

## THE CUBAN ENVIRONMENTAL POLICY. EXPERIENCES ON POSITIVE MEASURES FOR THE BIODIVERSITY<sup>1</sup>.

Author: Dr. Raúl Garrido Vázquez. PhD  
Economist  
Officer of the Environmental Directorate.  
CITMA  
CUBA

### **Introduction.**

The paper intends remark the relevance of the positive measures as an instrument of the Cuban environmental policy regarding biodiversity protection. These measures are part of the economic instruments, used by Cuba, to reach the conservation and sustainable use of the biodiversity.

The positive measures are the base for the application, nationally, of other economic tools as well as the techniques of economic value of the environment that is one of the key elements to organize the economic actions for the protection of the biodiversity.

In this paper, is commented, briefly, the consideration, regarding the economic point of view, taken into account to the formulation of the Cuban environmental policy related to the biodiversity. It shows how is assumed the biodiversity, as a sector or issue that should be considered by the environmental management and policy in the country.

The document explains the use of the “Environmental Sector approach”, to avoid the having difficulties to make comprehensible, for the decision makers and entrepreneurial leadership, why and how to protect some species and subspecies. The environmental authority, need this approach for the design the economic tools, to manage, the absence of economic information regarding biodiversity, at microeconomic level.

In the current document, is not analyzed, the Protected Area System of Cuba, because this element of the Cuban Environmental Policy is very well known and have been presented in all the National Reports to the Convention on Biological Biodiversity (CBD). Here we present the rest of the important areas of the attention by the environmental authority, especially in its interactions with the economic sectors and the role of the positives measures regarding to these.

Few examples will bring up to show the author’s opinion about how some used in Cuba economic instruments have a positive measure character. And to remark that the positive measures are the base to develop other kind of incentives to protect the biological diversity,

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<sup>1</sup> Biodiversity, means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems

as for example, the Environmental Goods and Services and its utilization in the economic field.

To finish, are described few barriers and challenges that must be faced to reach a major economic effectiveness in the environmental management, to protect the biodiversity.

### **Background.**

Globally, there is no doubt of the relevance, of the biological diversity and the necessity of its protection, conservation and sustainable use for the humanity. There is also no doubt, that the major and richest biodiversity is allocated on the Developing Countries, those are, at the same time, the poorest and the less capable, in the economic sense, to grant its protection, conservation and sustainable use.

There is no discussion about the fact that the lost of the biological diversity is a result of the irrational economic capitalist model, that was imposed by the Developed Countries, through its irrational consumption and production patterns. These patterns affected and continue harming it.

Consequently, the decision making economic processes, during centuries, has been out of the intrinsic value of the biodiversity, out of its role in reaching environmental balance, and also out, of its role for sustainable development. The market economic tools only reacts to the maximization of the benefits, without any assessment of their impact on the biological diversity, without consideration of the present and the future biodiversity values.

Today's Global Economic Crisis increases the necessity of taking into account the biodiversity, its economic value and potential values and the factors conducting to avoid the perverse incentives.

The governing world economic model in the Developed Countries is using as strategy to avoid or minimize the crisis effects through the consumption stimulation, and this model is being copied by the Developing Countries in its war against the crisis effects<sup>2</sup>. It may constitute an additional factor to increase the pressure on the natural resources that implies an additional pressure against the biodiversity.

The above mentioned facts increase the relevance of the Workshop to combat perverse incentives and stimulate positive measures for the biodiversity. It is important because, it gives to the Member States the possibility of sharing its experiences in the use of those economic tools, and to show how to combat the perverse incentives<sup>3</sup>, and how to use the economic tools for the compliance of the CBD targets.

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<sup>2</sup>ECLAC "La reacción de los gobiernos de las Américas frente a la crisis internacional: (in Spanish) a synthetic presentation of the announced politics measures until 31 May 2009 LC/L.3025/Rev.1 • June 1<sup>st</sup>. 2009 © United Nations • Printed on Santiago de Chile 2009-320. (A.N.) Generally the increase of the consumption rates and the growing of the public expenditures are being used as anti crisis instruments. In the aim of stimulating the employment and production, the increased consumption constitutes a threat for the biodiversity.

<sup>3</sup>TEEB Initiative Will be very helpful too, if it is prepared on the base of the Developing Countries experiences.

There are another two factors to take into account in the environmental management for the biodiversity, those are, the multisectoral<sup>4</sup> character of the biodiversity, and the absence of economic information on the micro level regarding to the environmental goods and services coming from the ecosystems. These two factors bring, for the environmental authority, extra difficulties in the organization of the environmental management for the biodiversity, specially, when it is trying to make some pressure on the entrepreneur, or on a common decision maker on the economic basis, to change its economic routines to protect the biodiversity.

The damage or the lost of biological diversity is very difficult to know or to evaluate from the economic point of view. The same happen with the economic actions for its protection, especially in the Developing Countries, where don't exist the adequate understanding on this limitation and don't exist correlation between biodiversity and its economic values. The above mentioned insufficiency block up the economic influence on the micro economic activities to protect it.

Those are the reasons that explain the necessity to organize the environmental management indirectly, that is, taking into account above commented characteristics<sup>5</sup>, using the "sectoral approach" in the designing of the economic tools to protect the environment, including the biodiversity.

The institutional arrangement to implement the positive measures should take, above mentioned approach in order to reach the economic influence, in the producers, to change their productive performance into friendlier activities for the biodiversity. It is also necessary motivate some national ministerial bodies and organizations, for the approval and the application of any kind of economic instruments.

The Cuban Environmental Policy is formulated and approved at the highest level of the country government, and is endorsed in the National Environmental Strategy (NES), that contain the identification of the main environmental sectors that should be covered by the environmental management, and indicates which targets must fulfill each institution.

The NES is updated and upgraded frequently, and have provisions to the biodiversity management. The last approved NES cover the 2007-2010 years, and includes targets to improve the use of the economic instruments. Taking into account the NES guidelines and the described "sectoral approach", each Ministry, and each province prepare it respectively environmental strategy. Through these set of Strategies (National, Territorial, and Institutional), the National Environmental Authority (CITMA) is nearest to the decision

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<sup>4</sup> Multisectoral or multipresence, is the understanding that biological diversity is related to many economic spheres or many geographical locations. Biodiversity are everywhere and everywhere should be protected.

<sup>5</sup> The "Sectoral Approach" concept, recognizes that the biological diversity is hosted, is present and is related to many different economic activities or sectors, and is related too, with a multiple kind of ecosystems services. They are: forest, soil, urban environment watershed, river basins, or with many services like the hydrological cycle or the coastal line protection among others. The "Sectoral Approach" concept use is required due to the fact that for the common perception it is easier to understand the relevance of those "sectors" than some specific species or ecosystem services. There are few "logical nucleus" for the environmental policy and management that are the more comprehensive to reach the general protection targets. In this sense, the protection of the biodiversity is reached through the activities developed on those "sector" or "nucleus", specially when we are speaking about economic instruments.

makers and may promote the use of those positive and economic measures that will be described below.

### **Positives Measures for the biological diversity.**

The positive and impositive measures and the economic incentives or disincentives, are part of the Economic Instruments System<sup>6</sup> of the country that integrate the tool set of Policy and Management instruments of the NES<sup>7</sup>.

“.....Those instruments (AN, regarding economics) didn't represent an universal panacea, it is, its use can't be absolutized and only will be valid, if they are used in an adequate and harmonic way with the other regulatory and control instruments, and in general with all the environmental management instruments”<sup>8</sup>

The above mentioned affirmation confirm that, since the beginning of the elaboration the Cuban NES, the market instrument, was used, but they never will have the main role.

The positive measures in Cuba are part of the Economic Instruments; its main legal support is the Environmental Law No 81 /1997 that gives legal support to the first NES published in the same year. The Law gives the legal frame of those instruments in it Chapter “IX Economic Regulation”<sup>9</sup>. At the same time the Law 81 creates, in its Chapter X ,The National Environmental Fund (NFF) that suppose its implementation as a financial mechanism to support the environmental protection and foresee the application of not only contravention measures but positive measures<sup>10</sup>.

The utilization, for the protection of the biological diversity, of the economic incentives must be based on the maximum policy will of targeting financial resources to the environmental protection. Positive measures, then, will be the mechanism to conduce these financial flows to reach the desired protection levels and will be the technical and economic back up to develop the different valuations frames for the biodiversity. It creates the informational economic first steps regarding environment and biodiversity and to put in practice other kind of economic instruments like environmental taxes, fees or payment for ecosystem services.

There are few factors that restrain the application of the positive measures. The main one is the absence of the economic value of the environmental damages, or actives, values that should be as must objective as possible, in absence of the environmental accounting. The impossibility of these economic figures related to the biological diversity and related to de environmental damage are de key stone of the barriers for the implementation of other positive measures or incentives, especially at micro economic level.

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<sup>6</sup> Economic instruments are denominated on the English version of the NES as Economic Regulation. See CITMA, National Environmental Strategy. Cuba. 2007-2010. Page. 29 English versions.

<sup>7</sup> CITMA, National Environmental Strategy. Cuba 2007-2010. Page. 24. English version

<sup>8</sup> See Rey Orlando y col Derecho Ambiental Cubano. 2000.

<sup>9</sup> Environmental Law. Ley 81 de Medio Ambiente - Gaceta Oficial de la República de Cuba Pág. 56, 11 de Julio de 1997.

<sup>10</sup> Ídem Pág. 57.

Recognizing those limitations, Cuba have a few positive measures adopted. With some imperfections in their use, they are important part of the environmental policy in the economic field.

For us the term “positive measures” is not a new category, it was described firstly by UNCTAD in 1997<sup>11</sup>. It is useful remark, that we understand it as, those economic actions that mobilize and redistribute financial resources for the environmental protection, including the protection, conservation and sustainable use of the biological diversity.

Positive measures in Cuba are used to support communities to introduce sustainable agricultures rules, or to help to change the environmental entrepreneur performance, or to support a restoration of some ecosystem, or for recovery a threatened species. All of these kinds of measures are a complement to the environmental management activities to stimulate reaching of the sustainable development target.

Positive measures, in occasions, are presented as a complement to the “impositives” measures, the first one, gives all or part of the necessary and available resources, the second one makes possible the obligated accumulation. They play the role of levy the economy of the producers passing them the internalized costs. The internalization of the environmental costs is another issue that needs to be solved.<sup>12</sup>

In Cuba positive measures are:

- Investment Plan for the Environment
- National Environmental Fund
- Tax from the utilization or exploitation of natural resources and for environmental protection.
  - Forestry Tax
  - Havana Bay User Tax
- Tariff allowances to the import environmental preferable technologies.

The Investment Plan for the Environment, the National Environmental Fund and the Tariff allowances to the import environmental preferable technologies, are clearly positives financial actions that move the resources to a desired target of sustainable development according to the NES priority. It is very easy to understand that all of the three instruments are “positives”, move the money to the target, and they are positive measures.

There are other two instruments that are more complex. The instruments imply an impositive action to collect the financial resources, and then, through the same measures those resources switch on a positive financial flow. The Forestry Tax and Havana Bay user Tax are a means to increase the financial resources of the respectively two Funds, that will gives the financial support to the cleaning up the Havana Bay and to maintain the reforestation in the country, respectively. Both measures are undoubtedly positives and

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<sup>11</sup> See UNCTAD. TD/B/COM.1/EM.3/2 Positive Measures to promote sustainable development”. Geneva 1997.

<sup>12</sup> In particular, policies which create incentives without removing the underlying causes of biodiversity loss (including perverse incentives) are unlikely to succeed. See- Proposals for the Design and Implementation of Incentive Measures, endorsed by the sixth meeting of the Conference of the Parties (<http://www.cbd.int/doc/publications/inc-brochure-01-en.pdf>)

both help to maintain or recovering those important national ecosystems, including the biodiversity that they support.

It is important to remark that the positive measures, not only bring financial resources to the environmental protection, but in addition, the positive measures introduce, in the economic thinking, the notion of the relevance of knowing the economic values of the biodiversity or to the environment, and induce to the starting point of its accountability.

### **Few examples.**

#### **Investment Plan for the Environment. (IPE)**

It is the most important economic tool for the environment in the country. It is the most relevant positive measures used in Cuba for the environment and for the biological diversity.

Cuba is a central planed economy, under all pressures from the global crisis and the embargo, but it is not a barrier to demonstrate the policy will on the environmental protection and through this tool has been mobilized to the environment a relevant amount of resources.

Since 1998 up to now IPE has maintained a systematic support to the environmental investments. The total amount, of those investment from 1998 to 2007 is 1950,9 Million CUPs<sup>13</sup> that represent around 6,5% of the total amount of the investments on the country.

Since 2001 in the IPE are including investments to solving environmental problems at the more relevant hydrographical basins that represent around the 11% of the environmental investments on this period.

**Table No.1 Investment expenditures for the environmental protection.**

Year	Total Country Investments	Investments for the environment	From these: for the national more relevant hydrographical basins	%	
				(b)/(a)	©/(b)
	(a)	(b)	©	(b)/(a)	©/(b)
1998	2,381.3	41.9		1.8	0.0
1999	2,544.6	102.4		4.0	0.0
2000	2,830.1	196.5		6.9	0.0
2001	2,736.7	250.7	13.7	9.2	5.5
2002	2,399.8	179.2	21.8	7.5	12.2
2003	2,469.4	233.0	36.1	9.4	15.5
2004	2,803.7	220.4	37.4	7.9	17.0
2005	3,227.1	215.8	23.8	6.7	11.0
2006	3,952.2	232.7	19.1	5.9	8.2
2007	4,684.8	278.3	24.9	5.9	8.9

Source: Compilation from Statistical Yearbook of CUBA. ONE

<sup>13</sup> Million CUPs (Thousand of thousand Cuban Pesos).

Both investments, for the environment rates, 6,5 % of the total investment of the country and 11 % regarding those directed to the more relevant hydrographical basins, are a demonstration of the Cuban policy will in the application of the positive measures to protect the environment and the biological diversity.

The mobilization of those financial resources is canalized through different environmental sectors, where are allocated the investment resources as shown in the Table below. All of those sectors are directly or indirectly related to the biodiversity protection, and grant the ecosystem services they offer.

**Table No 2 Investment expenditures by sector.**

ENVIRONMENTAL SECTOR	2004	2005	2006	2007	2008
	<b>Figures on Million CUPs</b>				
<b>Total</b>	<b>220,4</b>	<b>215,8</b>	<b>232,7</b>	<b>278,3</b>	<b>335,6</b>
Water	80,6	100,3	109,2	129,1	159,1
Soils	18,6	20,3	20,3	14,3	16,6
Atmosphere	40,8	15,9	9,6	21,1	22,1
Forestry Resources	63,6	49,2	60,6	72,5	91,2
Solid Wastes	7	6,7	6	8,5	9
Others	9,8	23,3	26,9	32,8	37,7

Source. ONE. Environmental Statistics.

The financial flows directed to environmental actions on forestry, watersheds, atmosphere, and solid wastes management permit the protection of those resources and the biological diversity included. It is interesting to comment, that the sector "Others" includes other environmental activities and targets like I+D, studies or capacity building activities that requires investments<sup>14</sup>.

It is necessary to recognize that the analysis accuses an important insufficiency. It is the absence of economic information about the real expenditures on the environmental protection and as a result of these, it is impossible its measurement. Consequently the impact of those investments for the recovery the biological diversity associated is lacking from the current analysis.

### **National Environmental Fund (NEF).**

The NEF is other relevant positive measure directed to the aim of the protection of the biological diversity. It was created as a new economic mechanism that complements the financial influence on the environment of the IPE. The NEF is an innovative tool, taking

<sup>14</sup> These figures shows only investments for the environment, but really, the expenditures for environmental proposes are more than these, it means there are not taken into account the currently expenditures that did not classify as investment, and have not been accounted separately of the general entrepreneurial expenditures.

into account, the lack of experience using decentralized financial mechanism in Cuba, and it represents an additional source to support activities related to the environmental protection, but on a project approach base and with a very important territorial and communitarian character.

The NEF was created by The Environmental Law No. 81 in 1997 year, the Chapter X article No.65 approved the financial mechanism, that presumes the design and the application of some impositive and regulatory measures, to complement its financial resources, and a group of other positive measures to redistribute the gathered funds for the environmental protection.<sup>15</sup>

It was implemented by a Joint Resolution No.1 from 1999 year, from the Ministries of Economy and Planning and Finances and Prices that defined the Fund's sources and targets and established the multi-institutional character of the Executive Board of the NEF. The economic recently changes did not affect the Fund activity. It was ratified by Joint Resolution No.1 from 2008 year that maintain the NEF functions and it only adequates few economic processes.

The NEF has been working since 2000 year and directs preferably its projects to solve environmental problems in the base, it means those problems that can't be solved by the central institutions or by the local governments, and have a communitarian impact.

The NEF has been organized five Calls for the presentation in concourse projects to apply for funds.

The approved sources for the NEF<sup>16</sup> are following:

- a) Annually Government assignments.
- b) Incomes providing by environmental authority driven from the licensing and permit system.
- c) Donatives.
- d) Gathering Campaigns in support for the environment.
- e) Other charges or incomes driven form environmental exploitations.

If analyze the sources mentioned in a), it is easy to understand that the Cuban Environmental Fund is supported by the State. The Central Budget annually assign 5 million CUPs if are clearly defined targets for its application. The b) source shows other distinctive character of the sources in the Cuban NEF, the environmental authority gives these incomes to the NEF.

Until to 2008 year has been make 5 Calls for projects presentation to apply to the Fund, It has been approved 305 projects (around 35 % of the presented), and mobilized, in all five calls a total of 21, 3 Million CUPs.

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<sup>15</sup> Environmental Law. Ley 81 de Medio Ambiente - Gaceta Oficial de la República de Cuba pág. 56 11 de julio de 1997..

<sup>16</sup> See. Resolución Conjunta No.1 de 2008, de los Ministros de Economía y Planificación y de Finanzas y Precios



Targets<sup>17</sup> of the NEF resources are following:

- a) Environmental projects that exceed the scope of some institution, those have a multisectoral and communitarian character.
- b) Environmental projects that exceed the economic capacity of some institution, and is focused on an important environmental target.
- c) Co-financing other economic activities in a region.
- d) Financing studies or service, those are relevant to the Fund targets.
- e) Advertising, promotion and education for environmental campaigns.

In comparison with the financial flows driven by the Investment Plan for the Environment, the mobilized by NEF funds are little, but at the same time, are very important at the provincial level. The Calls of the NEF generate an important movement of evaluation of the environment and searching for new alternatives to solve environmental problems. It gives a positive result for the environmental thinking on the base, because the project elaboration process, include not only the environmental authorities at provincial and municipal levels, but also include the Governments on the base and it play an important role to widespread the environmental understanding.

The targets of the developed projects are focused in reforestation, soil recovering, sustainable agriculture, in-situ and ex-situ conservation of species, fight against contamination, saving energy, use of the biomass, among others. An important targets of the NEF projects is the Environmental Education, it is an important tool, not economic, but useful for understanding the relevance of the protection of the biological diversity.

### **Forestry Tax.**

The Forestry Tax is another impositive measures. Through it, the cut of trees in the exploitation of the wood areas, is burdened, and depends on the kind of wood and of the amount that will be extracted from the plantation. The Forestry Tax also includes charges over the exploitation of the not woody products, as seeds, ligneous, and others goods, driven from the Forestry.

The impositive measure charges the trees cutting and pushes to a more rational use of the woods, and to use forestry in a more sustainable way. The tax is a source of the Forestry Fund that provides the financial flows for the reforestation of the country process, silvicultural activities and the fulfillment the targets growing of the total wood planted area, and also the increasing, of the Wood Density Rate (WDR). In addition, Forestry Fund financially supports some protected areas projects.

The relation between gathered recourses through the Tax and the canalized recourses from the Fund, is another demonstration of the additional character of the resources in the application of the positive measures, for de Forestry in that case. The total yearly gathered by the Tax resources is around 6 million CUPs. The Forestry Fund canalize yearly around 80 million CUPs.

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<sup>17</sup> Idem.

**Table No 3 Dynamic of the national territory covered by woods in Cuba.**

Period		Covered surface by woods (thousand ha)		Coverage of wood index* %		Deforestation (-) Reforestation (+) (ha/per year)
		Beginning in year	Ending in year	Beginning in year	Ending in year	
1959	1974	1472	1691	13,4	15,4	(+) 14 600
1974	1983	1691	1907	15,4	17,4	(+) 24 000
1983	1998	1907	2334	17,4	21,2	(+) 28 467
1998	2007	2334	2778	21,2	25,3	(+) 49 333
*Coverage of wood index: % that represent the total covered by woods area against the total country surface (10 988 619 ha).						

Source: National Directorate of Forestry (DNF) of the Ministry of Agriculture (MINAG). Forestry dynamic for 2007 (may, 2008).

The woods play an important role in the environment to reach the equilibrium of the hydrological cycle, in the soil conservation, as keeper and habitat of important species, play an important role in the environmental goods and services from the ecosystems. The above presented figures are a ratification of the effects in the application this positive measure.

### **Havana Bay User Tax.**

The Tax for the use of the Havana Bay is another of the impositive measures that come together with the application of the important positive measure. It is the financing support for the recovery of the Havana Bay.

The application of the Tax was designed and stimulated by an especially created group to lead the bay cleaning. The group “Grupo Estatal para el Trabajo (GET) de Saneamiento de la Bahía de la Habana” was integrated by 2 Governmental Ministries: Transport and CITMA and by the Government of the Capital. The Environmental Authority covers the budget of this Group.

The tax-payers are the natural or legal people, national or foreign that use or exploit the Havana Bay, with economic goal, or for tourism or recreation, including the harbor activities. The tax rate is calculated on the base of the use of the entrance channel, the use of the shore includes the entities that are established on the harbor infrastructure. This Tax was created for an especial environmental target and all the gathered financial resources return to the Group (GET) to finance all the cleaning up activities.

The Tax is implemented since 2002 year and the dynamic of the collected money is around 1,6 to 2,6 Million CUPs per year. The Total amount collected is around 19, 5 Million CUPs.

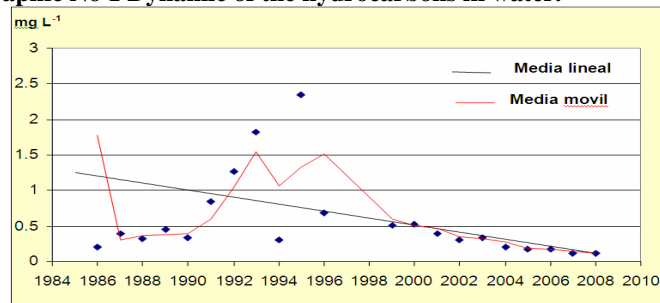
The financial support to the cleaning up process of the Havana Bay, have been raised from two main sources. All the gathered resources from the Tax, in addition, bring the possibility of hosting few international projects that complement our national efforts in this regard.

Action of cleaning makes possible a recuperation of the bay ecosystem. It is commented in some documents<sup>18</sup>.

In this analyzed case, there are studies that show a positive evolution. Studies developed, by the GET, before 2003 year, remark that the financial support to the ecosystem makes possible to reduce in a 50 % the charge of waste coming from the industries.

More recently information brings new evidences of the impact of the positive measure coming from the levied resources.

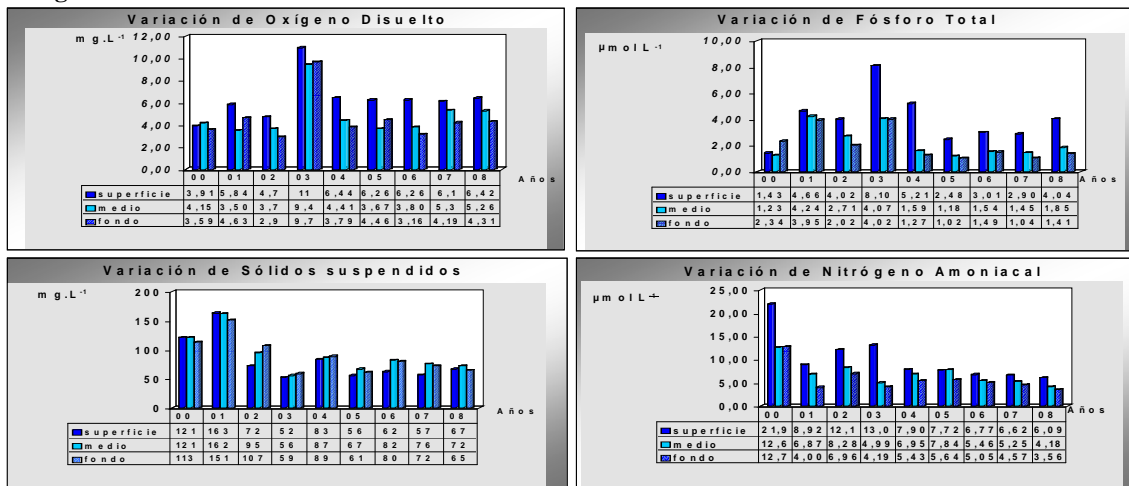
**Graphic No 1 Dynamic of the hydrocarbons in water.**



Source: CIMAB “Control y evolución de la calidad ambiental de la Bahía de La Habana” .Informe Final. Febrero, 2009 , Pág.7.

The Graphic No.1 ratifies the sustained reduction dynamics of the hydrocarbons in the bay’s water. If the analysis includes other variables the process is corroborated.

**Graphic 2. Historic behavior of the solved oxygen, the total phosphor, floating solids and Amoniacal nitrogen.**



Source: CIMAB “Control y evolución de la calidad ambiental de la Bahía de La Habana” .Informe Final. Febrero, 2009 , Pág.5.

Even when there are not enough statistical evidences about the recovering of the biological diversity in the ecosystem, the public perception is positive as a result of the reappearing, in

<sup>18</sup> Ver ECLAC “Serie Medio Ambiente y Desarrollo No.60” Estudio de caso: Cuba. Aplicación de instrumentos económicos en la política y la gestión ambiental. 2002. Pág.30

the Havana Bay, of species that every body thought that were lost as result of the strong contamination that there was. The reality is the reappearing of the sport fishermen in the littoral, the pelicans are flying, and fishing again on the bay, and in the last GET's report about the bay's healthy is recognized the reappearing on some phytoplankton species"<sup>19</sup>.

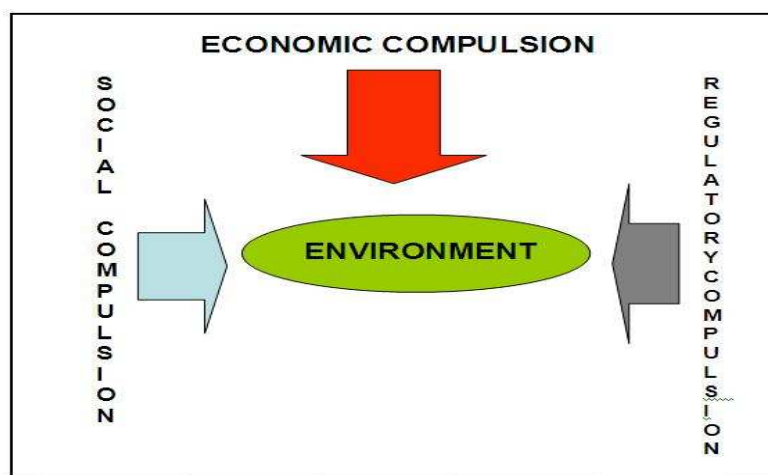
The implementation of the financial support to the cleaning up the Havana Bay has been so positive that, recently, was decided at the highest level of the Cuban Government, replicate the Havana Bay experiences on other three important country bays. The decision will permit extend the positive measure to a new habitat or ecosystems.

### Barriers and challenges

An achievement of the Cuban environmental management and policy is to implement a set of economic instruments, including some positive measures for the environment and for biological diversity, without hyperbolizing the role of the market tools in this field, and to use those instruments as a system in a hole package of non economic policy tools.

Cuba applies a multifactor approach in their environmental management to deal with the protection of the environment and of the biological diversity, using all the instruments defined in the Environmental Law No.81, as an integration of the regulatory, social and economic influences that may be appreciated below<sup>20</sup>.

**Graphic No 3. Multifactorial Approach of the environmental management**



Source: See reference 16.

It is important to remark that one of the factors that made possible the application of positive measures and other economic instruments for the environment is the high

<sup>19</sup>See CIMAB "Control y evolución de la calidad ambiental de la Bahía de La Habana" .Informe Final.Febrero, 2009

<sup>20</sup> See . ECLAC "Serie Medio Ambiente y Desarrollo No.60" Estudio de caso: Cuba. Aplicación de instrumentos económicos en la política y la gestión ambiental. 2002. Pág.30 Pág. 48

coordination level among the environmental policy makers and economic ones. It was supported by experts groups from the ministries of economy, finance and environment, that carried out the studies, prepared the proposal and helped to the implementation of the activities.

Even those, the Cuban economy not enough recognize in his economic relations, the economic value of the biodiversity and of the environment, not enough recognize the economic side of the environmental goods and services provided by the ecosystems.

The introduction, in the economic channels of decision making and in the ways of economic management, the recognizing of the value of the biological diversity and the value of the environmental actives, is the biggest challenge for the environmental authority.

Another limiting barrier is related to the lack of ability of the economists, at the micro level, to work with all these techniques. The introduction in the curricula at universities of those concepts that include the biodiversity and the environment as an economic recourse, that should be accountable, and manageable is another challenge to face up.

There is a need for more studies and researches in these regards, it is also necessary, the accountability of all the implemented positive measures, for the biological diversity, aimed to create a statistical base to analyse the cost-benefits opportunities, or the prices conformations, and the determination of the values for environmental good and services.

For those above commented challenges, and for the reduction of existing gaps, will be useful if the CBD include in its capacity building activities, actions that permit the Country Parts to elevate the national knowledge and its capacities in the economics of biodiversity.

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## ACRONYMS

AN	Author Notes
CBD	Convention on Biological Diversity
ECLAC	Economic Commission for Latin America and Caribbean.
CITMA	Ministry of Science Technology and Environment
CIMAB	Engineering and Environmental Management of Bay and Coast.
CUP	Cuban Peso
DNF	National Directorate of Forestry
GET	State Working Group for cleaning up the Havana Bay
IPE	Investment Plan for the Environment
NFF	National Environmental Fund
NES	National Environmental Strategy
MINAG	Ministry of Agriculture
ONE	National Office of Statistic.
UNCTAD	United Nation Conference on Trade and Development
TEEB	The Economics of Ecosystems & Biodiversity
WDR	Wood Density Rate.