

## **Draft UNCCD Water Policy Advocacy Framework for:**

### **Securing water resources in water scarce ecosystems in the face of desertification, land degradation and drought (DLDD) imperatives.**

#### **I Preamble**

Desertification, land degradation and drought are exacerbating the global water crisis and the world supply of freshwater cannot be increased. Falling water tables are widespread, resulting in serious water shortages and salt intrusion in coastal areas. Contamination of drinking water and nitrate and heavy metal pollution of rivers, lakes and reservoirs are common problems throughout the world. More and more people are becoming dependent on limited supplies of freshwater that are becoming more polluted. Water security, like food security, is becoming a major national and regional priority in many areas of the world.

Governments in affected countries that are Parties to the UNCCD have water policies in place, however special attention needs to be paid to the impacts of DLDD imperatives on the availability, accessibility and management of water resources in light of:

- (a) Potential future global water crisis associated with climate change,
- (b) Current and emerging challenges – poverty eradication, food insecurity, etc. as they relate to the millennium development goals (MDGs),
- (c) The Ten Year Strategic Plan (10YSP)'s strategic objective on: Improving the livelihoods of the populations of the drylands (water scarce ecosystems). -

Thus, the fundamental goal of the UNCCD Water Policy Advocacy Framework is to ensure that the water policies of country Parties experiencing the effects of DLDD imperatives make specific provisions for the water needs of the affected populations by 2018 given that water is a finite and vulnerable resource and it is essential to the viability of all the world's ecosystems. Ecosystems' health in turn is critical to the quality and quantity of water supply yet the challenges and threats of water scarcity to global populations are set to increase in magnitude and scope in the face of DLDD imperatives. In the drylands the ratio of mean annual precipitation to that of potential evapotranspiration (PET) is  $<0.65$  and these drylands cover 41% of the earth's surface and are home to about 38% of the world's population.

In spite of the considerable progress since 1990, one third of the global population lives under water stress conditions, with DLDD imperatives exacerbating the situation. As the world's population has swollen to well over 6 billion people, some countries have already reached the limits of their water resources. Given the prevailing climate change scenario, in addition to the effects of the DLDD imperatives, almost half the world's population will be living in areas of high water stress by 2030<sup>1</sup>, including between 75-250 million people in Africa.

Under the UNCCD, a total of 164 countries within and outside the drylands are affected by land degradation. Incidentally, water resources are often among the first to experience the negative effects of DLDD. Its limited availability in the face of exponentially increasing demand indicates the potential for disputes and conflict both within and among states. Also, there is a strong link between poverty and water resources scarcity. The number of people living on less than \$1.25 a day approximately coincides with the number of those without access to safe drinking water. Almost 80% of diseases in developing countries are associated with water, resulting in three million early deaths with 5,000 children dying every day from

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<sup>1</sup>UN-WWDR3 2009: Water in a changing world

diarrhea. Roughly 10% of all illnesses worldwide could be avoided by improving water supply, management and sanitation<sup>2</sup>.

In tandem, the dramatic increases in bio-fuels that saw the tripling of ethanol production between 2000 and 2007 demanding between 1,000 to 4,000 litres of water per litre of bio-fuel, also add pressure on water resources. With the developing countries demand on the world's energy projected to increase by 60% by the year 2030 the dependence on hydropower is also estimated to rise by 60% putting additional pressure on world water resources.

The UNCCD water policy is meant to assist countries to respond to these challenges through addressing a broad array of laws, regulations and programmes that are intended to support, fund and regulate water resources availability for human and animal consumption, industrial, agricultural and environmental purposes among others. This water policy document aims to provide a framework for the UNCCD Secretariat to advocate to countries' policy makers to develop water resources management policies at country level.

It is not intended to provide any content or any specific recommended policy position. The specifics of water resource management policies are country dependent and need to be worked out by the countries concerned with the full participation of all interested and effected stakeholders taking into consideration the legal implications of the proposed water policies and the consistency between the emerging water policies and the policies of other sectors.

It should be noted that this is primarily a UNCCD Secretariat framework for advocating for the development of water resource management policies at country level, through promoting water as a socially vital economic good that needs increasingly careful management to sustain equitable economic growth and reduce poverty. It is envisaged that, the UNCCD water policy, through advocating a participatory approach in meeting the challenges of water conservation and protection, sets of decisions will be made ultimately by the highest political level in affected countries through a bottom-up process of dialogue and consultation, that would determine what and how things will be done in water resources management in the face of desertification, land degradation and drought issues.

## **II Rationale for a Policy to Secure water resources in water scarce ecosystems**

The Water Policy Advocacy Framework for the UNCCD is proposed in recognition of the significance of the water crisis in exacerbating DLDD imperatives in the drylands in particular and the reciprocal negative impacts DLDD imperatives have on water resources as well as the broader effects of the resultant water scarcity on ecosystem functioning, environmental sustainability, economic production and the stability of social systems, among others.

DLDD is a global problem affecting more than 2 billion people in more than 100 countries with direct and negative consequences on water resources and costing the world economies more than 40 billion dollars a year. Thus it becomes necessary to seriously consider appropriate water policies that improve water resources management in the face of DLDD imperatives.

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<sup>2</sup> WHO 2008: Safer water, better health -Costs, benefits and sustainability of interventions to protect and promote health

Exacerbated by climate change, DLDD imperatives that include water scarcity, will render between 24 to 700 million people living in arid and semi-arid areas environmental migrants. This massive forced displacement in search for livelihoods and food production would in turn be associated with political and social disruptions that will inevitably affect sustainable development. Developing and adopting effective water management policies for implementing would help to overcome the challenges of the sustainable development in water scarce lands.

Also, more than 40% of the world's agricultural land is seriously degraded, exacerbating poverty and food insecurity. The results of the assessment and reassessment of the land prone to degradation and desertification suggest that it can be as much as 3.5 to 4.2 billion hectares. Mountain ecosystems, where 20% of the world's population lives, many of them with severe water stress, are not spared either<sup>3</sup>. As a consequence water resources are becoming increasingly scarce and poverty and food insecurity are more prevalent, particularly in Africa. Already, about 66% of Africa is classified as arid or semiarid, with extreme variability in rainfall.

Desertification and land degradation are threatening a significant portion of Africa's currently fertile land and food production in the face of water scarcity. The most vulnerable areas are along desert margins, home to some 22 million people and mountain ecosystems. It therefore becomes a categorical imperative to consider appropriate water policies that improve water resources management to reduce poverty and enhance food security, improve the effectiveness of legislation and facilitate transparent allocation of water in the face of DLDD.

It is further recognized that, in the face of population growth and increased use of water per capita, increasing pressure is put on scarce water resources as competition for its use intensifies<sup>4</sup>. Competition over water use, its availability and allocation within states, at the local level, can lead to low-scale violence, which can escalate into instability within states and across sub-regions. Tensions between citizens and authorities over water issues may initially manifest themselves in the form of civil disobedience. They may, however, also escalate into acts of sabotage and violent protest if adequate political participation is not possible.

Tensions over water often mean that a shared resource is not developed making the developing and adopting of water policies to enhance water resources development indispensable. In the face of DLDD imperatives developing water resources avert the poor from becoming the first victims of water scarcity. Availability of adequate water resources prevent the poor from obtaining the satisfaction of their basic needs at the expense of the natural environment, which would in turn threatens the very basis of future food production.

Improving water use, quality and availability positively affect societal relations and stability. Water scarcity and lack of water resource infrastructure development deprive people of their livelihood, forcing them to migrate. Therefore concerted efforts are required towards the

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<sup>3</sup> The UNCCD is part of the mountain ecosystem partnership, given the similarity of approaches advocated by the partnership and the 10YSP: cross-sectoral planning, participatory approach, partnership building etc. as well as recognizing the importance of not multiplying strategic frameworks for sustainable natural resources management but rather unfolding potential of existing frameworks

<sup>4</sup> By 2025 the world will need 17 per cent more water to grow food for the increasing populations in developing countries, and that total water use will increase by 40%.

development of water resources to enhance food production and reduce poverty. Developing water resources enhances social relations and implies improving the livelihoods of the drylands population as called for in the Ten Year Strategic Plan (10YSP)

### **III. Principles of the UNCCD water policy advocacy framework**

The UNCCD water policy advocacy framework, banking on the spirit of Agenda 21, will place particular emphasis on sustainable management of water as a limited natural resource. Protection, rehabilitation and conservation of the water resource base are considered essential for water security. The UNCCD recognizes that water is becoming a potential source of conflict with the increasing pressures from population growth, economic and agricultural demands on the limited and finite water resources in the face of land degradation, desertification and drought.

Given that the relationship between drought, land degradation, desertification and water, food and national security play an increasing role in international relations, the tenets of the UNCCD water policy will assist countries to review their national water policies to enable them to address emerging issues related to DLDD imperatives. The reviewed policies will be required to ensure compatibility with national and international obligations to enhance water security. The UNCCD water policy advocacy framework principles shall be based on the understanding that:-

- Water and land resources will be managed at the community levels.
- Fresh water is a finite and vulnerable resource that is essential to sustain life, development and the environment. Effective management should link land and water uses on an integrated catchment basis.
- Water management and development should be based on a bottom-up participatory approach, involving users, planners and policy makers at all levels, and decisions should be made at the lowest appropriate level.
- Women play a central role in the provision, management and safeguarding of water which should be reflected in effective participation at all levels.
- Water has an economic value in all its competing uses and should be recognised as an economic good.
- Political will is required for effective policy implementation.
- Policy development should be linked to institutional reform, capacity building and the creation of an enabling legal environment
- In order to increase the prospects for water and national security, special emphasis should be given to conflict prevention and resolution.

### **IV. Water supply, quality and utilization**

Everyday, about 470.6 billion gallons of water, equal to 11.2 billion barrels of water and about 165 times the amount of oil produced in the world daily, is drawn from the ground worldwide. The UNCCD Secretariat, through this Policy, is determined to have water recognized as a valuable asset of mankind and an integral part of its collective heritage. Thus water, both ground and surface water, need to be recognized as a resource whose use is common to all, subject to rights of use or limited appropriation rights that may be recognized.

The common to all status of water implies that all members of society should have the right to access and use it in a manner consistent with its nature, and that governments at

appropriate levels have a responsibility to regulate water use, establish priority uses and preserve its quality and quantity, while taking the public interest into account. Therefore, the UNCCD intends to assist countries create the necessary instruments so that they may give precedence, in the event of, scarcity, competing demands or conflict, to the fundamental right of individuals to access this resource for their basic needs.

## 1. Water Supply

About 3.5 billion people worldwide (54% of the global population) have access to piped water supply. Another 1.3 billion (20%) have access to an improved water source through means, including standpipes, "water kiosks", protected springs and wells. In addition, more than 1 billion people (16%), the majority of whom live in the drylands, do not have access to an improved water source, meaning that they revert to unprotected wells or springs, canals, lakes or rivers for water. It should be noted that access to an improved source of water does not necessarily imply that it is safe to drink from that source.

The UNCCD recognize the importance of water to public health, the environmental wellbeing and economic development as tenets to improving the livelihoods of the drylands populations as called for in the 10YSP. Accordingly, the UNCCD will promote water policies that are aimed at ensuring both sufficient water quantity and quality. ***The goal is to ensure that countries have improved policies in place to meet the water supply needs of their citizens, businesses and environmental systems by 2018.*** Countries will be urged to adopt the integrated water and land resources management initiative and to establish collaborative efforts among individuals, groups, and agencies with local, regional, state and national interests and responsibilities in water management to enhance water management, availability<sup>5</sup> and supply.

Countries will be encouraged to institute policies that recognize the need for issuing water supply withdrawal permits as core component of water management and supply so that water supply decisions can take into account water quantity and water quality issues simultaneously. Bringing water supply issues into the mainstream of the water resources management will build public awareness and support not only for the need to conserve water but the need to protect existing and potential water supplies that are so critical to public health.

The UNCCD policy on water supply will further consider the following main points:

- The need for equitable access to clean and safe water by all.
- The importance of clarifying the roles and responsibilities of different spheres of government, such as the central government, provincial or state governments and local or municipal governments, in water supply.
- The necessity to recognize the role of local communities in construction, ownership, management, administration, operation and maintenance of water supplies.
- The obligation to enhance the role of women in all aspects of water supply.
- The requirement to improve sanitation, foster hygiene and health education to increase the beneficial impact of water supplies.

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<sup>5</sup> A significant problem arises in that, although there is enough water at the global level, availability does not coincide with the regional distribution of the world's population.

- The necessity to maintain minimum standards of supplies, such as daily per capita quantities, maximum cartage distances and quality constraints.
- The importance of considering economics of water supply including cost recovery, water tariffs, capital financing, instruments such as tariffs etc..
- The requirement to upgrade operations and maintenance standards
- The need to facilitate the role of NGOs and the private sector in water supply

## 2. Water quality

As the world population increases, pressure is mounting on the quality of available water resources in the face of DLDD threats. With the majority of the people in developing countries, lacking safe and clean water, illnesses such as diarrhoea kill 3-4 million children each year. It is estimated that, water-related diseases could kill 135 million people by 2020. Already it is suggested that water related diseases are the leading worldwide cause of illnesses, accounting for the deaths of more than 14,000 people daily. Industrialized countries also continue to struggle with water quality problems as well. In the most recent national report on water quality in the United States, 45% of assessed stream miles, 47% of assessed lake acres, and 32% of assessed bay and estuarine square miles were classified as polluted.

There is no substitute to water, making water quality, first and foremost a matter of protecting and promoting public health. This applies to human, agricultural and economic activities involving contact with water. When ecosystems break down and water quality deteriorates, the benefits for the population are reduced accordingly. This situation threatens the entire food chain, and consequently, the very survival of human populations.

***The goal is to support countries to improve the quality and access to safe water and sustaining aquatic ecosystems through putting in place appropriate policies by 2018.*** The Policy will promote the development and adoption of national policies that will ensure the maintenance of water quality conducive to sustained economic and social development whilst ensuring adequate protection of the environment. The UNCCD will thus:

- Support countries policies that improve and tighten water quality standards through developing and adopting regulations that respect high quality of water for domestic, agricultural and economic consumption.
- Promote the development and adoption of appropriate policies for setting standards to ensure the best possible quality of raw water from groundwater.
- Promote complementary actions to guarantee the quality of water, and consequently, enhance human, plant and animal life, socio-economic development and the presence of healthy aquatic ecosystems.
- Encourage countries to develop and establish mechanisms for controlling waste discharges, water quality management, and policy enforcement.
- Promote mechanisms that include both incentives and deterrents to ensure water quality standards are upheld - such measures, as the precautionary principle, the "polluter pays principle" and the setting of receiving water quality standards will be advanced for consideration.
- Recognize the need for countries to develop and adopt their policies taking into account the different circumstances such as special measures in situations of particular sensitivity and variations that may be appropriate during different seasons.
- Attend to policies related to catchment management in order to control factors such as sedimentation and diffuse pollution.

- Promote inter-sectoral interactions to review the impact of sectoral policies on water quality such as the effects of agricultural inputs and industrial development on water quality.

### 3. Access to water resources

In the face of population growth and increased use of water per capita, increasing pressure is put on scarce water resources as competition for its social, economic and agricultural demands intensifies. Water is a potential source of conflict with the increasing pressures. Managing this competition and the associated potential conflicts will require a rationalized national water framework that would facilitate equitable access among different users.

It is projected that from 2000 to 2015 the 1.1 billion global population increase<sup>6</sup> from 6.1 billion to 7.2 billion<sup>7</sup> will be in developing countries. This is at the time when the global population is also becoming more urban in the face of the impacts of DLDD imperatives. Since 1950, the number of people living in urban areas has grown from 750 million to more than 2.5 billion people. The proportion of the world's population living in urban areas is projected to rise from 47% in 2000 to 53% in 2015. Currently, some 61 million people are added to cities each year through rural to urban migration, natural increase within cities, and the transformation of villages into urban areas<sup>9</sup>. Consequently, gaining access<sup>10</sup> to and utilizing water resources will become increasingly difficult and often time consuming. Already, in Africa, roughly 40% of the population does not have access to improved water supply and sanitation, and in Asia about 19% are without access to an improved water supply and 52% are without access to an improved sanitation<sup>11</sup>.

The ***goal is to ensure that countries have in place policies that enhance access to water by 2018.*** This will enhance countries potential to contribute to the achievement of national, regional and local social and economic development whilst ensuring environmental sustainability. The policies will promote methods of water allocation that enable a balance to be struck between equitable apportionment amongst sectors and optimum efficiency of usage.

The UNCCD will thus promote:

- The development of water access and utilisation policies that take account of demographic and social trends whilst ensuring the achievement of objectives such as water, food and national security.
- Linking such policies to methods of controlling the utilisation of water resources that suit the circumstances in terms of administrative capacity, enforcement ability and institutional sustainability of the authorities involved - this is particularly important in

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<sup>6</sup> The world's population continues to grow by some 77 million annually. Taking a longer time span, the world's population is expected to reach 7.9 billion by 2025 and 9.3 billion in 2050.

<sup>7</sup> By 2015, and taking account of the growing global population, an additional 1.6 billion people will need access to safe drinking water.

<sup>8</sup> Incidentally, one of the most important vulnerability parameters relate to access to water, and at the global level, sub-Saharan Africa has the lowest level of access to safe water coverage of any region, with only 60 per cent of the populations served.

<sup>9</sup> By 2025, the total urban population is projected to double to more than five billion, and 90 per cent of this increase is expected to occur in developing countries.

<sup>10</sup> Incidentally, one of the most important vulnerability parameters relate to access to water, and at the global level, sub-Saharan Africa has the lowest level of access to safe water coverage of any region, with only 60 per cent of the populations served.

<sup>11</sup> WHO 2004: Evaluation of the Costs and Benefits of Water and Sanitation Improvements at the Global Level

situations of scarcity (when demand exceeds supply) or when there is competition between users.

- Policies that bestow equity to all sectors including domestic supplies and stock watering, agriculture (both irrigated and dry land activities), forestry, industry, municipal usage, power generation, mining, tourism and leisure.
- The development of policies specifically relating to the exploitation of groundwater
- The adoption of different policies where renewable groundwater is concerned as opposed to "fossil" ground water resources that are not replenished by surface recharge.
- The formulation of policies covering other methods of water supply such as rainwater harvesting and desalination.

## V. Water and the environment

The problems of sustainable water management are not only issues of protection, restoration and development of the resource. The sustainability of the environment is closely related to water supply, quality, and access and utilization issues. There are increasing concerns regarding the environment and the role that the environment plays in ensuring that water, as a renewable resource, is able to meet the human needs into the foreseeable future. The environment is increasingly, regarded as the resource base - the source of the water on which so much depends<sup>12</sup>. Indications are that water resources can, to a degree, only be considered to be renewable to the extent to which the resource base is sustained and that water has an environmental opportunity cost.

Water scarcity and declining quality affect the poor the most. Nearly 75 per cent of the 1.2 billion people in extreme poverty, as defined by the \$1.25 a day measure, live in rural areas<sup>13</sup>. A significant proportion of that population lacks access to a quality water source. The rapidly growing rural populations are exerting heavy pressures on the natural environment<sup>14</sup>.

Water is the key resource for food security, good health, providing clean hydroelectric energy, protecting ecosystems and aquatic biodiversity, and industrial development. Together these make for a complex set of relationships with the natural environment, reflecting water demand and water supply relative to size of population and the multiplicity of end uses. The road to sustainable water management lies in consistent action at the different levels of intervention (local, national, regional and international) and the effective use of intervention tools.

***Thus, the goal is to assist countries develop and adopt policies focusing on achieving equitable access to adequate water supplies, while at the same time protecting and preserving supplies and maintaining environmental security by 2018.*** The UNCCD will thus promote:

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<sup>12</sup> The challenge ahead is formidable given the wide disparities in access to water as a basic necessity of life, the differentials in the resources available, the scale of destitution resulting in huge numbers living in poverty and hunger, with little access to health care and education, and often located in deteriorating human and physical environments..

<sup>13</sup> UNFPA 2003; Global population and water: Access and sustainability- Population and development strategies #6

<sup>14</sup> Along with a multitude of other factors, the growing population, especially in the lower-income countries, contributes to pressures on the natural environment, the scarce water resources and the quality of life, especially among the poorest communities



- The development of policies that seek to establish an understanding amongst all interested parties of the importance of sustaining the environmental wellbeing to secure water resources availability.
- The conservation of several elements that include water availability, quality and quantity above certain minimum levels, the physical characteristics of watercourses, river biota, wetlands, fisheries and coastal development to sustaining the environment
- Undertaking of changes to sectoral ways of managing water resources through adopting a genuine, integrated land and water resources management approach
- Global and sustainable approaches to environmental management necessary to prioritize actions or projects based on cumulative environmental impacts.
- Within an integrated management approach, develop and adopt policies that ensure consistency among all actions related to water and aquatic ecosystems management at all levels.
- Integrated land and water resources management based on the concerted efforts of all the water-management players involved aiming to facilitate better integration of the multiple interests, uses, concerns, and action mechanisms if tangible results in terms of environmental rehabilitation, protection and conservation have to be achieved.
- Formulation and adoption of policies that ensure that internationally accepted methods of environmental impact assessments are undertaken when developments are planned.
- The accommodation of adequate monitoring and ongoing assessment of key environmental indicators with particular attention paid to sensitive environmental areas such as upper catchment areas, wetlands and deltas.
- Targeting the control of invasive plant species in catchment areas, water hyacinth, nutrient levels in water bodies, etc
- Measures to control water withdrawals and watercourse diversions,
- Establishment of networks of protected areas and protect certain gems of natural, cultural, and recreational heritage associated with water resources.

## VI. Water economics

Water resources have an economic value. Increasingly, emphasis is being given to the economic value of water. Consideration of the economics of water and water improvement are among the most important tools for water resource management that need to be balanced with cultural and social concerns. Evidence indicates that improving water resources has cost-benefits and this applies to all regions of the world.

In developing regions, the return on a US\$1 investment could range between US\$5 and US\$28. The potential economic benefits generally outweigh the costs. Most of the benefits are derived from the time saved as access to water supply and sanitation services improve. However substantial financial resources are required to improve water access. Financial estimates to meet Millennium Development Goal 7 – Ensure Environmental Sustainability (to halve the proportion of people without sustainable access to safe drinking water and sanitation by 2015) range from US\$8 billion per year for water supply, and US\$17 billion per year for sanitation (for a total of US\$25 billion per year).

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<sup>15</sup> Financial estimates to meet Millennium Development Goal 7 – Ensure Environmental Sustainability (to halve the proportion of people without sustainable access to safe drinking water and sanitation by 2015) range from US\$8 billion per year for water supply, and US\$17 billion per year for sanitation (for a total of US\$25 billion per year).

In the climate where poverty reduction strategies dominate the development agenda, *the goal is to ensure that countries develop and adopt policies that accord water its proper economic value and enable the water economies of the countries to be integrated with the broader national economies seamlessly and transparently by 2018*. In tandem, while there are many criteria for allocating resources to different ministries and government programmes, the criterion of relative economic costs and effects of different programmes and interventions will remain a critically important tool promoted in the policies. In applicable circumstances, the promoted policies will:

- Consider principles of commercialisation of water services and the establishment of mechanisms through which water can be traded so that its "real" value is attained.
- Take into account from the societal perspective several considerations that will promote and improve access to water by making clear distinctions between the public and private sectors desegregating beneficiaries that should access water at zero cost, subsidized cost and those that should pay the full cost.
- Ensure optimum efficiency and most beneficial use whilst also meeting required objectives of social development and environmental sustainability.
- Allow principles such as the user/polluter-pays mediate between economic imperatives and the perception of water as a life source for human, wildlife and plant communities in the context of sustainable development.
- Enhance accountability of users for the utilization and deterioration of water resources with the aim of giving countries the leverage of developing and instituting economic instruments such as user charges for water.
- Enable consumers to finance the social costs of their activities (including environmental costs).
- Reduce activities that are harmful to water resources as well as making consumers accountable for the value of water and for the costs associated with conserving, protecting, rehabilitating, and developing it. Ensure that a balance is maintained between guarantying that water for basic human needs is available to the poorest of the poor<sup>16</sup>, and that where it is used for production or other beneficial use, it is properly valued.
- Devise mechanisms that will gradually phase in systems of charges for water consumption to identified sectors such as those economic sections that use and benefit from high-quality water in their production processes.
- Sections of citizens that already pay for access to drinking water and wastewater treatment through municipal taxes or such other tariffs should be excluded from the system of charges.
- Highly encourage wide consultations on pricing and tariff policies
- Regularly assess the effects of pricing alternatives on all other sectors of the economy such as the effects of tariffs on commodity prices etc.
- Clearly determine the uses to which budgetary resource are put, the aspects of water resources management and development that are subsidised and where recurrent costs are met from water tariff revenues.
- Encourage further development of clear policies relating to the role of the private sector in water management and development, and the role of development partners and financiers.
- Encourage, in deserving circumstances such as those of water scarcity; considering excising policies focusing on demand management through the proper pricing of water, together with or as an alternative to, conventional supply management practices.

<sup>16</sup> The poor and the vulnerable seldom have a voice that is heard, they are often not even acknowledged, or are deemed politically and socially insignificant and are frequent targets of discrimination

- Develop and adopt policies targeting issuing of licenses and permits at a cost to the polluter for waste disposal as a method of attaching a value to the activity, controlling it, and providing incentives to keep waste disposal through water courses to a minimum<sup>17</sup>.
- Compensate water users who suffer pollution from others.

## VII. Water resources development

Sustainable development and use of water is of vital importance to humanity, particularly for countries in the drylands that on balance, are very dry and water resources are scarce in many areas. Striking an appropriate balance between the consumptive use of the water resource and the health of water sources is key. In Africa, of all the renewable water available each year, only 4% is used given the shortage of infrastructure such as wells, canals, pumps, reservoirs and other irrigation systems that cost money to build but that are needed to make use of the potential water supply<sup>18</sup>.

Thus it is imperative for countries of the drylands to develop their water resources and achieve higher and sustainable yield levels of water that are fundamental for both economic production functions and for the sustainable functioning of the ecosystems. Water resources development may vary from the development of irrigation potential, hydroelectric generation, flood protection and catchment conservation.

The underdevelopment of water resources, mostly in the developing countries of the drylands, negatively affects the functioning of the ecosystems and most importantly food production. Africa<sup>19</sup> is the most affected where 70% of its people are engaged in agriculture, yet a third (1/3) of its people suffer from malnutrition. It is the largest food-deficit region in the world although worldwide, per-capita food production has increased by 20% since 1975. But in Africa food production *per-capita* has dropped by 10%, due to factors such as growth in population, droughts, under development of water resources and degradation of the land and the natural resource base in general.

***The goal is to promote the elaboration and adoption by 2018 in all countries of policies that enhance that guide the development of water resources.*** The promoted policies will :

- Be consistent with other sectoral policies and with national economic development policies and plans
- Enhance economic viability and sustainability of water resource development within the administrative and managerial capacity of the relevant institutions.
- To address issues of trans-boundary water development as an essential component in relation to international watercourses and in promoting regional co-operation and optimum utilisation of resources.
- To address the complexities and constrains associated with international conventions and guidelines on water management.
- To set out frameworks that will require action by many different organizations and individuals to achieve sustainable water resources development

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<sup>17</sup> Water used to dilute pollutants or as a transport mechanism to dispose of waste has a value to the polluter and, very possibly, a cost to other users.

<sup>18</sup> FAO 2006: State of Food Insecurity in the World,

<sup>19</sup> Sub-Saharan Africa has 13 percent of the population of the developing world — but 25 percent of the malnourished people. One of every three people in Sub-Saharan Africa suffers from malnutrition

<sup>20</sup> FAO 2006: State of Food Insecurity in the World,

- Mitigate pressures on valuable diverse water environment from continued economic growth, new human settlement development, irrigation of crops, as well as the potential future impacts of climate change.
- Enhance important decision-making at local and community level as they relate to national, sub-regional and regional decisions that affect the water resources development.

## VIII Water resources information management and monitoring

Water is one of the most precious natural resources. The availability of good information and data determine the ability to wisely manage water sources and reservoirs such as lakes, rivers, streams and groundwater sources. Effective information management and monitoring is a prerequisite for an effective policy development and implementation. Also, effective water policy formulation requires as prerequisite, the identification of critical data, establishment of data standards and the existence of necessary agreements that allow easy access and sharing of data. The assembled and available information and data should be accurate, usable and accessible for such purposes as creating maps, conducting geographic analysis, supporting decisions on water resources, etc.

The increasing focus on better water resources management in countries worldwide, necessarily requires the creation of improved water resources information management and monitoring systems. These should take into account numerous interrelated aspects of planning that simultaneously address issues such as supply and demand scenarios; land use conditions; groundwater and surface water resources and their interactions; water rights; reservoir operations; water management alternatives; stakeholder participation; infrastructures; economic and financial analysis; environmental constraints; and regulatory issues.

The UNCCD policy will promote effective water resources information management and monitoring that enable information sharing among agencies with a responsibility for water, provide leadership, and guidance in information management practices, promote development of data improvement solutions, architecture and standards and act as a focal point for water-related information. ***The goal is to enable countries to develop and adopt policies that facilitate the building of a wealthy and diverse system of data, information, knowledge and expertise relating directly or indirectly to water and aquatic ecosystems by 2018.*** Thus the policies will:

- Promote the developing and adopting of guidelines for the establishment and maintenance of an effective information management and monitoring system of water resources.
- Promote the building of water management database and make it available so that information can be distributed to all water-management players.
- Enhance the collection, collating, capturing and analysis the hydrological, meteorological, hydro-geological and other information.
- Address issues on payment for and access to information by other government departments, the public, external agencies and the governments of other countries.
- Encourage the building of information database on underground water resources.

- Increase awareness and knowledge among the citizenry and the various water-management players and water users to enhance the making of wiser uses of water and aquatic ecosystems.

## IX. Shared water systems and potential conflicts<sup>21</sup> management

Complex physical, political, and human interactions make the management of shared water systems especially difficult. Water flow ignores political and community boundaries. Upstream water uses affect downstream water supply, quality and quantity, creating potential conflicts of interest. Thus, water use decisions made in one place affect water use elsewhere. In shared water systems, water use decisions that affect access to and water allocation and use can become the focus of tensions. The tensions may potentially spill over into conflict, within or between states.

Already, more than 50 countries on five (5) continents might soon be caught up in water disputes unless they move quickly to establish agreements on how to share reservoirs, rivers, and underground water aquifers. Incidentally, the history of international water treaties dates as far back as 2500 BC, when the two Sumerian states of Lagash and Umma signed an agreement to end a water dispute along the Tigris<sup>22</sup>. In recent history, some 3,600 treaties relating to international water resources have been signed dating from AD 805 to 1984. India and Pakistan signed the Indus Water Treaty in 1960.

Violence over water, though not uncommon, is not a strategically rational, effective or economically viable option for countries. There have been 507 conflict-related events as opposed to 1228 cooperative ones, majority being weighted towards the latter in the total number of water-related interactions between nations. However, direct violent conflicts over water are most likely on a local level, for example, over the privatization of drinking water or access to a water point. On the international level, tensions between countries that share a river basin may hinder sustainable development – thus indirectly driving poverty, migration and social instability. They also have the potential to exacerbate other non-water-related violent conflicts, making imperative the establishment of agreements on how to share the available water resources

The UNCCD policy will seek to promote harmony among water users where potential conflicts exist such as between societal groups over access to a water point; or between the state and people that maybe affected by the construction of a dam, at the national level such as between different interest groups (farmers, industry, tourism, environmentalists) over the reallocation of water between these economic sectors and at international level, between upstream and downstream states over the use of shared rivers.

***The goal is to encourage countries to develop and adopt by 2018 relevant policies that support the forging of amicable arrangements and agreements at the relevant levels, The promoted policies will:***

- Recognize the linkages between various levels given that any intervention affecting one level needs to assess the potential impacts on the other levels.

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<sup>21</sup> Improving human wellbeing and sustaining the environment enhances the potential for peace and security.

<sup>22</sup> See Global Policy: <http://www.globalpolicy.org/security-council/dark-side-of-natural-resources/water-in-conflict/47877.html>

- Recognize political, demographic, socio-economic and cultural factors that determine whether tensions lead to conflict, notably where water-related conflicts have tended to be internal – between local groups, and not between states<sup>23</sup>.
- Support stakeholder dialogue and improved customary and formal governance to assist confidence building among societal groups over water resources (e.g. helping to allocate rights, resolve disputes and ensure equitable compensation).
- Use the mutual need to share water to help forge peaceful co-operation between societal groups especially where competing water needs have led to persistent tensions and have hampered development.
- Recognize all the relevant issues, including government policies in other sectors, in the event of negotiations with other countries sharing the same watercourse.
- Enable countries to work in their sub-regional trans-boundary water resources development and collaboration context where trans-boundary water policies are developed as separate but related activities to domestic water resource management policies.

## **X Institutional framework and governance**

Wise governance and utilization of vital water resources secure survival and prevent conflicts over access and right to water. Often the way in which water is governed and administered may lead to tensions rather than the actual lack of it. Whether water is scarce or not, the highly complex and sensitive nature of its availability, use, and allocation requires strong, capable mechanisms and institutions to negotiate and balance competing interests and to manage this vital resource. Sustainable water governance hinges on long-term, demand-side management.

The UNCCD policy will promote appropriate institutional arrangements and policies as a prerequisite for effective water governance, policies implementation, management and monitoring. ***The goal is to encourage countries to develop and adopt relevant policies that recognize the need for and establish new and/or strengthen existing institutional frameworks of the water sector by 2018.*** The policies will be designed:

- To clearly set out the roles of different levels of government ministries and departments, be they central or federal government, provincial or state government and local or municipal government.
- On the understanding that devolving appropriate responsibilities, authority and functions to the lowest possible level is a good practice that is most likely to result in sustainable development and management of the water resources.
- To clearly set out the roles of different tiers of government in relation to the setting of standards and norms and the powers of enforcement with the arrangements being consistent with the other government policies such as decentralisation.
- To provide clarity on fiscal and budgetary arrangements and inter-governmental transfers, subsidy schemes etc.
- To clarify the role of key stakeholders such as the private sector, public utility or parastatal organisations, universities, research institutes, professional and trade associations, NGOs, bi-lateral and multi-lateral aid agencies, international development agencies and development financing institutions.

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<sup>23</sup> Along with a multitude of other factors, the growing population, especially in the lower-income countries, contributes to pressures on scarce water resources and the quality of life, generating conflicts especially among the poorest communities.

- To enable organisations to function in terms of the sector policies and accountability, accessibility, transparency, and efficiency of public institutions and operate without undue bureaucracy will be sought.

## **XI. Human resource development**

Few communities or even developing countries are able to develop and improve their water resources totally, independent of external support. In most cases, initiatives beyond the capabilities of local communities and even whole societies are required to achieve fundamental and far-reaching improvements in water resources availability, accessibility and management. While the involvement of the local communities in making decisions and managing change bring along local knowledge and valuable expertise, there are rarely adequate skills or the resources required to achieve the scale of modification required, making it imperative to bring along external informed advice and educative measures to achieve positive change in human resources development and water resources management.

Access to external knowledge and experience on water resource conservation and management technologies contribute significantly to human resources development. The UNCCD policy will, promote building of required partnership opportunities between affected countries and development partners and international agencies, for financial support and specialist knowledge and skills that are the best assurance of successful human resources development intervention.

*The goal is to provide enable countries to formulate and adopt policies on human resource development that ensure that skills are established at country level to carry out necessary water resources and development and management functions by 2018.* The policies promoted will:

- Include factors that ensure the contribution of all financial and technical assistance to the growth of knowledge and experience of nationals through counter-part or similar arrangements.
- Consider that all aid agreements are consistent with the recipients' requirements to avoid ad-hoc capacity building activities that do not fit into any policy framework.
- Ensure maximum benefit from capacity building activities.

## **XII. Research and development**

The availability, accessibility and quality of water resources are vital to natural ecosystems, human health, and the world economies. Water research and development provides the scientific knowledge and tools needed to make regulatory decisions and policies on water availability, accessibility and quality and to address future environmental issues concerning water. Water research and development also enables the exchange of knowledge between different partner research initiatives and facilitate collaboration between them.

The aims, objectives and focus areas for research vary and they target thematic areas that offer potential benefits for water resources development and research collaboration as well as areas such as capacity development for water resources management. Water research and development provide sound scientific approaches for protecting and developing water sources, producing and distributing safe drinking water, managing health risks associated with exposure to waterborne contaminants, and promoting the safety and sustainability of water resources and water infrastructure.

The UNCCD policy will promote water research and development that provide the science to protect the quality and sustainability of water resources, control waterborne contaminants, understand and manage health risks associated with water resources, prevent and mitigate impacts of water distribution and storage systems on water quality and improve infrastructure reliability and sustainability.

***The goal is to enable countries to develop, adopt and put in place by 2018 policies that promote and guide adequate research and development in support of the water sector.*** The policies will include:

- The requirement for the establishment of an over-sight body made up of experts drawn from all sectors to guide research and development activities and recommend how research and development funding is spent.
- Targeted reasearch efforts that provide safe and clean water and
- The use of cutting-edge research to improve the safety, reliability, and sustainability of water supplies.

Water research and development will target three areas that include:

- Water Quality Protection Research
- Watershed Management Research
- Source Control Management Research

**Water Quality Protection Research will:**

- Provide research and expertise to inform the development and application of water quality criteria for protecting and restoring the biological, physical, and chemical integrity of water resources.
- Develop the knowledge to set criteria for the protection of human health and aquatic life by maintaining the water quality that supports the associated designated uses.
- Address concerns for health and aquatic life risks associated with pathogens, nutrients, and emerging contaminants exposures, either occurring separately or in combinations.

**Watershed Management Research will:**

- Provide research, tools, and expertise to diagnose and predict the causes of water quality impairment; and
- Select, apply, and evaluate the effectiveness of watershed management measures.
- Address water quality problems, when compared to regulation of individual pollutants, pollutant sources, or independent regulatory or non-regulatory program implementation.

**Source Control Management Research will<sup>24</sup>:**

- Provide expertise, research, and tools to characterize, control and manage sources of water quality impairment in water resources.

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<sup>24</sup> A “source” is any activity, facility, structure, or other anthropogenic influence that creates potential or actual degradation of water quality or aquatic/estuarine/marine ecosystems. Source Control and Management (SCM) is the direct or indirect change in the characteristics of a source to prevent, reduce, or eliminate its detrimental effects



### XIII. Public safety and disaster management

Floods, drought, cyclones, etc are potential disasters that require adequate public safety and disaster management measures. Hydrological structures such as dams and reservoirs are hazards that cause extensive damage to property and loss of life when they fail. Water reservoirs and networks should be designed and maintained to a high standard with effective public safety in mind. Effective public safety entails a comprehensive understanding of the range and magnitude of hazards that may be present and the ability of existing processes and infrastructure to manage actual or potential water risks.

While pools, lakes, ponds, rivers and beaches could mean summer fun and cool relief from hot weather, water can be dangerous if proper precautions are not taken. Thousands of kids die each year by drowning. Young children are especially vulnerable — they can drown in less than 2 inches (6 centimetres) of water. That means drowning can happen where it is least expected — the sink, the toilet bowl, fountains, buckets, inflatable pools, or small bodies of standing water such as ditches filled with rainwater.

Effective disaster management requires continuous preparedness by all individuals, groups, and communities in an effort to avoid or ameliorate the impact of disasters resulting from possible hazards. Actions taken depend in part on perceptions of risk of those exposed. The most effective means of consistently ensuring public safety is through the use of a comprehensive risk assessment and risk management in which effective strategies for control of hazards are planned and implemented. These can vary in complexity, as appropriate for the situation. Effective disaster management relies on thorough integration of emergency plans at all levels of government and non-government involvement. Activities at each level (individual, group, community) affect the other levels.

The UNCCD will promote policies that will focus on identified key hazards through supporting countries in developing and adopting policies that guide disaster management in times of cyclones, typhoons, hurricanes, droughts or floods. ***The goal is to enable countries to put in place appropriate policies that ensure public safety and protection from potential water related disasters by 2018.*** The promoted policies will:

- Consider licensing and approval measures, monitoring and regular safety checks and approval of operating rules among others.
- Clearly indicate who should bare the cost of professional fees, safety checks etc. required to comply with the regulations.
- Be required to cover a wide range of matters including disaster mitigation, early warning systems, crisis reaction and intervention, public awareness, institutional aspects, emergency powers, international assistance, security questions etc.
- Be tailored to make references to public safety and disaster management policies developed and adopted as separate policies to the water resource management policies taking care to ensure that policies are consistent.
- Consider all issues related to good practice assessment, risk management systems, as well as development and performance monitoring of solutions for water safety management and post disaster recovery with regard to both man made and natural disasters.
- Include preventive measures, early detection monitoring, vulnerability assessment, crisis management, public communication strategies, analytical capabilities, emergency response, as well as post disaster recovery strategies and reconstruction issues.

#### **XIV. Legislative implications**

It is imperative that the legal status of water and water rights are made clear at country level. Managing water resources is a huge task. It involves a range of legislation, initiatives and cooperative arrangements between the state and an array of national stakeholders. The legislative implications of the water policy are the achievement of sustainable and integrated management of the water resources for the benefit of both present and future generations. The policy enhances the statutory framework for managing water resources providing a comprehensive water legislation to guide water management activities.

The policy is based on the concept of ecologically sustainable development – development today that will not threaten the ability of future generations to meet their needs. ***The goal is to enable countries to identify in their policies existing legislation that may need to be amended, develop new legislation or regulations that may be required and adopt a programme for legislative reform.*** The policy recognises that:

- The fundamental health of water sources and reservoirs must be protected
- The management of water must be integrated with other natural resources such as vegetation, soils and land
- To be properly effective, water management must be a shared responsibility between the government and the local communities/population
- Water management decisions must involve consideration of environmental, social, economic, cultural and heritage aspects
- Social and economic benefits will result from the sustainable and efficient use of water
- There is need to ensure that the resultant legislations are enabling and developmental and promote good practice and creativity and not lead to undue control of the water sector.
- There is need to allocate and provide water for the environmental health of rivers and groundwater systems, while also providing users with more secure access to water.
- Sharing is the main tool for managing water resources, setting out the rules for the sharing of water in a particular water source between water users and the environment.

#### **XV. Strategic planning and implementation**

On their own, policies do not constitute development. The processes must lead to planning and implementation. The UNCCD will therefore promote the development and adoption of policies that provide a framework for planning and the integration of planning in the water sector with planning in other sectors. Formulated policies will provide guidance on how planning is carried out and will encourage participatory planning processes giving due recognition to macro-planning and economic development.

The UNCCD in its advocacy will emphasises on the need for countries to remain consistent in their policies within the water sector and the need for water management policies to be consistent with policies in other sectors. The envisaged implementation of the UNCCD policy will be undertaken in stages that take into account the administrative capacity of the governments. The UNCCD will remain cognisant of the fact that policies are dynamic and will need to be reviewed from time to time.

Given that the people are the stewards and managers of water and aquatic ecosystems, the governments will have the responsibility to chart the course required to improve water governance, both for its own actions and those of its citizens and partners. Countries will be encouraged to issue follow-up and evaluation reports periodically on their commitments after the adoption of their policies.

The task of government coordination will be entrusted to the appropriate government ministry that will oversee the implementation of the national water policies. The Ministry will also be urged to take responsibility for ensuring the consistency of all water-related government actions, throughout the course of policy development, program application, government committee participation, and international events likely to impact water and aquatic ecosystems. The responsible government ministry will furthermore, coordinate the development of the legal, economic, and administrative tools used to translate the national policy into practice, in accordance with the responsibilities and jurisdictions of the country's water management instruments.