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Adaptation to climate change effects:

*« Integrated and sound water resources management at river basin level
is decisive to ensure their sustainability »*

Fresh water is essential to ensure life on Earth, as well as health and the socioeconomic progress of our societies.

Putting aside tsunamis, floods and droughts already cause each year more human lives losses and damages than any other natural risk.

Climate change, which cannot anymore be avoided, and whose effects are already felt in some areas, will worsen situations that are already dramatic.

Extreme meteorological events will increase, and floods and droughts will become more frequent and more intense, with considerable consequences on every sector, affecting entire economies and populations, particularly in less developed countries.

"If the green-house gases are responsible for climate change, fresh water is its first victim" and hydrological cycles will severely be modified in less than one generation from now: A rapid action would allow reducing costs and damages, but we should worry about the "no-action cost»!

Very extended regions of human occupation and economic activity will thus be seriously threatened, with significant risks of population displacement, climate refugees. We have to recognise that programs of adaptation to climate changes have to be urgently launched, among which water management is a key concern.

In regard to these issues, it is obvious that river basins are the natural territories where water flows, on surface as well as underground, regardless of national or administrative boundaries and limits being crossed.

Experience gained for more than fifty years in countries such as Spain or France, pioneers in the introduction of coordinated water resources management at river basin level, followed over the last twenty years by an increasing number of countries which have also integrated this dimension in their national water policies, such as Mexico, demonstrates that it is undoubtedly at the level of river basins, lakes and aquifers, whether they are local, national or transboundary, that necessary actions should be established and strengthened on the basis of a real solidarity between upstream and downstream.

Basin management and planning process is the more appropriate mechanism through which available water demand and resources could be adjusted on a long term basis, so as to avoid persistent shortage and to bring a clear response to the need for managing the increasing flood hazards in most regions of the world.

Protection against floods and their prevention must go through a coordinated approach, relying on "upstream-downstream" common interests, the sole allowing a coherent management of this major risk.

Facing floods and frequent droughts as well as pollution, we cannot go on reacting on a case-by-case basis, but on the contrary, we must coordinate our actions on a long term basis, and on each basin, solving structural problems which occur so as to prevent as well as possible the effects and to avoid the global degradation of water resources and aquatic environments, as they play an essential role in natural water retention : These aquatic ecosystems are not only an irreplaceable natural patrimony and a unique biodiversity reserve, but they are also "green infrastructures" playing a very efficient regulation role for water resources regulation and preservation, as well as self-purification of certain types of pollution.

It is useful to make a distinction between drought and scarcity: the latter being initially related to a permanent and structural imbalance between available resources and abstractions, and also to pollution, which prevents water reuse for multiple purposes.

It is essential to intensify efforts for better managing water demand and thus reducing pressures on resources especially during drought periods, particularly by diminishing abstractions for irrigation, which is creating most important pressures in many areas.

In some regions, it will be necessary to mobilize new resources, create reserves or even organise water transfers, but taking care to do so after having streamlined demands and only when environmentally acceptable and economically reasonable.

We must not forget the impact of the valorisation of water on its efficient use, especially during drought periods, and to set up systems to pay for services that optimize the most rational uses: It is possible to achieve a balance between supply and demand by changing habits and practices and by creating natural or artificial appropriate infrastructures.

Building new dams will not be enough without the implementation of water saving and recycling programs: Solutions will come through proactive water management coupled with sustained incentive measures for more rational uses facilitated by innovation and new technologies.

Water Scarcity Management Plans must prioritize (drinking water supply, cooling nuclear power and thermal power plants, ecological flow) and ensure equal and rational water sharing among various uses, as well as a better valorisation of water and avoiding wastage.

Water saving, leak detection, particularly those unacceptable within drinking water networks, recycling, reuse of treated water, groundwater recharge, seawater desalination, research of low-consumption uses, introducing hydric stress resistant varieties, must become priorities.

A new water management approach, based on the adhesion of all stakeholders within the basin, should be developed relating to the protection of water resources, its rational use and waste water management.

Obviously, main concerned stakeholders are first of all public authorities which must demonstrate a strong political will, drive the necessary reforms and ensure their continuous implementation in the medium and long term.

In a context of increasing pressure on water and soil resources, the importance of the agricultural component should be emphasized (irrigation is the first water consumer in the world) for which pursuing further the "business as usual" scenario would be irresponsible: farmers will be among the first victims on the supply fluctuations due to climate changes.

Feeding the world today and in the future implies an agriculture that is less water consuming and less sensitive to climate hazards in every country: It is thus recommended to support the implementation of improved water governance for agriculture and the development of educational systems, training and appropriate funding.

Nothing will be possible without a strong political will, but the involvement of all public and private stakeholders as well as the civil society should be organized so as to allow a real win-win mobilization : This participation is to be organized especially by Committees or Basin Councils.

Similarly, cooperation between riparian countries should be strengthened to ensure sound management of transboundary water bodies, 276 rivers, 156 lakes and more than 600 aquifers.

Integrated information systems on water, still often failing, are essential to gain the knowledge on the resources and their uses, polluting pressures, ecosystems and their functioning, to identify risks and monitor evolutions. These information systems should be used as an objective basis for dialogue, negotiation, decision-making and assessing the effectiveness of actions.

The same applies to the implementation of sustainable funding systems based on the "user-pays" and "polluter-pays" principles, necessary to meet the huge investment and operating costs to be faced.

Basin Organisations detain experience and expertise to actively contribute to necessary adaptation efforts, which they intend to share and make available to all countries and institutions that would intend to follow them in their efficient basin management approach.

Investing in water management at river basin level is profitable! This produces immediate benefits and also creates a social, economical and environmental resilience on a long-term basis.

Avoiding floods and droughts effects, fighting against wastages and pollutions, protecting aquatic ecosystems also allow poverty alleviation and ensure sustainable development: An unprecedented mobilisation is essential for Humanity to win this vital battle for water and thus ensure a better future.