ACCESS TO WATER AND THE NEXUS WITH FOOD, ENERGY AND LAND: THEMES AND INDICATORS FOR THE POST2015 GLOBAL DEVELOPMENT AGENDA

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Scholars and practitioners are currently discussing new sets of water goals, targets and indicators in order to contribute to the definition of the post 2015 global development agenda and the UN Sustainable Development Goals. The panel aimed at contributing to this debate, addressing future scenarios on access to water and on water resources management, and advancing proposals on themes, goals, and processes to be included within the post 2015 global development agenda. The panel adopted a multidisciplinary approach (involving lawyers, political scientists, geographers, engineers, geologists, agronomists and planners), highlighting the interaction between the technical aspects and the socio-political dimensions of access to water and water resources management.

Water policies negotiation, both at global and at local level, should be understood and assessed in the context of two main – and sometimes competing – trends. On one side the growing consensus registered in international fora around the framework of "the water, food and energy nexus" – sometimes explicitly including within this nexus also "land" or "climate change". This approach highlights the interdependence of water, energy and food security and the natural resources that underpin that security, such as land. While this trend might offer a coherent framework to address in a comprehensive way sustainability issues, some have pointed at the risk of securitizing water issues. Moreover the approach underpinning the nexus remains firmly anchored in the modernist perspective representing water apart from its socio-cultural context and reducing it to the mere H2O resource.

On the other side, social movements, local authorities representatives and scholars are increasingly framing water issues in terms of human rights and the commons. The trend emerged firstly as a reaction to processes of privatisation of water supply services, particularly in urban contexts, both in high-income and low-income countries. From reclaiming public water, these positions have been further articulated in order to highlight the plurality of water's meanings, its cultural, social and political dimensions. This trend has been described in terms of "water re-socialisation" or "hydrosocial renewal". It contributes to highlight the moral economies of water, i.e. the sets of moral norms and obligations expressing popular perceptions of legitimacy and justice in relation to collective wellbeing, economic transactions and the role of institutions in water resource management. These claims cannot be overlooked in the definition of future global and local water policies that aspire to be morally and politically legitimate in the eyes of citizens and public opinions.

Bearing in mind this background, the papers presented in the panel addressed the broader issues of power relations in water management, the role of scientific knowledge in shaping these relations and the institutional frameworks that might mitigate conflicts or inequalities in access to water and water resources management.

Massimo Zortea (University of Trento – UNESCO Chair in Engineering for Human and Sustainable Development) presented a paper on "Environmental mainstreaming and integrated policies in development cooperation after Rio+20: the emblematic case of water and food". He highlighted how environmental mainstreaming represents an effective tool of science-policy interface about water-ground-climate-biodiversity-food sovereignty serving the post 2015 development agenda. Zortea delineated and advocated for concrete actions in order to promote environmental mainstreaming in water and food policies, focusing in particular on the driving role that universities should play in these processes.

Michela Miletto (UNESCO World Water Assessment Programme- WWAP) introduced the mission and the work of UNESCO-WWAP Office, presenting the theme of next World Water Development Report, focusing on "Water and Energy" and calling to CUCS scholars and universities to contribute to the future Reports and more in general to UNESCO-WWAP activities. Following, Francesca Greco (UNESCO-WWAP) presented a contribution on "Water and the post 2015 indicators: a research proposal for gender disaggregated indicators in water monitoring assessment and reporting". Greco reviewed the main efforts undertaken within the UN system in order to mainstream gender issues and indicators in development policies. She further presented the efforts of UNESCO WWAP in order to promote the use of gender-disaggregated indicators in the framing of monitoring mechanisms on water related UN Sustainable Development Goals.

Guido Minucci (Polytechnic of Milan, Department of Architecture and Urban Planning) focused on water challenges in the context of increasing trends of urbanisations, presenting a paper on "Fostering adaptive capacity of water institutions to face future environmental changes in an urbanised world". By presenting the case of quinoa cropping in the Southern Bolivian Altiplano, Minucci illustrated, on one side, the growing interdependencies between urban and rural areas and the cross scale trade-offs related to the rapid globalization process. On the other side, he pointed at the need to reform water institutions in order to foster adaptive capacity and face unexpected, current, and future water problems. He also emphasized the opportunity to examine how local water institutions facilitate or constrain adaptive capacity to face future issues and to critically assess the vulnerabilities resulting from consumption

chains and urban demands.

Giorgio Cancelliere (Director of the Master on water resources management in International Cooperation - Università di Milano Bicocca) and Italo Rizzi (Director of the Ngo LVIA – Lay Volunteers International Association) acted as discussants of the three papers presented. They contributed to the debate from the perspective of practitioners involved in applied research to international development cooperation as well as in the implementation of water and sanitation projects in Africa, Latin America and the Middle East. Cancelliere and Rizzi agreed on the need to foster coordination at the national level between different actors (the Ministry of Foreign Affairs, NGOs, universities) in order to elaborate an Italian strategy on water for development, rather than merely delegating water policies definition and implementation to multilateral institutions, as it has been in the past. The aspiration to continue the debate beyond the panel and to carry on joint researches and initiatives was confirmed by the worm reception by the participants of the proposal to create a thematic group working on water issues within the CUCS in close partnership with UNESCO-WWAP. This confirmed the catalyst role that water, as inherently "relational resource", could play in facilitating the bridging of disciplines and institutional boundaries.

ENVIRONMENTAL MAINSTREAMING AND INTEGRATED POLICIES IN DEVELOPMENT COOPERATION AFTER RIO+20: THE EMBLEMATIC CASE OF WATER AND FOOD

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ABSTRACT

The goal of this paper is reflecting, shortly but with the comfort of links to more comprehensive literature, on how the environmental integration represents an effective tool of science-policy interface about water-ground-climate-biodiversity-food sovereignty serving the post 2015 development agenda, also examining in brief the trends of main International Cooperation actors and drawing a possible role of universities.

Environmental Mainstreaming – i.e. a transversal and inter-sectoral inclusion of environmental conservation and of the opportunities offered by environment in all development policies and in project approach to development – has become a theme with pressing actuality: the challenges set by the more and more evident crisis of development sustainability, particularly environmental, are by now urgent. The dramatic theme of denied access to water and food perhaps is the most symbolic expression of such crisis.

U.N. System (Rio Conventions), OECD-DAC, European Commission, Development Cooperation national agencies: by now all promote an ample integration of environment in all their sectoral policies and initiatives, as main path to the goal of sustainable development.

A strategic reaction to demand for sustainable development – especially in the more mature vision emerging in post Rio+20 International Cooperation and post 2015 development agenda scenarios – requires a systematic integration of environmental sustainability into development processes as promoted at the international level. Universities are called to a decisive driving role.

INTRODUCTION

Global environmental crisis has become a reality evident even for the most sceptic consciences. The water crisis is just one of its most remarkable expressions, perhaps the most symbolic, although it rarely conquers front pages of newspapers neither it still mobilizes a suitable international action, unlike wars and natural catastrophes. After all, like hunger, deprivation in access to water is a silent crisis lived by the poor and tolerated from holders of resources, technology and political power to stop it.

Global environmental crisis is a threat to human and sustainable development but fortunately the awareness on this concept is growing. Thus it's opportune to explore its bases with a positive approach, in order to understand whether to embank it and rather to reverse the route, by protecting and valorizing environment in an innovative way in comparison to past experiences. Alfredo Guillet argues, with his usual acumen: *"if Stockholm Conference in 1972 for the first time raises the awareness that protection of Earth natural resources is a matter of paramount importance for peace and socio-economic development, twenty years later, Rio Conference brings to a same table both development cooperation world and environmental conservation world. And it does this, by making explicit the idea that, although daily priorities must converge on starving child and not on forest conservation, it is also true that tomorrow it won't be possible anymore to save that child if we don't allow that forest to keep on furnishing the food to feed him or the firewood to heat him. That concept thrills all participants to the Conference. Then, besides, instead of producing a structured tool, able to combine the different souls of environment-development binomial, that process gives birth to a series of Conventions and sectoral fora, losing its sight on unitary integrative original concept. In such context, against integration of environment with development, different plots emerge, behind every convention and forum, tailored by several political, industrial and commercial lobbies"* [13: 11].

So that some driving themes of the present reflection are: the deep need to integrate and to make synergic development and environmental protection/exploitation policies; the great institutional and operational fragmentation; the contradictory and conflicting polarities, tied up with particular stakes. The conclusion we intend to reach can be summed up in two leading theses: first, the health of the environment is linked in double way with poverty and human development, because degradation and environmental over-exploitation produce poverty but also viceversa the latter produces or contributes to the first; second, in order to to reverse this vicious circle, a specific attention to environmental profiles, in transversal and capillary way, is required to be entered into all policies and interventions for fighting poverty and promoting development, not only into those with specific environmental content.

By now the biunique causal chain among environmental degradation and poverty is blatant and universally

recognized. Almost a billion people, in particular the poor of rural zones, directly rely on natural resources for their livelihoods. But global environmental threats are wearing out that base of resources: biodiversity loss proceeds with a rapid rate in many countries, like the increase of toxic chemical substances; desertification and drought are problems with global dimensions, that strike all the regions; greenhouse gas emissions expose world climate to risks and Developing Countries are the most vulnerable to the impacts (see OECD [9]). Although all the countries are struck, the poor are the most threatened, because they have less resources to face the radical causes of environmental threats and to adapt its impacts; besides because they are highly depending on the natural resources for their livelihoods. Similar environmental threats have impacts on rural livelihoods, food security and health, while they are multiplying the effect of natural disasters as floods and droughts. Such vulnerability risks to intensify the conflicts for land and water resources and to jeopardize all the efforts to reduce poverty: poverty reduction is therefore tightly correlated to a suitable environmental management, conducted at all levels: local, national, continental and global. All environmental upsettings in progress can affect the ability of ecosystems to support livelihoods and, overall, at a scale that crosses national borders of States and ignores all the differences between juridical regimes, cultures, languages etc.

The driving factors underpinning global environmental threats are manifold and variegated over time and space. The greatest pressures are made, separately and more often with inter-action variedly combined, by these components: over-exploitation for excessive fishing, pasture and intensive cultivation etc.; conversion of forests, grasslands and wetlands still intact to artificial uses, for agriculture, industry or urban setups; fragmentation of natural areas once upon a time interconnected, with increase of their vulnerability; uncontrolled introduction of alien invasive species, that conducts to extinction the autochthonous ones. On the other hand, these direct components are referable in their turn to a number of deep causes, such as rapid growth of population, increasing consumptions, absence of market systems or defects of markets, defeating public policies, weak institutional abilities, use of inappropriate or obsolete technologies etc. In conclusion, climate change, biodiversity loss and desertification are deeply connected to human well-being and poverty, in all of its components and expressions, making much more difficult the already arduous challenge of international cooperation to satisfy the priority demands for development.

On this theme let's forward to the numerous works of E. W. Barbier, particularly: Capitalizing on Nature. Ecosystems as Natural Assets [1] and the very recent A Blueprint for a Green Economy [2]. Barbier, generous as usual with data and comparisons, underlines among other that big part of poor population keep on living in disadvantaged areas of Developing Countries, i.e. fragile: is has been estimated that from 1950 to today population living in such areas doubled. Moreover he notes a persistent poverty, even though reduced in percentage, in the countries that have seen ample part of their population going out of the threshold of poverty but that show a constant environmental degradation: typical it is the case of China; despite the strong economic growth and the general reduction of poverty, it sees withstanding a consistent pocket of rural poverty, concentrated in relatively poor agricultural western and south-western zones and in the hilly and mountainous zones: the poor Chinese living in mountains have grown from less than 1/3 in 1988 to the majority in 1995, like approximately Mexican poor.

Therefore, to take seriously and to face this mutual and biunique causal chain between environmental degradation and poverty is necessary. In order to reverse that vicious circle it will be enough, according to L.R. Brown [3], a financial investment absolutely within governments' reach, that he calculated in 185 millions annual dollars, of which 75 for poverty eradication and 110 for environmental restorations; it corresponds to invest in such new frontier of global security 12% of world military expenses and 28% of American ones in 2009.

Several studies speak openly of scarcity civilisation, characterized by the raise of environmental conflicts more and more deep, in a typically post-industrial context, for control and distribution of natural resources: starting from water resources, the so-called blue gold in XXI Century. The increasing insufficiency of resources, tied up with the growth of consumptions and with their progressive exhaustion, produces shortage and iniquitous distribution, projected both in the space and in the time: in some zones for privilege of others and in damage of future generations for excess of greed by the present one. The World Economic Forum ranks the risk from water crisis as the greatest global risk in 2013. In fact, according to a recent paper of CBD [4], 884 million people (the 12.5% of global population) live without access to drinkable water, while 2,5 million people (40% of population) lack suitable sanitation; while, paradoxically, the risks correlated to floods count for the 90% of the risks from natural disasters, keeping in mind that from 1970 over 7.000 natural disasters have caused damages for 2.000 billion dollars and just in 2010 natural disasters have killed more than 296.800 people and affected almost 208 million people, causing some 110 billion dollars damages.

Removing and displacing the effects of exhaustion and environmental degradation – sometimes for mere indifference or ignorance, sometimes for deliberate and meticulous hiding – represent the constant of this beginning of millennium. First of all, those effects are hidden by exporting pollution, wastes *in primis*, toward States less careful to environmental matrixes quality. But such hiding is dangerous even when is due to missed perception of indirect environmental costs, contained in all products and services, often very high in comparison to market prices. In International Cooperation context, these aspects are still more evident and they put a pressing question of equity, both geographical and generational. The dilemma has a nature moral and economic at the same time: in other words, even if the theme doesn't concern for ethical tolerability, it must do it for economic sustainability though.

An useful answer is the political and technical approach of Environmental Mainstreaming, that can be defined as "*complex of ideas, principles and actions directed to make to know, to keep in mind, to pursue and/or to guarantee, in transversal and penetrating way, as goal but also as tool, the environmental protection in all human activities, of any type and in any field, at every institutional and operational level as well as at whatever scale, local, national and*

global, with multi-disciplinary and inter-disciplinary approach" [13: 59].

VISION: INTERNATIONAL COMMUNITY ON ENVIRONMENTAL MAINSTREAMING, WATER, FOOD

Both wide part of the most recent International Environmental Law (water subject is significant, not by chance, particularly the Helsinki Convention 1992 and London 1999 and Kiev 2003 Protocols), and the institutional framework in which methodology and culture of Environmental Mainstreaming have grown are certainly permeated by the Environmental Mainstreaming approach.

In ONU area, 1972 Stockholm Declaration deserve to be mentioned, especially these excerpts:

4. Man has a special responsibility to safeguard and wisely manage the heritage of wildlife and its habitat, which are now gravely imperilled by a combination of adverse factors. Nature conservation, including wildlife, must therefore receive importance in planning for economic development.

9. Environmental deficiencies generated by the conditions of under-development and natural disasters pose grave problems and can best be remedied by accelerated development through the transfer of substantial quantities of financial and technological assistance as a supplement to the domestic effort of the developing countries and such timely assistance as may be required.

19. Education in environmental matters, for the younger generation as well as adults, giving due consideration to the underprivileged, is essential […].

From 1992 Rio de Janeiro Declaration:

Principle 4. In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.

Principle 7. States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.

From 2000 Millennium Declaration, these excerpts are worthy of note for this paper's purposes:

21. We must spare no effort to free all of humanity, and above all our children and grandchildren, from the threat of living on a planet irredeemably spoilt by human activities, and whose resources would no longer be sufficient for their needs.

23. We resolve therefore to adopt in all our environmental actions a new ethic of conservation and stewardship and, as first steps, we resolve: […] to stop the unsustainable exploitation of water resources by developing water management strategies at the regional, national and local levels, which promote both equitable access and adequate supplies.

2012 Rio+20 Declaration, taking back themes and visions already emerged shortly in Johannesburg Declaration 2002, with its 283 paragraphs is a mine of cues; let's limits to extrapolate the followings:

2. Eradicating poverty is the greatest global challenge facing the world today and an indispensable requirement for sustainable development. In this regard we are committed to free humanity from poverty and hunger as a matter of urgency.

3. We therefore acknowledge the need to further mainstream sustainable development at all levels integrating economic, social and environmental aspects and recognizing their inter-linkages, so as to achieve sustainable development in all its dimensions.

30. We recognize that many people, especially the poor, depend directly on ecosystems for their livelihoods, their economic, social and physical well-being, and their cultural heritage. For this reason, it is essential to generate decent jobs and incomes that decrease disparities in standards of living to better meet people's needs and promote sustainable livelihoods and practices and the sustainable use of natural resources and ecosystems.

75. […] The institutional framework for sustainable development should integrate the three dimensions of sustainable development in a balanced manner and enhance implementation by, inter alia, strengthening coherence, coordination, avoiding duplication of efforts and reviewing progress in implementing sustainable development. […]

87. We reaffirm the need to strengthen international environmental governance within the context of the institutional framework for sustainable development, in order to promote a balanced integration of the economic, social and environmental dimensions of sustainable development as well as coordination within the UN system.

Expressively in matter of water and sanitation:

119. We recognize that water is at the core of sustainable development as it is closely linked to a number of key global challenges. We therefore reiterate the importance of integrating water in sustainable development and underline the critical importance of water and sanitation within the three dimensions of sustainable development (then the theme is being developed in paragraphs 120 to 124; likewise significant: par. 158 to 177, on oceans and seas, particularly 174 for explicit references to *mainstreaming*; worthy of mention even par. 188, on disasters risk reduction, and 190, climate change impacts on development).

Links between Environmental Mainstreaming and MDGs (Millennium Development Goals) are even more interesting, especially in their evolution in SDGs (Sustainable Development Goals) in post 2015 scenario, at length treated by the Declaration: see paragraphs 245 to 251.

Environmental Mainstreaming, after all, is a clear concern also for OECD-DAC, given that it has devoted several studies and publications to that theme and it declares: "Integrating environmental concerns in poverty reduction strategies and other national planning processes is a priority" [9: 10].

It is also well-known the general position of European Union in that theme and the decisive contribution engraved by the so-called Process of Cardiff: European Council in Cardiff on June 1998, favorably welcoming the communication by Commission on the strategy of integrating environmental considerations into European Union policies, approved the principle that prominent political proposals must be accompanied by an evaluation of their environmental impact. In that wake, also the following acts deserve a mention: the decision of European Parliament and Council n. 2179/98/CE (it called for a reinforcement of the role of Community in International Cooperation in matter of environment and sustainable development; the ground strategy was identified in realizing the complete integration of environmental policies with the other policies, including development policy); the Regulation CE of European Parliament and Council n. 2493/2000 (containing measures directed to promote the total integration of environmental dimension in development process of Developing Countries); the Conclusions of European Council on integration of environment in Development Cooperation 25.06.2009.

At last, the position of Italian Development Cooperation demands brief references. The Italian case offers an interesting example: the Environmental Guidelines - *Linee Guida Ambiente* of MAE-DGCS were definitively adopted on 2011, December and were elaborated through a participatory process, with an effective involvement also of civil society and scientific-academic community representatives, lasted around three years. Italian Cooperation, Guidelines state, "*respecting transversal nature of environmental theme, promotes the integration of environment in all of its sectoral initiatives as principal means for the attainment of the goal of Sustainable Development"* ([8: 5]; for ample references to everything above and to further experiences of other cooperation agencies, see Zortea [13], passim).

MISSION: ENVIRONMENTAL MAINSTREAMING AND INTERNATIONAL COOPERATION

Beginning from this vision, it is opportune trying to understand what's International Cooperation's mission with reference to the challenges of sustainable development and of environmental threats and how can be implemented.

If present challenges and future scenarios, as it's been mentioned, are global and transversal, according to their own nature, then a capacity of analysis, synthesis and action as much global and transversal. In other words, what technically is denominated Mainstreaming Approach it's required, especially in environmental field: i.e. a cross-sectoral attitude, that doesn't confine environmental themes, problems and potentialities into the enclosure of sectoral policies and of knowledge, languages and methodologies exclusively for technicians, but rather it spreads them capillarily at all levels of decisional trials, of all sectors, public and private, and with a diffused perception in public opinion. According to European Commission, for example, mainstreaming is "the process of systematic integration of a selected value / idea / theme inside all the circles of EU Development Cooperation in order to promote specific (to translate ideas, to influence policies) as well as general development outcomes" [5: 16].

The external effects of human activities on environment are diffused and pervasive and such pervasive attitude has got two aces of development, spatial and temporal: human actions engrave on environment in space and in time. This pervasive attitude tends to be increased by the human tendency to maximize the positive externalities and to reduce to a mininum the negative externalities, besides to maximize the direct advantages and to reduce to a minimum the direct disadvantages. From that, also, the more and more ample phenomenon of the transfer (hidden and sometimes even apparent) of risk, of costs and of negative externalities from consumers of resources to third subjects, more weak and often unaware. A tangle of problems at a wide scale, therefore, that typically impinges even on International Development Cooperation. In truth, global environmental threats, with their causes and effects, cross national borders and press for international, regional, national and local responsibilities. Addressing the causes and the impacts of biodiversity loss, climate change and desertification requires measures in key sectors such as agriculture, forests, but also energy, transports, industry etc.

Too often on the contrary environmental issues have been faced as separated policy agenda issues and with a concern limited to national or even merely local political priorities. So that in many countries only environmental ministers are put in charge of implementing environmental political agendas linked to international convention, first of

all the three Rio Conventions (CBD, UNFCCC, UNCCD), without any coordination at a wide governmental level, suitable for guaranteeing measures in all key sectors, even not directly under the competence of environmental ministers.

Environmental institutions need to work in closer contact with the other, whereas the latter treat environment like an *extra-moenia* affair. On the contrary, as GEF often remarks, Environmental Mainstreaming is important, because socio-economic development and environment are fundamentally interdependent: the way we manage economy and political and social institutions have relevant impacts on environment, whereas environmental quality and sustainability are vital for economy and social well-being trends.

From the reflections above developed a component of Environmental Mainstreaming is rising, that often we tend to underestimate: the cultural component. Environmental Mainstreaming can really take root and work as method only if, even before, it stand as mentality (*forma mentis*), as cultural behaviour and movement at all levels of any organization or community. In that sense, Environmental Mainstreaming culture is a real driver for a system implementation of that methodology. We must also observe that main deficiencies at the level of theoretical elaboration and of practical experimentation are just on cultural side, in mentality spread. As a matter of fact, integration requires and implies a method and a culture of prevention, as well as viceversa: the latter represents the true and deepest meaning of mainstreaming.

Eventually, culture and methodology of Environmental Mainstreaming are complementary, in a kind of virtuous circle. A glance to practical approaches of mainstreaming, applied in public policies and in citizens' life, is useful. A first significant experience deserving a mention is the so-called Agenda 21, we can define a general and multi-level system for managing sustainability, in all its profiles, even environmental. It's an action programme for implementing a sustainable development at world, national and local level, set up during 1992 Rio Conference, summarized in 40 chapters, settled in 4 parts, respectively devoted to: economic and social dimension; resources conservation and management; strengthening of most significant groups' role; tools for performing the programme. Even the voluntary environmental management systems (EMS, actually two types are known: ISO 14001:2004 ed EMAS by European Union), i.e. the systems for analysing, planning and managing all environmental aspect in any organisation, that get an environmental certification attesting the compliance of determined standards. In an even wider circle, we can mention approaches inspired and oriented to the idea of Environmental Mainstreaming – although not exactly direct tool – also for the following initiatives, linked to the concept of Integrated Product Policy IPP: Green Public Procurement GPP; Environmental Product Declaration and Environmental Labelling (such as Ecolabel introduced by European Union for years); Life Cycle Assessment (LCA).

International Cooperation fosters logics and methodological approaches of mainstreaming, for years and in a more and more wide-spread way. The most relevant types of mainstreaming actually are: environmental (to be considered the most important among all, both because it's tied up to the survival of mankind and because the number of aspects and implications involved is huge and higher than all other themes); human rights (Human Rights Based Approach, adopted for example by United nations System ten years ago) gender (Gender Mainstreaming); participation (Participatory Approach, aiming to apply systematically a wide-spread participation to all type of action for development).

Coming back to environment, it must be said that International Cooperation has a lot of aspects the make it a privileged sector for applying Environmental Mainstreaming; and that for at least two reasons. The first: facing environmental challenges is a key option for human and sustainable development e for poverty reduction; as a matter of fact, global environmental threats affect poor in an over-proportionated way, particularly around a billion people directly relying on natural resources for their subsistence. The second: answers to environmental threats require measures in a remarkable variety of sectors: they must be coherent with the priority national development goals and viceversa; that requires to integrate transversally these strategies into national policy agendas for development. It's necessary to work at three levels, at least: strategies and actions in headquarters of agencies and governments; relationships with Developing Countries partners; collaboration among development cooperation agencies.

A further methodological criterion, very important in order to act with efficacy in this multi-level approach, it's to intervene on priorities set up and agreed at the international level, so as to guarantee a coherent alignment and to avoid energies and resources dissipation in isolated initiatives. In particular, climate change, biodiversity loss and desertification are global scale threats putting at risk sustainable development and they can be faced only at likewise global scale: the three Rio Conventions offer an institutional and strategic framework useful to manage these global concern and reverse the current trends of natural resources base degradation.

All that requires also a work on some key factors, positive and negative, influencing a good Environmental Mainstreaming, such as: applying the principles of subsidiarity and suitability in the distribution of roles between international and local actors; inter-action between subjects with different nature, i.e. public and private, profit and non-profit; selection of precise directrixes of mainstreaming, that is to foster them like as many goals of it: sustainability of human development (in the threefold component economic, social and environmental); fight against poverty and social exclusion; security, in its multiple connotations (personal safety, peace and geopolitical stability, health, food security/sovereignty…); promotion and protection of human rights and good governance.

Environmental integration, set up according to the directrixes above listed, is applicable to all types of intervention in the context of Development Cooperation (among them Policy Support, Budget Support; Project Approach). Even with regard to thematic sectors is technically possible or better still desirable a wide-ranging environmental integration; let's think to the nine classical key sectors of International Cooperation according to European Union, i.e.: governance,

democracy, human rights and support to economic and institutional reforms; trade and regional integration; infrastructures, communications and transports; water and energy; social cohesion and employment; human development; rural development, land planning, agriculture and food security; environment and sustainable natural resources management; conflicts prevention and States fragility.

One of the most critical points for a successful environmental mainstreaming is the choice between short-period (3-5 years) and long-period (10 years) strategic priorities. It's an arduous often choice, because in short period social and economic urgencies, particularly poverty reduction, can come into conflict with middle- and long-term goals and strategies. The most typical example in that sense are the policies aimed to a fast growth of agricultural production in order to guarantee food security corresponding to population growth: non rarely, they coincide with the conversion at a large scale of land destination to food mono-cultures, with intensive exploitation of water resources, massive utilization of fertilizers and pesticides, substitution of local varieties with standardized varieties, or even genetically modified; but after first successes, in long period all that ends in biodiversity loss, soil impoverishment and erosion, water and soil pollution, in one word, in destruction of ecosystems and their fundamental services.

This spirit of careful integration between environmental conservation and fight against poverty is being took in serious account by all main actors of International Cooperation. On one hand, many international and national agencies have adopted Environmental Mainstreaming, setting up internal procedures and using several incentives; on the other hand, a number of initiatives has been begun aimed to promote and spread it through multilateral aggregations (Poverty-Environment Partnership, Poverty-Environment Initiative etc.). A problematic basic fact remains however: the great fragmentation among all those bodies. A coordination in Environmental Mainstreaming is missing, as besides even a general codification of law and procedures for environmental conservation. Not by chance environment is still orphan of a worldwide unitary jurisdiction able to guarantee uniform application of principles and rules put for its conservation.

A wide perspective synthesis of the work waiting for International Cooperation in future scenarios – with a perspective of proactive application of results risen from Rio+20 Conference and also, more widely, of setting up the post-2015 development agenda – is contained in the conclusions of European Council on October 25th 2012 (Rio+20: Outcome and follow-up to the UNCSD 2012 Summit).

Finally, about the specific theme of water an effective point of reference for this reflection is represented by UNDP Human Development Report 2006 ([10], especially for the reach synthesis on pages 23 to 50): in 6 chapters it draws up as many great directrixes of work for International Cooperation on the theme of water and access to water resources, also in correlation with food security and human right to feeding.

GOALS: POLICY DEVELOPMENT AGENDA, BEFORE AND AFTER 2015

This approach, global and cross-sectoral, helps to better translate in strategic and operational goals the great target of poverty eradication and of sustainable well-being equitably shared. In that sense, however, all the process for implementation of Millennium Development Goals and of post-2015 development agenda is traditionally oriented, by now, with the drawing up of Sustainable Development Goals (SDGs), but also with the thematic sectoral agendas, such as the CBD's one, as we'll see below.

For Millennium Development Goals (MDGs) – after 13 years since when the eight great international development goals where officially launched in the institutional frame of United Nations Millennium Summit on September 2000 with the consequent Millennium Declaration subscribed by 189 governments – it's time for balances.

The narrow space in this paper doesn't allow a wide overview of that topic, but it's useful to notice and recall two important tools, one traditional and one exceptional: the annual Millennium Development Goals Reports and the report released by United Nations Secretary-General A life of dignity for all [11].

The first, as it's known, assess both global and regional progresses and use the most updated data series provided by partner agencies and members of an ad hoc working group (IAEG). The latter contains updates on goals and strategic vision for the future route. It delivers an important assessment of the progress achieved up to now by MDGs but overall it identifies the policies and programmes that have been successfully carried out to achieve the goals. It remarks some key factors, such as: inclusive growth; policies for a decent job guaranteed for all and a suitable social protection, especially for the most weak layers of population, regardless of their geographic location; creation of innovative mechanisms for mobilizing resources even financial necessary to that scope and accessible to all; building up local and global enabling environments, juridically and institutionally; finally, valorization of multi-stakeholder e multi-disciplinary partnerships.

No doubt an un-precedented progress has been done in fight against poverty, both at global and country level. The 2013 Report shows that really some key goals have been yet reached before the deadline or will be reached within 2015 however. With special reference to goals and targets relevant for the themes treated in this paper (water and food), it's noted 700 million people live in extreme poverty conditions less then 1990. More than 2.1 billion people got access to improved water resources in the last 21 years. Over 200 million slum dwellers benefitted from improved water sources, sanitation facilities, durable housing or sufficient living space between 2000 and 2010.

On the other hand, we must be aware that environmental sustainability is under severe threats and requires a new level of global cooperation. The global growth of green-house gases is speeding up and actual carbon dioxide emissions

are 46% higher than in 1990. Forests keep being eroded at an alarming rate. The over-exploitation of marine fish stocks results in production and gains diminishing. Marine land areas under protection are increased but birds, mammals and other species are approaching extinction faster than ever, with a decline both in population and in distribution.

A further aspect that must be considered, especially in matter of water and food, but more in general for all ecosystem services available for populations, is distribution disparity. Progress towards MDGs has been uneven not only between regions and countries but also between rural and urban zones, men and women, different population groups even inside the countries.

In theme of access to water (target 10 goals 7), the UNDP Report 2006 [10] offers interesting data and comparisons at p. 55 and following; let's forward to them, because of lack of place here, but with some underlining.

Target 10 like it's known aims to half percentage of people living without access to potable water and sanitation within 2015. Beside international community not for the first time has set out ambitious targets in that matter: they come back to early 80s. Therefore the difference between that time and today is not the political willing, that evidently is not sufficient in itself, but a suitable strategy in order to translate political goals into action, monitoring and overall results for populations. And this, even due to the fact that even a full achievement of the target doesn't be said sufficient, remaining the challenge for the rest of population open.

As we said above – but particularly for water and food – the focal point is to overcome the enormous disparities between regions and countries. In fact global aggregation of data masks large differences, even inside the same countries. While South Asia marks important targets, Sub-Saharian Africa remains constantly behind. This increasing gap between Sub-Saharian Africa and the rest of the world unfortunately will feed further inequalities also in matter of health, education and poverty reduction.

In addition the gap between achievements in matter of water and sanitation is increasing, with the risk the potential benefits linked to the first are being eroded by a failure in the latter. Furthermore an increase in water delivery, where drainage and organic waste dumping are unsuitable, could worsen problems in terms of public health, especially in overcrowded areas. Once again an ineludible fact rises: the real challenge for international cooperation are overcrowded suburban areas and in theme a serious regression of human development is looming if at worldwide level in early XXI century mistakes done in second half of XIX century will be repeated, especially in Europe and North America.

The challenge stands on two floors, regardless of achieving MDGs or not: level or type of technology applicable and costs of delivery. Report 2006 in this regard remarks unusually converging estimations by researchers: they estimate the actual expense for water and sanitation around 14-16 billion dollars a year (not including waste water treatment) and around 10 a year of expense for achieving MDGs linked to that issues on a base of sustainable low cost technologies.

Maintaining furniture at the actual quantitative levels but increasing quality would imply, according to some estimations, a further expense of 15-20 billion dollars a year. Further amounts should be employed if the goal was to treat all domestic waste waters. It's a threshold of investment appearing within international community's reach, both because of the corresponding enormous benefits guaranteed (child mortality reduction, spear of time, increase of productivity, reduction of health care expense, reduction of infective diseases, reduction of school withdrawal, strengthening of women's role etc.) and in comparison with other actual public expense items (military expenses and more in general expenses for national and international security).

An interesting review on how all eight MDGs can be linked to water issue in a perspective of mutual integration (working on improvement of access to water resources to attain the respective Goal and working on each of eight Goals in order to better guarantee a qualified but sustainable access to water) is contained in the table on pages 22-24 of UNDP HD Report 2006.

As stirring as that, even for its strategic suggestions, is the SIWI Report 2013, Cooperation for a Water Wise World – Partnerships for Sustainable Development (see Jägerskog et alii [7], especially on pages 45-50, devoted to water-energy-food nexus: it argues that in order to achieve sustainable development goals it's necessary to develop and to implement systematic approaches increasing the comprehension of water-energy-food nexus, both at different scales and through multiple sectors, with typical cross-sectoral approach, just characterising environmental mainstreaming).

What about the future of global development agenda? Ban Ki-moon in above cited Report 2013 [11] affirms: "*A new post-2015 era demands a new vision and a responsive framework. Sustainable development — enabled by the integration of economic growth, social justice and environmental stewardship — must become our global guiding principle and operational standard. This is a universal agenda that requires profound economic transformations and a new global partnership. It also requires that the international community, including the United Nations, embrace a more coherent and effective response to support the agenda*".

Doubling efforts is required to achieve the goals, although economic-financial crisis has made more complex the course. Lessons learnt for 15 years of MDGs implementation will contribute to define next global agenda. United Nations Department for Economic and Social Affairs is coordinating the UNTT (UN Task Team) working precisely on post-2015 agenda promoted by Secretary-General on November 2011. The Team has launched already three reports: Realizing the future we want for all (July 2012), Towards a renewed partnership for development (March 2013), Statistics and indicators for posst-2015 development agenda (July 2013).

Under the profile of resources necessary for agenda, Rio+20 Declaration ha recognized the need of a significant resources mobilization, as known, to promote sustainable development; at this aim it has been established to create an Intergovernmental Committee of Experts that will submit the results of its work to General Assembly on September 2014. The involvement of Major Groups of civil society is guaranteed by specific participatory mechanisms.

Finally, in theme of global political agenda and of transversal cross-cutting with environmental issues, another paradigmatic example deserves to be remembered: the so-called Aichi Target, i.e. the Strategic Plan for Biodiversity 2011-2020 to implement CBD. In particular, target 14 prescribes that *By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.* The Strategic Plan notes that the paramount importance of water should be highlighted in the technical rationale of Target 14. Water is also cross-cutting and therefore underpins all of the other targets.

ACTION: BUILDING UP AN ENVIRONMENTAL MAINSTREAMING FOR WATER AND FOOD

The considerable extent of Environmental Mainstreaming idea has been already noted. It must be said that in reality about the concept different feelings and attributions of meaning and relevance exist. For instance, *Poverty-Environment Initiative* of UNDP-UNEP interpret it as "*integrating linkages between poverty and environment inside national development planning processes and what they produce like Poverty Reduction Strategic Papers (PRSPs) and the strategies of MDGs*" (2007).

The effectiveness of environmental mainstreaming appears under several profiles: at the scope of finding out integrated solutions to cope with intricate problems, such as the contrasts between development and environment needs or between top and bottom visions, institutional tensions, social costs; at the scope of setting up a more efficient planning of environmental assets and of environmental risks management; of supporting a technological innovation inspired to nature; of sustaining an informed debate, propaedeutic to political choices on grate issues and of helping their concrete formulation; of setting up environmental mandates to be accomplished in effective ways.

The following outer edges – with progressively ampler extent, in time and space – can be identified, in which an environmental integration can be started up: single initiatives; development projects or programmes; local or national plans (for example socio-economic, urban, environmental strictu sensu, military etc.); national or international strategies (for instance let's think of usefulness of mainstreaming in National Strategy for Biodiversity adopted by Italy in 2010, and in general in NBSAPs, National Biodiversity Strategy and Action Plans, provided by CBD).

Under a different profile, integration can be used both in action sphere of public sector (governments, public administrations) and in that of private sector. Within the latter, really very variegated, environmental mainstreaming can be employed both in for-profit sector (in particular, companies and enterprises, including SME and cooperative companies) and in non-for-profit sector: let's think of NGOs, but more in general of voluntary service organisations or to ONLUS entities (non-lucrative organisations with social usefulness), both in shape of association and foundation. In truth, just due to the fact that its effectiveness depends overall on its extent, mainstreaming can involve even whole groups, communities and territories, as well as can be activated (at least in hypothesis) by single individuals or families inside themselves, in daily life.

Even the theme of tools for implementing environmental integration strategies deserve brief mentions, at least. It must be underlined first of all that several typologies of tool exist (informative; formative and educational; operational; evaluative) [13: 73 ss.], but each one has its own role, irreplaceable, and is an integral part of the strategy. The dimensional limits of this paper oblige to opt for a dimension more focused on single project interventions, on a development programme or on plan and strategies, all characterized by being delimited in space and time. In this regard, some tools deserve to be remembered, that have become traditional in international cooperation, despite not all are known and widespread in the same way: Country Environmental Profile CEP; Green Logical Framework; Environmental Screening; Strategic Environmental Assessment; Ecosystem Approach; Community-Based Natural Resource Management CBNRM; Integrated Capacity Development; Technology Transfer environmentally compatible; Ecosystem and Human Well-being Framework (see more at length Zortea, *ibidem*).

Exemplary and paradigmatic is the Ecosystem Approach. Introduced by CBD in 1992, it has been promoted as main action tool of the Convention, facilitating the integration of global environmental goals into policies and socio-economic development plans at international, national, sectoral and project level; an official definition has been set out by Subsidiary Body on Scientific, Technical and Technological Advice - SBSTTA of CBD in 2000: "*a strategy for integrated management of soil, water and living resources, promoting their conservation and sustainable use in an equitable way; it's based on application of scientific methodologies focused on biological organisation levels comprising essential processes, functions and interactions among organisms and their environment; it recognizes that human beings, with their cultural diversity, are an integral component of ecosystems*". In other words, methodology consists in adopting all contrivances in order to make a certain project intervention on a territorial and environmental context to respect vital cycles and functionality of ecosystems existing over there, integrating itself in them; therefore it takes care of guaranteeing an use of natural resources and of ecosystem services in general compatible both with characteristics of that specific natural environment and with its "receptive" capacity, of generating or regenerating the resources utilized and of waste o recovering of rejected items produced during the intervention. Thus Ecosystem Approach must be applied both in project formulation and in its implementation; with regard to that, SBSTTA also set out 12 guide principles. OEDC underline that "*capturing both environmental and socio-economic aspects of sectoral development policies, a framework of policies based on Ecosystem Approach can provide to decision makers a way to identify the best options of development and allow them to take decisions based on a solid understanding of their long-term consequences*" [9: 17].

Much would remain to tell but there's place by now only for some applicative considerations, focused on the theme of water and food. A necessary premise it that scarcity and excess of water are paradoxically both serious and actual threats to mankind. Moreover: both of them are consequence of human action!

The long necklace of natural catastrophes, for which origins or anyway disastrous consequences are directly referable to human foolishness just recently has been enriched by a further flood devastating episode, concerning also because it's far from usual locations imprinted in collective imagination, such as typical floods in Gange basin: the Amur river's flood (2.824 km) at the borders between Russia and China, with economic damages amounting to 226 million euros and 40.000 people displaced in Russia and 194 million euros and over than 200 people deceased or missing in China, regardless to risks linked to leaks in dozen dams built alongside the course of the river. It's really paradoxical that consequences of that disaster have been much amplified by a thirty-year drought that has made populations and local administrators forget those areas are under the risk of flood and river has just retook the riverbed it had created in thousand years: on that, though, entire villages had been built with regular building licences.

A very detailed analysis of this inter-dependency between poverty and wrong water resources management – and overall about how we can work backwards on this vicious circle in order to defeat poverty – is included in UNDP HD Report 2006 above cited [10]. It observes that, during the course of history, water exposed mankind to some of its most demanding challenges. Water is a source of life and a natural resource contributing to sustainability of our environment and to family livelihood, but it's also a risk source of vulnerability. At the beginning of XXI century, human development perspectives are threatened by a global water crisis more and more deep. It derives both from water scarcity and pollution and worst quality of water used by poor populations.

Dispelling myth of crisis as mere consequence of a water scarcity, the Report demonstrate how the real core of problem must be found in poverty, in power and in inequality. The poor pay more than other water and food and more than they can afford. Beyond familiar needs, competition for water as production resource is increasing. Among the symptoms of this competition is the collapse of ecological systems based on water, the decrease of rivers flow and the depletion of aquifers on a large scale. Conflicts on water inside countries are intensifying, damaging the poor. Even the risk of tensions between countries is increasing, despite it would be absolutely convenient, in terms of human development, increasing cooperation.

In this frame, the need of a well done Environmental Mainstreaming rises with all its dramatic face, but also with its effectiveness. A crucial role have infrastructures and their integrated management (see UNDP [10: 155]), but the usefulness of environmental mainstreaming in international cooperation initiatives excels particularly is the combination between initiatives of contrast to water crisis and climate change.

In parallel, the dualism water competition – food security stands. Even the problematic of access to food depends heavily on vicious circle among political choices, project implementations and consequences on population. Water competition in agriculture is perhaps one of the fields in which most blatantly the deep linkages between water, livelihoods and human development are unveiled. UNDP [10] spares illuminating pages to that theme, remarking also some strategic directrices in which international cooperation is called to a strong commitment, in fruitful synergy with universities and research centres: better governance in irrigation systems; greater water productivity for the poor (even suggesting two pilot ideas such as water harvesting with micro-irrigation and low-technology solutions with high human development returns).

A further example of how the lack of an integrated vision, both geographic and sectoral, causes disasters, spoils the work of good cooperation, multiplies the effects of other impoverishment factors and obstacles for human and sustainable development, is trans-boundary waters management. Given that water interdependency is commonly recognized, the heavy costs paid for lack of cooperation are blatant, particularly in twofold shape of transmitting tensions down rivers and of shrinking lakes or drying rivers (exemplary are the cases of Chad Lake and Aral Lake)

Case studies in that matter are innumerable. For better bibliographic convenience, we can quote those ones proposed by Water Resources Institute [12], such as the example of inter-linkage between water and health in a project for regenerating watersheds in Darewadi Village, Maharashtra (India), with a typical Community-based Natural Resource Management approach, cross-sectoral, participatory, multi-stakeholder. Other variegated examples, even on cross-cutting water/food, can be found in annual reports of realities such as ICARDA. Also the enormous range of case studies in theme of correlation between marine pollution, fish stocks, fishing, jobs and food security is significant.

Finally, at least a mention must be dedicated to reflections, even methodological, in Human Development Report 2013 about common goods conservation (among them water, with a prominent role) and shared responsibility in their management.

CONCLUSIONS

At the end of this brief excursus, there's only to sum up some conclusions. For more comfort, let's summarize them in 5 theses:

1) environment and ecosystem services are crucial themes and strength points of International Cooperation, being at the same time goal, tool and indicator of a sound Cooperation;
2) conservation and sustainable use of environment, fair and equitable sharing of benefits deriving from them are

three key goals of the whole Environmental International Cooperation, even beyond of the context of CBD, that expressively adopts them;

3) it's impossible to achieve them without a generalized and transversal application of them in all policies, thus Environmental Mainstreaming is the most suitable tool, even for combating the actual great fragmentation;

4) in matter of water and livelihood (food, clothes, drugs etc.) Environmental Mainstreaming is mostly useful and therefore represents the emblem of how integration should permeate all Cooperation;

5) Universities, both of Developed and Developing Countries, can play a decisive driving role: in order to spread mentality and culture of mainstreaming as well as to develop its methodologies; but in its turn that requires to adopt an inter-disciplinary, cross-sectoral, open approach, getting over the typical stiffness of academic environments and of higher education curricula, especially in Italy.

6) The experience of UNESCO Chair UNITN stands indeed in this direction. For further details on all the themes above treated, let's forward to the volume *Integrazione ambientale nei progetti di sviluppo* [13] that represents precisely a first digest of this experience.

NOMENCLATURE

CBD	Convention on Biological Diversity
EC	European Commission
GEF	Global Environment Facility
MAE-DGCS	Ministero Affari Esteri – Direzione Generale Cooperazione allo Sviluppo
MDGs	Millennium Development Goals
OECD/OCSE	Organisation for Economic Cooperation and Development
SDGs	Sustainable Development Goals
UNCCD	United Nations Framework Convention to Combat Desertification
UNDP	United Nations Development Programme
UNGASS	United Nations General Assembly
UNFCCC	United Nations Framework Convention on Climate Change

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