

Towards an ESD National Action Plan

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WATER EDUCATION SESSION

Hydroaid's water activities for education and cooperation

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Hydroaid, Water for Development Management Institute, is a non-profit association dedicated to the cooperation and development whose operational tool is training. Amongst its Associated Members, Hydroaid includes public local authorities, water utilities, bank foundations, and academies. The Italian Ministry of Foreign Affairs participates to its Board of Directors and is the main donor in the cooperation activities. Hydroaid's branch of activities, as it is contained in its very name, is water and sanitation. The water resources are strategic to keep the quality and quantity standards of a society and represent – in many areas – a limiting factor to development. They cannot be set aside in a serious-minded economic planning, because of both the need of larger availability and the now indisputable requirement of preservation.

The cooperation action undertaken by Hydroaid is aimed at providing tangible support to development through training activities which stake on the technical and managerial skills of the individuals, as well as supporting the implementation of the management, planning and administrative structures in the local and central state public institutions. Hydroaid's cooperation method lies in involving the local authorities appointed to the governance of water and devising with them the steps required to harmonize the different perspectives of development, thus preventing the raising of tensions between states and/or activities in conditions of water scarcity. In other terms, establishing principles of solidarity at regional scale and shared criteria to develop a basin governance model which may identify the guidelines for the management and safeguard of the water resource through planning and environmental impact criteria; define the most appropriate activities for social and economic development taking into account the territory resources; coordinate the multiplicity of uses of water - which may even be in conflict - within the respect of the cultural and social differences; attain a highly efficient integrated water cycle to enable the recovery of the waste water in the

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recharging the water table; share new technologies and practices for the creation of “new water”.

Furthermore, Hydroaid’s activities foster the establishment of reconciliation conditions in areas of conflicts connected to the control of the water resource, favoring a “fair and reasonable use” through an integrated approach, also across the borders.

A leading technical element of Hydroaid’s activity is the focus on the singleness of the water system, which usually goes beyond the definition of the administrative and national borders. This is why also the adoption of management policies is to be shared, as well as the criteria, practices and methods on the whole territory. The above in order to ensure compensation, redistribution and programming in the use of the resources, as well as the harmonization of the conflicts between the different users. In other terms, one of Hydroaid’s priorities is encouraging the adoption of integrated management criteria at an appropriate scale to ensure sustainable development through a correct planning of the resources which shall then be managed by the local authorities on the territory.

Hydroaid has been developing its mission since 2002. Amongst its activities, the one which has accompanied the Association since its foundation, and which best identifies it is the core training curriculum «Post-graduate Program on Management of the Water Resources and Services », which has been offered every year to engineers and managers coming from emerging and developing countries.

In order to provide a clearer idea of what Hydroaid is and how it operates, I believe it appropriate to lead the reader through the description of our main activities to then characterize the Association in its main elements and extrapolate the instruments.

1- CASE STUDY: THE CORE COURSE

The objective of the Core Program is transferring the criteria and tools set up in our reality for a correct, efficient management of the water resources to the young professionals from developing countries. The curriculum includes general and specialist modules dedicated to the themes of integrated management at urban scale, water supply and sanitation and water management in agriculture. The program hosts every year in Turin, at the ITC ILO campus, some tens of participants (36 at the 2008 issue) for approximately 9 weeks. The courses are free of charge, and the main donor is the Italian Ministry of Foreign Affairs. For the pedagogical plans, Hydroaid resorts to the highest competences on the Italian and European territory, amongst whom academicians, experts of the public services and professional of private companies.

The experience accrued from 2002 to now in leading this program has allowed to define a pedagogical set up which – if we rely on the feedback received – seems to have met the planned objectives.

The main aim of the training program is enhancing the technical capacities of the local water services. This is achieved by training managers who – once back to their countries of origin – can play a decisive role in the modernization of the water systems, addressing the development strategies, the investments and management methods towards the most appropriate forms and most effective achievements with the aim of improving the supply, distribution and fruition of water.

Throughout the years, we have realized that the effectiveness in a transfer of know-how is closely linked to the modalities by which it is delivered as related to the

characteristics of the group of trainees. We have also appreciated the importance of keeping an active cooperative relationship with the participants after the course, thus offering a capillary, continuous technical reference point which may accompany them in their professional growth. Hence the establishment of the Hydroaid network, which is a characterizing element of the Association and of whose role we will define in detail further on.

The training curriculum was progressively and interactively refined with the final users. The experience accrued in the core program was then successfully transferred to other programs in Brazil and Sierra Leone. Progressive, since the passage from an initial training proposal - which included only one academic course, generally dedicated to the management of the water resources, to the three different specializations - was developed through subsequent stages, which were verified every time. Interactive, because of our understanding the expectations and needs of the beneficiary countries thanks to the strong cooperative support offered by the former participants to Hydroaid's network, which enabled to develop efficient pedagogic plans in the transfer of the knowledge, focusing on objectives of interest.

Thanks to the former participants and as a result of in-depth exchanges of opinions with the diplomatic representatives of the countries which have traditionally been the beneficiary of Hydroaid courses, we undertook a radical review of the core training course in Turin, which we believe responds now effectively to the needs of the beneficiary countries.

The review, which has been in progress since in 2006, started from the consideration that the keystone for development essentially lies in decisions of local policies and in the ability of managing the required changes they involve. This is why the training proposal addresses now engineers who develop their activities in close contact with policy-making and public management positions and offers all those tools –which are often missing in the developing countries – to appropriately plan and program the development, monitor and safeguard the water systems, implement the investment control policies. All this translates into a training offer of governance solutions for the water resources.

This first objective called for remarkable effort to organize – in pedagogic terms – a set of criteria and tools which are still closely linked to the individual experience of the operators and systemize the range of roles and competences of the systems which govern the environmental resources (i.e. water and soil) in a logic pathway. To do that, we referred to the Italian experiences deriving from laws 183/89, 152/99 and 36/94. In our country, these laws have marked a pathway in the reorganization of the water resource management and safeguard which was then developed through the adoption of European Directive 2000/60. The above laws have respectively established: the birth of the basin authorities, as territory institutions appointed to the defense of the soil and to the safeguard of the water resources; of the Optimal Water District, i.e. *Autorita' d'Ambito Ottimali (ATO)*, as a body appointed to the efficient, cost-effective management of the water services on the territory; the adoption of the safeguard plans as a direct tool for the governance of the water resources. Furthermore, the presentation of the review of their own systems and pursue objectives of effectiveness, efficiency and cost-effectiveness in the management of the water resources.

A second objective was tuning the transfer of know-how to the level of development of the beneficiary country so that the solutions proposed could find terms of effective revision and actual implementation in the short to medium term. One of the critical

issues detected in the first editions of the course was the heterogeneity of the class as related to the countries of origin (different infrastructure conditions and management systems). This determined that some topics were of utter interest for some trainees whilst – on the other hand – for others they were merely theoretical subjects because of the lack of infrastructural and management conditions in their countries for the practical implementation of the addresses supplied during the classes.

Hence the need of detecting priority topics and modalities for the transfer of experience relevant to the characteristics of the beneficiary countries. This has determined the need to distinguish the developing countries by their degree of infrastructural capacity, services and actual governance systems in the water sector. A first classification was enabled by the UNDP report 2006 which – in item “water, sanitary measures and supply” – distinguishes the development levels in the developing countries as high, medium and low. The set definition of the groups of countries occurred on the basis of the data made available by the network of former participants to the Hydroaid courses about the relevant country systems (see questionnaire enclosed).

The result was the proposal of a training program which offers three separate and parallel models of specialization, addressed to the three aforementioned development levels, namely:

1. Governance of the water systems and services;
2. Management of the water resources and use of water in agriculture;
3. Supply systems for drinking purposes and irrigation uses.

The first course is aimed at countries which are considered to have a high level of development (within the developing countries) and focuses on the effective, efficient and cost-effective management of the water services at urban scale. It deals with the issues of rapid demographic concentration at urban scale and offers criteria and tools for the implementation of integrated management principles.

The second course addresses countries whose level of development is classified as high and medium. The management terms of the water resources are dealt with at basin scale and the course analyzes the terms of satisfaction of the multiplicity of users of the same resources, which are autonomous and though not independent on one another, and often even in conflict. Special attention is paid to the use of water in agriculture and to the cost-effectiveness principles.

The third course addresses all those countries whose level of development is classified as low and deals with the main issues of water supply for drinking and agricultural uses.

As far as the technical aspects are concerned, the three modules deal with managerial issues, but address different management scales, respectively: district, basin and urban settlement. Such distinction reflects, in planning and programming terms, the capacity each country has to manage and safeguard its own environmental resources, including water, through more or less complex systems spread on the territory.

To date, Hydroaid's core program counts 197 former participants from Africa, Asia, Middle East, Latin America, the Balkans and Caucasus regions.

2- CASE STUDY: MASTER BRASILIA

The Inter-institution Cooperation between Brazil and Italy in *Saneamento Ambiental* (Hydroaid-Ministerio das Cidades bilateral agreement of cooperation has been signed

in 2005) is aimed at providing the *saneamento* sector in Brazil with a highly qualified technical reference framework, capable to formulate plans and manage – through an integrated approach – the cycles of both water and solid waste as a *unicum* within the urban reality. The training and *capacity building* project through which this objective was and is pursued is based upon interdisciplinarity and need of applying inter-sector tools to appropriately deal with the issues connected to the use of the public resources and of the relevant capacity of planning investments and actions in the sector.

The Latin American reality is woven with experiences of cooperation which were often born and developed around the deep historical, human, cultural, and also economic and industrial links which describe so well the relationships with Italy. Within this context, new sectors of cooperation have been identified, amongst which a significant role was committed to the *saneamento basico*, an essential item of respect for the life of the individuals and of the environment in which they set up their collective pathway, where any kind of action is due to produce long lasting effects.

The three different lines of activity stated in the Cooperation program represented the steps of a sole pathway aimed at strengthening the *governance* as related to *saneamento*.

More genuinely experimental project lines have contributed to the definition and implementation of both the model and the contents of the training activity, namely:

- Pilot project for the on-the-floor verification of new strategies for the quality control of the urban wastewater and storm waters in the towns of Recife, Santo André and Belo Horizonte, with the purpose of supplying useful significant indications for the improvement of the collection and flood storage of the urban stormwater. In this direction, guidelines of general validity for the urban centers of Brazil have been developed through the monitoring activities and then collected in a Manual on the urban draining systems, published by the Ministry of Township and available today to over 4,000 Brazilian municipalities. Furthermore, on the basis of the documentation collected by the experiments run and of the published Manual, a seminar was run in Brasilia, addressed to the federal representatives of the competent institutions, and 8 courses at regional scale – were held throughout the national territory of Brazil, with the participation of 203 attendants and an index of appreciation by 97% of the represented public institutions.

- Pilot project in the Brazilian state of Piauí for the implementation of a Regionalization Plan of the solid waste management services. This first experience has generated a technical exchange amongst some of the largest metropolitan areas of Brazil, for an action aimed at the promotion and consolidation of the consortium logic as related to the management of *saneamento* and solid waste in particular. Seminar meetings and technical visits to deepen the knowledge of the adopted management models have fostered a lively discussion at both national and international scale, thus confirming the value of the pathway undertaken, both for the relevance of the topic in Brazil (redefinition of the regulatory system, development of an articulated national plan of infrastructure modernization) as well as for the opportunity of an international debate where the Italian experience finds important spaces of valorization.

The above represents an outline of some of the experiences which have enabled to characterize the more explicitly training activity as a reliable comprehensive proposal.

The main activity of the cooperation, i.e. the Specialization Course in “Integrated management of the *Saneamento*” (which became a Master in 2007), has trained – since 2004 - 140 participants coming from all the geographic areas of Brazil, plus one participant from Cuba, one from Angola, one from Mozambique and one from Capo Verde. The *Master* collects the results of the experiments developed through pilot projects, translates them into pedagogic terms and sets as an effective tool for the training of trainers in terms of management of the water resources and waste in the urban environment.

Prevailingly aimed at engineers and public service officials of Latin America and Portuguese speaking countries of Africa, it involves a significant transfer of Italian know-how, mainly as related to the experience accrued in the sector of integrated and associated management of the services, as a result of the national regulations dictated by law 36/94, as well as by the assimilation of EU Directive 2000/60. The adopted training model, through subsequent in-depth analysis of the themes - related to each other through a multi-disciplinary approach integrated to environmental management - is characterized by a consistent exchange of information and themes connected to the management of the territory, between both the Italian and Brazilian trainers and the participants, which come from heterogeneous areas as related to the territory, the social, economic and cultural context.

Classroom teaching, debates, seminars and technical visits constitute the training pathway where the Italian and Brazilian teachers discuss on the experiences and issues of the territory.

The feedback expressed in the four subsequent editions of the master (by participants, trainers, coordination team) highlights the effectiveness of a pedagogic program where the principle of integrated sustainable management of the *saneamento* represents the pedagogic core which completes the technical, managerial, administrative and planning elements which were deepened throughout the curriculum of the master. The adopted training model, therefore, represents a concrete element of conjunction between a necessary speculative background and the equally required management skills, which are typical of the experience accrued “on the floor”, as the one of many of the course teachers is. This special nature of the master makes of it a precious experience for an actual upgrading of the professionalism of those who operate in *saneamento ambiental* and in the management of environmental services with public appointments and functions.

The very objectives of the master curriculum are focused in particular on the transversal approach which leads to the acquisition of a qualified technical background, aimed at the implementation of public policies for the environment, namely:

- deepening the capabilities of analysis and understanding natural processes of training and transformation of the bodies of water and of the changes introduced into the environment by the systems of usage and occupation of the urban soil;
- highlighting the challenges relevant to the needs of improving the hygienic and sanitary aspects, of environment sanitation, mainly as related to the recovery of the bodies of water, in a perspective of sustainability;
- introducing theoretical and practical elements of planning, programming and design as appropriate to improve the actions of *saneamento ambiental*;
- presenting the perspectives of multi-sector intervention, at regional scale, relevant to the planning, implementation and management of an integrated system;

- examining the interactions between the water supply systems, sewerage networks, urban drainage and waste treatment and the challenges set by the need of safeguarding the bodies of water;
- improving the techniques for the integrated management of the *saneamento* systems, mainly public water supply, sewerage networks, urban drainage and waste treatment.

The training curriculum used to meet the objectives is developed through a progressive deepening of the technical and management elements in order to provide the participants with the tools required to develop a proposed plan of *saneamento* applied to a typical urban reality. The dynamics adopted invite to discussion, thus soliciting the development of original models where the local issues are reviewed in the light of the solutions adopted in Italy and find inspiration from them.

Some elements connected to the nature of the Cooperation Program the master fits within contribute to its characterization. In particular, the direct joint participation of the partners to the different stages of the project has generated:

- high level of coherence between the pedagogic objectives set by the master and the expectations of the participants. From the impact assessment we developed, it appears that the program content of the course matches the training objectives of the managers and engineers of the public services, since they are based upon an integrated approach and a training-the-trainers methodology which can provide a multiplication effect in other local realities;
- significant original technical and pedagogic documentation which integrates the Italian experience to the Brazilian one in the thematic areas which are being dealt with. The contents of such material have a strongly innovative, highly flexible character: though different training formalities (refresher training, distance learning, regional courses for the training of the trainers), it enables and fosters a progressive increase in the number of beneficiaries, it ensures the project a profile of self-consistency and supports its sustainability;
- efficient institutional mechanism of direct cooperation to the training, which enables to replicate a consolidated model of result based management in broader, more diversified contexts.

3- CASE STUDY: E-LEARNING

In 2008, in order to valorize the lessons learnt during the direct training activities, a first E-learning package "Integrated water and urban waste management" was developed in portuguese, whose contents gather the Italian contribution to the master held in Brasilia. The e-course was attended by 70 participants among which managers and high officials of the Brazilian public administration, of Mozambique and Capo Verde.

The adopted approach conjugates the effectiveness of the model which has been experimented through the master to the particularities which are typical of the virtual communication environment.

In developing the distance learning course, special attention was paid to the coherence of contents as related to the purposes of the Cooperation, to the correct use of the pedagogic tool aimed at increasing the impact of the project and to the

definition of appropriate tools to ascertain the relevance of the training proposal, so that its aims are guaranteed.

The pedagogic terms on which the Italian participation was developed have constituted one of the founding principles of the distance module: during the EDP design, particular focus was dedicated to safeguard the element of exchange of experiences between the Italian and Brazilian teachers, between the trainers and the trainees and amongst the trainees themselves, who were coming from different territorial, economic, social and cultural realities. This element, which was characterizing the classroom teaching of the Master throughout its editions, together with the more appropriately technical and scientific aspects, constitutes one of the most significant values of the distance module.

The main purpose of distance learning, like the conventional courses, is the development of the basic theoretical aspects to set up an integrated sustainable vision in the management of water and waste in an urban environment. The course illustrates topics of technical, management, administration and planning nature extracted from the experience accrued in both Brazil and in Italy as related to the planning and management of water resources and solid waste.

The pedagogic modalities used shall enable the students to develop a critical comparison between the realities of the two countries and develop the progressively acquired know-how basis in an analytical, proposal-oriented key. The distance learning is delivered through the Moodle open source platform.

In 2009 a second distance learning module has been developed “Advanced course on waste water and sanitation”. The course, focused on some engineering subjects of utmost importance such as water and waste management, was proposed to 60 participants from all over the world: Africa, Central Asia, South East Asia, Middle East. The course was run in English.

Nowadays we are developing a new e-module on waste recycling to meet one of the most important problem for the sustainability of a globalised world. The e-course on recycling will be on line next spring.

THE HYDROAID NET

A distinct characteristic of Hydroaid is the network made by all the former students of the training programs, of which Hydroaid represents the core element. The network is a tangible element of cooperation and offers capillary continuous technical support. It is developed through virtual communication tools and cooperates - through South-to-South operations - to the implementation of local projects (another type of Hydroaid's cooperation). The network fulfills the *continuum* between Hydroaid and the beneficiary subjects, acting therefore almost as a virtual office spread throughout the world, which can activate at any time. The network cooperates to the central office in the definition of plans of activities in defined countries (e.g. Sierra Leone, which we are about to activate) and – in a perspective of solidarity – makes available its own resources in the pursuit of the objectives. The cooperation of the network is for Hydroaid an extremely precious tool both for the access to the information and the capacity to operate in difficult contexts. Hydroaid's network currently counts 200 expert engineers spread in Africa, Central Asia, South-East Africa and Middle East. Other 300 engineers belong to the South-American and Brazilian network, thanks to

the cooperation programs developed with the Brazilian *Ministerio das Cidades* since 2005.

RECOMMENDATION

On the basis of our experiences, we believe it worth highlighting the items hereinunder as elements of success, of Hydroaid's activities

- 1- Cooperating with the beneficiary countries to the development programs for the sharing of the objectives, thus fostering the participatory involvement of the local authorities ;
- 2- Encouraging elements of South-to-South cooperation as an effective tool of cultural mediation and taking of responsibility in the regional development process.
- 3- In the development of the training programs, integrating the experiences coming from abroad to the local ones in order to stimulate a process of critical discussion which may start a cultural review of the management systems.
- 4- Developing elements of continuity in the professional cooperation with the network of formal students of the beneficiary countries in order to provide a consistent reference point and fostering the creation of a shared technical culture for the solution of the global issues.

CONCLUSION

Hydroaid favors the adoption of a shared technical culture for the solution of global issues related to water, trusting that the local actions are to be coordinated and dealt with at the appropriate scale. Though its training proposal, Hydroaid works side by side with the local authorities of the developing countries in the process of reviewing their own systems and provide elements for the management of the required changes. It also offers terms of critical comparison between management models by pointing out criteria which lead to the effective, efficient and cost-effective management of the water services. To this purpose, Hydroaid integrates the exquisitely technical themes related to water to administrative and legislative elements to fill the frequent instrumental gap in the management systems of the developing countries. Particular attention is also dedicated to the protection and safeguard of the water resources and to sanitation. The tools adopted are essentially educational and capacity building. A distinctive element of Hydroaid is the international network it resorts to as an environment of cultural processing for the establishment of a shared technical culture of water, which may facilitate global scale actions.

THANKS and for more info

www.hydroaid.it