

InnoWat



Synthesis of strategic approaches

Enhancing pro-poor investments
in water and rural livelihoods

Rudolph Cleveringa, Melvyn Kay and Alasdair Cohen



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Table of contents

Summary	5
1 A new pro-poor approach	6
2 A new rurality	8
3 What technology, where?	10
4 For whom?	11
5 What institutions?	12
6 How?	14
Coping with complexity	14
Coping with intervention management	14
Coping with corruption	16
Coping with local and national institutions	16
7 Enhancing IFAD's comparative advantage in water and rural poverty issues	18
References	20



Summary

The reduction of hunger and poverty depends on improved access to water for poor rural people. Progress in community water supplies and agricultural water management (AWM), particularly irrigation, is one of the success stories of the twentieth century. However, it is disappointing to learn that AWM, by far the largest consumer of water in developing countries, has had little impact on world hunger and poverty. The experience of agency- and government-led interventions has not been good. They often impose 'blueprint' methods that ignore important local issues. A critical gap exists between planning and successful implementation. Approaches focus on *what* needs to be done, rather than on *how* to do it, and they ignore the complex interactions among individuals, the state and service providers – as well as their limited capacity to translate plans into practice.

If poor rural people are not to be the losers again in the struggle for declining water resources, a new, pro-poor water management strategy is needed. It must focus more on *how* to do it, while still addressing *what* to do, *where* and with *whom*. If interventions are to succeed, the new strategy must recognize the changing nature of rural livelihoods and its impact on poverty – a 'new rurality' – and the complexity of socio-economic systems, particularly where governance and local and national institutions are weak.

This, in essence, was the objective of the project for Learning and Knowledge on Innovations in Water and Rural Poverty (InnoWat). The InnoWat team has created the kit *InnoWat: Water, innovations, learning and rural livelihoods* with the expectation that it will be useful to IFAD's country programme managers (CPMs) and will enhance IFAD's comparative advantage in rural poverty alleviation and water issues.

The present text synthesizes two approach papers that together provide the rationale for a new, pro-poor approach to water issues. A series of topic, fact and tool sheets and case studies supports the papers.

1. A new pro-poor approach

Both approach papers emphasize the importance of water – and access to water – as fundamental in reducing hunger and poverty. The demand is growing for drinking water and water for livestock, fisheries and food and fodder crops, while available water resources are declining and becoming increasingly unpredictable. In semi-arid areas, where most poor rural people live, agriculture already consumes as much as 90 per cent of available water resources. By 2050, analysts expect demand for food in the poorest countries to double, yet water availability is likely to be less than it is today.

Most governments expect their rural communities to produce more agricultural products, but many communities are impoverished, their productivity is low and they use resources inefficiently. Their burden is made worse by the changing nature of rural life – the ‘new rurality’. Globalization is transforming the marketplace; new patterns of poverty are emerging as livelihoods adjust; reforms in governance and rural service systems are changing the nature of institutions; and climate change will only add to concerns about the sustainability of the natural resources on which most poor people depend.

Although there is much demand for water – for domestic use, wetlands, fisheries, forests, livestock, agriculture and agroprocessing – agriculture is by far the largest and probably the most inefficient consumer. As prospects for developing new water resources are limited or are becoming prohibitively expensive, future matching of water supply to demand will depend, to a great extent, on making better use of available resources for agriculture – which means increasing the agricultural productivity of water.

However, the history of improving this productivity in developing countries is not good. Government-supported interventions in AWM have performed poorly, although less-formal developments in farmer-led, small-scale irrigation and soil and water conservation for rainfed farming have shown more promise. If progress is to be made, how can governments and agencies intervene in a more helpful manner?

What challenges do they face? First, there is the challenge of *what* to do. Theo Rauch (2008) addresses this in the context of a new rurality that is changing the face of rural poverty – new globalized markets, changing livelihood strategies, urbanization and institutional and climate change. Blueprint approaches to interventions are no longer adequate or appropriate. Approaches must be more in tune with local circumstances and must consider markets, water availability, the presence or absence of irrigation, and socio-economic status. Rauch suggests expanding the question of *what* technologies to use to include questions on *where* and for *whom* the technologies are most appropriate and *what* local and national institutions are available to provide support.

Second, there is the more difficult question of *how* to do it – how do you successfully intervene in a complex and changing AWM system, with its specific technical, environmental, socio-economic and institutional problems. This is the question Walter Huppert (2008) addresses. Project and programme implementation rarely considers it properly, which is the main reason most interventions fail. Huppert points out that there is plenty of policy advice about what to do, but precious little on how to do it. A

critical gap exists between the increasingly sophisticated concepts for interventions in AWM and the reality of implementation. And there is a growing awareness that the conventional 'project approach' may be part of the problem. Donor and finance organizations, governments and non-governmental organizations (NGOs) are beginning to realize that they are both partners and service providers, and that to achieve successful interventions, services often require intensive interactions among individuals, groups and organizations.

Rauch and Huppert stress that a pro-poor approach to AWM must address both challenges if interventions are to benefit poor people. It must focus on providing reliable access to sustainable water resources, especially for poor rural people, while providing quality food and fodder, reducing risks and satisfying increasing demand for agricultural products. It must also recognize that AWM systems are complex and need an alternative path to the current project approach, which assumes a linear path from planning, through design, to construction and implementation.

2. A new rurality

According to Rauch, poor people are now living in a new rurality. They face rapidly changing agricultural markets, far-reaching technological and institutional innovations, and new roles for the state, the private sector and civil society. The good news is that agricultural producer prices are likely to increase, so there will be more incentives to invest in agriculture and hence in rural areas. This will lead a push towards intensifying agricultural production wherever possible – such as in the many pockets of rural poverty in sub-Saharan Africa and South-east Asia. The bad news is that in many of these locations – in addition to the current food, fuel and fertilizer crises – natural resources, including water, are already limiting production. In addition, increasing prices for basic food items will affect the nutrition of those sectors of poor people who are net food buyers.

Livelihood strategies are changing. Most poor rural households are not well prepared to cope with the new, market-related incentives. Farming is often only a part of their livelihood system, frequently left to women, who must secure the survival of children and aged family members. This is leading to a feminization of agriculture, particularly in sub-Saharan Africa, and has grave consequences for choices and interventions. However, changing markets bring new opportunities. Rural markets are being infiltrated by large, often international, agribusiness companies, which control *value chains* from the primary producer to the final consumer. New niche markets are developing for agricultural products such as fruit, vegetables, nuts, flowers, fish, shrimp and spices, but they depend on water and investment in water management. The 'winners' are found in central locations close to airports and among resource-rich rural households. The 'losers' are in remote areas and have sparse resources.

The climate is changing. Predictions suggest that rainfall will be more variable and unpredictable, and this will inevitably impact crop yield and quality. Natural disasters – especially drought and flooding – are already increasing in severity. Poor rural people are the most vulnerable, without the means to protect themselves or to cope with the consequences of disasters. Climate change will also deplete and degrade natural resources, as will population growth, commercialization and inappropriate use. Natural resources, in particular water, will become the limiting factor. This may lead to resource-based conflicts and the further spread of unsustainable resource management practices.

Governance is changing. Most countries are developing policies that decentralize power, functions and resources. However, many governments are reluctant to implement these policies because rural communities lack capacity, and governance fails once responsibilities are devolved. NGOs are supporting community-based organizations, but these groupings alone are not in a position to provide the services their members require unless they are backed up by reliable governmental or private service providers.

Agricultural water management is changing. Attention is focused on making better use of what is available, rather than trying to develop new resources, which are becoming prohibitively expensive in terms of financial, social and environmental costs.

This means

- increased water productivity, i.e. 'more crop per drop';
- use of 'green water' (rainfed agriculture), rather than 'blue water' (irrigated agriculture);
- new institutional arrangements that centralize responsibility for water regulation, decentralize management responsibility and increase user ownership and participation;
- new arrangements for safeguarding access to water, such as long-term tenure security for poor and disadvantaged groups, particularly women;
- management of unpredictable water availability and water-related hazards using soil and water conservation practices, improved drought resistance of crops, and adoption of weather insurance schemes.

Rauch points out that all these changes create uncertainty and risk and are likely to have a disproportionate impact on poor rural people and their ability to access and make good use of limited water supplies.

3. What technology, where?

Rauch lists a wide range of established water management technologies appropriate to poor rural households. However, the key is to adapt them to local circumstances. He lists five regional types – based on the criteria of marketing, water availability and the presence or absence of irrigation – in which it is possible to recognize strategic technology interventions (see box).

Regional types for technology interventions

Central water-surplus regions have good market access and sufficient water. They are usually densely populated and with opportunities to benefit from new market conditions, provided they can intensify agricultural production. The challenge is to make more effective use of existing water resources. Both private and public service provision are viable.

There is potential for intensification, and resources and demand favour two cropping periods per year. Small-scale irrigation is also an option during the dry season in order to produce high-value crops for urban and export markets through contract farming. However, resource-poor farmers, particularly women, need assured access to water for domestic purposes, livestock and simple small-plot irrigation technologies. They also need support by water user groups.

Central water-short regions have good market opportunities, but there is little scope for intensification using off-season irrigation. The challenge is to increase water productivity (value per drop). Services are likely to be accessible.

Water is the limiting factor, so strategies should be based on intensifying rainfed agriculture, using soil and water conservation methods and supplementary irrigation to cover dry spells. Small-plot irrigation in home gardens is another option for growing vegetables and fruit in the dry season.

Remote water-surplus regions have limited market opportunities, but few water-related problems. Consequently, interventions in agricultural water management are not urgent. The major concern is access to safe drinking water.

The demand for agricultural products is the limiting factor. Thus there is little need and limited scope for water-related interventions.

Remote water-short regions have limited market opportunities and limited water resources. Rainfall is highly variable and erratic, and extremes of drought and flooding are commonplace. People in these regions are extremely vulnerable, with much food insecurity.

The strategy here should be to improve rainfed agriculture for food crops through rainwater harvesting, and to grow cash crops using supplementary irrigation. This makes effective use of scarce water resources, rather than relying only on staple-food production. Focusing on high-value-per-weight products is an adaptation to high transport costs.

Irrigated farming is found in both water-short and water-surplus regions. It is practised in the more commercialized farming areas along river corridors, where there is good access to services and markets (e.g. South Africa). The major challenge is ineffective use of water owing to inadequate technology and poor water management.

In areas with existing irrigation schemes, the strategy is to use appropriate interventions to improve their effectiveness and water productivity.

4. For whom?

Rauch also differentiates poor groups by their access to land, degree of food security from subsistence farming and main source of income – each requiring specific water-based interventions:

- *Landless people* include farm labourers and people dependent on other, more or less regular income sources.
- *Food-deficit households with land constraints* rely largely on non-agricultural income sources that are dependent on market opportunities.
- *Food-deficit households with labour constraints* usually comprise households affected by HIV/AIDS. They may also include migrant households and those headed by women with dependants.
- *Food-insecure households* can produce sufficient food in good years, but they are at high risk from climate variability and personal health problems.
- *Food self-sufficient farm households (subsistence-based)* usually have enough food and some underutilized capacity for intensification if there is demand for agricultural surplus products.
- *Food self-sufficient households (partly cash-based)* depend, to a large extent, on non-farm income sources and may have only limited interest and capacity to engage in farming.
- *Food-surplus households (with farming as main income source)* have farming experience and the potential to invest in intensification if markets are attractive enough and if appropriate technologies are accessible.
- *Food-surplus households (with non-farm activities as main income source)* are unlikely to engage in intensified farming.

Although it is possible to identify AWM interventions appropriate to each group, there are no clear-cut lines separating them – rather there is a continuum of livelihood conditions. However, the categories do offer a guideline for location-specific classifications based on local analysis.

5. What institutions?

Rauch also points out that the success of AWM depends largely on local and national institutions – the rules, incentives and control, agreements and rights, finance and services. Interventions that plan to improve institutions by changing governance, people’s behaviour and socio-economic structures are usually the most difficult to implement.

Institutions shape people and are shaped by people. Rural institutions tend to reflect traditional, indigenous, local norms as practised by rural people, whether sedentary or nomadic. These are not by definition inclusive, equitable or poverty-focused. And they usually clash with urban institutions, which are based on a separation of executive, legislative and judicial powers of government and are biased towards the interests of consumers and non-agricultural sectors. These observations apply to both middle-income (MIC) and heavily indebted poor countries (HIPC). Water governance in post-conflict or weak states, let alone fragile ones, tends to follow local norms at local decision-making levels. ‘Modern’, formal mechanisms such as water user groups, watershed committees, river boards, by-laws, regulations and cost-recovering water fees are unlikely to succeed – the situation is even worse if dealing exclusively with water management.

Project and programme designs in AWM often assume good governance and a supportive institutional framework, even though in reality they do not exist. In fact, existing institutional conditions in AWM can be very diverse, and thus approaches to the transformation of institutions will vary accordingly.

Improved, pro-poor water governance can only work if the responsibilities at various levels are coordinated, both within and among organizations. Investments in more-productive and pro-poor water management are unlikely to achieve their expected impact unless an effective multilevel system of water governance is in place.

Rauch suggests that the institutional challenges in AWM include

- how to reduce water demand, where appropriate, through incentives and rules for water-saving investments and behaviour;
- how to allocate scarce water resources in line with society’s overarching goals (examples include access to water for those who cannot obtain it through their purchasing power and water for cultural priorities and the natural environment);
- how to ensure that disadvantaged people gain access to water-related services (knowledge, capacity-building, infrastructure application technologies for storage and distribution, finance, weather insurance and management support).

Rauch describes the institutional options available, but points out that there is no single ‘recipe’ to meet these challenges. Rather, the search for the right institutional arrangements is a compromise between the competing principles of water productivity and sustainability, and ensuring access to water for poor people.

One basic principle guides institutional interventions: centralized regulations and financing mechanisms must be combined with decentralized planning, management and services, and a high degree of user ownership and participation.

Centralized regulations and control are essential in enforcing the principle of sustainable use of water resources, guaranteeing uniform minimum standards and access to water for everyone, and ensuring appropriate interregional cross-subsidizing and compensation mechanisms.

Decentralized management is crucial in stimulating ownership, responsibility and accountability for local water resources. This encourages water users to become more aware of the need for water conservation; arrive at agreed, locally adapted tariff systems and regulations; and develop site-specific, negotiated solutions that are both feasible and accepted by the community.

6. How?

This is the most challenging question – and the one addressed by Huppert. Having selected appropriate interventions for a specific location and target group, how can we successfully intervene in complex and changing AWM systems, with their specific technical, environmental, socio-economic and institutional challenges? Although Huppert bases his thesis on experiences in irrigated agriculture, his proposals appear applicable to other interventions in AWM, as well as to water supply and sanitation.

Coping with complexity

Huppert stresses that the first step towards a new, strategic approach to AWM is to recognize that its systems are complex – there may be several paths to follow and some will be less visible than others. Such systems have always been complex – it is our perception of their complexity that has grown. He offers the example of irrigation development over the past 40 years, which has developed from a relatively simple perception of irrigation as an engineering issue in the 1960s to the current perception of a highly complex system of engineering, agriculture, economics, management, institutions, environment and culture.

Huppert also reminds us that AWM systems are embedded within the wider political and socio-economic fabric of civil society, and this only adds to the challenges of intervention. It can mean that some projects are just too complex and difficult to implement. However, ignoring complexity and adhering to a rigid project design, pace and process can lead to systems unable to adjust effectively to changing circumstances, such as unexpected drought or changes in local political conditions. The path lies somewhere between the paralysis that comes from trying to consider everything and the folly of focusing on a single-criterion solution.

Coping with intervention management

Huppert points out that although AWM may be complex, interventions in AWM don't have to be. Canal maintenance, for example, is a relatively straightforward intervention, as is routine hydrological data collection. However, changing agricultural production from rainfed to irrigated agriculture and transferring water management responsibilities to farmer organizations requires a great deal of interaction, among both individuals and organizations. This means tailoring management to fit the circumstances. Huppert recommends 'unbundling' and sorting interventions according to their inherent complexity. An assessment of how much attention to complexity is required – and thus the level of interaction called for – will greatly improve our understanding of the kind of management needed for successful implementation.

To help with this unbundling, Huppert suggests grouping AWM interventions into four clusters that describe differing degrees of complexity and the extent to which individuals and organizations need to interact (figure 1). It will then be possible to address the implications for management in each cluster and the capacities needed to intervene successfully.

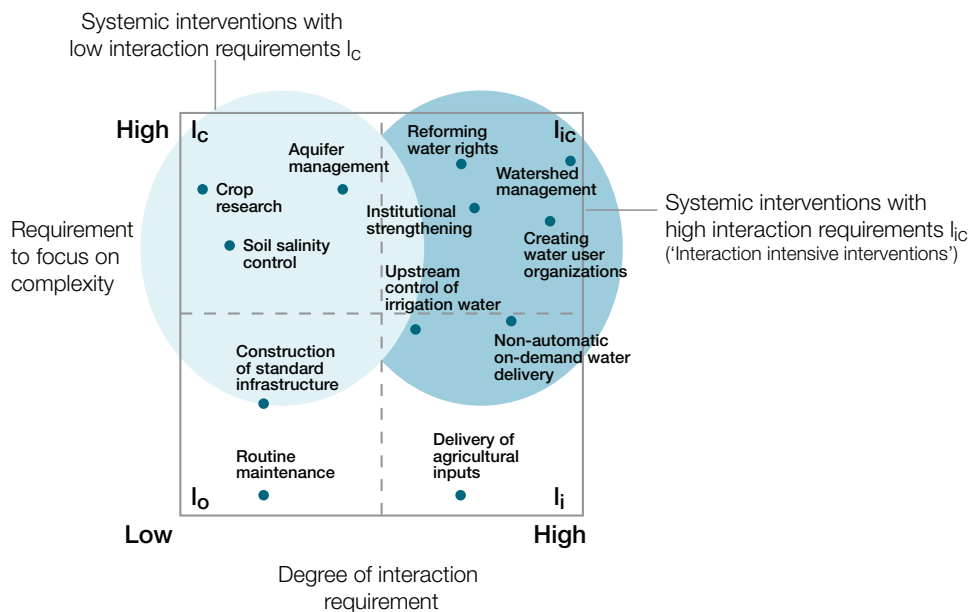
The bottom left-hand cluster represents tasks with a low requirement for focusing on complexity and low interaction requirements. They include routine maintenance, construction and data collection. These tasks require experienced professionals, who need not become too involved in the overall AWM system. Conventional project management serves this kind of intervention well.

In contrast, the top right-hand cluster includes tasks and services with a high requirement for focusing on complexity and high interaction requirements. These are designed to change complex social systems and people's behaviour and require intensive interactions among people and organizations. Examples include shifting agricultural production to new crops, changing from single to double cropping, moving from rainfed to irrigated agriculture, or transferring management responsibilities from a governmental agency to farmer organizations. Conventional project management has little to offer in these situations. Interventions require frequent and intensive communication, negotiation, and a balance of power and interests. They are usually highly political processes. Planning and implementation will be iterative, with short horizons to maintain common perspectives and consensus. Timetables will be unpredictable and may go well beyond the usual three to five years of most development projects.

Such interventions place new demands on professionals and farmers both. Professionals will need to develop new competencies in order to assume their new roles as facilitators, moderators and change agents. Farmers will need to become responsible managers and go beyond the conventional demands of participation.

The remaining clusters indicate how the need to focus on complexity and interaction can be used to establish the most effective management interventions. Although there has been a tendency to progress from the bottom left to the top right cluster in terms of intervening in AWM, this may not necessarily be the most appropriate strategy. Rather, it is a matter of knowing what you wish to achieve, deciding on the kind of intervention needed and then adopting the most appropriate management approach to get there.

Figure 1
Subdivision of systemic interventions in AWM



Coping with corruption

Huppert points to the fact that more-complex systems are more vulnerable to corrupt practices. Corruption (which he describes as the 'principal-agent' problem) is common in irrigation development, but it is also prevalent in most situations in which interventions aim to change or 'improve' complex systems. It is not confined to any particular region or culture.

He cites the example of a water bailiff who deliberately maintains unpredictable water delivery in order to extract illegal payments from farmers for more assured and timely supplies. The water bailiff has information about water availability that is not available to farmers. In this situation, it is difficult for a farmer to hold the bailiff accountable. The supply system is complex and discharges do fluctuate. Thus the bailiff may use this unpredictability as an excuse, which in some instances may be quite justified. Such problems can become endemic throughout the hierarchical structure of an irrigation bureaucracy.

Huppert proposes two approaches to tackling corruption. The first is to improve the information available to farmers, so that local agents do not have an unfair advantage when they give advice. The second is to bring together the interests of farmers and agents by changing the incentives. The challenge is to motivate agents to provide a good service. He reviews several practical examples of ways in which corruption can be overcome:

- performance compensation – paying local agents a proper fee for agreed services;
- tailoring the scope of services to financial budgets to avoid misallocation of resources;
- applying the 'shot-gun clause' – a form of 'one person slices the cake, but the other has first choice';
- team-building – making sure that everyone is familiar with the essential tasks, so that no one can take unfair advantage;
- decentralizing ownership – when people own resources, they tend to treat them more carefully;
- manipulating outside options – using technologies to prevent undesirable side-actions by agents;
- unilateral decision-making authority of water users to extend a contract for service provision.

Coping with local and national institutions

Huppert examines the enormous variety of institutional arrangements that make it difficult, if not impossible, to learn lessons transferable from one situation to another. While he says it is not possible to provide recipes for every particular site-specific situation, it is possible to define the characteristics of some basic institutional contexts, which can provide orientation and guidance for interventions.

Strategic institutional positioning (SIP) is an attempt to do this by visualizing the different institutional contexts in which interventions can occur (figure 2). The local AWM situation constitutes one axis – that is, the capability of farmers to engage in an interaction and the means to govern that process. The other axis is the national institutional set-up – the legal, policy, organizational and socio-economic climates in which development takes place.

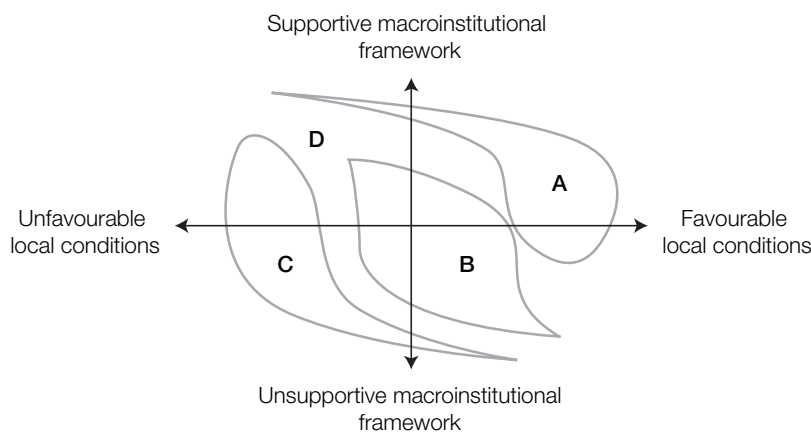
Huppert offers four strategy options based on the institutional context, with some interesting case studies illustrating them in practice. One example, common to many developing countries, is from Haiti, where both national and local institutional

structures are practically non-existent. AWM has applied strategy option C (for unfavourable local conditions) for many years, and the irrigation system continues to function with external support. The objectives of sustainable and self-organized irrigation system management are illusory under these conditions, but continuous interventions have meant that rural people in a remote area of this fragile state have been able to go on growing crops during difficult political times.

Another example comes from Bolivia, where local institutions function well, but national ones are weak. After unsuccessful 'top down' approaches to modernize irrigation schemes near Cochabamba, AWM used strategy option B to embark on an intensive consultation process with farmer stakeholders and their communities. This led to the realization that local farmers and their age-old traditional ways of decision-making and indigenous knowledge constituted extremely favourable local intervention conditions. Management devoted special attention and scrutiny to local water use practices, indigenous principles of organization and traditional water rights. This meant that at times it selected technical solutions that appeared to be suboptimal from an expert point of view, but that upheld important traditional irrigation practices and organizational principles. This project is now considered to be exceptionally successful, and it has contributed to a remarkable economic increase in irrigated agricultural production near the town of Punata.

SIP provides an excellent means of categorizing the institutional environment. However, Huppert stresses that its purpose is not to provide a mechanism that automatically leads to a strategy, but to bring about discussions that create awareness of the relevant institutional factors.

Figure 2
Visualizing the different institutional contexts for AWM interventions



7. Enhancing IFAD's comparative advantage in water and rural poverty issues

The two approach papers pay particular attention to agriculture, which is by far the largest and probably the most inefficient consumer of water. AWM is entering a new era of challenges – growing problems of water scarcity, food security, environmental degradation and climate change. Interventions in AWM must cope with this increasing complexity in order to avoid continually provoking inappropriate simplifications that lead to false intervention designs.

The papers provide a rationale for a new, pro-poor approach to water issues by recognizing that the face of rural poverty is continually changing – the new rurality – and that AWM is complex. They suggest an alternative to the current project approach, which assumes a linear path from planning, through design, to construction and implementation. The new approach is central to IFAD's mandate to reduce rural poverty through improved income, nutritional status and equity, and through empowerment of poor rural people. It offers IFAD an opportunity to take the lead in AWM interventions in an innovative, more realistic and potentially fruitful way.

This approach provides some answers to the questions of *what* to do, *where* and for *whom* and *what* local and national institutions are needed. It also deals with the most difficult question of *how* to do it – how to intervene in local complex and changing AWM systems, which are embedded in national socio-economic systems. This is a question that projects and programmes rarely consider properly, which is the reason many fail to meet their objectives.

The approach emphasizes that there is no 'one-size-fits-all' farmer. Farmers range from risk-averse sedentary men to entrepreneurial, highly mobile rural women; from peri-urban smallholders to marginalized indigenous youth; and from elderly backyard gardeners to nomadic livestock raisers or temporary fishers. All need water and access to water for their livelihoods. They make different choices on water for different regions, sources and times of the year. Some require intensive interactions in complex socio-economic systems, which can lead to conflict and misunderstanding. Others are relatively straightforward and routine. This specificity of context requires that IFAD be in a position to cater to varied demand – and to enable its partners in MIC, HIPC or low-income countries under stress (LICUS) to respond flexibly.

Recognizing that AWM systems are complex need not mean that nothing can be achieved. It is a matter of unbundling interventions according to their inherent complexity and tailoring management to fit the circumstances. Some interventions may be straightforward and can follow the traditional project approach. However, others wishing to change behaviour and attitude call for more interaction-intensive methods, which place new demands on both professionals and farmers and require capacity development.

Within the IFAD Technical Division team working on agricultural water management and rural infrastructure, this translates into a holistic view of water and rural livelihoods – in contrast to the mainstream view, which favours monosectoral or subsectoral approaches for the sake of simplicity.

Although this approach is based on AWM, it is essentially generic in nature. There are useful lessons for farming systems, livestock and inland fisheries, health and sanitation, agroprocessing and post-harvest, and the management of ecosystem services. All require technology choices, strengthened rural organizations and institutions, and viable finance.

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Contact

Rudolph Cleveringa
InnoWat Manager
IFAD Technical Advisory Division
E-mail: r.cleveringa@ifad.org
www.ifad.org/english/water/innowat



International Fund for
Agricultural Development
Via Paolo di Dono, 44
00142 Rome, Italy
Telephone: +39 06 54591
Facsimile: +39 06 5043463
E-mail: ifad@ifad.org
www.ifad.org
www.ruralpovertyportal.org

