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ACCESS TO AND MANAGEMENT OF FRESHWATER RESOURCES IN AGRICULTURE

INTRODUCTION

Over 1 billion people, one sixth of the world's population, still lack safe domestic water supplies; while 2.4 billion people, half of the world's population, are without adequate sanitation. The demand for freshwater is increasing from industry, and the needs of expanding urban areas are placing additional pressures on freshwater sources. The freshwater needs of agriculture continue to grow, and at the same time the FAO predicts that it will be necessary to double world food production over the next 25 years using essentially the same land area. More over, by 2025, more than three billion people will face water scarcity.

This alarming global picture shows the pressure that exists on global water resources. Currently, about 70% of the world's freshwater supplies are used for agriculture, 85% of which are used by developed countries and the remaining 15% are used by the developing world where most of the population is rural and lives from family agriculture. It is clear that in the future, sustainable agriculture will be called upon to increase the efficiency of water use – that is, “more crop per drop”. Consequently, sustainable agriculture must be made even more intensive and productive than it is now, despite the substantial productivity gains achieved over the last 30 years (which mostly apply to developed countries).

Increasing the land area under sustainable irrigation is one key element in making the land more productive. However, water constraints may well make expanding irrigation to feed an additional 1.5 billion people by 2025 very problematic. Therefore, future productivity gains must be achieved through sustainable intensification and more efficient use of such limited resource as water. Research is needed in order to adopt farming methods that minimise the need of water. At the same time, farmers need to be more skilled and aware of this alarming picture. Taking into account the specific needs of the farmers and rural communities is important for the drawing up of national and international policies in order to solve the problem of access to water and the management of this scarce resource in the most efficient way. The role of farmers' organisations and their political stands are indeed crucial.

Issues concerning common access to, and management of freshwater supplies have a central role in sustainable development and eradicating poverty. They have now been given priority in international policy as a result of the World Summit on Sustainable Development held in Johannesburg in September 2002. The focus on water was intensified in particular in 2003, since the year has been declared International Year of Freshwater. Under the pressures of development and population growth, many countries have begun to investigate which approaches

can sustain their water use into the future. However, all the countries do not face the same problems with respect to water resources. Some countries have excess water, while others face water scarcity problems.

Appropriate water and food strategies must therefore be country, regional and local specific.

More particularly, they have to take into account the specific needs of the different user communities and find appropriate means to balance them off without putting any of them on the fringe of decision-making processes. Thus, how to access and manage water resources in the most appropriate way is not only a technical matter, rather it has to be holistic as socio-economic and political dimensions are crucial.

Two important issues pertaining to water need to be looked at from the farmers' point of view:

- Secure access to freshwater supplies for farmers,*
- Sustainable management of freshwater resources including water-related services*

I - EQUITABLE ACCESS TO FRESHWATER SUPPLIES FOR FARMERS

Water security is a key dimension to poverty eradication

I.1- Why guarantee equitable access to water resources?

I.1.1- Access to water for the poor

In poor countries, most of the population is located in rural areas and is engaged in agriculture, livestock raising, fishing or forestry. The struggle against poverty must therefore be addressed through agriculture and rural development, and a key element in winning this struggle is access to water resources.

Currently, rural people in developing countries have to rely on their own means to

access this vital resource. They must walk long distances to access water resources for domestic use, and they rely on the weather for water for their crops and farm activities. The rural poor face considerable risks, as their production is subject to weather and climatic variations. As climate change becomes a topical issue, it is believed that negative drawbacks will be generated in terms of rainfall quantities in developed and developing countries. Therefore, governments have the responsibility to take appropriate measures to reduce the greenhouse effect as mentioned in the Kyoto agreement.

Particular attention should be given to the rural poor since they are the first victims of water shortages. Rural areas are often remote and the access to water services is severely lacking. Therefore, the priority for water policy is to ensure that the needs and interests of the poor come first. Special development programs related to access to water are needed and resources have to be oriented towards Southern countries where much of the population lives in extreme poverty. This is important in order to create a level playing field at regional, sub-regional and international levels in terms of water access. This way, there will be a more equitable distribution of the water resource between the regions that have excess in water to those which lack this resource.

Moreover, scarcity of water can only be addressed by taking a cross-sectoral perspective, looking at a basket of factors such as socio-economic, technical and institutional aspects of water use.

I.1.2- Importance of water in sustainable rural development and investment in agriculture

Agriculture in developing countries often suffers from a chronic lack of investment resources. When it comes to water, rural communities find it difficult

to gather sufficient financial resources to cover the running costs and maintenance of water infrastructure, when users do not pay their dues.

IFAP believes that sustainable agriculture should be given a high priority for access to water supplies (only drinking water and sustainable sanitation could be at a higher priority). National governments and the donor community need to give a much higher priority to investment in agriculture and rural development particularly investment in water resources. These investments must be geared not only towards water-related infrastructure developments but should also allocate substantial amount to efforts related to the protection and sustainable use of water resources.

1.1.3- Equitable access to water is a gender issue

Depending on cultural and traditional standards in the countries under consideration, the opportunities for rural women to access and control resources essential to their agricultural productivity are variable.

Rural women play an important role in the economic survival of their families. In addition to the unpaid work that they do, women produce most of the food in Africa and other developing regions. They are central to providing, managing and safeguarding water. And yet, women are often the ones who suffer most from the degradation of water and other natural resources. In rural areas, women spend long hours fetching water for their families and are usually the custodians of family health.

In order to ensure sustainable development and to conserve environmental resources, the social and political framework **must guarantee women farmers secure access and clear rights relating to water in the long term.** Therefore, the State and Public authorities have to take appropriate steps to make sure that **women participate** in and benefit from rural development projects, including the planning and implementation of development at all levels. They also have to make sure that rural women have equal access to economic opportunities and enjoy adequate living conditions in relation to water supply and sanitation.

National governments should take into account the gender dimension when drawing up policies. This would enable national decision makers to better target the needs and concerns of women farmers and remove a number of stumbling blocks. For instance, raising awareness of communities on gender issues is a prerequisite for introducing new water supply technologies in order to integrate them into the community, family and productive activities more effectively.

Women farmers' need to have their voices heard and farmers' organisations are the appropriate structures to advocate their specific interests be it at the local, national, regional and international level.

I.2- governance, regulation and equity

1.2.1- The State as the guarantor of the protection, access and supply of water

In order to provide farmers with equitable access to water resources and to allow them to plan their operations correctly, it is crucial to establish **a secure water supply (rights), a fair price of water supply for farmers' sustainable needs and food security**. For this matter, it is important to establish transparent legal frameworks. The pricing of water supply for farmers in developing countries still has a long way to go since the majority cannot afford and more so rely on rain-fed agriculture. Already there are initiatives aimed at maximizing the use of water. What is needed is the effective management of available water.

The establishment and protection of water supply rights for farmers, especially in areas where water resources are scarce or limited, are sorely needed.

However, the establishment of secure water rights for farmers raises a few important questions such as: are some types of rights more conducive to efficient or sustainable use of water than others? What are the best criteria for equitable distribution and who establishes those criteria? Are State regulations more efficient and equitable than customary legal forms?

To answer these questions, there is a wide recognition in many countries that water policy must not devise new sets of water rights and obligations without taking into account local socio-economic, cultural, hydrological context.

- National and local authorities need to have a promoting role for water supply. In other words, they do not necessarily have to be providers but they have to make sure that water is distributed in an equitable manner and at a reasonable price. It is also important that all stakeholders' interests are fulfilled. Otherwise, there are inherent risks that the politicisation of water allocation results in agricultural uses of water losing out to the interests of other users and stakeholders.

For this reason, partnerships among farmers and other water users could prove to be a useful approach to water management. The New Zealand experience shows that bringing together the interests of land users in a waterway has enabled every interest to be recognised and addressed equitably. There are a number of such partnerships in place that protect the water supply rights of land users as well as the community and social benefits of non-agricultural users/stakeholders.

1.2.2- The State prescribes regulations and sets priorities

- **The role of governments at the national level** is critical as the guardian of the water resources. Water is of public concern. In some countries the owner of the land owns the water. IFAP favours an approach, which permits decentralised targeted action for each river basin with full consultation of the parties concerned. It therefore proposes that the work for each major river basin should be overseen by a Committee, bringing together all partners concerned

including farmers and foresters. The government in each county has several responsibilities:

- **Setting a general framework with clear water policies and schemes** that incorporate the economic, social and environmental value and responsible use of water are needed.

In fact, for all economic sectors and in fact for the whole society, there is a need to take stock of the actual use of the water as well as to identify the best water use practices to be applied in the future

Plans to improve water use efficiency have to be drawn at all levels and for all sectors, agriculture included.

In Kenya there is a full-fledged Ministry of Water Resources Management and Development. It has a National Water Conservation and Pipeline Corporation (NWCPC), which empowers communities in water management. This is part of sector reforms contained in the Sessional Paper No.1 of 1999 on National Policy on Water Resources Management and Development and the new water Act of 2002.

The Government is committed to allowing communities and companies formed by local authorities to manage water supply schemes thus leaving the corporation to manage major state schemes.

Thus, the establishment of a **water code** should provide the national guidelines and policies for the management and development of national water resources by clearly defining the role of the State through the establishment of a National Water Institution. Such a code would specify, for example, that:

- All waters cannot be the subject of acquisitive prescription.
- The State may allow the use or development of waters by administrative concession
- The use, exploitation, development, conservation and protection of water resources shall be subject to the control and regulation of the government through a National Water Institution or regional or local government institutions governed by law.
- Water code should include regulations to cover market access conditions
- National inventories of illegal forages should be introduced
- Women's rights for access and management of the resources should be subject to stringent and gender sensitive regulations.

- **Developing risk management tools for farmers** hit by natural disasters (prevention of disasters, establishing crop insurance programs, water damage insurance) are of high importance to guarantee them a decent income. Countries already practice full reimbursement of farmers hit by natural disasters. There is thus an urgent need to acknowledge compensation for the most vulnerable farmers where it doesn't already exist.

- **Setting clear priorities for the different uses of the water resource.**

Water should be given priority in national budgets. Some countries allocate 9% of their budgets to water while others allocate only 2%. (See Annexe 1)

- **National Assessment of water resource availability**

It is essential that each country and group of countries draw a master plan of the water available, based on geo hydrological and climatic data.

A water division plan has to be established, in accordance with international laws, especially for those countries that are sharing rivers and aquifers.

For the specific use of water in the agricultural sector, each country would need soil suitability maps.

- **The role of local authorities** is to foster community dialogue, catchment planning and increased transparency. Decentralisation is a key policy. However, it is achieved when national policy meets community needs.

I.3- Protecting water quality: a shared responsibility

It is important to protect the **quality of water because it represents a prerequisite for sustainable development**. This responsibility cannot only be put on farmers. It has to be shared by all interested parties and stakeholders. Therefore, establishing voluntary agreements between local/regional authorities or water stations on the one hand and the farmers on the other hand are important for the protection of the water resources and water quality. With such agreements, farmers would be able to supply services, which are in the interest of the general public. Furthermore, this increases the acceptance to undertake certain measures.

I.4- Developing appropriate technologies for water supply systems

The use of inappropriate technologies for water supply systems in agriculture leads to negative effects on farmers' activities.

These technologies have to be distinguished from traditional systems or practices. Technologies have to be adapted to local conditions, and they need to be accessible to the producers and meet their specific needs. In other words, high-energy technologies are not necessarily adaptable to the needs of certain poor rural communities.

Whatever technologies are used by water supply systems, they need to be maintained. Local populations are more motivated to maintain water supply systems if the technologies are adapted to their given environments and to their level of skills.

I.5- Developing public/private partnerships for water supply

Developing appropriate partnerships for water access (private, public), does not mean monopolising the water resources.

There is some reluctance among water users to the total privatisation of public water supplies, not only in developing countries but also in developed countries. A sustainable water economy can hardly be based on the total privatisation of the “know-how” which is usually in the hands of public institutions.

Water is not just a simple good. A uniquely economic perspective would ignore the specific nature of this irreplaceable and critical resource. If water were to be considered only as a tradable good, access to water would tend to be decided on essentially short-term considerations. Longer-term issues, such as risks to the environment, or equity would not be taken into account. Another major risk of total privatisation is that the free transfer of knowledge and technologies would disappear because licences would protect new findings. Public authorities would then have to rely on private sector experts for future water allocation.

The promotion of public/private partnerships could be one solution envisaged to address structural financial problems for water supply. Governments alone are often not able to provide funding for sufficient quantities of clean water for all uses. It must be pointed out that water resources infrastructure development is an expensive program and highly capital intensive.

To guarantee water availability, the annual investments in water services need to be more than doubled - from the present 70-80 billions dollars to 180 billion dollars. Due to the limited capacity of the governments to sustain such heavy investments, especially in developing countries, one potential alternative is to turn to private capital and other non-government funding.. Such partnerships should make possible investments to finance the working and maintenance of the distribution networks.

There are a number of schemes by which government can tap private sector investments such as build-operate-transfer arrangements, joint ventures, and concession agreements. Although the easiest partnership may be with the firms working at international level, it would be more appropriate to support initiatives with emerging local entrepreneurs who are able to adopt solutions and technologies that correspond to the needs of the more disadvantaged areas and populations.

II - MANAGING FRESHWATER RESOURCES IN AGRICULTURE

Farmers must participate in decision making processes, and water use efficiency must increase in a sustainable way.

Developing strategies for sustainable and equitable management of water resources addresses, above all, how the available water should be used to provide food, safe environments, health, and livelihoods to a growing world population, in harmony with nature and with respect to the need for clean drinking water

Recognizing the vital role of healthy ecosystems in the water cycle, and protecting them, should form the basis of any water management system but it should not ignore the role of human activity and indeed the farmers in their efforts in protecting this scarce resource.

Equity implies a concept of fairness, which allows for different practices in the management of water in response to different social, economic, political, technical and environmental needs. Therefore, it is important to identify the policies, institutions and practices that promote equity in the management of water supplies, in accordance with the specific socio-economic conditions of each country.

II.1- Integrated water resource management (IWRM)

The management of water resources has evolved. Systematic monitoring and evaluation of information have become critical. Along with this, the tools used for achieving efficient water use and the protection of the resource are no longer simple engineering methods. The application of legislation, economic incentives, natural resource management, and new organizational approaches, reinforced with the skills of communication, are increasingly important.

More over, water and ecosystems are linked. Water management activities affect ecosystems, which in turn affect the livelihoods of the people that depend on them. Users within a basin are interdependent.

For all these reasons, **an integrated approach** for managing this valuable resource has become critical. Integrated water resource management could be achieved through:

II.1.1- Promotion of international river basin cooperation

International basins cover 45% of the land surface of the Earth. They affect about 40% of the world's population and account for approximately 80% of the global river flow.

Water resources have contributed to tensions between competing users around the globe, mostly at the intra-national level. As water quality degrades and water quantity diminishes over time, tensions spill across boundaries and the overall effect on the stability of a region can be unsettling.

Therefore, **water management systems must meet the capacity and the needs of each river basin and catchment area to obtain good water quality and quantity. There should be a link between sustainable water management and farming policies.**

This should not prevent the transfer of water from areas where it is in excess to those where there are water shortages. Although sharing water too often leads to competition, we must reverse this trend. For this reason, it is important to recognise and respect all the uses –and users—of water for a better sharing of

water resources. Without this, measures to increase the “efficiency” of its use can cut off some uses, thereby reducing the overall value of water uses. Sharing water must involve cooperation even if dealing with all uses and users of water may make it more complicated to manage. It also opens more opportunities to revitalise the ways in which, the systems are managed.

It is indeed important that the different needs of each party (provider and water user group) be identified, and the optimum solution found for everyone. This co-operation allows for setting objectives at the local and basin levels for such issues as conservation, sustainable management, and poverty alleviation.

IFAP recognises the need to create an international mechanism to discuss, negotiate and arbitrate over usages, abstraction of water, especially in regional shared river basins. This need is very urgent in Africa in particular.

Therefore, Farmers propose the formation of an international water body to formulate policy consensus, as well as to regulate and arbitrate any abrogation of such agreements.

II.1.2- From supply to demand driven: an innovative way of managing the water resource

How to access and manage the water resource issue is actually a sustainable development issue, understood in its holistic sense, where the socio- economic and environmental aspects are taken into account. The social dimension is very important and needs to be exploited more in-depth if we want a voluntary change in behaviour to occur, in the way to manage the water resource. Therefore, dealing with the issue of managing the water in the most efficient way should go beyond the technical and economic aspects. Social engineering needs to be enhanced.

This innovative way at looking at this issue of water puts the users in a position where they need to question themselves and face a problem that seems to resist them. Therefore, we not only need to put in place new technically and economically sustainable but also socially and environmentally acceptable water management systems. In fact, the traditional water supply driven management does not integrate this complexity as the social dimension includes issues related to communication, raising awareness, participation of different users and providers.

Demand driven management as opposed to supply driven involves managing the resource while including such aspects as justice, equity, sharing. In other words, the demand driven management system tends to favour participation and integrates social differentiations and territorial aspects. All in all, there would be a shift from technical economical efficiency to socio-environmental efficiency in the way of managing this scarce resource. In this new scheme, farmers and their organisations as well as other user communities would be considered as key players to come up with the appropriate management frameworks. They become more responsible and proactive in managing and sharing this scarce resource.

In this context, new and professional methods and models for communication with farmers and other stakeholders should be further developed. The water issue has traditionally been connected to the natural scientific or technical part of society and the social aspects have been more or less ignored. However, since the water issue is a matter of how a large number of stakeholders are motivated to care about water, and not only about technical solutions etc, building communication methods with the stakeholders is of great importance. This is not only a matter of routines for information campaigns etc, but it is also a strategic management method for communication with policymakers, legislative bodies etc. This is also important in order to valorise farmers' image.

II.1.3- Effective farmers' participation through consultation frameworks

In order to be equitable and sustainable, water management and development has to be conducted on a participatory basis, with decision making occurring at the lowest appropriate level. Indeed, all water users and stakeholders especially farmers, men and women, young and old, both in developed and developing countries, whose actions affect the quantity or quality of water should have a say in water management.

Participation in decision making should not be limited to a mere consultative role of farmers and other stakeholders, but rather, they should be involved in all phases of decision making processes; from the design to the implementation of projects/programs.

Even though creating incentives for all users to participate in the management processes is complex, the returns in terms of improved water management, reduced conflict, and long-run sustainability of systems make this a vital investment.

Indeed, the ultimate motivation of rural communities to become involved in the management process is to find opportunities in protecting water resources to develop new and innovative means of agricultural production that will enhance their living conditions.

However, generally speaking, farmers often feel their uses are inadequately considered in comparison to the urban community's increasing demands. This trend must be reversed.

Therefore, a participatory management strategy contributes to increase the effectiveness of river basin organisations and all forms of water organisations because it increases the motivation of local communities (see appendix 2).

Community based participation through the **creation of consultation frameworks** have to become a prerequisite for water management.

National governments have the responsibility to set up **national programs** to strengthen technical, financial and education capacities of these local associations

to enable them to participate and create their own water management associations for maintenance and running of water sources.

IFAP supports the creation of **special national budget lines** for the participation of farmers' organisations.

II.1.4- Building the capacities of farmers' organisations

Farmers need to get organised and build up their capacity to enable them participate effectively in decision-making processes, as well as influence political leaders in advocating clear positions pertaining to the management of the water resource.

This includes:

- Strengthening their ability to contribute actively in national and international discussions on water related issues.
- Setting up appropriate water management structures run by the farmers themselves,, men and women, to generate income and therefore achieve rural development
- Knowledge sharing for the preparation of policy positions reflecting farmers' views, aimed at being incorporated in national policies. Farmers' views should ultimately be promoted by national governments at the national and international levels.

II.1.5- The critical role of women farmers in IWMI schemes

Empowering women through access to information on simple water purification procedures, as well as making it possible for them to work through water committees, and ultimately in catchments management agencies, will ensure that women's voices are heard, and their specific needs taken into consideration, in the quest for safe, available water.

Women also have a key role in environmental protection, and in promoting water conservation activities. It is through education and communication with women that basic attitudes to water will change.

It is therefore important that women farmers be represented at all decision-making levels - political, technical and managerial - and in all spheres of water management activities.

II.1.6- Water management includes the multiple function of agriculture

Water management systems used by farmers often lead to public benefits in terms of controlling the potential damage by water, e.g. on mountain slopes. Thus sustainable agricultural practises have positive environmental - and social - impacts. There is thus a link in water control systems used in farming between production of commercial and public goods.

II.2- For a more efficient and rational use of the water resources: meeting the Millennium Development Goals (MDG)

The United Nations background paper on water, written for the Johannesburg Summit set indicative targets of improving water use efficiency in the agricultural sector by 5 percent by 2010 and by 10 per cent by 2015. In order to reach these targets, the following will have to be achieved:

II.2.1- Developing stewardship programs in favour of farmers

IFAP is in favour of water management strategies that put emphasis on stewardship programs to promote a more sustainable use of freshwater resources in combination with new agriculture methods.

These strategies would include incentives for the adoption of new, more environmentally friendly techniques, as they become available. Rewarding those farmers and communities that work for the conservation, quality and efficient use of water without putting prejudice on their income is a good incentive. Farmers need, as much as possible, to adapt their farm management practices to meet the required environmental outcomes. For this, they would need to be offered the means to be able to achieve these requirements.

II.2.2- Introduction of fair water pricing policies

Who should pay for the use of such a scarce resource as water is indeed a complex issue, which needs to take into account several factors.

IFAP is in favour of establishing a reasonable and affordable pricing policy for the management of water in the agricultural sector.

As with most ecological standards it is extremely difficult for farmers to recoup the cost of meeting them through the consumer price.

Emphasis should therefore be placed on providing farmers with incentives to make more rational and sustainable use of water, at local, national and international level as appropriate.

- **Pricing of irrigation water**

The pricing of water intended for irrigation purposes should be considered only if it seeks suitable and flexible methods of calculation depending on a set of factors such as: size of farms, nature of production, agronomic capability, irrigation systems and techniques, organisational and institutional level and availability of water, and environmental costs.

Implementation of pricing policies should be accompanied by suitable and fair incentives for the supplier and the beneficiary (the farmer). These incentives will help modernize family-run farms, and thus encourage sustainable water use and promote integrated rural development.

In fact, promoting the use of a pricing policy for irrigation water is intended to encourage the rational use of water.

This should lead to undertaking a thorough analysis on what crops are possible and profitable to grow. This might in some areas and in due time lead to another mix of crops being cultivated, which is better fitted to the water resources at hand.

Any irrigation-water pricing policy, along with suitable accompanying measures, should **take into account farmers' capacities to pay for their water and relate this to the terms of cost recovery.**

- Farmers need secure water supply rights taking into account local socio-economic, cultural and hydrological context Besides, it is important that the irrigation water pricing policy be introduced progressively and farmers should be **properly informed** to enable them to acquire the knowledge and acceptance of the economic and environmental basis of the application of this policy.

II.2.3- Upgrading efficiency in all water uses

It should be noted that a sustainable agriculture should be based on a wise use of all available resources. This might lead to the conclusion that some crops should not be cultivated at all in some areas or countries because of their water balance even though they might be very profitable to cultivate in the short term. Technical improvements might not be sufficient when cultivated crops are not suited to the climate and to the availability of the water resource.

For this reason, it seems important to combine both technical and managerial means. (See appendix 3)

Maximizing irrigation efficiency is important, but it is not necessarily the only way to optimise the management of water resources. It is important to seek an optimal combination of all water uses. This might be done in infrastructure planning, by providing cattle wallows or laundry areas in or adjoining canals or making sure that irrigation is also available for non-agricultural uses.

Increasing the combined value of all water uses calls for more attention to water quality, rather than just quantity, issues. Waste disposal therefore becomes critical to sharing water among different uses. In short, the managerial approach should be multi-sectorial.

Even if agriculture fully complies with the “more crop per drop” paradigm, there is a danger that other water users do not follow the same example. In other words, there is a risk that they take advantage of water savings achieved by agriculture in this case.

II.2.4- Using appropriate technologies

- IFAP supports the use of appropriate technologies adapted to local conditions and made accessible to producers. Indeed, the use of indigenous and traditional knowledge is often not enough taken into consideration.
- Water management research and extension services should be strengthened through partnerships between the scientific community and the farmers. Farmers often have interesting stories to tell through good practices in managing the water resource in agriculture. Moreover, they know better than anyone else their environment and how to manage the resources in the best way. Therefore, the research community should collaborate with farmers and local communities in order to benefit from their traditional and indigenous knowledge. Indeed, the scientific community cannot ignore their know-how. Rather, they should benefit from it. Research would then help improve those traditional methods in accordance to socio-economic factors.

Research on irrigation represents an important part of research and development related to water management.

Research and development activities on water conservation, water quality management, pollution control, water recovery, re-use and recycling, watershed, flood plain and coastal management should be undertaken towards a more effective and integrated approach to promote management of water resources. (See Appendix 4)

II.3- Funding for water in agriculture

As previously mentioned, there is a wide gap between the current levels of expenditure and investment in water services and the required levels of expenditures. To bridge this gap, all sources of funding should be mobilised ranging from public funding (which is the biggest source of investment in developing countries in particular) to private investment and development assistance.

IFAP calls for particular attention to:

- **Public funding** with an increasing emphasis on the role of the local government, for building capacities of water users groups for instance by facilitating access to credit and offering financial support to help farmers buy appropriate irrigation equipment for an efficient rationalization of water use, as it is the case in some countries suffering from water scarcity.
- **More investment** in the provision of sustainable **water infrastructure** and services, in rural areas as well as training and education for farmers.

- **Increased development assistance** as a complement to domestic sources of funding. Farmers call for achieving the target of 0.7 percent of GDP for ODA. There is a need for increased coordination of donors and international financial institutions to avoid duplication of resources.
- Initiatives to create **International Solidarity funds** in each country to support sustainable water management initiatives.
- **Additional financing** for sustainable water infrastructure **from international financial institutions** like the World Bank (IFIs).

II.3.1- Innovative Partnerships

The key to better water outreach is new partnerships. IFAP support the need for new coalitions such as:

- The need for **appropriate frameworks** to build and implement partnership initiatives at river basin and catchment area level.
- Organisations and water users often do not have the finances, knowledge, right institutions, or incentives to use the new technology. The private sector has the means but often does not have the experience to ensure efficient and equitable water management policies that national authorities are able to bring. Instead of separate government agencies for irrigation, water supply, sanitation and environment, effective water management organizations will have to include **new combinations of public sector, private sector, and civil society to seek fitting solutions**. For instance, management of river basins and irrigation areas should be in the hands of local and regional governments as well as farmers' organisations.
- There is an urgent need for **cooperation between donor agencies, and the industry for the transfer and adaptation of the best technologies**. South-south technical transfer is also important for a better management of the water resource.

II.3.2- International policy.

National and regional water resources policies and management should be linked with other international agreements and processes such as those concerned with climate change, desertification, biodiversity, wetlands, the marine environment and sustainable forests in addition to those international processes related to poverty alleviation.

They also should be linked to international processes on development, finance and trade. In this regard, IFAP seeks to ensure that the rights of farmers in accessing freshwater resources are not prejudiced and are reflected within international agreements and processes.

IFAP will carry on its efforts in mainstreaming the farmers' views on water and related issues, from the grassroots to the international level through IFAP delegations participation in different international fora and through publication of IFAP policy proposals reflecting the farmers' views from throughout the world.

“The management and sharing of water resources will be enhanced by the development of cooperative relationships between governments and between government and the private sector. However, countries must retain the sovereign right to decide whether or not they will allow water within their jurisdiction to be exploited and the pace and manner of any exploitation.

“Care must be taken when negotiating international trade and international environmental agreements to insure that national governments retain control of the development and use of its water resource, including the right to decide if water is to be exported and the volume and timing of any exportation.”

SUMMARY OF IFAP POLICY RECOMMENDATIONS FOR WATER IN AGRICULTURE

SOME KEY FACTS: AN ALARMING SITUATION

- Over **one billion people, 1/6 of the world population** lacks safe domestic water supplies/
- 2.4 billion people , ½ of the world population are without adequate sanitation
- In 2025, more than 3 Billion people will face water scarcity.
- Agriculture is being called upon to double production capacity over the next 25 years, from essentially the same resource base, to feed an additional 1.5 billion people by 2025. This could be problematic.
- Agriculture already uses 70 per cent of freshwater resources, so farmers will have to use the best practises available to produce "more crop per drop".

MAIN CAUSES OF WATER SHORTAGE

Inefficient use of the water resource is often a consequence of:

- weak infrastructure
- lack of a good functioning water authority with the right competencies,
- poor maintenance of irrigation systems,
- Lack of incentives for efficient use of fresh water,
- lacking drainage infrastructure or poor maintained drainage systems,
- unsuitable crops which cause inefficiencies.

National and International water management schemes are often lacking

- Countries are not willing to coordinate and reach agreements in the cross Border Rivers and aquifers.

Farmers and their organisations often lack participation and access to decision making.

- they are not trusted enough or
- they do not have enough capacity to get involved actively.

WATER FOR AGRICULTURE AS A PRIORITY ON NATIONAL AND GLOBAL AGENDAS

- **Water is necessary for food production, for health, and for the livelihoods of millions of farm families.** It is a public concern. Water is not a tradable good. Therefore, increased priority is needed for water for agriculture both at the national, regional and international levels.

- **Water security should be recognised as a key to poverty alleviation.** Particular attention should be given to farmers and the rural population because they are the first victims of water problems in terms of quantity and quality.

- **National governments must give priority to investment in water for agriculture** and rural development as well as for the protection of the water resource in their national budgets. They must set clear priorities concerning water use.

- **While the quality of water is a prerequisite for sustainable development, its protection has to be shared by all interested parties** and stakeholders. Therefore, establishing voluntary agreements between local/regional authorities or water stations on the one hand and the farmers on the other hand are important for the protection of the water resources and water quality.

- There is a need to find appropriate mechanisms for technology transfer and locally-friendly, low-cost technology and make them available for farmers. The political will must follow to translate this into action on the ground. **National and international political commitment** is essential to ensure sustainability and equity of distribution of water resources.

- **IFAP urges relevant international organisations** to include not only gender balance and indigenous peoples rights, but also **to include a requirement to engage with local farmers' organisations as partners.**

- **IFAP favours water management strategies that put emphasis on stewardship programs in favour of farmers** who adapt their water management practices to meet environmental requirements.

- There is a need to **create a UN Convention on Water and Poverty** including funding mechanisms.

- IFAP recognises the need to create an international mechanism to discuss, negotiate, regulate and arbitrate over the usages, abstraction of water, especially in regional shared basins.

- **National and regional water resource policies should be linked with other international agreements and processes** related to environment, development, finance and trade.

GOVERNANCE AND REGULATION

SETTING UP A GENERAL FRAMEWORK

- The role of governments at the national level is critical as **the guardian of the water resources**. Farmers believe **that the principles of conservation, management and the use of water resources must be regulated by law** and this includes access to water for everyone.

- **Farmers including women farmers need secure water supply rights and transparent legal frameworks taking into account local socio- economic, cultural and hydrological context**

Governments in each country have different responsibilities:

- Set up a general framework with clear water policies and schemes
- Through the establishment of a water code and a National Water Institution.
- Take stock of the actual availability and use of the water resource and identify the best water use practices to be applied
- Develop risk management tools for farmers
- Set up clear priorities for the different uses of the water resource

- **While the private sector has a role in providing delivery of water, it will not be cost-effective for them to deliver water to remote rural areas. This should be a government responsibility**

TOWARDS AN INTEGRATED WATER MANAGEMENT APPROACH

- International basins cover 45% of the land surface of the Earth, 40% of the world's population and 80% of the global river flow.

There is a need to **promote international river basin cooperation through decentralised targeted action for each river basin** with full recognition of all uses and users and consultation of all stakeholders. This would avoid tensions between competing users around the globe and help increase efficiency of the use of the water resource.

- **The management of water should go beyond technical and economic aspects.** . It should include social aspects such as communication, raising awareness and participation.

- **Women in agriculture in particular need to be involved at all levels of decision making because they are responsible for the major part of food production in many developing countries.** It is through education and raising awareness that basic attitudes to water will change.

- **Farmers must be full participants in water management and in decisions about prioritisation of access to water, through consultation frameworks.** Farmers should therefore be members of water associations.

- **Farmers' organisations need support –in particular public support- to build their capacities and gain the skills** so that they are able to play their full role in water management and prioritisation through user groups or other consultation frameworks.

- **There should be a link between water management policies and agricultural policies.** Besides, IFAP supports the creation of special national budget lines for the participation of farmers' organisations.

DEVELOPING PARTNERSHIPS ON WATER AS A FOLLOW UP TO THE WSSD AND MILLENNIUM DEVELOPMENT GOALS

Developing appropriate partnerships for water access including public/private ones doesn't mean total privatisation of the water resource. Such partnerships should finance the working and maintenance of distribution networks.

Strengthening of water research and extension **services through partnerships between the research and farming communities using appropriate technologies that respect socio-economic and political aspects are needed.** Scientists must learn from farmers and the rural population and benefit from their traditional and indigenous knowledge.

There is a need for cooperation between donor agencies and the industry for transfer and adaptation of best technologies.

USING ALL SOURCES OF FUNDING

Mobilisation of all sources of funding e.g. public- private, investment assistance;

- Increase of development assistance as a complement to domestic sources of funding is needed.
- IFAP calls for the achievement of the 0.7% target of GDP for ODA (Official Development Aid).
- Increased coordination of donors and international financial institutions to avoid duplication of resources is crucial .
- The creation of an international solidarity fund in each country to support sustainable water management initiatives would be needed.

APPENDICIES

APPENDIX 1 - PRIORITIES FOR THE DIFFERENT USES OF WATER: THE EXAMPLE OF FINLAND

A list of priorities is under consideration in Finland

1. water for local use (including local agriculture),
2. use of water at municipality level,
3. use of water by the industry,
4. selling water to other areas.

APPENDIX 2 - EXAMPLES OF FARMERS' CONSULTATION FRAMEWORKS

- **Water User Associations**

The use of water user associations (WUA) is proven to be an interesting approach to decentralize and privatise water management. It offers an institutional mechanism that can improve both water allocation efficiency as well as ensuring equity of distribution. More over, the creation of WUA can also be seen as a management alternative that will guarantee sustainability of the irrigation systems by providing the necessary funding for O&M (Operating and Maintenance) of the systems as well as ensuring transparency in the use of the water participation fees collected from farmers.

WUA can also incorporate integrated pest management with irrigation. It is important to note that WUA should be established under legislation that protects the organisations' rights and also provides tax exemption because the organisation is not a profit making association.

- **Water boards in the Netherlands**

There is an interesting approach developed in the Netherlands, where public Water District Boards have been created. Water boards are not elected by the public; rather, they are elected by members of the interested parties. It is characteristic of these district water boards that interested parties manage and finance these boards and are legally authorized to levy taxes and to carry out their tasks with regard to water management. Other activities are related to land use planning, nature conservation and environment protection, and recreation.

It is interesting to note that water boards balance the different and sometimes conflicting interests of water management in cooperation with the central government, the provincial and municipal authorities and other interested parties.

APPENDIX 3 - WATER SAVING METHODS

Rationing

Water allocation by regulatory authorities could be an equitable way of meeting basic needs, because it does not depend on the ability of people to pay. This includes such measures as rotational irrigation deliveries, specifying hours of domestic water supply, rationalisation of agrochemical use, education and awareness campaigns.

Water storage

For countries facing water excess, such as the Netherlands, inundation polders are envisaged. These are reserved for water collection when the regular soil hydrology is unable to cope.

Soil conservation is an efficient water management method. Important quantities of water are retained in the soil. This moisture is gradually taken up by plants for food production.

Water harvesting

Water harvesting captures rainfall runoff, either by concentrating water into a storage reservoir or applying water directly to the soil in the cropped area, through canals. This is a cost-effective solution for managing water supplies. The major advantage of water harvesting is that it addresses the problems locally, providing a decentralized water management system.

Building hydraulic projects such, as dams, to fight against soil erosion, to replenish water tables and to establish water sources in difficult zones, is another efficient strategy for water management.

Salinity of the water resources is becoming an increasing problem in the management of water resources. In the Netherlands, some projects have been focusing on the development of salt-resistant vegetables. These projects are also implemented in developing countries.

APPENDIX 4 - EFFICIENT IRRIGATION

It is important to note that irrigation accounts for around 70 percent of water demand worldwide, and over 90 per cent in low-income developing countries.

Extension of irrigation systems must be done in a way that guarantees distribution without loss of water due to evaporation or inefficient joints. To this end, it is necessary to use pressure systems or micro irrigation. It is also necessary to create on the irrigated lands an efficient system of drainage to avoid the high level of

salinity in the irrigation water, combined with the superficial presence of waterproof layers, which create severe problems in the soil.

Research has an important role to play in improving drainage and irrigation systems. For example, it is necessary to develop - perhaps through biotechnology - the drought tolerance characteristics of plants as well as measures to promote soil moisture conservation measures. As an example the Swedish Cooperative Centre in Southern Africa has had good results with the publication of 13 booklets entitled "With drought in mind".