



Examples of adaptation strategies in France

In agriculture, climate change demands the adoption of new strategies to match demand with the available supply of agricultural water (without abandoning responsible creation of new water reserves). It will be necessary to change the rain-based and irrigated crop systems (winter crops, early varieties for spring crops), seeding on plant cover or direct seeding without tilling the soil, etc.) and to improve the efficiency of agricultural water use through new and more economical practices.

In water services, water savings can be made by developing alternative resources (recycling of waste water, recovery of rain water, aquifer recharging, and desalination), prevention of leaks, and public information campaigns on water savings, renewing and improving the performance of sanitary and washing equipment.

Recommendations and solutions for immediate action

Defining adaptation plans specific to water in parallel with those in progress for sectors of activity already identified as being the most susceptible or threatened (agriculture, health, natural hazards, forests, energy, tourism, etc) is a necessity. Our recommendations are to:

- Promote the adoption of international, national and local adaptation plans;
- To integrate climate change into the projects design phase to make them more robust, but capable of adapting to climatic variations;
- To adapt crop systems to save water resources;
- To define plans for conservation and restoration of threatened species in line with the anticipated effects of climate change;
- To develop optimised management of the "small water cycle" by managing demand and recycling water at a level appropriate to the uses made of it;
- To reinforce systems for observation of the impact of climate change on water-related hazards, and adapt a prevention policy accordingly;
- To reinforce the alert systems, including overtopping scenarios for all new structures,
- To reinforce renewable energy production, in particular by developing hydro-electric potential, while taking account of the preservation of aquatic ecosystems;
- To reinforce public awareness and promote individual accountability;
- To develop studies into the cost / effectiveness / benefit ratio for the environment of developing water in agriculture.
- To reinforce research programmes into the local impact of climate change on water flows and ecosystems.

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COMMITTED TO WATER FOR THE WORLD.

WATER AND CLIMATE CHANGE: BETTER MANAGEMENT AND ADAPTATION!

Climate change will aggravate water scarcity owing to constantly rising demand :

- It is urgent to adopt water saving policies
- Adaptation plans are now required at all levels (international, national and local)
- Adaptation aid to developing countries must be a priority

The water sector is closely concerned by adaptation to climate change.

The potential effects of climate change are many and varied and will affect water availability, biodiversity, and the frequency and intensity of extreme meteorological events such as drought, flooding and cyclones.

Climate change would explain about 20% of the rise in water scarcity worldwide (source: World Water Development Report, Unesco, 2003).

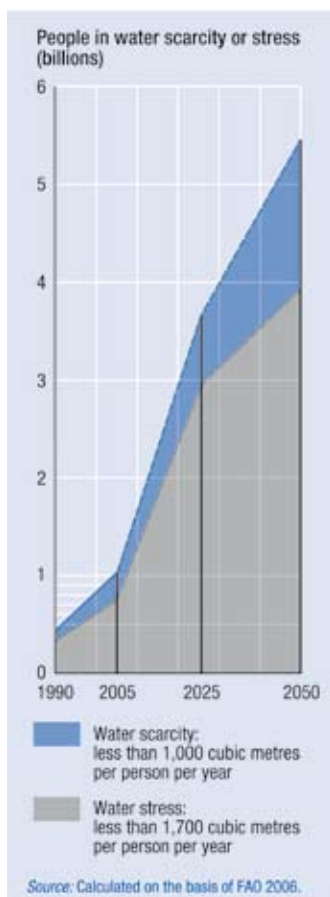
For many developing countries, major adaptation programmes entailing international support need to be undertaken.

Adaptation consists in taking early steps to limit the impact of climate change and the corresponding damage.



Climate change will aggravate water scarcity owing to constantly rising demand (demographic, urbanisation, changing lifestyles, irrigation, etc.)

Water stress and water shortages: a growing reality



Today, 700 million people in 43 countries, that is 9 % of the world's population, live in hydric stress contexts (defined as less than 1 700 m³ of fresh water per inhabitant)

By 2025, more than 3 billion of people, which is 38% of the world's population (estimated at 8 billion), could find themselves in countries affected by hydric stress. By 2080, an additional 1,8 billion people may be in regions where water has become rare. Already, many countries located in hydric-stressed regions, such as the Middle-East, are likely to suffer from water shortages.

(Source: United Nations Development Programme - UNDP report 2006/2007)

Adaptation in the developing countries

Under the terms of the Kyoto Protocol, France and the European Union supported the creation of the adaptation fund designed to finance climate change adaptation projects in the developing countries. The aim is now to use the fund in favour of the water sector (COP 15 Copenhagen 2009).

The expected projects can take a variety of forms: development of hydroelectric potential, improved use of water for agriculture, development and alternative resources in arid zones, water savings, energy recovery, and so on.

Adaptation to climate change in the developing countries, especially in Africa and the Mediterranean region, is a priority for French development aid, via the French Development Agency (AFD), the French Global Environment Fund (FGEF) and France's multilateral aid programmes.

French Global Environment Fund (FGEF) Project – Support for the creation of climate change vigilance systems in Africa (VigiRisc Afrique).

The contracting owner of this project is the African Centre of Meteorological Application for Development – ACMAD. It aims to reinforce the capacity of African countries to prevent hazards and socio-economic impacts in the face of growing climatic variability, by defining vigilance tools and services appropriate to the different sectors: food (rain-based agriculture, transhumance shepherding); rivers (Niger and Congo); health (epidemiology of malaria, meningitis, etc), storm surge and waves (Mauritania); extreme events (drought, flooding, intense rainfall, strong winds).

The impact of climate change in France

On water flows. Simulations of the future climate show changes in water flows which could lead to more severe low-water levels of numerous rivers, already rendered fragile by excessive abstraction, particularly in the south-west of France.

On agriculture. Changes are already being observed on the crop systems (flowering dates, crop altitude changes). In south-western France, where the water resource is already over-exploited with 85% of abstraction for agriculture, adaptation of the principal crop, which is irrigated maize, is now being mentioned.

On natural hazards. The intensity of the peak flow rates in the south-east of France will probably increase, as will the risk of flooding therefore. The risk of marine submersion and coastal erosion threatens a sensitive part of the French coastal zones and will have considerable repercussions in terms of financial cost.

On aquatic biodiversity. In Europe, more than half of the migratory fish species (salmon, sturgeon, shad, lamprey, etc.), already threatened by large-scale degradation of their habitats, will see their range shrink further by 2100 owing to warming of the water.

On drinking water and sanitation services. The management model will have to be adapted and optimised: securing production of drinking water and reducing the impact of rain events on the sanitation networks.

45 European cities – including Nantes Métropole and Grand Lyon – signed a joint declaration on climate change in Lyon, on 27 October 2008

Local authorities today account for 80% of greenhouse gas emissions and consume 75% of the planet's energy. They are demonstrating their commitment to combating climate change by taking measures in their traditional areas of expertise (waste treatment, water management, energy production, etc.) and by raising the awareness of the citizens. They are also in contact with the States and the European Union to obtain support for their approach against the backdrop of the forthcoming international negotiations (COP15 Copenhagen, 2009).