge for the future remains the recent decentralization of powers to towns and villages, with no skill-building support or additional financing in the areas. This situation makes things more complicated, because Colombian law tends to favor urban areas by imposing standards that are difficult to establish in rural areas.

This case shows that it's necessary for user groups to be involved in creating public poli-cies, be it by a popular referendum or by resistance. It also highlights the various levels of water governance: local, with its community associations (collective access, rights, man-agement and maintenance of collective infrastructures); regional (support from the re-gional federation of community aqueduct associations); and national (request for modifi-cation of the Law on Water).

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