



The Culture of Peace and UNESCO's Action in Member States

UNESCO'S INITIATIVE FOR THE ARAL SEA BASIN

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EXECUTIVE SUMMARY

The diminishing Sea is the most visible sign of the environmental disaster of the Aral Sea and its Basin. By now, the inland sea has lost half of its surface and two third of its volume. The lacustrine ecosystem ceased to exist, the wetlands heavily damaged, with serious consequences on economic activity and health. The loss of soil productivity is of immediate concern, with trends to aggravate the economic and social difficulties in the basin. The polluted water in the rivers, the sand storms from the contaminated soil increase health risks, particularly as good quality drinking water is lacking in large areas of the basin.

The actual problems are generated by the decisions to increase irrigated agriculture in the Basin, in order to produce cotton for the former Soviet Union. Hence, the irrigated area has grown to 7 million hectares, using practically the entire available flow of the two main rivers. The five states of the Aral Sea Basin now have to rehabilitate the environment, at the same time caring for the subsistence and progress of the ever increasing population. Sustainable water management is thus an imperative, to be supported by coordinated political action of all the states involved.

The scientific and technological aspects of the Aral Sea crisis are well documented, but the documentation must be made easily accessible and the awareness of both the public and decision makers about the environmental crisis must be enhanced by modern information tools and systems. As the science arm of the UN system, UNESCO is called to assist the scientific community of the region to assume their responsibilities and to encourage political decision makers to make the right decisions. Therefore, UNESCO initiates a Workshop for Water and Peace in the Aral Sea Basin, with the aim to instigate natural and social scientist and political decision makers for a creative dialog on how to address the crisis.

The essential approach of UNESCO consists in the encouragement of an optimistic, but also realistic vision of the future of the Aral Sea and its basin, a prospective which would contradict the pessimistic attitudes and lack of hope. At the same time, this vision should mobilize political will and scientific knowledge, with an accent on trans-disciplinary interaction of social and natural sciences. The UNESCO programmes IHP, MAB and MOST are well placed to foster such initiatives. The regional vision will fit into on the development of a Long-Term Vision for Water and the Environment, a world-wide UNESCO-executed action in the context of the Second World Water Forum, scheduled for the year 2000.

These two parallel but complementary actions - the Workshop for Water and Peace in the Aral Sea Basin, and the development of a regional vision for water, life and the environment, will represent both a propulsion to UNESCO initiatives in the Aral Sea Basin and the backbone of UNESCO's contribution in 1999 to resolving the Aral Sea crisis. In financial terms, a sum of USD 100,000 is allocated to support the planned activity in 1999.

The peoples of the Aral Sea Basin are now challenged to find the appropriate solutions for their pressing socio-economic, environmental and technical problems. Decision makers, scientists, agricultural managers, administrators, farmers and the representatives of all stakeholder groups, need to have the mandate to decide upon their own future, priorities and ways to achieve them. External assistance should strengthen the local human and institutional capacities, to facilitate their choices and to help the implementation.

PREAMBLE

Central Asia is at a turning point. It faces a deep economic, social and environmental crisis. To find a sustainable solution for this crisis is a humanitarian duty, an act of solidarity, but also a political necessity.

INTRODUCTION

The diminishing Aral Sea is the most outstanding symptom of a deep environmental and socio-economic crisis which has befallen the whole Aral Sea Basin due to four-decade-long unsustainable exploitation of land- and water resources.

From the 1950's onwards an accelerated extension of the irrigated area took place mainly for the production of cotton. This expansion of cotton production required the doubling of the total water withdrawal for irrigation. Thus the Aral Sea, in which two big rivers flow, receives today in the average less than 10% of the natural basin runoff. As a consequence, the Aral Sea is shrinking and the salinity of its water is increasing. The Aral Sea is disappearing within the time span of a single generation.

By now the lake has lost half of its surface and two thirds of its original volume. Along this process it became more salty than the ocean. Fisheries and navigation, the two main economic functions of the lake have become completely extinct, leading to an exodus of people living near the lake. The Aral Sea as a healthy ecosystem has gradually ceased to exist. The limited amount of water flow through the deltas lead to loss of valuable wetlands, degradation of the river bed and to desertification. Polluted return flows into the rivers damaged the ecosystem function considerably. Furthermore they aggravate the already serious public health situation of the population.

Beyond the highly visible problems in the immediate surroundings of the Aral Sea, the Aral Sea Basin as a whole is facing several looming environmental disasters. Floods, landslides, and earthquakes could trigger the release of unprecedented amount of water through breaches of natural and man made reservoirs. Heavy metals and other toxic substances from the retained residues of mining activities could spread their deadly impact through the entire basin. Climatic change and variability, diminishing glaciers, erosion, as well as changes in grazing patterns and the uncontrolled spread of human settlements in the mountains, all influence the availability and quality of the water.

CAUSES AND CONSEQUENCES OF THE PROBLEMS

The lack of appropriate drainage is not only hampering the economic and ecological recovery of the waters diverted into the irrigation areas, but it is directly responsible for the increasing salinization of irrigated soils. Moreover, especially in the past, an excessive use has been made of fertilisers and pesticides and the negative influence of this practice will remain noticeable in the soils for a long time. The inherent loss of soil fertility leads to diminishing productivity with the latent threat to disrupt agro-economic activities, to trigger a chain reaction of negative impacts on food security, social fabric and employment opportunities.

The root of the problem was the decision in the nineteen fifties to make Central Asia a major cotton producer for the Soviet Union. There were abundant water resources in the region; good soils, a perfect climate and relatively few people using the available water. The plans were developed and started to be implemented in the 60's. The scientists and engineers were aware of possible future socio-economic and environmental problems, including the shrinking of the Aral Sea and the salinization of the soils. However, it was firmly believed that the growing economy in the region and the progress in science and technology would make it possible to solve problems, if and when they emerged.

The reality turned out to be different. The population grew much more than foreseen, the economy in the eighties was much less strong than envisaged and the income from the cotton production were not used to offset the environmental and social problems the cotton development scheme was causing. In addition, in order to avoid long term investments, environmentally harmful practices were strengthened, such as over-use of water and of fertiliser and pesticides. The situation became even worse in the 90's. If « business as usual » continues the land will become totally unusable.

CULTURAL BACKGROUND AND ITS HISTORICAL PERSPECTIVE

Central Asia, geographically the Basin of the Aral Sea, is a site of rich cultural heritage of over 3500 years of human history. The great cities of Samarkand, Bukhara and Khiva were established at the end of the Middle Ages as extraordinary centres of intellectual achievements and artistic creation.

For more than 1500 years this area far from the oceans was the route along which merchandise and ideas flowed between China, India, Iran and Europe. Probably nowhere in the world is there so much ethnic and cultural variation as in this region. For century after century, the region experienced the influx of foreign art and ideas, colliding and merging with the original indigenous patterns of Central Asia. Migrations and the recurrent shock of military invasions, mingling and displacing peoples and cultures combined to maintain the vast region in flux.

The old civilisations were also based on irrigated agriculture. The water resources of the legendary rivers of Oxus (Amu Darya) and Jaxartes (Syr Darya) were and are the indispensable basis for it. These two rivers, flowing through Kazakhstan, Kyrgyzstan, Tadjikistan, Turkmenistan and Uzbekistan, feed the Aral Sea, one of the largest inland lakes on earth with neither natural nor artificial outflow.

CHALLENGES AHEAD

The five Central Asian Republics are now facing the difficult process of rehabilitating the environment and introduce new measures to enhance the sustainable use of their resources in a period of fundamental social economic and political transitions. The strategies of promoting a sound balance between environmental protection and resource utilisation compatible with population growth, migratory movements, social and economic development are not yet fully delineated. The difficulties faced in the process of social and economic transition are exacerbated by the present forecasts of population dynamics. It is expected that in the next century the population will almost double, to reach approximately 80 million inhabitants before it will

stabilise. The comparison of the needs of these people with the available water resources and their distribution between the Amu Darya and Syr Darya rivers already reveal the urgent need to find the appropriate forward looking solutions, parallel to the execution of immediate actions to contain toxic materials, to eliminate the widespread health risks, to combat the omnipresent salinity problems, to rectify agricultural policies and practices, to name but a few.

The new situation in the Basin calls for a modified framework within which effective principles and procedures should be developed for the sustainable management of water and other natural resources. Many technical solutions have been proposed and yet very little has been done so far compared to what might be warranted given the magnitude of the problems. The ongoing debate on options hardly went beyond an endless sequence of workshops dealing with various concepts. While these academic discussions indicate the interest of different scientific schools, it seems that the lesson is still to be learned that irrespective of whether scientists or farmers are considered, there is no change without a change in attitude. Local forces should take the lead in discerning the causes and propose solutions. This can be achieved only if natural scientists, social scientists and decision makers work out the solutions together, in joint efforts.

The scientific community of the Aral Sea region and beyond need to join forces, forming interdisciplinary teams of representatives of the natural, social and economic sciences, agriculture and technology, to seek partnership and dialogue with the political decision makers to develop a long term vision and to dare to venture beyond the laboratory scale, to implement their proposals in pilot projects testing their viability, thus providing the much expected policy relevant research results.

STEPS TO BE TAKEN

Whereas the future of the area is at stake, most of the actions, however, which have been conceived and executed so far, have concentrated on resolving pressing current problems. This emphasis on current needs has diverted the focus of interest from the future. There are several long term problems to be considered:

1. The technologies to improve water quality, the places where rehabilitation is needed the most are well known. It is estimated that 3 000.- US \$ per hectare irrigated land is needed to be invested to alleviate the worst salinity problems. Having roughly 7 million hectares under irrigation means that about 20 billion dollars are needed to stabilise the agricultural potential of the area without extending the arable or irrigated area. This 20 billion is about one seventh of the annual GDP of the Central Asian States. A firm political commitment is needed to solve this problem in time.
2. Both the Syr Darya and the Amu Darya are transboundary rivers. Formidable technical knowledge and organisational infrastructures are available, but the water sharing agreements are not implemented as effectively as needed. The first step is to concentrate efforts on efficient water use. It has been estimated that state-of-the-art irrigation technology, coupled with efficient operational river intake management, water delivery control and the careful selection of less water demanding crops and seed varieties could reduce water demand by at least 30%. The gradual achievement of this saving would ease the water stress and enhance the chance both for

agricultural restructuring and development. Here again the necessary investment is in the order of magnitude of billions of dollars. These measures must be introduced as vigorously as needed.

3. Even if the above problems were remedied, the primordial question concerning the future of the Aral Sea Basin would still remain unanswered. How can it be assured that the increasing water demands of the future generations will be met, once everything has been done to solve the resource management problems of the present from within the basin? It has to be added however, that the "native" water resources of the basin, even in case of a very efficient management would not be sufficient to undo the consequences of the unsustainable practices of previous decades. How to solve the problem in a sustainable way? Is it possible? The answer is yes, provided that there is the political will to solve a social problem, after studying carefully the environmental impact and the economic cost of the different proposals. Given the time frame for the perceived future needs and the technical implementation, it is time to view all options without taboos. An option should be kept open to discuss the possibility of interbasin water transfer, either in its real, physical form or that of the virtual water, as part of agricultural produce. It is to be seen as one possible future option, evaluating its social political, environmental and technical feasibility. By any ethical standard, once a recipient basin has exhausted all its options for a sustainable resource use, interbasin transfer might seriously be considered. As it is by an order of magnitude more expensive than solutions under 1. and 2., political considerations are even more important.

URGENCY OF A COMPREHENSIVE APPROACH

Today irrigated agriculture occupies 7 million hectares spread within several countries. That is about the size of the Netherlands and Belgium together. This predominant agricultural activity is expected to feed the 40 million people of the five Central Asian Countries, to produce cash crops and provide employment for a sizeable segment of the population. Irrigated agriculture is not only an important economic activity. It requires a high degree of co-operation and organisation of work and daily routines of the rural communities. Therefore it has deep rooted social and cultural implications both at local and at national scales. The flow of the Amu Darya and Syr Darya rivers would still be sufficient to irrigate the land actually under command, if state of the art irrigation and drainage technologies were applied.

The impact of almost forty years of accelerated unsustainable development cannot be undone overnight, irrespective of the available financial and intellectual resources. Since a lengthy phase of rehabilitation is ahead, nothing can be as damaging as delay and indecision. For the sake of public health, agricultural production, environment and ultimately social peace the appropriate measures countering the creeping salinization and productivity loss can not be postponed any longer without seriously risking irreversible changes to occur. No one wants to be remembered by the next generations as those who omitted the last chance to reverse the downward trend and allowed both irrigated agriculture and the Aral Sea to disappear. All efforts have to be made to avoid a social disaster to follow the environmental one. Rather, a long but steady process of dedicated work has to be conceived, the raising of public awareness, technical measures to go hand-in-hand with the evolution of a new attitude towards the environment, water and development, what was called at the First World Water Forum in Marrakech, in 1997, "a new water ethics".

A crisis should be interpreted in its original meaning: it is a turning point that requires to make choices, to decide, to break the endless cycle of lamenting. The world community has to strengthen the existing intellectual institutional and financial capabilities and readiness of the Central Asian Republics to master their problems and to create sustainable living conditions for all by re-establishing a dynamic ecological balance between man and nature. To work for a future of hope, the fulfilment of aspirations: a dignified life in peace and prosperity.

UNESCO'S ROLE

UNESCO is able to play an essential role in the area to contribute substantially to the creation of an enabling intellectual environment for natural and social scientists together with decision makers.

Since 1994, UNESCO is, with the support of the German Ministry of Science, assisting Central Asian scientists to continue their research in the deltas of the Aral Sea. 1998 marked an increased involvement of our organisation in the Aral Sea Basin. In January the UNESCO Scientific Advisory Board on the Aral Sea Basin (SABAS) was established. It held its first meeting in September of this year. Through the respective UNESCO National Commissions members of the scientific communities of the Central Asian Republics were invited advise UNESCO on Aral Sea Basin activities.

UNESCO's involvement in the Aral Sea Basin can be summarised in the following seven points:

1. Establishment of a partnership between scientists and decision makers of the region.
2. Assistance to the regional experts and decision makers to set the Aral Sea Basin rehabilitation and development activities into a framework of future oriented strategic vision spelling out the goals, achievement criteria, means, ways and techniques to implement them and specifying the respective financial needs and commitments.
3. Intellectual assistance to the most urgent core activities of rehabilitation, including combat of salinization, soil drainage, improvement of the efficiency of water use in the Basin, provision of safe drinking water, rehabilitation of river deltas and the stabilisation of the Aral Sea.
4. Assistance in educational and training activities, stimulation of research and guidance for effective public awareness raising for water and environment.
5. Assistance of negotiations over and implementation of equitable international water sharing agreements.
6. Reopening of the intellectual debate over the ecological economical, technical social and political feasibility of interbasin transfer of water from northbound Siberian rivers.
7. Creation of an enabling environment for the scientific community of the Aral Sea Basin to assert its proper influence and input into the above outlined process.

The first two points form the suggested thrust in 1999. Therefore they will be highlighted in the following subheadings. Points 3. and 4. are continuous assistance to potential donor and recipient partners. Point 5. could be activated once UNESCO is called upon to mediate. Points 6. and 7. are closely linked with the potential creation of a UNESCO International Aral Academy.

MEETING OF SCIENTISTS AND POLITICIANS

It is evident that the scientific knowledge and experience which is available in the region is the best possible intellectual basis to rely upon. UNESCO listens to the advice of those who are not only knowledgeable, but also involved and engaged both as citizens and scientists. Therefore UNESCO will invite the policy makers of the Central Asian Republics to meet the Scientific Advisory Board and other representatives of the regional and world scientific community to open a dialogue on water, peace and co-operation in the Basin. This dialogue is the starting point to adopt a future-oriented approach and partnership, to initiate the necessary change of attitude.

LONG TERM VISION FOR WATER, LIFE AND ENVIRONMENT

The history and current activities in the Aral Sea Basin testify that a long-term vision of water and environmental management is needed to guide day-to-day actions and planning. This vision should be developed by both natural and social scientist, experts and stakeholders of the region. Success of sustainable rehabilitation depends on whether decision makers and stakeholders assume the "ownership" of the ideas and ideals of a vision. The regional meeting of scientists and political decision makers in the Aral Sea Basin would trigger collaborative efforts for the long-term prospect and vision. It should be underlined, that this regional activity fits excellently with the current UNESCO-based project on the formulation of a Long-Term Vision for Water, Life and the Environment, to be presented at the Second World Water Forum, to be held in March 2000 in The Hague, The Netherlands.

The vision is to identify possible scenarios, to formulate goals, to derive feasible strategies how to achieve them, to project a coherent vision of prosperity and common destiny for peace between humans and between humankind and nature. All these objectives are pertinent to resolving the acute problems of the Aral Sea and its basin.

CONCLUSION

Central Asia is at the historical cross-roads of civilisations, the area where East met West, North met South and East met East. It is an area, shaped by its unique history, an area of incredible ethnic diversity, with proven record of its ability to resurrect itself. Now this microcosm of human coexistence and tolerance is itself at a cross-roads. The joint task of the World Community, political leaders, donor agencies and individuals alike is to assist these newly independent states to preserve their rich cultural heritage, ethnic diversity, tolerance, high educational standard and to find the sustainable way to develop their natural resources. The

Central Asian Republics have already created both the political basis through the joint declaration of the head of states in Nukus, January 1994, and the executive intergovernmental organ, the International Fund for Saving the Aral Sea (IFAS), as the co-ordinating and implementing agency of rehabilitation and development efforts.

The Aral Sea Basin can have a bright future. The action of the Governments and the support of the international community in the coming years will make the difference. By contributing to the joint efforts UNESCO can help substantially to achieve this.