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SUSTAINABLE DEVELOPMENT AND ENVIRONMENTAL RECONSTRUCTION IN THE MUNICIPALITY OF ASPROPYRGOS IN GREECE

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ABSTRACT

Nowadays, environmental problems have taken enormous dimensions. Local Authorities are requested to be at the forefront and to solve these problems, within the frame of the henceforth established objective of Sustainable Development. Such is the case for the Municipality of Aspropyrgos in Greece.
A research has been conducted in order to understand how citizens of Aspropyrgos Municipality perceive and evaluate the environmental reconstruction and sustainable development issue of their region in accordance with municipal actions.
Results came out from the on-the-spot research of the present paper with regard to how citizens participate in the environmental problem, how much are they environmentally aware through the help of the responsible authorities and institutions and how they evaluate the environmental threats and the potential municipal actions for environmental reconstruction. These elements constitute precious guides for the evaluation of an effort for environmental reconstruction of the region within the frames of Sustainable Development principles.

Key words: environmental problems, environmental reconstruction, Municipality of Aspropyrgos in Greece,

1. INTRODUCTION

Nowadays, environmental problems have taken enormous dimensions, because thoughtless management has led not only to just mere problems, but also to the planet's ecosystem imbalance. The problems' aspects are henceforth so dangerous and threatening, that each environmental measure must be regarded as a matter of great urgency. Earth is slowly dying, while flora, fauna, air and water have been seriously wounded both in quality and quantity. Superlocal and local organised societies and communities have been awakened and taking measures towards all directions. Local Authorities are requested to be at the forefront and to solve their problems, within the frame of the henceforth established objective of Sustainable Development. Such is the case for the Municipality of Aspropyrgos.

Thoughtless and polluting land uses in Aspropyrgos Municipality have brought about dramatic environmental consequences. (Chart 1) Aspropyrgos used to be an agricultural and cattle-breeding area. From the sixties and thereafter, it evolved into an industrial center and afterwards, and by the nineties and thereafter into a transit center. (1) In our days, it is one of the most environmentally downgraded regions of western Attica as it has followed a growth pattern that didn´t include the environmental dimension or if it did so it was to a minimum.

The region's dominant problem, which brought about the most serious environmental problems is the presence of many industries. In the wider region operate over 3000 industrial and craft-based installations, from which, some of the biggest industries of the country, such as: Two oil refineries (Hellenic Petroleum S.A., Petrola Hellas S.A.), two steel industries (Hellenic Halyvourgia, Halyvourgiki S.A.), two cement industries (TITAN, Halyps Cement-Italcementi Group), an ammunition industry (PYRKAL), two shipyards, ship scrapping installations, a commercial harbour (as well as a roadstead, where vessels can lie at anchor), establishments of petrol products storage and processing, three fossil fuel processing units, one paper processing industry, scrap units, chemical industries and pits. Besides that, there is also the forthcoming operation of the gigantic new cargo facilities and railway station of Hellenic Railways Organisation (OSE). (2, 3)

2. ENVIRONMENTAL PROBLEMS

Industries in Aspropyrgos have brought about enormous environmental devaluation in the areas´soil and water. (4) More specifically, various steel industries, as well as units for lead recycling from batteries resulted in Pb, Cd and Zn soil concentrations at 2 to 20 times greater than normal. Hellenic Petroleum S.A. oil refinery refinery contributed in the creation of 3 underground oil blots in approximately 11 m. long. The first one, which is 427 acres, contains kerosene

and diesel and causes spouts in Lake Koumoundourou. The second and the third blot are 5,9 and 1,9 acres respectively and contain mainly kerosene and crude oil. Also, the storage of significant quantities of PCB's from the National Electrical Company (DEI) without security measures, has led to additional soil pollution. Lake Koumoundourou has been polluted by toxic chemical substances, which are by 10 times greater than maximum safety levels. (5) Also, underground pollution from the neighbouring waste disposal center further pollutes the Lake (Chart 2).

Underwater pollution from highly dangerous industrial pollutants is also significant. Additionally, pesticides and fertilizers from agricultural activities further deteriorate the situation.

Moreover, the absence of modern water supply and sewerage treatment networks in the whole area and their consequent uncontrolled disposal in the environmentally sensitive Eleusis Bay had resulted in Greece's condemnation from the Court of Justice of the European Communities [Decision of the 24th of June 2004 (Case C-119/02)]. The same happened [Decision of April 2005 (Case C-163/03)] due to the lack of infrastructure in the sector of dangerous waste management and their disposal at Eleusis Bay.

In view of the above, a contract has been recently signed between Athens and Piraeus Water Company (EYDAP) for the establishment of a sewage collection network, which is due to be delivered till late 2009.

There is also the question with (solid) waste management and treatment. Solid wastes are currently not processed prior disposal at the new Waste Disposal Center in the Philis Municipality and previously at the Waste Disposal Center in Ano Liosia Municipality. Recycling programs are in initial application stages.

However, Aspropyrgos' problems do not stop here, as there are also alterations in the natural landscape due to stream blocking and uncontrolled disposal of waste materials. Only the stream of Saint Yiannis in Halyvourgiki has been maintained and cleaned and as a result there is a serious issue with the flood prevention-protection of the area (especially for the case of Yiannoulas stream since the extensive fire that occurred in Mount Parnitha in the summer of 2007). (Chart 3)

Air is also highly polluted, due to the industrial activity, fossil fuel consumption and traffic circulation. (6) However, according to facts from the Association of Municipalities and Communities in Thriassio Pedio, in the decades 1980/90 a qualitative change in Thriassio air pollution was noted due to changes in production procedures in dominant industries (eg iron production from scrap and not from metals) and implementation of pollution preventing metres from certain industries.

Coastal zone pollution is top-ranking environmental problem for Aspropyrgos. (7) According to Municipality of Aspopyrgos (2008) coastal zone has been polluted due to various factors such as industrial waste, Yiannoulas stream, shipyards, scrapping activities, vessels, disposal of various waste on the coastline, waste disposal center in Ano Liossia, PMs and unfavourable land morphology, since we talk about a shallow and almost defined bay. Thus, though the situation has been improved in comparison with the recent past, things remain ominous as Eleusis Bay still remains seriously polluted and eutrophic.

Another problem is traffic congestion and noise pollution, due to heavy vehicles circulation, like lorries or busses. Noise pollution is considered as a very serious environmental problem for Aspropyrgos and the most affected areas are those neighbouring with the national road network. (8) Currently, various circulatory regulations have been put info force.

Finally, further environmental issues result from land usage conflicts, since there is a vast majority of currently existing within the administrative limits of Aspropyrgos (houses, industries, storehouses, transit centres, etc.). Such problem become more intense due to a building patern without previous plan and the lack of green spaces.

All the above result in continuous pressure in biodiversity (flora, fauna, ecosystems). However, it is noted that within the administrative limits of the Municipality there are protected areas, such as Koumoundourou Lake and the Ichous Hill (Landscapes of particular natural beauties), Arma and Gkouras Gulch (Landscapes of particular natural beauties, Biotope of the European program CORINE), Mount Parnitha (Biotope of the European program CORINE, Biotope of scientific interest NATURA 2000). Additional, Eleusis Bay has been characterized as a "sensitive" area according to the EU Directive 91/271/EU on urban sewage (and respective 19661/1982 Greek law decision of the 2th of August 1999). (9)

3. ASPROPYRGOS MUNICIPAL ACTIONS FOR ENVIRONMENTAL RECONSTRUCTION AND SUSTAINABLE DEVELOPMENT

The municipality of Aspropyrgos in its effort to deal with the biggest environmental problems, has planned an action programme for the environmental reconstruction and further sustainable development of the region. From the investigation of facts and figures from a Municipal Council environmental decision (10) and from Aspropyrgos´ Operational Plan (11), it appears that the Municipality has been activated. Also, the Municipality is henceforth absolutely strict and opposed to actions that might cause further environmental damage, such as some of the environmental threats mentioned below in detail (Table 2).

Ongoing municipal environmental actions are documented in the Municipality´s Operational Plan and in the axis relevant to the environment. The corresponding municipal actions - priorities are the following:

"AXIS 4: ENVIRONMENT: Objective: The achievement of a healthy, attractive, clean urban environment via the application of environmentally friendly technologies along with the control against rubble and waste deposition in the wider region.

ACTION 4.1. Waste Management - Communal Spaces Cleanliness
ACTION 4.2. Natural Environment Protection and Civil Protection
ACTION 4.3 Fire safety" (12)

The Operational Plan records in detail all individual subtasks concerning the above actions. However, in Asporpyrgos Municipality internet site it is underlined that those do not constitute a commitment on behalf of the Municipality. The formation of the final municipal operational plan will be the result of these proposals, as well as those from citizens. For this reason, today, the Municipality finds itself in phase of public consultation for the recording of citizen's opinion with the help of a questionnaire. This practice is in absolutely alignment with the methodology proposed by Local Agenda 21 (13) for the local authorities operation. According to this methodology, the passage from the model of "authoritarian governance" to that of "participative governance", where decisions are taken with the the active attendance and consensus of citizens, is proposed. This model is the most advisable if we want to achieve Sustainable Development, because it has been proved that no strategic reconstruction program will succeed if it is not firstly discussed with its citizens.

It is underlined that participative processes do not substitute the operation of institutional bodies of Local Government. Their role is to effectively support these institutional bodies, so as to take correct decisions for sustainable growth, incorporating in their objectives citizens' opinion.

4. RESEARCH AND METHODOLOGY

A research has been conducted in order to understand how citizens of Aspropyrgos Municipality perceive and evaluate the environmental reconstruction and sustainable development issue of their region in accordance with municipal actions. This research proceeded (Oct-Nov 2008) the respective one from the Municipality. The objective was to record the opinion of citizens for their environmental issues and in particular to see how they rate these problems and whether they have confidence in the reconstruction programs of the Authorities.

For the above objectives, a questionnaire was distributed to 132 citizens in public spaces of the Municipality. The sample was randomly chosen, but population characteristics such as age and gender were taken into consideration (Permanent Population of Aspropyrgos Municipality 27.927 individuals, Population Census 2001). (14)

The questionnaire was structured in four units as follows:

- Personal Data such as gender, age end education.
- Environmental Awareness & Consciousness - Active Citizen. The essence of active citizen is evaluated in this unit through questions for environmental protection individual contribution, environmental awaresness and participation in environmental events.
- Municipal Policies, Actions and Prospects. Here there are three issues investigated: how the citizens evaluate municipal actions and perceive future prospects of conjunctions with other municipalities and whether they consider that their Municipality requires additional environmental care.
- Environmental Reconstruction of Aspropyrgos Municipality. The questions of this unit constitute the heart of the questionnaire and the whole analysis, since we can extract important conclusions, always according to the opinion of our sample, for the environmental reconstruction of the Municipality, and in particular we can specify:

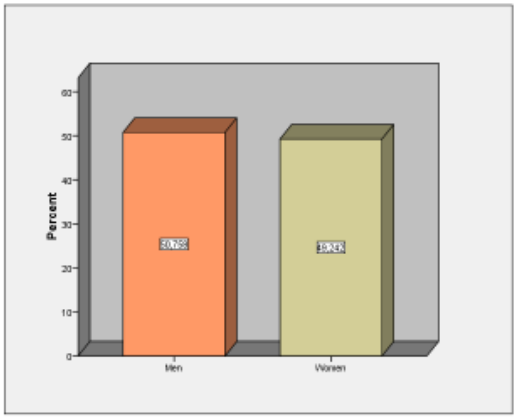
1. *the most important environmental problem of the region*
2. *the importance of future actions that might prove to be environmental threats*
3. *the importance of specific actions for environmental reconstruction*
4. *the most important action for environmental reconstruction*

5. RESEARCH RESULTS

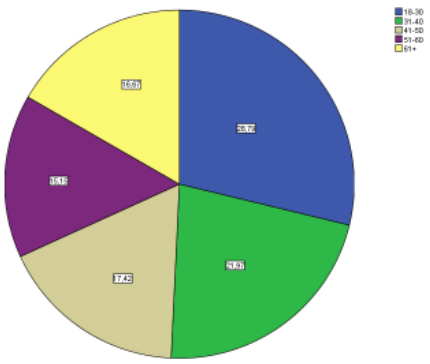
- Personal data

50,8% of those questioned were men and 49,2% were women. Age percentage distribution was for the age groups 18-30, 31-40, 41-50, 51-60 and 61+ as following: 29%, 22%, 17%, 15% and 17% respectively (almost the same percentage for each age group). As for their education, 35,6% declared that they were High School graduates, followed by Technological Institutes graduates, Junior High School Graduates, and Elementary School Graduates with a percentage of 13,6% for of the three categories. Those holding a bachelor degree (attained undergraduates studies) mounted a total of 12,1%, those knowing only writing and reading 6,1%, those holding a master degree (postgraduate studies) 4,5%. Only one individual possessed a doctorate (0,8%).

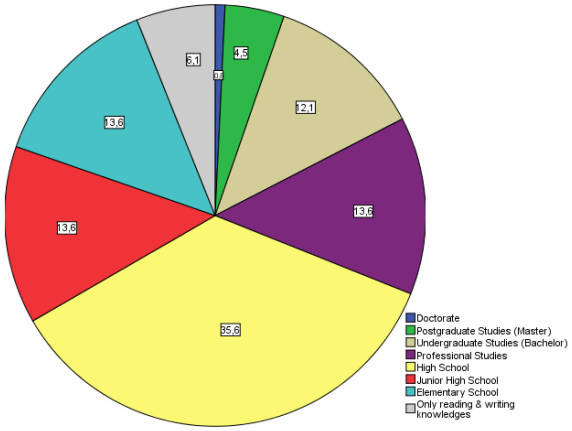
Bar Chart 1. Gender



Pie Chart 1. Age



Pie Chart 2: Education



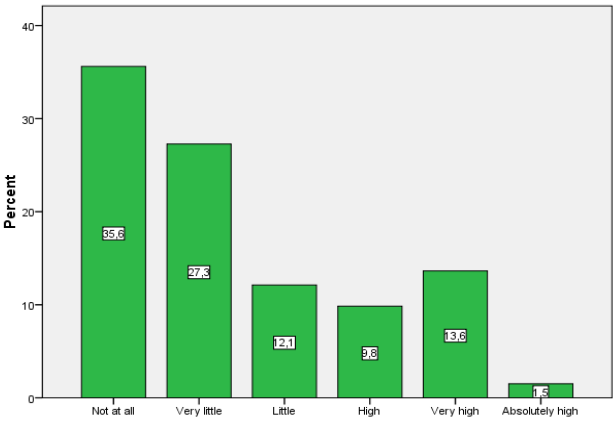
- Environmental Awareness & Consciousness - Active Citizen

In the question "Do you consider yourself able to contribute to the environmental protection of your region?", extremely worrying is that most citizens answered 'not at all' or 'very little' [in total 62,9% (cumulative frequency)]. This implies that they either consider themselves almost unable to reverse the environmental situation of their region or indifferent.

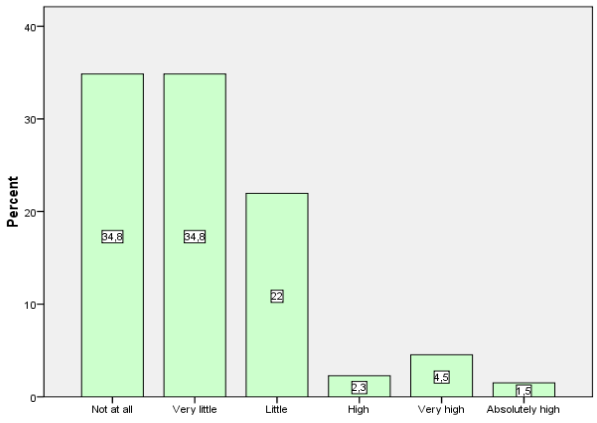
Alternatively, 62,7% can be considered as the percent of indifferent or non participating citizens towards the solution of environmental problems. Moreover, from the crosstbulation of answers depending on sex and the level of education, women as against men seem to believe that can contribute more to environmental protection. Also, High school graduates constitute the majority of those that consider that cannot by all means contribute to the environmental protection.

In the question "From where do you get informed for the environmental issues of your region" with an answering scale of "not at all", "very little", "little", "high", "very high", "absolutely high" and with the determination of sources of environmental awareness, the sample answered: "very little" from Official Authorities (34,8%), "not at all" from Organised Teams (33,33%), "high" from Media (46%), "very little" from Local Newspapers (44%), "not at all" from Internet (43,18%), "very little" from Discussions with other people (31,82%), "very high" from Personal Observation (30,30%).

Bar Chart 2: Individual environmental protection contribution



Bar Chart 3: Satisfaction degree from municipal environmental actions



The percentage of citizens using their personal observation as a way for environmental awareness is high and this is remarkable, whereas in their majority become «very little» environmentally aware by Official Authorities, such as the Municipality. Finally, it is noted that none from the sample mentioned any alternative source of environmental awareness.

In the question "Have you ever participated in any demonstration or protest for the environmental protection of the wider region of Thriassio Pedio?", 83,33% responded negatively. This fact is particularly worrying, since citizens of the Municipality as the main recipients of environmental and life quality devaluation, should be the first ones to react and participate in such protests.

In the crosstabulation of the above question with the variables 'gender' and 'age' is of particular interest, women are somehow more environmentally sensitive and aware (of course with the acceptance that indicator of the attendance in environmental demonstrations is indicative of the environmental sensitivity and awareness) and people aged 18-30 are more environmentally active in comparison to the other age groups.

- Municipal Policies, Actions and Prospects

From the answers in the question: "Are you content by municipal actions in the sector of natural environment protection and dissuasion of any kind of pollution?" a generic dissatisfaction with the municipal environmental actions is concluded.

In the question: "Is there any environmental action, which you consider that the Municipally hasn't undertaken, though according to your opinion should such a thing should have been done?", 76,5% responded positively or, in other words, 76,5% considers that there are environmental actions that should have been taken. This percentage is very high, justifying also the low degree of satisfaction from the environmental action of Municipality, according to the previous question. Such actions could have been recycling programmes, coastal zone environmental protection actions, water

quality improvement, increase of buckets of litter, trees implants and increase of green spaces, circulatory regulations, relocation of polluting factories, exploitation of natural gas network.

Not only the question "Will a potential conjunction of Aspropyrgos Municipality with Eleusis Municipality influence negatively the confrontation of environmental problems?", but also the question "Will a potential conjunction of Aspropyrgos Municipality Philis Municipality influence negatively the confrontation of environmental problems?" are directly related with the study of Local Government Institute on further future merges of existing municipalities and communities (named as New Kapodistrias Programme). [15]

Even though Eleusis is a particularly environmentally sensitive municipality, the majority of those questioned where not at all in favour of such a conjunction in general. At the same time a potential merge with Philis Municipality evoked even more negative responses.

In the question "According to your opinion, is the area of Aspropyrgos in need of further environmental care and protection?", 43,2% responded "very high", 40,9% "absolutely high" and none of those questioned replied with "not at all" or "very little".

- Environmental Reconstruction of Aspropyrgos Municipality

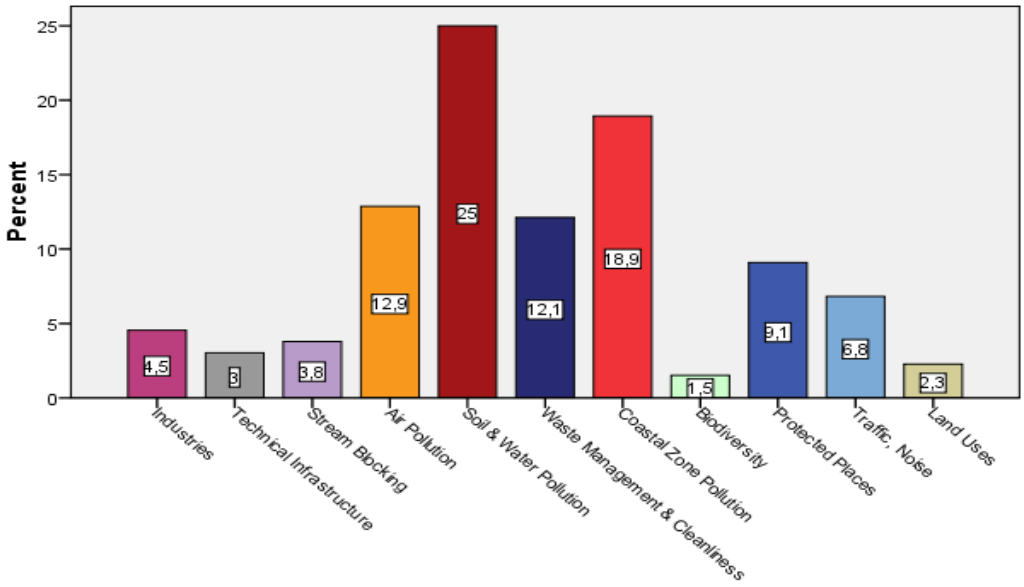
In the question: "Which of the following do you consider as the most important environmental problem of your area?", there were the following responses:

Table 1. The Most Important Environmental Problem

	Frequency	Percent
Many industries	6	4,5
Lack in technical infrastructures (such as sewage collection and treatment network)	4	3,0
Stream blocking	5	3,8
Air pollution	17	12,9
Soil and water pollution	33	25,0
Waste management and cleanliness	16	12,1
Coastal zone pollution and devaluation	25	18,9
Biodiversity constant pressure	2	1,5
Protected places (i.e. lake Koumoundourou, Mount Parnitha)	12	9,1
Traffic congestion , noise pollution	9	6,8
Land uses, uncontrolled building patterns, lack of green spaces	3	2,3
Total	132	100,0

The first two choices of those asked are remarkable. Soil and water pollution seems to be of high importance, especially if we bear in mind that this issue touches upon their very quality of life (polluted drinking water, lack of sewage network). Coastal zone pollution and devaluation follows and, as we will note below, coastal zone management will appear to be the most important action for the environmental reconstruction of the area, according to the sample's opinion.

Bar Chart 4: The most important environmental problem



Further queries arise due to the fact that the problem of the presence of "many industries" is in the 7th place of the sample's responses, whereas it should be expected to be one of the first choices since that very problem is the source of most of the others. Moreover, no one reported any other important problem far from those recorded in the questionnaire. It is also noted that in the questionnaire completing process most of those questioned found difficulties in choosing one problem over the others and pointed out that all of the above problems are equally important.

From the crosstabulation of the above answers with age and education, it seems that soil and water pollution was the choice of the majority of:

a) age groups 18-40, 31-40, 41-50 and 51-60 (only people aged 61+ opted, in their majority, for coastal zone pollution)

b) master holders, High School graduates and those knowing only reading and writing. Professional studies graduates in their majority chose equally soil and water pollution and coastal zone pollution. Doctorate holder chose air pollution, bachelor holders waste management and Senior High School graduates coastal zone pollution.

In the question: "According to your opinion, how will the following influence the environment of Aspropyrgos and its wider area?", the sample was asked to evaluate a series of actions.

Table 2: Future Environmental Threats Evaluation

	Not at all	Very Little	Little	High	Very High	Absolutely High
Sewage system treatment center at Aspropyrgos coastal zone	0	1	2	21	55	53
	0,00%	0,76%	1,52%	15,91%	41,67%	40,15%
Sewage transportation installations via submarine pipes from Aspopyrgos beach to Psyttaleia for further treatment	12	33	29	48	8	2
	9,09%	25,00%	21,97%	36,36%	6,06%	1,52%
Electricity Producing Power Plant in Halyvourgiki	0	2	9	19	33	69
	0,00%	1,52%	6,82%	14,39%	25,00%	52,27%
Enlargement in PETROLA´s installations	0	4	1	7	90	30
	0,00%	3,03%	0,76%	5,30%	68,18%	22,73%
Waste disposal center in the nearby area called Meletani	8	6	13	55	38	12
	6,06%	4,55%	9,85%	41,67%	28,79%	9,09%
Harbour for iron-ore transshipment at the coastal zone (near Hellenic Halyvourgia)	5	0	1	25	71	30
	3,79%	0,00%	0,76%	18,94%	53,79%	22,73%
Harbour for containers transhipment at the coastal zone (Skaramangas area)	4	13	28	27	60	0
	3,03%	9,85%	21,21%	20,45%	45,45%	0,00%
Use of the military camp Xirogianni in the lake Koumoundourou from the Ministry of Development for the relocation of petroleum products reservoirs existing currently in Perama to Aspropyrgos	5	0	16	13	54	44
	3,79%	0,00%	12,12%	9,85%	40,91%	33,33%

The most intense reactions ("absolutely high" percentages) are caused by the potential creation of an Electricity Producing Power Plant in Halyvourgiki, whereas actions like "a harbour for containers transshipment at the coastal zone (Skaramangas area)", do not create any extreme responses.

We also note that for the two first potential threats, citizens are intensively negative with construction of a sewage system treatment center at the beach of Aspropyrgos as opposed to the construction of sewages transportation installations via submarine pipes from Aspopyrgos beach to Psyttaleia for further treatment, since the sample estimates that the later action will not damage the environment "very much" or "absolutely high".

The last question of the questionnaire was the following: "According to your opinion, how will the following actions influence the environmental reconstruction of Aspropyrgos? In the last column, please mark, according to your opinion, the most important action." contribute the following action in the environmental reconstruction of Municipality?" (Table 3).

According to the responses, the most important action for environmental reconstruction is coastal zone protection. The municipality of Aspropyrgos is a coastal municipality and consequently, accordingly to the opinion of residents, there is a necessity for a coastal zone management in connection with sustainable development principles.

The crosstabulations of the sample's answers to the above question and variables such as gender, age and education are interesting. There was no man at all to choose actions such as free spaces exploitation (ie space in Merchant Marine Academy in Aspropyrgos coastal zone), services (since the Municipality is developing in an important transit centre that encourages the concentration of services), creation of a waste disposal center for the Municipalities of Thriassio Pedio and their answers accumulating in the two actions, that proved those most significant according to the whole sample. Also men seem to choose (in frequencies) more the action "Sewerage Network construction" in comparison to women. On the contrary the choices of women present bigger dissemination, after they cover all actions.

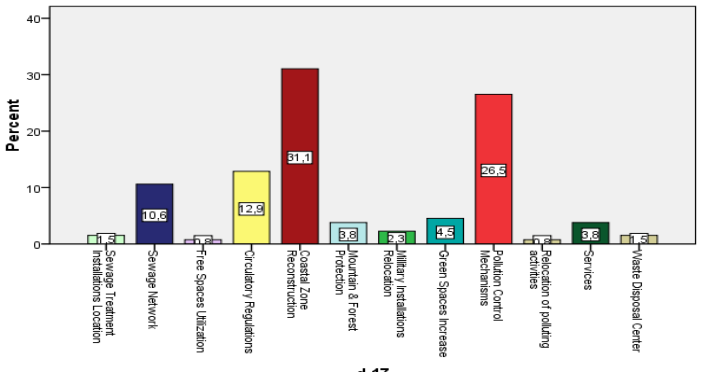
In terms of education, individuals with doctorate and postgraduate studies (master) did not select the action "Control", despite the fact that this action is the 2nd most important, according to the rest of the samples' opinion. The majority of

men and women aged 18-30 selected “Coastal zone reconstruction”, implying that younger people are more willing to protect the sensitive coastal forehead what its exploitation as a recreation space. The majority of men and women aged 31-40 selected “'Control”. Men and women aged 41+ selected “Coastal zone reconstruction”. Circulatory regulations as the 3rd most important environmental action is a mix choice of younger men aged 18-50 and older women (51+).

Table 3: Environmental Reconstruction Actions

	Not at all	Very Little	Little	High	Very High	Absolutely High	Most Important
Location of sewage treatment installations (biological cleaning).	1	1	15	21	56	38	2
	0,76%	0,76%	11,36%	15,91%	42,42%	28,79%	1,52%
Manufacture of sewage network for urban sewage and industrial waste.	0	4	1	16	81	30	14
	0,00%	3,03%	0,76%	12,12%	61,36%	22,73%	10,61%
Free spaces exploitation (ie Merchant Marine Academy in Aspropyrgos coastal zone and former NATO installations)	0	27	2	6	72	25	1
	0,00%	20,45%	1,52%	4,55%	54,55%	18,94%	0,76%
Basic circulatory regulations.	2	6	5	5	82	32	17
	1,52%	4,55%	3,79%	3,79%	62,12%	24,24%	12,88%
Coastal zone environmental reconstruction (Lake Koumoundourou, Eleusis Bay)	0	4	1	5	67	55	41
	0,00%	3,03%	0,76%	3,79%	50,76%	41,67%	31,06%
Effective actions for the protection of mountains, landscape and forests	0	4	1	7	81	39	5
	0,00%	3,03%	0,76%	5,30%	61,36%	29,55%	3,79%
Progressive removal of all military installations and especially military airport in Eleusis.	0	4	1	6	76	45	3
	0,00%	3,03%	0,76%	4,55%	57,58%	34,09%	2,27%
Green spaces increase.	0	4	1	7	75	45	6
	0,00%	3,03%	0,76%	5,30%	56,82%	34,09%	4,55%
Establishment of safety measures, contingency plans and protection strategies against industrial accidents	0	25	7	12	63	25	0
	0,00%	18,94%	5,30%	9,09%	47,73%	18,94%	0,00%
Effective (repressive and preventive) controlling mechanisms against air, soil and water polluting activities.	0	4	0	6	61	61	35
	0,00%	3,03%	0,00%	4,55%	46,21%	46,21%	26,52%
Relocation of all dangerous and noise productive activities away from from the urban web.	0	4	0	6	61	61	1
	0,00%	3,03%	0,00%	4,55%	46,21%	46,21%	0,76%
Establishment of less polluting activities and mainly services.	0	4	1	3	75	49	5
	0,00%	3,03%	0,76%	2,27%	56,82%	37,12%	3,79%
Use of waste disposal center in Ano Lossia only by Municipalities from Thriassio Pedio	0	4	0	6	83	39	2
	0,00%	3,03%	0,00%	4,55%	62,88%	29,55%	1,52%
Re-establishment of two inactive pits in Xirorema	11	40	39	17	17	8	0
	8,33%	30,3%	29,55%	12,88%	12,88%	6,06%	0,00%

Bar Chart 5: Most important environmental reconstruction action

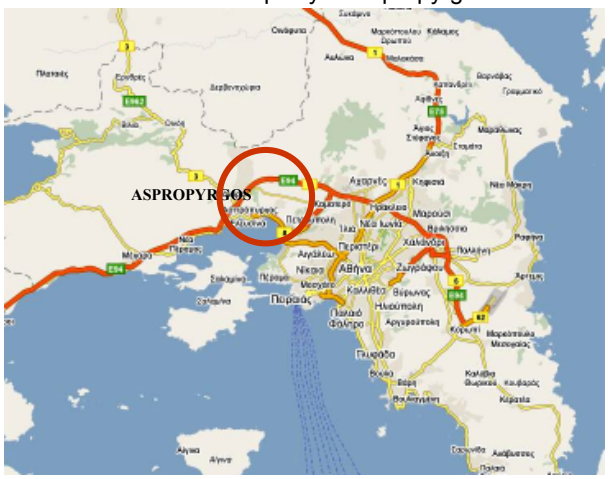


6. CONCLUSIONS

All information gathered from our sources, bibliography and the above on-the-spot research brought about valuable conclusions. First of all and without doubt, it is an established fact that

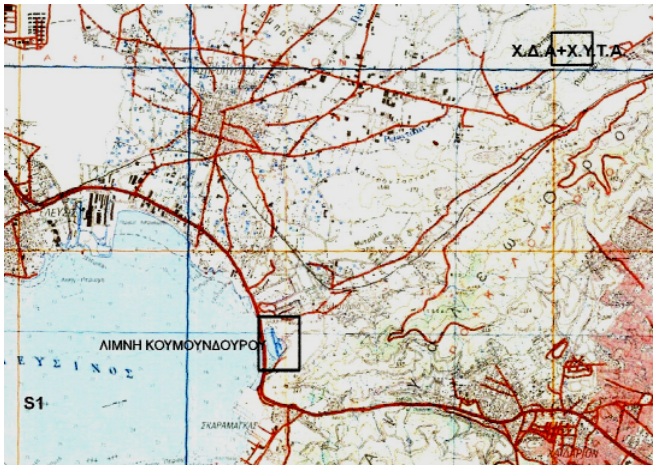
- the Municipality, as political and administrative mechanism is intensely puzzled with environmental problems and this is evidently recorded at its Operational Plan where environmental reconstruction is set as objective.
- the Municipality intends to limit and redefine environmental actions, according to citizens' opinion. This is proved from the open discussion that is provoked via the questionnaire currently published.

Chart 1. Municipality of Aspropyrgos



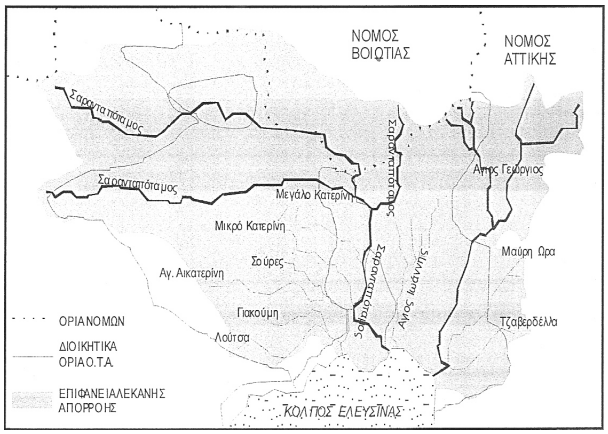
Source: www.aspropyrgos.gr/PressOfficeNewsView.action?newID=1

Chart 2. Lake Koumoundourou Location



Source: Hellenic Center for Marine Research (2006)

Chart 3: Water Streams in Aspropyrgos area



Source: ***Pogka 2005***

Nevertheless, discouraging results came out from the on-the-spot research of the present paper with regard to how citizens participate in the environmental problem, how much are they environmentally aware through the help of the responsible authorities and institutions and how they evaluate the environmental threats and the potential municipal actions for environmental reconstruction. These elements constitute precious guides for the evaluation of an effort for environmental reconstruction of the region within the frames of Sustainable Development principles. (EU, 1997) (Local Agenda 21)

Moreover and always according to the sample's opinion, the research showed that the most important environmental problem of the area is soil and water pollution, followed by coastal area pollution and devalorisation. At the same time, the most important action for an environmental reconstruction of the area is the general upgrade of the coastal area, followed by the implementation of effective pollution control mechanisms.

The Municipality of Aspropyrgos as the administrative mechanism that is closer to citizens and their environmental problems, can further use facts and figures derived from this present paper and research, in order to program the environmental reconstruction of the region taking into consideration the opinion of residents.

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