The "Ecosystem-Pauperism" Binary. Assessments Regarding the Insurance of Environment Durability 8 Years Later from the Millennium Summit

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Abstract: The unprecedented post-industrial development has ended up in disturbing the bio-climatic cycles of the planet's ecosystem. The excessive exploitation of the nature and the increase of the waste volume exhaust the ecosystems more quickly than their capacity of renewal. While the urban ecosystems (parks, green areas, running waters) ensure important services to the population (recreation, air quality), the rural ecosystems are the ones to ensure the goods and services that are necessary to everyday life. The incapacity for turning the ecosystems' potential into revenues dissimulate a dysfunction at the governing level. The challenge consists in modifying this equation, facilitating a high access of poor to the local potential of the ecosystems and their capability of transforming, by sustainable models the nature productivity into incomes.

Keywords: ecosystem, pauperism, environment income, biological agriculture, limited water consumption

For approximately 1,1 billion people, whose daily living is situated at the severe pauperism status, nature represents « the umbilical cord » – a capital for which there is little alternative for other types of material resources. Three quarters of the pauper households of the world are located in rural areas, where drawing products out of woods, crops, fish farms, represent the main income. The dependence of the means of living on the natural systems is the most accurately represented by the rural poverty and it is highlighted in the table below:

Percentage of the active workers in agriculture, fishing, wooded areas, at the global level, 2001

Table no. 1

Region / Country	Active workers (%)
On the globe	44
Developed countries	7
Emerging countries	54
Asia and Pacific	60
Cambodia	70
China	67
India	59
Nepal	93
Latin America and the Caribbean	19

Bolivia	44
Guatemala	45
Haiti	62
Middle East and North Africa	33
Afghanistan	67
Turkey	45
Yemen	50
Pre Saharian Africa	62
Burkina-Faso	92
Ethiopia	82
Niger	88
Tanzania	80
Countries in transition	15
Albania	48
Azerbaijan	26
Tajikistan	33

Source: PNUD, UNEP, BM, Institut des Ressources Mondiales – „Richesse des Pauvres, Gérer les ecosystems pour combattre la pauvreté", World Resources Institute, Washington DC, 2005, page 9

In Africa, more than 7 poor out of 10, inhabitants of the rural areas, depend on the resources, being engaged in farming activities, animal production, fishing, hunting, forest related and artisan activities. Contributing with a significant percentage to the Gross Domestic Product of many countries, the products obtained from this kind of activities satisfy the demands of the household (food consumption, building material, source of heating) or they can be as well sources of procuring cash. "The environment income"[1] completes other sources of income, coming from a remunerated job or supporting other family members. The decay of the natural systems, marked by drain of the soil, forest clearing, overexploitation, and pollution, represent an obstacle in obtaining incomes from nature, contributing to the pauperism acceleration. The Earth Summit, held in Rio - 1992, laid a stress on acknowledging the importance of the environmental health with view to ensuring the means of lasting living, especially for the paupers in the rural areas, the inhabitants of Africa, Asia and Latin America.

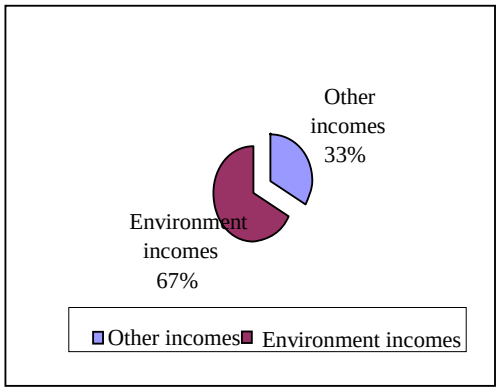
A study carried out in the households from the province Masvingo, *Zimbabwe*, illustrate the complementarity of the incomes obtained from agriculture as compared to the incomes from the wild natural systems, as well as to other sources of revenues: salaries and transfers. It can be noticed that 31% of the total income of the household comes from gardening and crops products. Other elements of incomes

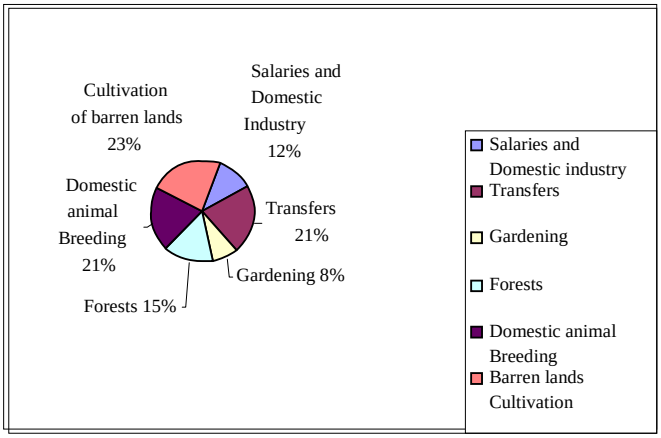
[1] "*The environment income*" (in PNUD, UNEP, BM,Institut des Ressources Mondiales – „*Richesse des Pauvres, Gérer les écosystèmes pour combattre la pauvreté*", World Resources Institute, Washington DC, 2005, page 10)– the value attracted, the cash or the direct usage of the goods and services obtained from the ecosystems. The environment income is the the sum of two important revenues: the income from wild or non-cultivated systems (forests, lakes, fish farms, reefs, wet areas, prairie) and the agricultural income coming from the agro – ecosystems (crops, pastures, orchards).

of the environment (domestic animals breeding (21%), as well as forest products (15%)) contributes with an extremely significant percentage (67%) to the total income of the households. Only a 34% share is represented by the wages and incomes obtained from the domestic industry and transfers. Therefore, we can draw the conclusion that, for the population in the rural areas from Zimbabwe, ⅔ of the household incomes come from the goods and services offered by the ecosystems. For the majority of the poor people, the combined rate of the dependence to this type of incomes may reach 70%, depending on the area.

The incomes of households divided on the sources, in the Masvingo province, Zimbabwe

Graphic no.1 Graphic nr.2





Source: PNUD, UNEP, BM, Institut des Ressources Mondiales – „Richesse des Pauvres, Gérer les écosystèmes pour combattre la pauvreté", World Resources Institute, Washington DC, 2005, pag. 11

Another suggestive image is represented by the 50,000 households situated in the 2,500 villages of the coast areas of *Thailand*, out of which 80% lack the basic infrastructure (communication and electricity). For the members belonging to these households, fishing ensures half of the average income of a Thai citizen.

In Kerala (*India*), the selling of products such as: honey, mushrooms or medicinal herbs brings to the households approx. 3,500 rupees /year on the average (which is the equivalent of 75 USD). Even if the value/individual obtained by selling these products is low, the aggregated value can be substantial, contributing decisively to the rural economy.

In *South Africa*, the research estimated that the value of the savanna's natural products rises to approx. 1,3 billion USD/year, equating 120-160 USD/hectare of accessible land.

The absence of incomes coming from the exploitation of the ecosystems leads indisputably to a high incidence and accentuated poverty in the rural environment. The consensus of Monterrey has laid a stress on the importance of micro financing and the micro credits for the Small and Medium Enterprises, contributing to the consolidation of socio-economic impact of the financial system. In the rural areas of the emerging countries, the timber industry has lead to job opportunities and implicitly to obtaining incomes. It is estimated that at the global level, there are approx. 60 thousand employees in this branch of industry. The incomes attracted by the small companies are often not included in the national statistics; on the other hand, the activities of transformation and selling wood products make up on of the most important non-agricultural sectors of the rural economy. The commerce with wood products is highly developed and it has progressed in a quicker pace than the production and consumption during the latest

decades. The improvement of the access to the markets of the local producers in the forest sector represent one of the most effective means that the poor can take benefit from. Covering the need of capital and the access to the markets of the Small and Medium Size Enterprises can contribute to an economic growth and the reduction of poverty. OMD cannot be reached without a special attention and maximum involvement in the full capitalization of the ecosystems potential.

A special accent is given to the *biologic agriculture*[2], which used to represent, in the UE 25, approx. 4% (in 2005, as compared to 3,7% in 2003 and 1,8% in 1998) out of the total agricultural surface used, having a slight rising tendency. Austria, with 11%, records now the highest proportion of biological surface, as compared to the total agricultural surface used, Italy - 8,4%, the Czech Rep. and Greece - 7,2% each, Denmark-5,2%, Finland - 6,5%, Sweden - 7%. The lowest shares have been recorded in Ireland 0,8%, Poland - 0,6%, Malta - 0,1%[3]. The development of the biological cultures and the rise in the number of operators is rather law. There are big differences noticed among the member states in the North and those in the South, the dynamics concerning certain measures, being more stressed in the Southern countries, where the permanent cultures represent a significant percentage of the total biological cultures. One of the factors illustrating the recoil of the biological culture within the member states of the Union in the North of Europe is due to the fact that the number of biological operators suspending their activity is higher than that of the new operators launched in the biological agriculture[4]. Whereas Italy holds approximately 18% of the total biological cultures of the EU 25, the Czech Republic records more than 4%. The cultures cannot be divided in 3 large types: annual cultures (cereals and fodder), permanent cultures and pastures. The latter represent those annual cultures with the highest share in the total biological cultures. Certain member states of the EU hold an important biological live-stock (horned cattle, sheep, swine), but with an uncertain evolution, the available data having an irregular tendency for this sector[5].

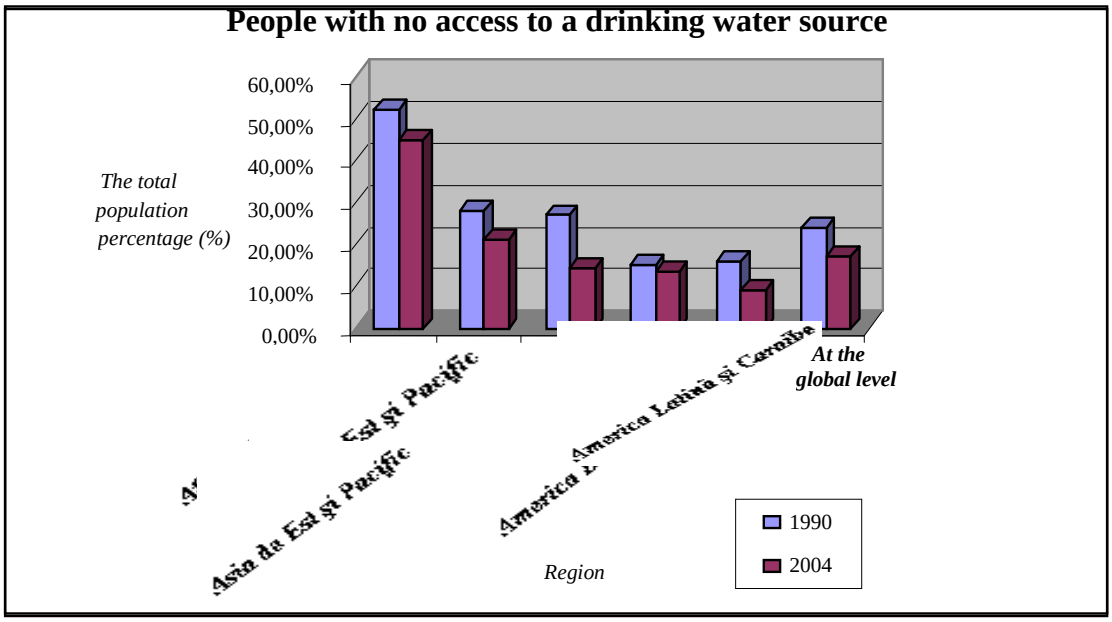
The inhabitants of the developed countries, until quite recently safe from problems such as the *limited water consumption*, due to the lack of water, start facing a series of difficulties that up to the present belonged to the poor or emerging countries. The lowering of the water courses level in the hydrographical basins, the prohibitions regarding irrigation and appeals launched by the governants with view to reducing the water consumption have created problems in certain regions of Europe as well. In the USA, the management of the lack of water represents an important prerogative of the public policies in states like Arizona and California. The quasi-totality of the developed world population disposes of a tap allowing them to obtain wholesome water and all the facilities coming from it. The private and hygienic draining system is universal. Deaths are not caused by diseases occurred following the unwholesome water consumption, collected in sewers, gutters irrigation tanks or watering areas for animals. The girls' education is not endangered or exposed to constrictions imposed with view to collection and transport of the water that is necessary in a household. At the beginning of the XXI century, 1 out of 5 citizens of the world do not have access to drinking water, while almost half of the population in the emerging countries is deprived of a sanitation system. „The absence of the access to drinking water" is an euphemism designating the depth of poverty.

The amplitude of inequalities observed among the rich and the poor countries, sustain this assertion. The average water consumption varies within the interval 200-300 liters water / person / day in most of the countries in Europe (Germany-200 liters, Denmark-210 liters, Austria-250 liters, France-290 liters, Norway-310 liters, Spain – 330 liters, Italy-390 liters), while in Great Britain-150 liters, in Mexico-370 liters, Japan-380 liters, Australia-490 liters, SUA-575 liters (the consumption can reach even the limit of 1000 liters in certain states such as Arizona). At the other extremity, the countries where the access to a

[2] The *biological agriculture* can be defined as a production method with the purpose of environmental protection, taking into account the wellfare of the animal production. (in *Eurostat, Statistique en bref, nr. 69/2007, Agriculture et peche, pag. 7*)
[3] The data correspond to the year 2005, the states in the North of Europe recording a recoil, as compared to 2003, in the share of surface distributed to the biological cultures: Denmark 5,8%, Finland 7,2%, Sweden 7%.
[4] 87% of the biological operators are producers.
[5] Ibidem, op.cit. – The evolutions observed in the different member states of the EU vary according to the existent live-stock.

source of drinking water is an issue (due to the distance, infrastructure, reduced financial means) strikes by the amount of consumption allotted: Mozambique < 10 liters; Angola, Cambodia, Ethiopia, Haiti, Uganda, Rwanda - 16 liters; Burkina Faso, Niger-27 liters; Ghana, Nigeria-36 liters; Bangladesh, Kenya - 46 liters; China-85 liters; India-135 liters.[6] The same image of inequalities can be noticed while analyzing the sanitation or the degree of coverage[7] with water resources of different countries. On the average, these levels rise in direct proportion with the income: rich countries → extended coverage, pauper countries → low coverage.

Graphic no.3

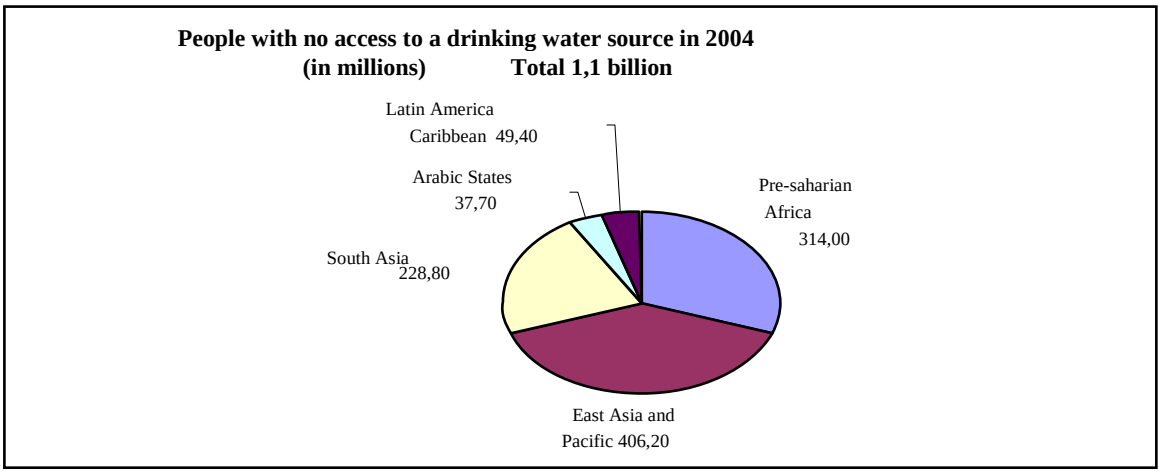


Source: UNICEF, 2006 in PNUD –"Rapport mondiale sur le développement humain, 2006 - Au-delà de la pénurie, pouvoir, pauvreté et crise mondiale de l' eau", Economica Ed., Paris, 2006, pag.33

[6] FAO - *« La situation mondiale de l'alimentation et de l'agriculture», ONU pour l'alimentation et de l'agriculture, Roma, 2006,* pag. 34. These quantities are reduced to a half < in the rural areas, sometimes going under 5 liters per day in the dry season, in barren regions such as Sahel, West of India, Eastern Africa.

[7] In *România, the degree of coverage in 2004, was situated at 57%,* along with Sierra Leone; 59% Tadjikistan, Guineea-Bisseau; 67% Benin, Yemen. In Ethiopia (the degree of coverage 22%), the sources of water supply of the population is represented by: water courses or lakes (for 32% of the population), wells or unprotected sources (for 42% of the population), drinking water wells or tap (25%). For 69% of the Ethiopians, sanitation means fields or forests, for 28% - latrines in pits, while for 3% of them – water courses.

Graphic no.4



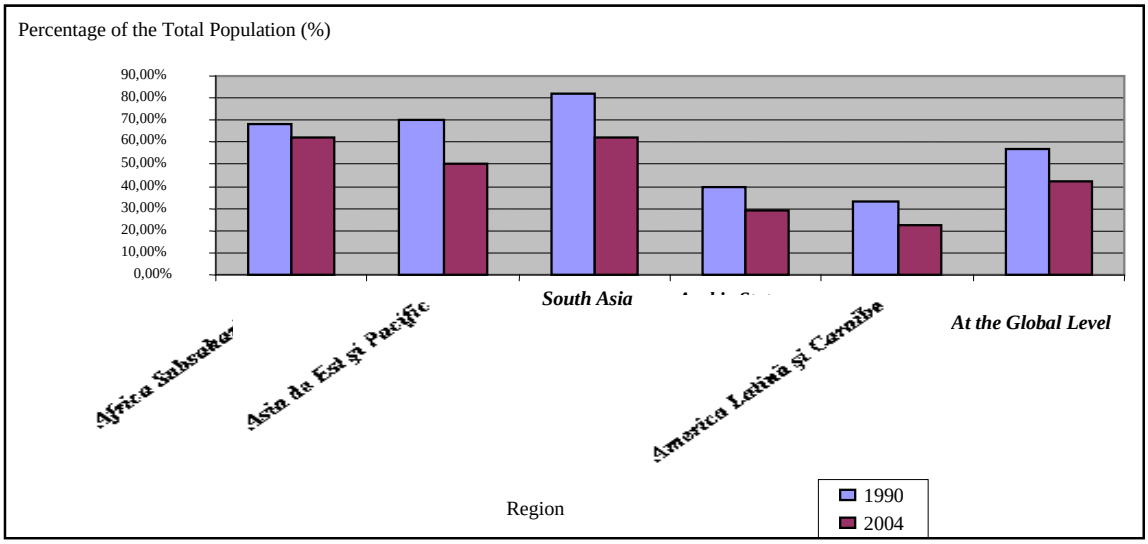
Source: UNICEF, 2006 in PNUD –"Rapport mondiale sur le développement humain, 2006 - Au-delà de la pénurie, pouvoir, pauvreté et crise mondiale de l' eau", Ed. Economica, Paris, 2006, pag.33

Obviously, the water consumption in the rich countries does not influence the water quantity in the pauper countries. The global consumption is no worthless game, by which a certain country has lower demands for water if another country has higher needs. The comparisons reflect the existent disparities at the global, regional or national level (urban/rural) regarding the access to the water resources.[8] By analyzing graphics below, there can be noticed that during 15 years (1990-2004), these discrepancies have been reduced. The human growth has progressed, but not as much as predicted by ENVIRONMENTAL DURABILITY.

[8] 25 mld. liters of mineral water cunsummed annually in the American households exceed the total quantity of wholesome water consummed by 2,7 mil. people of Senegal deprived of the access to a source of drinking water. The Germans and the Italians usually have a sufficient mineral water quantity to cover the basic demands of more than 3 mil. people of Burkina Faso. The water quantity consummed by an American during a 5 minutes shower is more than the water quantity alloted during a day to a person from an underdeveloped coutry whose house is on the outskirts of town. The growing pressures with view to redistributing water in favor of the industrial sector as compared to the agricultural sector aggravates the rural pauperism.

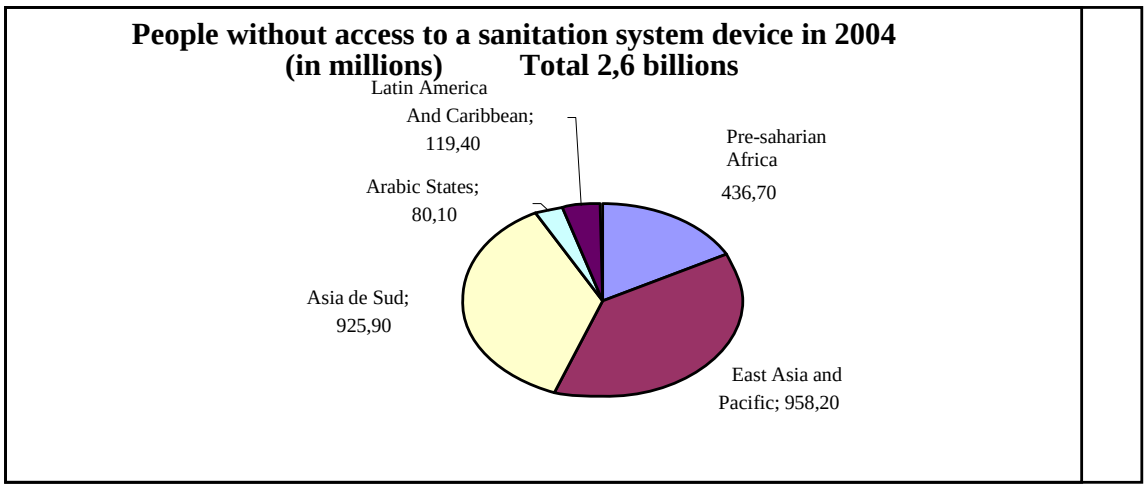
Graphic no.5

People without access to an improved sanitation system



Source: UNICEF, 2006 in PNUD –"Rapport mondiale sur le développement humain, 2006 - Au-delà de la pénurie, pouvoir, pauvreté et crise mondiale de l' eau", Ed. Economica, Paris, 2006, pag.33

Graphic no.6



Source: UNICEF, 2006 in PNUD –"Rapport mondiale sur le développement humain, 2006 - Au-delà de la pénurie, pouvoir, pauvreté et crise mondiale de l' eau", Ed. Economica, Paris, 2006, pag.33

Insuring the environmental durability (ODM 7)

Proposed Target	*8 years later from the Summit of the Millennium*	*Progress measurement indicators*
1. Integration of the durable development principles in the national policies and reversing the actual tendency of depending on the environmental resources.	➢ The non-durable exploitation of the hydrological resources represent an obstacle in the human development, generating ecologic want of balance with repercussions on the generations to come. ➢ If in 2007, there used to live over 700 million people in countries affected by the lack of water, it is estimated that in 2025, their number will exceed 3 billions. ➢ Over 1,4 billion individuals live in hydrographical basins where the water consumption exceeds the minimum level of refill, the water courses have got drained and the underground resources have been exhausted. ➢ The climatic changes influence the insecurity of the water supply, bringing into prominence both the malnutrition problems (up to 2080, other 75-125 mil. Individuals more are estimated), and the basic food production (in many countries of Pre-saharian Africa, it will drop by more than 25%). ➢ Exhausting the underground water resources represent an obstacle for the agricultural systems, the alimentary safety and the means of subsistence in Asia and the Middle East. ➢ The slow progress in this field hinders the development of other sectors of activity. ➢ Over 400 mil. People live in wooded areas or in the proximity and their incomes and means of subsistence are procured from these area. ➢ For 1,2 billion people, their living depends mainly on the forest exploitation. ➢ 14,6 mil. hectares /year cleared surface, out of which 5,2 mil. hectares /year are recovered due to reforestation and natural	➢ The proportion of the wooded areas. ➢ The proportion of the protected areas with the purpose of maintaining the biological diversity (as compared to the total surface) ➢ The consumed energy (in kg.) for 1 USD of the GDP. ➢ The CO2 emission /inhabitant and the CFC consumption. ➢ The share of the population using solid fuel.

	expansion of the remaining forests. ➢ 2,4 billion people use frequently the fire based on woods, both for cooking and heating. ➢ 1,6 mil. premature deaths, especially for women and children occur annually due to the breathing affections, caused by the exposure to the pollutant environment of their habitats. ➢ The medicinal herbs are used for treating numerous illnesses for 80% of the population living in Africa; the extinction of these herbs is a frequent cause of multiple deaths.	
2. Reduction to a half, by the year 2015, of the population proportion that does not have access to drinking water and sanitation systems.	➢ The objective has not been attained for 235 mil. individuals lacking the access to drinking water and for 431 mil. that do not have sanitation systems. ➢ Annually, more than 3 million deaths, especially in the poor rural areas, are the result of water pollution and the absence of sanitation. ➢ 1,8 mil. children die yearly because of diarrhoea, which could be prevented by the consumption of one glass of drinking water and by having the hygienic-sanitary conditions ensured. ➢ Because of the diseases caused by lack of water, approx. 443 million school days are lost.	➢ The share of the population having current access to fit up water sources, in the urban and rural environment. ➢ The share of the population having current access to an improved sanitation system, in the urban and rural environment.
3. Up to 2020, the improvement of the life quality for at least 100 mil. people living in unwholesome conditions.	➢ For reaching the proposed target, Sub-saharian Africa will have to rise 4 times (from 7 mil./year during the last 10 years, up to 28 mil./ year during 2007-2015) the number of connections to the sanitation systems. ➢ 50% of the population of the emerging countries suffers from illnesses caused by the lack of water and sewerage.	➢ The proportion of the families with certain access to a place to live.

Sources:

1. Équipe 6 du Projet Objectifs du Millénaire sur le respect de l'environnement - „Environnement and human well-being: a practical strategy", 2005;

2. ONU – „Investir dans le développement: plan praqtique pour réaliser les objectifs du Millénaire pour le développement. Projets objectifs du Millénaire", 2005;

3. Agence internationale de l'énergie – „Perspectives énergétiques mondiales",2004

4. Banque Mondiale – „Sustaining Forests: A Development Strategy",2004

5. PNUD, UNEP, BM,Institut des Ressources Mondiales – „Richesse des Pauvres, Gérer les écosystèmes pour combattre la pauvreté", World Resources Institute, Washington DC, 2005

The programs pauperism reduction have to take into account the indestructible link between the potential of the ecosystems and their exploitation, since they represent the means of survival and the capital (essence) of richness for the poor. The climatic changes, the pollution, the overexploitation drinking water resources, irrigations, energetic demands, hydrographic basins drainage or the soil decay, as well as the causes and the effects of the floods in the latest years, need to represent daily priorities for the Governments of every country. The inability of rendering the potential of the ecosystems into incomes dissimulates a syncope at the governing level. The challenge consists in modifying this equation, favoring a higher access of the poor to the local potential of the ecosystems and their capability of transforming by sustainable models, the nature's productivity into incomes. The « sine qua non » condition of a durable development is the good administration. The citizens' participation, laying responsibility on the public institutions which should act transparently, the promotion of best practices and the removal of illegal activities[9], the eradication of corruption, of the limited capacities of repression at the local, regional and global levels due to potential requests, should be the objectives of a proper government. Unfortunately, governing failures entail the legal absence of the property and the access to ecosystems, the political exclusion in the decisional circuit, reducing the opportunities of capitalizing the economic potential of the ecosystems, which is vital for the reduction of pauperism, especially in the rural environment.

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[9] Eg. – The losses caused by illegal forest exploitation activities rise up to over 10 billion USD, entailing the reduction of available funds for other investments in the public sector.