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“Sustainable Water Management through
Common Responsibility enhancement in
Mediterranean River Basins”

Water Management Action Plan for
Hydrological Region 8 of the River Basin of Cyprus



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1. INTRODUCTION

The present report was drafted in the framework of the 1G-MED08-515 WATERinCORE project for the “Sustainable Water Management through Common Responsibility enhancement in Mediterranean River Basins”.

The WATERinCORE project is implemented under the transnational programme of European territorial cooperation MED (<http://www.programmemed.eu>), Priority Axe 2: Environmental protection and promotion of a sustainable territorial development, Objective 2.1: Protection and enhancement of natural resources and cultural heritage.

The project aims at the design, application and dissemination of a methodological frame for the integration of Local Agenda 21 principles in Water Resources Management in Mediterranean River Basins. The project is implemented in cooperation with institutions from Greece, Italy, Spain and Cyprus and includes five components/phases as follows:

1. Communication- Publicity (Phase 1)
2. Project Management and coordination (Phase 2)
3. Water management in the regions of stakeholders in pilot river basins (Phase 3)
4. Analysis of LA21 application in stakeholders’ regions (Phase 4)
5. Strengthening of the Shared Responsibility in water management (Phase 5)

During phases 1 and 2 an appropriate communication strategy was developed and the activities of financial and technical projects’ management were launched.

During phase 3 an analysis of the water management was conducted in five pilot regions (Anthemountas River Basin - Greece, Irminio River Basin - ARPA Sicily, Serchio River Basin -Province of Lucca, Lower Basin of the High Genil - Deputation of Granada, Hydrological Region 8 – Cyprus), which gave insights for the development of a mutually accepted list of 29 indicators of Water Management. In addition, a SWOT analysis was applied reflecting the Strong and Weak points, the Opportunities and the Threats in each area.








During phase 4 an Achievement Recognition matrix of LA21 was developed to provide a structured approach/tool for the identification of strategic local plans, policies and procedures that meet the criteria of LA21.

The evaluation of the data indicators, the conduct of SWOT analysis and its results eventually led to the development of a Strategic Plan for Water Management. This Strategic Plan was set at the core of negotiations during phase 5.1 so that the questions and proposals from local authorities were taken into account and the final Action Plan for the water was shaped in phase 5.4.










In particular, during the phase 5.1 of the project the mobilization of the stakeholders was carried out through a properly planned process of selection and evaluation so that ultimately a targeted audience was formed. The choice of appropriate and most effective publicity means was among the purposes of the same phase. Respectively, during phase 5.2 the social dialogue was developed in the Strategic Plan, in order to enrich the social responsibility of citizens in water management. During phase 5.3 a poll was carried out regarding the water resources management and state, in the selected river basin. The survey and the applied public participation process were assessed and an additional plan was proposed to further enrich local authorities and social responsibility in water management.










Within this context, the Water Development Department (WDD) developed an Action Plan and an Environmental Agreement for Hydrological Region 8 (this report), which integrates existing policies and programmes towards achieving sustainability in the region.







2.2. WATER MANAGEMENT INDICATORS

No.	Indicator	Sustainability Dimension	Status and Trend	
1.	Land use	Environmental		<p>Agricultural land is the most extensive land use, accounting for 44% of the size of the HR8, followed by rangeland which accounts for 36%.</p> <p>The Local Plan applicable to the city of Larnaca provides measures to protect the streams and rivers flowing through the residential web. Also, provides specific protection measures for Larnaca salt lakes.</p>
2.	Population Density	Social		<p>Number of population within HR8 is 145.00 pop/Km². Apart from Larnaca and Aradippou central areas, HR8 is not congested and human requirements can be satisfied to certain extent. However, Larnaca city needs large quantities of water and energy which cannot be provided by the adjacent nature and needs to expand its water infrastructure which in turn has an environmental impact.</p>
3.	Plant communities zones	Environmental		<p>Rich flora species, which however are adversely affected by climate change.</p>
4.	Elevation	Environmental		<p>The lowest elevation is -5.45 m at the bottom of the Larnaca salt lakes and the highest is 1380 m at the Troodos hilltops. The mean elevation is 240.99 m.</p> <p>More than 70 % of the area within the HR8 is lying in an elevation of between 0 and 300 m. HR 8 is predominantly on low lands.</p>
5.	Slope	Environmental		<p>85% of the HR8 is predominantly flat and less than 5% has steep hills.</p>
6.	Total Water Balance	Environmental-Developmental		<p>Since the demand is always greater than the supply and cannot be satisfied from surface water, there is no significant storage in the dams. Estimations of water balance at the basin for the period 2000 to 2008 revealed a dramatic groundwater deficit of 3.3 million m³/year, which was caused by continued over-exploitation of the underground aquifer systems.</p>
7.	Water table variation rate	Environmental		<p>There is up to 1m water level drop per year due to continued overpumping in the region.</p>

No.	Indicator	Sustainability Dimension	Status and Trend	
8.	Mean annual precipitation	Environmental		There is no significant change in the rainfall in the area.
9.	Runoff coefficient	Environmental		The Runoff Coefficient was estimated to be 30% . But due to urbanization of the area which results to reduction of the cultivated land and increase of the paved area the runoff coefficient is expected to increase slightly but not to a dangerous level.
10.	Total Annual Water Consumption	Environmental-Developmental		Domestic Water Consumption presents an annual increase of 2-3% . In Larnaca, the domestic demand is served by the desalination plants and Tersefanou Water Treatment Plant which guarantee undisturbed water supply. However in the rest of the area domestic demand is served from boreholes, which means is depended upon weather conditions.
				Irrigation, Industrial and Livestock demand is served from Kourris, Kiti, Kalavastos and Lefakara Dams and are depended upon the weather conditions.
11.	Water Exploitation Index % (mean annual total abstraction of fresh water divided by the long-term average freshwater resources)	Environmental-Developmental		The warning threshold for the water exploitation index which distinguishes a non-stressed from a stressed region is around 20-40%. According to the estimates (long term for the period 2000 to 2008) WEI exceeds by far the threshold to be characterized as stressed.
12.	Water Discharge	Environmental		The majority of the floods in the area are expected to be flash floods .
13.	Sediment discharge	Environmental		Sediment discharges though are not monitored, are very small and do not pose any major threat for floods.
14.	Produced Urban Wastewaters	Environmental		At present the 61% of the Larnaca Municipality and some of the surrounding communities are served by the Larnaca WWTP.
				39% of Larnaca Municipality and as well as 100% of the Rural Areas within the HR8 are not connected yet to any WWTP. The estimated people equivalent is 214,139 (PE), which produces a waste of 180 lt/person/day, resulting to a production of 0.45 m³/sec wastewater.

No.	Indicator	Sustainability Dimension	Status and Trend	
15.	Produced Industrial Wastewaters	Environmental		Apart from the cooling water produced by 2 installations that is disposed to the sea without prior treatment according though to specific quality terms, the amount of wastewater produced in HR8 is negligible .
16.	Population Served by W.W.T.P.	Environmental, Social, Developmental		Only 22% of the HR8 population is served by WWTP
17.	Industries with Treated Wastewater	Environmental		Most of installations in HR8 apply some kind of wastewater treatment according to their waste disposal permits. However, there are still a small number of non licensed installations.
18.	Reused Wastewater	Environmental		Treated Waste water is 89% reused in HR8, except when there is surplus in rainwater, even though for Cyprus this a rare event.
19.	Population served by water supply network	Environmental-Social-Developmental		The percentage of population served by water supply network is 100% . Approximately 20% of the Communities of Larnaca District has no central flow meters. The lack of flow meters results in uncontrolled / non detectable water leaks. Moreover the implementation of awareness policies on water consumption reduction cannot be effective.
20.	Irrigation Area served by irrigation network	Environmental-Developmental		Only 39% of the irrigated areas are served by irrigation networks.
21.	Ecological status of surface waters	Environmental-Developmental		As with the River WBs, with respect to length, 0% is High, 22% Good , 59% Moderate, 8% Poor, 0% Bad, whereas 11% are Unclassified. The target for 2015 is to increase Good to 33%, reduce Moderate to 56%, and eliminate Poor to 0%. More specifically, measures have been designed in order to improve ecological status of CY_8-4-11_R3, CY_8-5-1_R1 and CY_8-9-1_R3 from Moderate to Good and also for CY_8-4-5_R3-HM and CY_8-7-2_R3-HM from Poor to Moderate, in 2015.
				As with the Lake WBs, with respect to area, 43% are Good , and 67 % Moderate. The target for 2015 is to have all but CY_8-3-2_12_L2 to Good Ecological Status.
				With regard to Coastal WBs 100% are Good .

No.	Indicator	Sustainability Dimension	Status and Trend	
22.	Chemical Status of surface waters	Environmental-Developmental		<p>River WBs with respect to length: Good 85%, Less than good 4%, Unclassified 11%</p> <p>The main problem of water quality of WB CY_8-9-2_R3 is associated with Cd and Pb due to agricultural and mining activity respectively.</p>
				<p>Lake WBs with respect to area: Good 86%, Less than good 14%</p> <p>The main problem of Lefkara WB CY_8-7-2_32_L4-HM is associated with Ni and Pb.</p>
				<p>Coastal with respect to length: Good 100%</p>
23.	Quantity of ground waters	Environmental-Developmental		<p>Good 5%, Poor 95%</p> <p>Quantitative status in all WBs within HR8, but Aradippou, is poor.</p>
24.	Chemical Status of ground waters	Environmental -Developmental		<p>Good 71%, Poor 29%</p> <p>The main problems of water quality of Kiti - Perivolia and Softades & Vasilikos WBs are over-abstraction for irrigation purposes (NH₄) and high salinity due to sea intrusion (Cl).</p>
25.	Bathing Water Quality	Environmental		<p>Good 100%</p> <p>The results from the monitoring of the water quality in all bathing areas indicate 100% compliance with the mandatory values as well as with the more stringent guide values according to the provisions for the transition period of the new Directive 2006/7/EC. The bathing water quality was excellent in the 2010 bathing season in all coastal bathing areas.</p>
26.	Water tariffs	Social-Developmental-Economical		<p>Domestic Water supply:</p> <p>Larnaca municipality €0,42 up to €2,54/ m³</p> <p>Aradhippou municipality €0,94 up to €2,50/ m³</p> <p>Communities €0,42 up to €2,54/ m³</p>
				<p>Irrigation €0,16- €0,17/ m³</p> <p>Industry €1,13-€1,54/ m³</p> <p>Livestock €0,62/ m³</p>
				<p>Recycle water for irrigation use €0,05-0,07 m³. Tariff for recycle water does not reflect the cost of producing the water. The aim is to provide incentives to the farmers to accept and increase the usage of this water.</p>

No.	Indicator	Sustainability Dimension	Status and Trend	
27.	Cost Recovery	Environmental-Social-Developmental-Economical		Cost recovery rate for Domestic water services: a) Larnaca Water Board 96% b) Municipality of Apadippou & communities 119%
				Irrigation water: c) Irrigation Project of Kiti-Mazotos 45% (aim to reach 54% until 2015) • Elsewhere in HR8 61%
				Cost recovery for sewerage and secondary treatment of sewage water 227% (construction works costs are paid in advance by the residents)
				Production and supply of tertiary treated effluent for reuse in irrigation 34%
28.	Water Management Authorities	Environmental, Developmental, Social-Economical		Water Development Department has responsibility over the entire River Basin District. The application of the acquis is suspended in those areas of the Republic of Cyprus in which the Government of the Republic of Cyprus does not exercise effective control (HR4, HR5 and parts of HR3, HR6 and HR7)
29.	Water Bodies Naturalness	Environmental		75% of the River WBs, with respect to length, is natural, 74% of Lake WBs, with respect to area, is natural. 86% of coastal WBs, with respect to area, is natural.

2.3. SWOT ANALYSIS RESULTS

Strengths (good now in HR8)	Opportunities (good in the future in Cyprus/EU)
<ul style="list-style-type: none"> • Relatively low population density. • Guaranteed undisturbed domestic water supply. • 100% of the population is served by water supply network. • Infrastructure for wastewater reuse. • 100% of the coastal Water Bodies are in High or Good status according to WFD. • Excellent bathing waters. • High cost recovery of domestic water supply services. • High cost recovery of secondary treated wastewater. • A high percentage of the surface water bodies are natural. • On-going works to upgrade sewerage networks and wastewater treatment plants. • Larnaca Salt Lakes are unique spectacles of natural beauty and rare wetlands of exceptional importance. • Rich flora species. • Existing measures on water saving (public awareness and subsidies). • Extensive monitoring network established in the framework of the WFD and other European Directives. 	<ul style="list-style-type: none"> • Cyprus has recently completed the procedures for the completion of the River Basin Management Plan (RBMP) according to the Water Framework Directive (WFD). The implementation of the RBMP will cover a number of Directives (91/271/EEC, 92/43/EEC etc). The RBMP will sustainably allocate water resources to water users and will contribute to the achievement of the environmental objectives set by the WFD. • The enforcement of the new Law on Integrated Water Management (LAW 79(I)/2010) provides for registration of all boreholes, abstractions control through the enforcement of installation of a meter on every single borehole and also heavy fines in cases where licensed quantities are exceeded. The enforcement of the Law along with the water pricing policy on agriculture is expected to alleviate the diminishing of the aquifers. • The Law 79(I)/2010 on the Assessment, Management and Treatment of Flood Risk. • The Revised National Strategy for Sustainable Development that aims to the environmental protection and improvement of quality of life, social equity and cohesion, economic prosperity and the assumption of international responsibilities. • The Operational Programme for Fisheries 2007 – 2013. • The National Action Plan to Combat Desertification. • The Soil Thematic Strategy (COM(2006) 231) and the forthcoming Soil Framework Directive. • The Common Agricultural Policy (CAP) and the Rural Development Programme (RDP) 2007-2013 is expected to strengthen biodiversity and contribute to the reduction the impact of climate change.

Weakness (bad now in HR8)	Threats (bad in the future in Cyprus/EU)
<ul style="list-style-type: none"> • A dramatic groundwater deficit, caused by overexploitation of the aquifer. • A significant water level drop per year due to continuous overpumping in the region. • Seawater intrusion in the coastal aquifers. • Large number of non- licensed boreholes. • A significant gap in the knowledge of the actual water consumption, due to incomplete register of boreholes. • Existence of saline soils in the area around the Larnaca salt lakes and in west coast of Larnaca. • High salinity levels result in reduced quantities of reuse effluent from Larnaca WWTP for irrigation. • Possible deterioration of currently fertile soils due to intensive irrigation using groundwater from Maroni, Aradippou gypsum aquifers that have a high natural content of SO₄. • Strong seasonality in the annual rainfall can lead to incomplete supply of the irrigation, industrial and livestock demand. • Water Exploitation Index indicates high stress. • A significant percentage of river and lake water bodies are not at good ecological status/potential. • There is still a shortage of knowledge on the reference conditions of natural lakes. • Low cost recovery for tertiary treated wastewater and for agriculture. • Only 22% of the HR8 population is currently served by WWTP. • Lack of central flow meters in some communities. • There are still a small number of installations without waste disposal permits. • Lack of uniform water pricing policy. • Concentration of conflicting land uses and infrastructure of national importance in the 	<ul style="list-style-type: none"> • Significant adverse effects of the climate change on the quality and quantity of the water resources (reduced flows in dams, prolonged drought periods). • Continuous increase of domestic water demand, under conditions of strong variability of rainfall, depletion of groundwater resources and periodic incidents of drought lasting more than a year. Domestic water consumption, has more than doubled, due to tourism, changes in the habits of households etc. • Acceleration of the desertification. • Cuts in investments on infrastructure and water resources related works due to austerity. • Failure of implementing the Programme of Measures of the River Basin Management Plan. • Implementation of the Programme of Measures of the River Basin Management Plan was not have the anticipated effects on the status of water bodies. • Inability of the relevant authority to apply the LAW 79(I)/2010 and especially the provisions for unregistered boreholes. • Reduction of direct payments due to Common Agricultural Policy (CAP) reform and failure to adapt and exploit CAP and Rural Development Programme opportunities.

<p>area of Larnaca, in conjunction with increasing urbanization and population growth.</p> <ul style="list-style-type: none">• Only 39% of the irrigated land is served by irrigation networks.• Small size and fragmentation of the rural lot have adverse effects on productivity and competitiveness of the agricultural products and efficient water use (land consolidation increase irrigation efficiency by 10 -15%).• A significant percentage of HR8 area is prone to Desertification. Highly eroded areas are subject to high surface runoff and sediment loss and can cause significant downstream flooding and silting of dams.• Increased concentration of IPPC pig rearing units in Voroklini area.• Delays regarding the implementation of 92/43/EEC Directive and Management Plans for Natura 2000 areas and especially those that are water dependant (e.g. Larnaka Salt Lakes, Voroklini, Pentashoinos River).	
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2.4. POLICIES DERIVED FROM SWOT

Growth-accelerating policies (formulated by combining the Strengths and the Opportunities)	Structural policies (formulated by combining Weakness and Opportunities)
<ul style="list-style-type: none"> • Completion of the scheduled wastewater collection network expansion and the WWTP upgrading. • Promote existing water saving measures. • Provide adequate information to the public about management measures. 	<ul style="list-style-type: none"> • Increase public awareness on the advantages of the borehole register on overall water management and quality of water resources. • Construction of common WWTP's in small communities. • Formation of flood maps and plans based on provision of the Flood Directive. • Installation of central flow meters to all Communities' domestic water supply network. • Reduce losses in water supply distribution system, especially in small communities. • Register of all installations that impose a threat of pollution to water and soil and continuing of the licensing of these installations. • Installation of flow meters to private boreholes. • Control and authorization of boreholes. Promote land consolidation works. Use of technology for the collection and monitoring of water resources data, especially in the field of the collection and processing of agro-meteorological data in order to identify the crop irrigation demands depending on the irrigation system applied. Completion and implementation of the Management Plans of the Natura 2000 areas. • Implementation of the National Action Plan to Combat Desertification measures in order to mitigate the desertification impacts on the affected areas.

Stabilization policies (formulated by combining the Strengths and the Threats)	Preventive policies (formulated by combining Weakness and Threats)
<ul style="list-style-type: none"> • Enhancement of water balance with treated waste water (aquifer recharge/irrigation). • Establishment of a central mechanism for the collection and use of revenues from the recovering of environmental and resource cost. These revenues will be used to implement projects whose purpose is consistent with the objectives of the WFD and thus overcome possible cuts in government investments on infrastructure and water resources related works due to austerity. 	<ul style="list-style-type: none"> • Application of the Water Policy (as integrated in the RBMP) and the provision of LAW79(I)/2010 regarding the licensing of boreholes to reverse the trends of groundwater overpumping and poor quality and quantity of groundwater. • Improve the quality of treated wastewater in HR8 by applying advanced treatment methods and/or by preventing seawater entering the wastewater collection system, in order to reduce the salinity levels of the wastewater and overcome possible adverse effects of reuse in agriculture. • Increase of the reuse of urban and industrial treated wastewater. • Implementation of water saving measures for all sectors. • Application of the Water Policy and Drought Management Plan (as integrated in the RBMP) to increase the degree of meeting the needs of irrigation, industrial and livestock demand. • Application of the Programme of Measures of the RBMP to improve the ecological status/potential of surface water bodies. • Implementation of the Directive 91/271/EEC (basic measure of the RBMP) and the relevant supplementary measures of the RBMP in order to increase the percentage of the population served by WWTP. • Increase water cost recovery for specific sectors. • Development and implementation of measures for integrated management of the impacts of climate change. • Increase public awareness and participation in water management and protection.

2.5. WATER STRATEGIC PLAN

From the previous analysis presented, a strategic water management plan is derived, out of which a set of measures could be formulated to compensate for the pressures exerted on water bodies and the environment in HR8 and which can be used as a basis for an active involvement of the stakeholders in this region during Component 5 of the project.

Within this regard, the strategic water management plan is composed of 4 Line Strategies and 9 action Programmes, as shown below:

LINE STRATEGIES AND PROGRAMMES OF PROPOSED ACTION	
1 DEMAND MANAGEMENT STRATEGY	
1.1.	Demand Management in Urban Sector
1.2.	Demand Management in Agricultural Sector
1.3.	Demand Management in Industrial Sector
2 PROTECTION OF WATER RESOURCES AND ENVIRONMENT STRATEGY	
2.1.	Protection of Surface Water
2.2.	Protection of Ground Water
2.3.	Protection of the Environment
3. DROUGHT MANAGEMENT STRATEGY	
3.1.	Drought Management Plan
4. WATER SAVING AWARENESS STRATEGY	
4.1.	Water Saving Awareness Targeting Different Stakeholders
4.2.	Education on Water Issues

PROPOSED PROGRAMMES AND ACTIONS	
<i>Demand Management in Urban Sector</i>	
Promote water saving appliances for government and home premises	
Installation of central flow meters to all Communities' domestic water supply network	
Reduce losses in water supply distribution system, especially in small communities	
Increase water price to reflect full cost recovery	
Provide incentives for grey water use in sanitary appliances	

Provide incentives for borehole water use in Larnaca and Aradippou areas for gardening
Optimise supply vs demand between dams and desalinated water
<i>Demand Management in Agricultural Sector</i>
Control of abstractions with control and authorization of the many illegal boreholes
Installation of flow meters in private boreholes
Application of the new Law 79(I)/2010 regarding the licensing of boreholes to reverse the trends of groundwater depletion in HR8.
Reduction in crop water requirements through the use of less water intensive crops
Expand the use of advanced irrigation systems to HR8
Promote effective use of water through the application of Best Irrigation Practices under drought conditions
Give incentives to use the treated wastewater
Increase of cost recovery in agricultural sector
Establishment of a central mechanism for the collection and use of revenues from the recovering of environmental and resource cost
Enhancement of water balance with treated waste water for irrigation
<i>Demand Management in Industrial Sector</i>
Provide incentives for reusing the industrial wastewater
Increase water cost recovery
Promote water saving culture
<i>Protection of Surface Water</i>
Completion of the scheduled wastewater collection network expansion and the WWTP upgrading
Construction of common WWTP's in small communities
Register of all installations that impose a threat of pollution to water and soil and continuing of the licensing of these installations
Use of technology for the collection and monitoring of water resources data, especially in the field of the collection and processing of agro-meteorological data in order to identify the crop irrigation demands depending on the irrigation system applied
Improve the quality of treated wastewater in HR8 by applying advanced treatment methods
Application of the Measures' Programme of the RBMP to improve the ecological status/potential of surface water bodies
Implementation of the Directive 91/271/EEC (basic measure of the RBMP) and the relevant supplementary measures of the RBMP in order to increase the percentage of the population served by WWTP

Allow for the ecological flow downstream of the Lefkara, Dypotamos and Kalavasos dams
<i>Protection of Ground Water</i>
Enhancement of water balance with treated waste water (aquifer recharge)
Completion of the scheduled wastewater collection network expansion and the WWTP upgrading
Construction of common WWTP's in small communities
Application of the Measures' Programme of the RBMP to improve the ecological status of ground water bodies
Implementation of the Directive 91/271/EEC (basic measure of the RBMP) and the relevant supplementary measures of the RBMP in order to increase the percentage of the population served by WWTP
<i>Protection of the Environment</i>
Implementation of the National Action Plan to Combat Desertification measures in order to mitigate the desertification impacts on the affected areas
Completion and implementation of the Management Plans of the Natura 2000 areas
Application of the Measures' Programme of the RBMP to improve the ecological status/potential of surface water bodies
Implementation of the Directive 91/271/EEC (basic measure of the RBMP) and the relevant supplementary measures of the RBMP in order to increase the percentage of the population served by WWTP
<i>Drought Management Plan</i>
Application of the Drought Management Plan (as integrated in the RBMP) to increase the degree of meeting the needs of irrigation, industrial and livestock demand
Application of the DMP to decide on a) the degree of using water, b) the source of water for the various sectors and c) the level of the use of desalinated water
<i>Water Awareness Targeting Different Stakeholders</i>
Promote existing water saving measures
Increase public awareness and participation in water management and protection for farmers through small informative workshops and specially designed leaflets
Promote educational programs to increase public awareness in water management and protection of the environment for farmers, touristic industry, for households and for industry
Send information leaflets on water saving for adults, though water billing services
Prepare an internet site and an interactive education program on environmental protection, water inclusive, for school children
Continue the education of children at school though specially designed PowerPoint presentations made by WDD

Education on Water Issues

Provide information on water issues through the media, Agrotis magazine, articles in the newspapers, interviews on radio and television. Such issues include and are not exhausted to desalination, quality and reuse of treated wastewater, methods of conservation of water in households and irrigation, developmental water projects and their operation and management, protection of the environment, etc.

Provide adequate information on water issues and LA21 principles to the HR8 inhabitants through local meetings and social discussion etc

2.6. PUBLIC PARTICIPATION METHODOLOGY FOLLOWED

The methodology used for public participation was designed by ANATOLIKI SA (Development Agency of Thessaloniki) in cooperation with the Water Development Department of Cyprus (WDD) and incorporates the following phases:

Phase 1 - Stakeholders' motivation

During this phase the different types of stakeholders are identified and prioritised depending on the strength they can exercise and their interest on the Strategic Plan. Then a stakeholders' planning table is prepared to specify the roles that different stakeholders are expected to play, as well as the communication approach. Then the motivation campaign is designed and a detailed process providing different means of approach for different types of stakeholders is produced.

Phase 2 – Social Dialogue on water management

The result of the motivation campaign is the social dialogue. First a layman version of the Strategic Plan produced during Phase 3.4 of the Project is publicised for comments. This Plan is put in the core of the two Fora and three Thematic Round Tables, suggested under this process, for consultation and feedback. The result of this process should be a Social Local Agreement to be officialised in the form of a water management Protocol. The protocol should reflect the water management policy discussed and decided upon during the social dialogue procedure and covering the final conclusions, signed by all participants.

Phase 3 – Opinion Survey

The public participation process is concluded by the Opinion Survey which aims to involve the wider targeted audience. A specially designed questionnaire is prepared and made available to various stakeholders both through a website, by telephone or in place interviews. At the end an overall public participation process evaluation is made giving insights for the preparation of the Action Plan.

Phase 4 – Water Management Action Plan development

The Action Plan actually represents the application of the Strategic Plan developed during Phase 3.4 and discussed during the Social Dialogue process. The Action Plan should include all the activities programmed under the priority axes set in the Strategic Plan. In particular, the goals set in the Strategic Plan are specified through the Social Dialogue process and broken down to Actions needed to be taken. The Actions are arranged into a time sequence and means for implementation are detailed. Tools for monitoring the implementation are defined also. Finally, Evaluation – Feasibility Analysis is made which provides for the assessment on the engagement of resources, prioritise the activities described in the Action Plan, deals with risks and ensures the sustainability of the Action Plan. Evaluation – Feasibility Analysis is an essential component of the Action Plan and holds a critical role in the Plan's success.

2.7. PUBLIC PARTICIPATION PROCEDURE

2.7.1. STAKEHOLDERS' IDENTIFICATION AND PRIORITIZATION

The cornerstone of a successful PP process is the stakeholder's analysis (identification, mapping and planning). This first fundamental step in the consultation process is required to answer the following basic questions:

1. Which relevant person, group or organization has an interest in the issue of water, - either because they will be affected by the subject (victim, gainer) - or because they have influence, knowledge or experience with the subject?
2. Who are those who have the "key" role?
3. What is the most appropriate way of approach, and
4. What is the optimal process of dialogue with them?

Of a total of 167 stakeholders identified, 78 are at national level and 27 are at regional level and the rest at local level. The groups identified at national level included among others associations, government and semi government bodies, scientific organizations, media private sector and NGO's. At local level the stakeholders included all the Municipalities and Communities of HR8. The different types of stakeholders were mapped depending on the strength they can exercise and their interest on the Strategic Plan.

2.7.1. STAKEHOLDERS' MOTIVATION – COMMUNICATION CAMPAIGN

After analysis of the stakeholders a communication plan was carefully designed and the communication tools for the consultation process were identified. These tools included *Website, Workshops, Press releases, Leaflets, Negotiation tables, Short guidebooks and Opinion survey.*

More specifically, a special to the project website was developed in which the readers were informed about: the objectives of the project, the partners involved, and the milestones of the project and, also the overall progress of the project at any time. Special workshops in the country of the partners were carried out to inform people about the project and its objectives. Also a common to all partners short guidebook on Water Management issues were developed and distributed in each partner's region. For the Cyprus part, a special part in the WDD's website was created presenting the project. Also the second round table meeting was covered by the National Radio Station (CyBC, morning program).

2.7.2. SOCIAL DIALOGUE

In total one Forum, two Round Tables and one closing workshop were organized specifically for HR8 to inform the social partners on the strategic plan and to the purposes, benefits and international experience from the conclusion of environmental agreements.

- ✓ On 7/12/2011 a forum in Aradippou City Hall
- ✓ On 18/1/2012 a round table in the exhibition Hall of the Community Council of Zygi
- ✓ On 8/2/2012 a round table in the exhibition Hall of the Community Council of Kiti
- ✓ On 30/5/2012 a closing workshop in the form of a study visit

For HR8, a total of 120 individuals participated in these events, of which 29 representatives of fourteen (14) Community Councils.

During the **first forum** a relative unwillingness to continue the social dialogue was expressed. Thus, in this forum, the basic challenge of the social dialogue with the partners was not possible to proceed successfully. In part, this was attributed to the timing (date very close to local elections) and the fact that the information was quite wide (involving the entire HR8). The local representatives of the social partners failed to isolate their role in this general framework. For this reason it was decided to continue the social dialogue by identifying and highlighting the specifics of each area, together with the basic "challenge" i.e. the request for a conclusion of an environmental agreement.

For the round tables, the presentations designed to specially focus on local problems of the individual sub-region of HR8, hosted the specific forum. To this end, the first round table was specially focused on environmental and water management issues, in the sub-basins Vasilikos, Maroni and Pentashoinos, while the second round table was focused on issues related to the sub-basins Xeros, Pouzis, Tremithos, Alikes Larnaca Aradippou and Voroklini.

For the **two round tables**, there was much more interest in discussion and analysis of individual WM issues and decisions regarding the management and protection of the aquatic environment. Although in many cases the issues raised were very specific related to bilateral issues of community councils and the WDD, in general, the basic demands of the social dialogue were well understood. Moreover, the role of the community councils in an environmental agreement and the benefits they might gain from such an agreement, was well perceived.

Specific issues raised by local communities to the WDD were as follows:

1. Technical proposals to face the salinization of groundwater aquifer (at the mouth of Pentashoinos)
2. Objections to the way of operation of the diversion dam (Maroni's), which deprives the downstream ecosystem and downstream uses, from significant amounts of water
3. Improper operation of existing sewage treatment plan (settlement of Skarinou)
4. Significant pollution from specific uses (slaughterhouses, farms in Tersefanou, the Larnaca airport)
5. The water of tertiary treatment still has some serious problems of acceptance by farmers. There is also confusion as to where and on what terms this water can be used for watering crops.
6. Disagreement with the expressed state policy which requires owners of golf courses to make their own desalination plants. Argued that recycled water should be used on golf courses instead.
7. Provision for installation of separate water supply networks for recycled water in public areas/buildings.

During these round tables, the Strategic Plan was presented and discussed in order to be finalised in the form of an Action Plan and to reach an agreement with the participants in the form of a Social Local Agreement.

However, since this local agreement was actually a part of the River Basin Management Plan of Cyprus, which is currently in place, the main challenge for WDD was the desire to enter into Environmental Agreement with one or more representatives of local communities for one or more individual issues.

In that sense, and in line with the results of opinion survey and the impressive interest that the majority of the participants expressed to be part of an environmental agreement on safeguarding



and protecting water resources in their region, WDD developed and presented to social partners under this project, **3 proposals** to enter into a broad discussion for the implementation of an environmental agreement.

These proposals are briefly presented below:

1. Contribution to the effort of WDD for controlling over pumping in HR8

This environmental agreement could well be implemented both by the Community boards but also by the stakeholders who recognize to the same or to greater degree the need to control pumping.

2. Reduction of the domestic water consumption in selected municipalities and communities of HR8

This effort can be supported by appropriate pricing policies (eg quota for controlling over-consumption). It is necessary to immediately launch the installation of water saving devices to all consumers. The installation of water saving devices to all households could be part of the environmental agreement.

3. Participation in the protection of water bodies in HR8 against pollution

As **final (closing) workshop** we carried a study visit in another Hydrological Region in Cyprus in order to investigate if the water related issues identified in HR8 are applicable to other Hydrological Regions and how stakeholders' involvement will help addressing them.

2.7.3. OPINION SURVEY

The opinion survey was conducted over the period November-December 2011 by the polling company NOVERNA Consulting & Research.

The survey has covered 3 different target audiences

- General Public residing in the River Basin 8 Area, aged 18 years +
- General Stakeholders
- Community Boards

For the survey 1 analyst, 1 fieldwork manager, 1 call centre supervisor and 15 interviewers have been employed.

In the opinion survey 110 stakeholders have participated, out of which:

- 53 institutions and organizations (out of 105 in total in the HR8)
- 57 representatives of community boards (out of 64 registered in the list of stakeholders)

In the case of the general stakeholders a total of 105 contacts have been made with such stakeholders, of whom 53 have accepted to be interviewed. In the case of the general public a total of 451 contacts have been made. Out of these, 85 refused to answer the questions, 98 were not been approached, while 15 stopped the interview. Finally 253 full questionnaires were completed.

At the end, the survey involved 363 people including 110 representatives of institutions, organizations and Community boards and 253 people (general public). In the general public women participated at a higher percentage than men (52% vs. 48%).

The survey was conducted by telephone using CATI from the call centre of NOVERNA.

In the case of the Community Boards the questionnaires have been self-completed by the respondents and have subsequently been analyzed by NOVERNA, having been provided to NOVERNA by the Water Development Department.

Regarding the sampling method:

- The general public, has been randomly sampled using the most recent telephone directories
- In the case of stakeholders contacts have been made with the total of 105 such entities, out of which a total of 53 were interviewed.

The largest percentage of all respondents was aged 46-65 years (42%). The percentage of young people who participated in the survey is low, which probably should be attributed to the low representation of young people in community boards and stakeholders.

The majority of participants are high school graduates (31%), while the percentage of holders of a postgraduate qualification (21%) is very high. Overall, secondary school graduates account for 73% while the national average is 47%.

At the national level

(vl. http://www.mof.gov.cy/mof/cystat/statistics.nsf/populationcondition_24main_gr/) significant proportion not attended / not completed primary school is recorded, while this is not represented to the survey. In terms of employment, the highest percentage belongs to the employees (private and public-49%) while only 2.5% of the participants are farmers. Nationally the percentage of farmers is 4% (<http://www.cystat.gov.cy/mof/cystat/statistics.nsf>).

Characteristics of the respondents:

Total	363				
Stakeholders	53				
Community Boards	57				
General Public	253				
Male	121	Elementary School	56	Farmer	9
Female	132	Partial Secondary	55	Freelance Professional	30
18 – 25 years	25	Lyceum	114	Business Person	13
26 – 45 years	110	College	60	Student	12
46 – 65 years	154	Post-graduate	78	Civil Servant	72
65 years +	74			Private Sector Employee	106
				Housewife	32
				Pensioner	72
				Unemployed	15
				Other	2

The major environmental issues which were considered by the survey respondents if grouped by primary and prevailing environmental medium are classified as follows:

	Environmental Issues	Environmental Media
1	Urbanization	Air quality, climatic changes, Water
2	Loss of biodiversity	Biodiversity
3	Soil pollution	Soil
4	Desertification	Water
5	Air pollution	Air quality, climatic changes
6	Uncontrolled waste	Water
7	Destruction of forests and coastal/river-bed areas	Biodiversity
8	Water (sea) pollution	Water
9	Drought	
10	Reduction of ozone layer in the atmosphere	Air quality, climatic changes
11	Global warming	

The Output of the opinion survey which was used as the basis to form the 3 proposals for environmental agreement in HR8 was:

In relation to the 1st proposal:

- The control over pumping ranks as the fourth most important water management issue in Cyprus.
- This issue is recognized as important by the majority of the stakeholders
- 60% of the representatives of community boards proposed the control over pumping as an important measure to protect water bodies.

In relation to the 2nd proposal:

- The lack of potable water ranks as the second most important water management issue in Cyprus.
- This issue is recognized as by far the most important by the representatives of Community Boards.
- The issue is of national importance.
- Pricing of potable water is fair. Water pricing as well as the imposing of environmental tax, seems to be embedded in the minds of Cypriots as being a significant management tool.
- All respondents considered that the installation of water meters to all consumers is reasonable.
- A significant proportion of respondents want to take action to control over-consumption.

In relation to the 3rd proposal:

- The pollution (mainly of agricultural origin) ranks as the first most important water management issue in Cyprus.

- The issue is of national importance
- There appears that there is a willingness to report illegalities in relation to Water-Management or use to the Relevant Authorities (19%, of stakeholders suggested, without guidance, a similar measure).

2.8. OUTPUTS

The results of the implementation of WATERinCORE project in HR8 of Cyprus are divided into two parts, namely the Social Local Agreement on the Action Plan and the Environmental Agreement on Potable Water Saving.

2.8.1. SOCIAL LOCAL AGREEMENT ON THE ACTION PLAN

The outcome of the consultation process, that is the **Action Plan for HR8**, was approved by the communities participated through the whole process in the form of a social local agreement and is now applied via the River Basin Management Plan of Cyprus. The Action Plan is composed of 4 line strategies, 9 programmes and 47 actions, as presented in Chapter 3.

2.8.2. ENVIRONMENTAL AGREEMENT ON POTABLE WATER SAVING

In addition to the social agreement for the Action Plan, and the attempt of introducing the principles of LA21 in water management has resulted in the signing of an **Environmental Agreement between the WDD and the Pervolia Council**.

The objective of the environmental agreement is the **Reduction of potable water consumption in the Pervolia Council**.

The main points of the agreement are:

The Pervolia Council will:

1. Decrease the total water consumption compared to that of the base year.
2. Decrease of the unit water consumption (per household or per meter) by distinguishing urban consumption, commercial (industrial) and tourist use.

The WDD will:

1. Subsidize by 50% the cost of installing water saving devices on the taps and showers of every household in the Pervolia Council
2. Cover the expenses on advertising the first environmental agreement signed in Cyprus.

Following the conclusion of the agreement there are two very important steps that must be implemented. These are monitoring and evaluation.

The aim of monitoring is:

1. Quantifying the effects of the agreement.
2. The strengthening of cooperation and partnership between the two parties (Pervolia Council and WDD) so that this partnership will be a "good example" of implementation of local agreements in the future.
3. Proper promotion of this cooperation to disseminate any benefits at all local communities in Cyprus.

4. The achievement of the objectives of the Water Management Plan in Cyprus River Basin.

The monitoring results should be announced at a meeting which should **take place annually**. The meeting should receive adequate publicity to serve, as mentioned above, as a good example of the benefits and results of such initiatives.

It is recommended that the first meeting / conference take place during the exercise of the Presidency of the EU by the Cyprus Republic. An appropriate timing is possibly the end of November. The meeting could be repeated in November 2013 and November 2014.

By the end of the first year (May 2013) the evaluation of the whole project is recommended.

Depending on the results, WDD could expand this kind of agreements to communities in other regions.

The aim of the evaluation is to assess the progress of the project and its outcomes. It should be investigated whether or not the conditions of the Agreement have been abided, to record the problems which arose during its application and if necessary to proceed to the revision of the whole Agreement. The above should be captured in an evaluation report. The evaluation should be based on the following indicators:

1. Decrease in total water consumption compared to that of the base year (quantitative indicator)
2. Decrease of the unit water consumption (per household or per meter) by distinguishing urban consumption, commercial (industrial) and tourist use (quantitative indicator)
3. Expenditure by WDD on community advertising (quantitative indicator)
4. Other requirements by the WDD to the community (qualitative indicator)

2.9. FEASIBILITY ANALYSIS

2.9.1. EVALUATION OF REQUIRED RESOURCES FOR THE IMPLEMENTATION OF THE ACTION PLAN

The Action Plan is composed of 47 actions (measures) out of which 43 have already secured an adequate funding through other programs.

The majority of actions and specific measures have already engaged the required financial resources, through:

1. The relevant Programme of Measures integrated by the Republic of Cyprus through the River Basin Management Plan under the Water Framework Directive (Directive 2000/60/ EC).
2. The current budget of WDD, in the framework of its responsibilities for the implementation of water policy (e.g. availability of recycled water, control of water production and distribution systems, etc.).
3. The Rural Development Programme 2007-2013, which provides for specific actions for Rural Development in Cyprus.
4. The Operational Programme "Sustainable Development and Competitiveness" 2007-2013, which primarily finances actions for protection of the environment (e.g. preparation of management plans, etc.).

The following table lists the 4 measures that are proposed in the framework of the current Action Plan and for the time being do not have obtained funding. Those measures concern exclusively the HR8.

A/A	PROPOSED MEASURES	ESTIMATED COST €	ANALYSIS
1	Increase public awareness and participation in water management and protection for farmers through small informative workshops and specially designed leaflets	32.000 10.000	8 informative leaflets (4 in Kiti Pervolia and 4 in Aradippou) with the presence of international qualified scientists. Production and distribution of 10,000 brochures
2	Send information leaflets on water saving for adults, through water billing services	35.000	Production and distribution of 50,000 detailed brochures
3	Provide information on water issues through the media, Agrotis magazine, articles in the newspapers, interviews on radio and television. Such issues include and are not exhausted to desalination, quality and reuse of treated wastewater, methods of conservation of water in households and irrigation, developmental water projects and their operation and management, protection of the environment, etc.	40.000	Articles by specialized scientific personnel and appropriate promotion through media and Newspapers (daily, weekly and monthly - ecologist)
4	Provide adequate information on water issues and LA21 principles to the HR8 inhabitants through local meetings and social discussion	24.000	8 meetings
TOTAL COST		266.000	

2.9.2. PRIORITIZATION OF THE ACTIVITIES DESCRIBED IN THE ACTION PLAN

The activities included in the Action Plan are prioritised by taking into account:

- I. The importance of the measure in order to achieve rational management of water resources based on sustainability principles.
- II. The available financial resources.
- III. The maturity level of each measure, which represents whether a measure can be completed at one stage or it, concerns a continuous action.
- IV. The type of measure.

The priority of each activity is presented in Chapter 3.

2.9.3. IDENTIFICATION OF POTENTIAL HAZARDS – PRESENTATION OF ALTERNATIVE ACTIONS

Potential risks associated with the implementation of the Action Plan in HR8 can be separated into two categories:

- Risks associated with the failure (non-implementation) of the measures planned and funded through other programs (42 measures) and
- Risks associated with the failure of measures proposed under this Plan that are related exclusively to HR8.

The risks of first category have been identified in the River Basin Management Plan. In general, the River Basin Management Plan has been completed and approved since 2011 and its implementation is progressing. There are no additional risks to be expected till its completion in 2015.

Risks of the second category risks can be summarized in:

1. Lack of resources and measures' inadequate funding. In this case resources will be searched through the EU or even with the use of sponsors. For example, distribution of leaflets could be financed by private companies (e.g. beverage company KIA), which are also interested in water issues, as they either consume a great quantity or interfere significantly on water quality.
2. Inadequate or total lack of response from the social partners as far as it concerns actions of public awareness.

In this case, District Officer's assistance will be requested and efforts will be made, so that the meetings be organised through the District administration. The presence of the General Director of the Ministry is also possible in order to ensure required participation and involvement.

2.9.4. EVALUATION OF REQUIRED RESOURCES FOR THE IMPLEMENTATION OF ENVIRONMENTAL AGREEMENT ON POTABLE WATER SAVING

The following table list the required resources for the implementation of the Environmental Agreement on Potable Water Saving with Pervolia Council.

A/A	REQUIRE RESOURCES	ESTIMATED COST€	ANALYSIS
1	Installation of water saving devises on the tap and showers of every household in the Pervolia Council.	Wash Basins Tabs $4.000 * 2,8 = 11200$ Bathroom Tabs $1.500 * 2,8 = 4200$ Kitchen Tabs $3.500 * 3,6 = 5400$ Shower Reducers $1.500 * 2,6 = 3900$	Subsidy 50% by WDD of the capital cost of water saving devices for all permanent residence. It is estimated that a total of 8500 water saving devices will be installed in 1100 houses. Mandatory installation of water saving devices in public premises (400 premises)
TOTAL COST		24.700	

3. WATER ACTION PLAN

3.1. METHODOLOGY

The Action Plan derived from the previous analyses comprises integrated environmental policies and a package of priority set of measures by which significant issues detected through the active involvement of the stakeholders, will be dealt with effectively.

Within this regard, the Action Plan is structured by establishing and setting priorities for series of general and specific targets and concrete actions designed to achieve these goals.

Structurally, this Action Plan is ordered on three levels of granularity, making it easier to grasp the goals as a whole and thus to read it or explain it.

- d) **Strategic Lines:** Definition of the major axes to be considered for the economic, social and environmental improvement of the pilot basin. These are the strategic objectives which the Plan is designed for. They are defined to group together improvements which have a common goal.
- e) **Programmes:** specific goals in each line of strategy. These are sets of inter-related projects which seek solutions to similar problems.
- f) **Projects:** the minimum unit of action. These are measures with clear goals, which must be carried out in order to deal with a given problem. They are practical proposals for action within each action programme. The measures must be as detailed as possible, as they form the basis for executing the Action Plan.

These Actions are presented on a separate Data Sheet, listing the following elements:

- **Line of Strategy:** specifying the line of strategy which the actions form part of.
- **Action Programme:** specifying the action programme which the actions forms part of
- **Number:** consecutive number assigned to the project.
- **Title of the Action:** the name of each action.
- **Priority (*Provided from the feasibility analysis*):** degree of urgency of the execution of the action. Four levels are defined:
 - *Low: measures which are not essential but which would substantially strengthen the environmental status of the basin being studied.*
 - *Medium: basic measures for improving the status of the basin being studied.*
 - *High: measures considered very important for improving the basin being studied.*
 - *Very high: measures which are essential, either because mandated by law or because they are needed to remedy a substantial environmental deficiency in the basin, etc.*
- **Implementation Area:** identification of the area of the basin or municipal area affected by the project.

- **Purpose and Description of the Action:** introduction to the project and brief definition of its objectives and content.
- **Stakeholders and Competent Authorities:** actors involved (organisation, companies, institutions, organisations, government bodies, sectors of society and other bodies) responsible for the definition, execution and monitoring of the project.
- **Estimated Budget (*Provided from the feasibility analysis*):** estimated costs of the project. It must be remembered that this is only a summary estimate. The implementation costs ranges can be determined by each partner. Nevertheless it would be appropriate to maintain a common classification.
 - Low: under < € 10,000
 - Medium: from € 10,000 to € 50,000
 - High: from € 50,000 to € 100,000
 - Very high: over > € 100,000
- **Funding Sources:** possible institutions or administrations where the economic resources needed to put the project in motion can be obtained.
- **Implementation timetable (*Provided from the feasibility analysis*):** time in which the project will be implemented and finalised. The implementation costs ranges can be determined by each partner. Nevertheless it would be appropriate to maintain a common classification.
 - Short: less than 2 years
 - Medium: from 3-4 Years
 - Long: more than 4 years
- **Maturity:** status of the proposed actions (If it is ready to be applied or not, available studies, financed etc.)
 - Low: no actions have been begun relating to the measure.
 - Medium: the first stages of the action have taken place (project stage, beginning talks with other parties involved, legal procedures, studies etc.) but the action has not yet been adjudicated.
 - High: this category is when the action is taking place.
- **Feasibility Degree (*Provided from the feasibility analysis*):** real possibility of carrying out the action:
 - Low: actions which are not easily viable due to technical difficulties and/or high economic requirements.
 - Medium: actions which are moderately viable, with requirements which can be managed technically and economically.
 - High: highly viable actions which are not technically complex and are economically affordable.

- **Indicators (Provided from the feasibility analysis):** measurable parameters which show the status of the project and degree of reaching the proposed goals at any given time.

3.2. ACTION BY STRATEGY

Within this regard, the Action Plan of the WATERinCORE project is composed of four Line Strategies and 9 Action Programmes and 47 Action Projects as presented below:

STRATEGY 1: DEMAND MANAGEMENT	
ACTION PROGRAMME 1.1. Demand Management in Urban Sector	
Purpose / Description	
<p>The long repetitive drought periods that HR8 is experiencing in recent years has caused many serious water shortages which are exacerbated by population increase in the region and seasonally as a touristic area across coastline. Domestic water consumption has more than doubled, due to tourism, changes in the habits of households etc. To cope with the situation, exploitation of non-conventional water resources, such as desalination is needed. In Larnaca, the domestic demand is served by the desalination plants and Tersefanou Water Treatment Plant which guarantee undisturbed water supply. However in the rest of the area domestic demand is served from boreholes, which means is depended upon weather conditions.</p> <p>The aim of this action programme is to promote conservation measures for the potable water, to optimize desalination with water demand management and to provide incentives to the farmers to accept and increase the usage of this water</p>	
ACTIONS	
1.1.1. Promote water saving appliances for government and home premises	
1.1.2. Installation of central flow meters to all Communities' domestic water supply network	
1.1.3. Reduce losses in water supply distribution system, especially in small communities	
1.1.4. Increase water price to reflect full cost recovery	
1.1.5. Provide incentives for grey water use in sanitary appliances	
1.1.6. Provide incentives for borehole water use in Larnaca and Aradippou areas for gardening	
1.1.7. Optimise supply vs demand between dams and desalinated water	

water in core		STRATEGY 1: DEMAND MANAGEMENT ACTION PROGRAMME 1.1 DEMAND MANAGEMENT IN URBAN SECTOR	
Number:	1.1.1.	PRIORITY:	High
Title of Action:	Promote water saving appliances for government and home premises		
IMPELENTATION AREA:	All municipalities and Communities of HR8		
PURPOSE/ DESCRIPTION:	Reduce potable water consumption		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD, Municipalities, Community councils 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		National funds	
IMLEMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Long		Medium	Medium
INDICATORS:			
<ul style="list-style-type: none"> Number of premises using water saving appliances % of reduction in water consumption 			

water in core	STRATEGY 1: DEMAND MANAGEMENT ACTION PROGRAMME 1.1 DEMAND MANAGEMENT IN URBAN SECTOR		
Number:	1.1.2.	PRIORITY:	High
Title of Action:	Installation of central flowmeters to all Communities' domestic water supply network		
IMPELENTATION AREA:	All Communities of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> Promote effective use of potable water Improve efficiency of potable water use 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD, Community councils 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		National funds	
IMLEMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Short	High	High	
INDICATORS:			
<ul style="list-style-type: none"> Number of Communities installed central flow meters 			

water in core	STRATEGY 1: DEMAND MANAGEMENT ACTION PROGRAMME 1.1 DEMAND MANAGEMENT IN URBAN SECTOR		
Number:	1.1.3.	PRIORITY:	Medium
Title of Action:	Reduce losses in water supply distribution system, especially in small communities		
IMPELENTATION AREA:	All Communities of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> Reduce water losses in mains Improve efficiency of potable water use 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD, Community councils 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Very High		National funds	
IMLEMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Long	Medium	Medium	
INDICATORS:			
<ul style="list-style-type: none"> % reduction of losses in Communities' mains 			

water in core	STRATEGY 1: DEMAND MANAGEMENT ACTION PROGRAMME 1.1 DEMAND MANAGEMENT IN URBAN SECTOR		
Number:	1.1.4.	PRIORITY:	Medium
Title of Action:	Increase water price to reflect full cost recovery for potable water		
IMPELENTATION AREA:	All area of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> Apply water policy Reduce potable water consumption Promote effective use of potable water Improve efficiency of potable water use 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD, Cyprus Parliament 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		National funds	
IMLEMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Short	High	High	
INDICATORS:			
<ul style="list-style-type: none"> % of cost recovery 			

water in core	STRATEGY 1: DEMAND MANAGEMENT ACTION PROGRAMME 1.1 DEMAND MANAGEMENT IN URBAN SECTOR		
Number:	1.1.5.	PRIORITY:	Medium
Title of Action:	Provide incentives for grey water use in sanitary appliances		
IMPELENTATION AREA:	All premises of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> Reduce potable water consumption 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD, Private Sector 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		National funds	
IMLEMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Medium		Medium	Medium
INDICATORS:			
<ul style="list-style-type: none"> % of premises per annum which use grey water 			

water in core	STRATEGY 1: DEMAND MANAGEMENT ACTION PROGRAMME 1.1 DEMAND MANAGEMENT IN URBAN SECTOR		
Number:	1.1.6.	PRIORITY:	Medium
Title of Action:	Provide incentives for borehole water use in Larnaca and Aradippou areas for gardening		
IMPELENTATION AREA:	Larnaca and Aradippou municipalities		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> • Reduce potable water use for gardening 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> • WDD, • Private Sector 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		National funds	
IMLEMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Long		Medium	Medium
INDICATORS:			
<ul style="list-style-type: none"> • Number of houses having borehole licence 			

water in core	STRATEGY 1: DEMAND MANAGEMENT ACTION PROGRAMME 1.1 DEMAND MANAGEMENT IN URBAN SECTOR		
Number:	1.1.7.	PRIORITY:	Medium
Title of Action:	Optimise supply vs demand between dams and desalinated water		
IMPELENTATION AREA:	HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> Promote effective use of potable water Improve efficiency of potable water use Optimise the production of potable water production while satisfying demand 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD, Water Boards, Community Councils 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		National funds	
IMLEMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Long	High	Medium	
INDICATORS:			
<ul style="list-style-type: none"> Ratio of quantity of water from dams over quantity of water from desalination multiplied by the cost of a m³ of potable water 			

STRATEGY 1: DEMAND MANAGEMENT
ACTION PROGRAMME 1.2. Demand Management in Agricultural Sector
Purpose / Description
<p>The long repetitive drought periods that HR8 is experiencing in recent years has caused many serious water shortages in all water sectors, especially in agricultural one which is the first to suffer rationing of water in periods of droughts. In such periods, serious cuts in water supply from dams to all Government Water Works (GWW) is noted, and for all irrigated areas, with 50% cuts in water supply for satisfying permanent crops requirements and up to 100% cuts for seasonal crops.</p> <p>On the other hand in the rest of the areas, in which there are no any GWW, irrigation is satisfied through boreholes, the majority of which are not legal. Over-exploitation of the aquifer diminishes water level while it reduces water quality. To cope with the situation, exploitation of non-conventional water resources, such as treated wastewater is promoted.</p> <p>In HR8 irrigation, industrial and livestock demand is served from Kourris, Kiti, Kalavassos and Lefkara Dams and are depended upon the weather conditions. Since the demand is always greater than the supply and cannot be satisfied from surface water, there is no significant storage in the dams. Estimations of water balance for the period 2000 to 2008 revealed a dramatic groundwater deficit of 3.3 Millionm³/year at the basin, caused by continued exploitation of the underground water systems.</p> <p>The aim of this action programme is to promote water saving measures for irrigation water and to optimize use of water within this sector.</p>
ACTIONS
1.2.1. Control of abstractions with control and authorization of the many illegal boreholes
1.2.2. Installation of flowmeters to private boreholes
1.2.3. Application of the new Law79(I)/2010 regarding the licensing of boreholes to reverse the trends of groundwater depletion in HR8
1.2.4. Reduction in crop water requirements through the use of less water intensive crops
1.2.5. Expand the use of advanced irrigation systems to HR8
1.2.6. Promote effective use of water through the application of Best Irrigation Practices under drought conditions
1.2.7. Give incentives to use the treated wastewater
1.2.8. Increase of cost recovery in agricultural sector
1.2.9 Establishment of a central mechanism for the collection and use of revenues from the recovering of environmental and resource cost
1.2.10 Enhancement of water balance with treated waste water for irrigation

		STRATEGY 1: DEMAND MANAGEMENT ACTION PROGRAMME 1.2 DEMAND MANAGEMENT IN AGRICULTURAL SECTOR	
Number:	1.2.1.	PRIORITY:	High
Title of Action:	Control of abstractions with control and authorization of the many illegal boreholes		
IMPELENTATION AREA:	All area of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> • Reduce irrigation water consumption • Apply water policy 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> • WDD • Private Sector 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		National funds	
IMLEMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Medium		Medium	Medium
INDICATORS:			
<ul style="list-style-type: none"> • Number of applications of non-licence boreholes 			

water in core	STRATEGY 1: DEMAND MANAGEMENT ACTION PROGRAMME 1.2 DEMAND MANAGEMENT IN AGRICULTURAL SECTOR		
Number:	1.2.2.	PRIORITY:	Medium
Title of Action:	Installation of flow meters to private boreholes		
IMPELENTATION AREA:	All area of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> Reduce irrigation water consumption Promote effective use of irrigation water Improve efficiency of irrigation water use Reduce water losses in irrigation systems Apply water policy 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Private Sector 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		Private funds	
IMLEMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Medium		Medium	Medium
INDICATORS:			
<ul style="list-style-type: none"> Number of legal boreholes with flow meters 			

water in core	STRATEGY 1: DEMAND MANAGEMENT ACTION PROGRAMME 1.2 DEMAND MANAGEMENT IN AGRICULTURAL SECTOR		
Number:	1.2.3.	PRIORITY:	High
Title of Action:	Application of the new Law79(l)/2010 regarding the licensing of boreholes to reverse the trends of groundwater depletion in HR8.		
IMPELENTATION AREA:	All area of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> Reduce irrigation water consumption Promote effective use of irrigation water Improve efficiency of irrigation water use 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		National funds	
IMLEMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Long	Medium	Medium	
INDICATORS:			
<ul style="list-style-type: none"> Number of applications of non-licence boreholes 			

water in core	STRATEGY 1: DEMAND MANAGEMENT ACTION PROGRAMME 1.2 DEMAND MANAGEMENT IN AGRICULTURAL SECTOR		
Number:	1.2.4.	PRIORITY:	Medium
Title of Action:	Reduction in crop water requirements through the use of less water intensive crops		
IMPELENTATION AREA:	All area of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> Reduce irrigation water consumption Promote effective use of irrigation water Improve efficiency of irrigation water use 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Department of Agriculture Farmers 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Medium		Private Funds	
IMLEMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Long	Medium	Medium	
INDICATORS:			
<ul style="list-style-type: none"> Redaction in m³ of water/hectare used in agriculture 			

water in core	STRATEGY 1: DEMAND MANAGEMENT ACTION PROGRAMME 1.2 DEMAND MANAGEMENT IN AGRICULTURAL SECTOR		
Number:	1.2.5.	PRIORITY:	Medium
Title of Action:	Expand the use of advanced irrigation systems to HR8		
IMPELENTATION AREA:	All area of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> Reduce irrigation water consumption Promote effective use of irrigation water Improve efficiency of irrigation water use Reduce water losses in irrigation systems 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Farmers 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Medium		Private Funds	
IMLEMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Long		Medium	Medium
INDICATORS:			
<ul style="list-style-type: none"> % of the agricultural land using advanced irrigation systems 			

water in core	STRATEGY 1: DEMAND MANAGEMENT ACTION PROGRAMME 1.2 DEMAND MANAGEMENT IN AGRICULTURAL SECTOR		
Number:	1.2.6.	PRIORITY:	Medium
Title of Action:	Promote effective use of water through the application of Best Irrigation Practices under drought conditions		
IMPELENTATION AREA:	All area of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> Reduce irrigation water consumption Promote effective use of irrigation water Improve efficiency of irrigation water use 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Department of Agriculture Farmers 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		National funds	
IMLEMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Long	Medium	Medium	
INDICATORS:			
<ul style="list-style-type: none"> % of the agricultural area applying best irrigation practices 			

water in core	STRATEGY 1: DEMAND MANAGEMENT ACTION PROGRAMME 1.2 DEMAND MANAGEMENT IN AGRICULTURAL SECTOR		
Number:	1.2.7.	PRIORITY:	Medium
Title of Action:	Give incentives to use the treated wastewater		
IMPELENTATION AREA:	Agricultural land		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> Reduce irrigation water consumption Encourage reuse of tertiary treated wastewater 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Larnaca Sewage Authority, Farmers, Private Sector 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
High		National funds	
IMLEMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Long	Medium	Medium	
INDICATORS:			
<ul style="list-style-type: none"> % of the treated water used for agriculture 			

water in core	STRATEGY 1: DEMAND MANAGEMENT ACTION PROGRAMME 1.2 DEMAND MANAGEMENT IN AGRICULTURAL SECTOR		
Number:	1.2.8.	PRIORITY:	High
Title of Action:	Increase of cost recovery in agricultural sector		
IMPELENTATION AREA:	Agricultural land		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> Reduce irrigation water consumption Promote effective use of irrigation water Apply water policy 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Cyprus Parliament 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		National funds	
IMLEMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Medium		High	Medium
INDICATORS:			
<ul style="list-style-type: none"> % of increase in price of irrigation water 			

water in core	STRATEGY 1: DEMAND MANAGEMENT ACTION PROGRAMME 1.2 DEMAND MANAGEMENT IN AGRICULTURAL SECTOR		
Number:	1.2.9.	PRIORITY:	High
Title of Action:	Establishment of a central mechanism for the collection and use of revenues from the recovering of environmental and resource cost		
IMPELENTATION AREA:	All area of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> Apply water policy 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		National funds	
IMLEMMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Medium		Medium	Medium
INDICATORS:			
<ul style="list-style-type: none"> % of revenue collected % of revenue used 			

water in core	STRATEGY 1: DEMAND MANAGEMENT ACTION PROGRAMME 1.2 DEMAND MANAGEMENT IN AGRICULTURAL SECTOR	
Number:	1.2.10.	PRIORITY: High
Title of Action:	Enhancement of water balance with treated waste water for irrigation	
IMPELENTATION AREA:	All area of HR8	
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> Promote effective use of irrigation water Encourage reuse of tertiary treated wastewater 	
STAKEHOLDERS AND COMPETENT AUTHORITIES:		
<ul style="list-style-type: none"> WDD 		
ESTIMATED BUDGET:		FUNDING SOURCES:
Low		National funds
IMLEMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:
Long	Medium	Medium
INDICATORS:		
<ul style="list-style-type: none"> % of the treated water used in agriculture 		

STRATEGY 1: DEMAND MANAGEMENT	
ACTION PROGRAMME 1.3. Demand Management in Industrial Sector	
Purpose / Description	
<p>Apart from the cooling water produced by 2 installations that is disposed to the sea without prior treatment according though to specific quality terms, the amount of wastewater produced in HR8 is insignificant.</p> <p>Therefore, the aim of this action programme is to maintain conservation measures for the potable water and to maximize use of industrial wastewater where applicable.</p>	
ACTIONS	
1.3.1. Provide incentives for reusing the industrial wastewater	
1.3.2. Increase water cost recovery	
1.3.3. Promote water saving culture	


water in core		STRATEGY 1: DEMAND MANAGEMENT ACTION PROGRAMME 1.3 DEMAND MANAGEMENT IN INDUSTRIAL SECTOR	
Number:	1.3.1.	PRIORITY:	Medium
Title of Action:	Provide incentives for reusing the industrial wastewater		
IMPELENTATION AREA:	All industrial areas of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> Implement water saving measures Increase of the reuse industrial treated wastewater 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Industrial Sector 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		National funds	
IMLEMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Medium		Low	Low
INDICATORS:			
<ul style="list-style-type: none"> Number of industries reuse wastewater 			

water in core	STRATEGY 1: DEMAND MANAGEMENT ACTION PROGRAMME 1.3 DEMAND MANAGEMENT IN INDUSTRIAL SECTOR		
Number:	1.3.2.	PRIORITY:	High
Title of Action:	Increase water cost recovery		
IMPELENTATION AREA:	All industries in HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> Implement water saving measures Apply water policy 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Cyprus Parliament 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		National funds	
IMLEMMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Medium	Medium	Medium	
INDICATORS:			
<ul style="list-style-type: none"> % of increase in water price in industry 			

water in core	STRATEGY 1: DEMAND MANAGEMENT ACTION PROGRAMME 1.3 DEMAND MANAGEMENT IN INDUSTRIAL SECTOR		
Number:	1.3.3.	PRIORITY:	Low
Title of Action:	Promote water saving culture		
IMPELENTATION AREA:	All industrial area of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> Implement water saving measures Increase of the reuse industrial treated wastewater 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Industries 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		National funds	
IMLEMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Medium		Medium	Medium
INDICATORS:			
<ul style="list-style-type: none"> Number of industries reuse water Number of industries apply water saving measures 			


STRATEGY 2: PROTECTION OF WATER RESOURCES AND ENVIRONMENT STRATEGY
ACTION PROGRAMME 2.1. Protection of Surface Water
Purpose / Description
<p>The aim in HR8 for surface waters is to improve their status from an average of 40% which is today to an average of 70% in 2015. In HR8 0% of the river WBs, with respect to length, is High, 22% Good, 59% Moderate, 8% Poor, 0% Bad, whereas 11% are unclassified. The aim for 2015 is to increase Good to 33%, reduce Moderate to 56%, and eliminate Poor to 0%.</p> <p>As with the Lake WBs, with respect to area, 43% are Good, and 67 % Moderate.</p> <p>The bathing water quality was excellent in the 2010 bathing season in all coastal bathing areas. The aim is to maintain 100% in Good status.</p>
ACTIONS
2.1.1. Completion of the scheduled wastewater collection network expansion and the WWTP upgrading
2.1.2. Construction of common WWTP's in small communities
2.1.3. Register of all installations that impose a threat of pollution to water and soil and continuing of the licensing of these installations
2.1.4. Use of technology for the collection and monitoring of water resources data, especially in the field of the collection and processing of agro-meteorological data in order to identify the crop irrigation demands depending on the irrigation system applied
2.1.5. Improve the quality of treated wastewater in HR8 by applying advanced treatment methods
2.1.6. Application of the Programme of Measures of the RBMP to improve the ecological status/potential of surface water bodies
2.1.7. Implementation of the Directive 91/271/EEC (basic measure of the RBMP) and the relevant supplementary measures of the RBMP in order to increase the percentage of the population served by WWTP
2.1.8. Allow for the ecological flow downstream of the Lefkara, Dypotamos and Kalavasos dams


		STRATEGY 2: PROTECTION OF WATER RESOURCES AND ENVIRONMENT STRATEGY ACTION PROGRAMME 2.1 PROTECTION OF SURFACE WATER	
Number:	2.1.1.	PRIORITY:	Medium
Title of Action:	Completion of the scheduled wastewater collection network expansion and the WWTP upgrading		
IMPELENTATION AREA:	Larnaca and Aradippou		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> • To improve ecological status of CY_8-4-11_R3 (Tremithos River) from Moderate to Good and also for CY_8-4-5_R3-HM (Tremithos River) from Poor to Moderate, in 2015. 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> • WDD • Larnaca Sewerage Authority, • Aradippou Council 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Very high		National funds –European funds	
IMLEMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Medium		High	Medium
INDICATORS:			
<ul style="list-style-type: none"> • % of networks completed • % of WWTP upgraded 			

		STRATEGY 2: PROTECTION OF WATER RESOURCES AND ENVIRONMENT STRATEGY ACTION PROGRAMME 2.1 PROTECTION OF SURFACE WATER	
Number:	2.1.2.	PRIORITY:	Medium
Title of Action:	Construction of common WWTP's in small communities (population equivalent < 2000)		
IMPELENTATION AREA:	Anglisides, Tersephanou, Agioi Vavatsinias and Lefkara Communities		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> To improve ecological status of CY_8-5-1_R1 (Pouzis River) and CY_8-9-1_R3 (Vassilikos River) from Moderate to Good and also for CY_8-7-2_R3-HM (Pentashoinos River) from Poor to Moderate, in 2015. 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Community Councils 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
High		National funds	
IMLEMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Medium		Medium	Medium
INDICATORS:			
<ul style="list-style-type: none"> Number of small communities connected to WWTP 			

water in core		STRATEGY 2: PROTECTION OF WATER RESOURCES AND ENVIRONMENT STRATEGY ACTION PROGRAMME 2.1 PROTECTION OF SURFACE WATER	
Number:	2.1.3.	PRIORITY:	High
Title of Action:	Register of all installations that impose a threat of pollution to water and soil and continuing of the licensing of these installations		
IMPELENTATION AREA:	All polluting industries of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> To improve ecological status of CY_8-4-11_R3 (Tremithos River), CY_8-5-1_R1 (Pouzis River) and CY_8-9-1_R3 (Vassilikos River) from Moderate to Good and also for CY_8-4-5_R3-HM (Tremithos River) and CY_8-7-2_R3-HM (Pentashoinos River) from Poor to Moderate, in 2015. 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Department of Environment 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		National funds	
IMLEMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Medium		Medium	Medium
INDICATORS:			
<ul style="list-style-type: none"> Number of polluting installations registered 			

water in core		STRATEGY 2: PROTECTION OF WATER RESOURCES AND ENVIRONMENT STRATEGY ACTION PROGRAMME 2.1 PROTECTION OF SURFACE WATER	
Number:	2.1.4.	PRIORITY:	Medium
Title of Action:	Use of technology for the collection and monitoring of water resources data, especially in the field of the collection and processing of agro-meteorological data in order to identify the crop irrigation demands depending on the irrigation system applied		
IMPELEMENTATION AREA:	All irrigated area of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> Identify the crop irrigation demands, depending on the irrigation system applied so as to optimise quantities of water allocated. 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Meteorological Service Department of Agriculture 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
High		National funds	
IMLEMMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Long		Medium	Medium
INDICATORS:			
<ul style="list-style-type: none"> Results of crop irrigation demand for different types of crops 			

		STRATEGY 2: PROTECTION OF WATER RESOURCES AND ENVIRONMENT STRATEGY ACTION PROGRAMME 2.1 PROTECTION OF SURFACE WATER	
Number:	2.1.5.	PRIORITY:	Low
Title of Action:	Improve the quality of treated wastewater in HR8 by applying advanced treatment methods		
IMPELENTATION AREA:	Larnaca, Aradippou and communities with population greater than 2000 of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> • Improve the tertiary treated water used for irrigation to prevent deterioration of Kiti aquifer and or salinization of agricultural land 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> • WDD • Larnaca Sewage Authority • Community Councils 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
High		National funds	
IMLEMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Long		Medium	Medium
INDICATORS:			
<ul style="list-style-type: none"> • % of produced tertiary treated water according to permits given from Department of Environment. 			

		STRATEGY 2: PROTECTION OF WATER RESOURCES AND ENVIRONMENT STRATEGY ACTION PROGRAMME 2.1 PROTECTION OF SURFACE WATER	
Number:	2.1.6.	PRIORITY:	High
Title of Action:	Application of the Programme of Measures of the RBMP to improve the ecological status/potential of surface water bodies		
IMPELENTATION AREA:	Tremithos, Pouzis, Vasilikos river and Kalavassos, Dhypotamos, Lefkara dams, Alyki salt lakes		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> • Improve ecological status of CY_8-4-11_R3 (Tremithos River), CY_8-5-1_R1 (Pouzis River) and CY_8-9-1_R3 (Vassilikos River) from Moderate to Good and also for CY_8-4-5_R3-HM (Tremithos River) and CY_8-7-2_R3-HM (Pentashoinos River) from Poor to Moderate, in 2015. • Investigate further the status of salt lakes and improve where possible their status. 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> • WDD • Department of Environment • Department of Agriculture • Fisheries Department • Community Councils 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Very high		National funds	
IMLEMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Medium	High	Medium	
INDICATORS:			
<ul style="list-style-type: none"> • % of improved surface water bodies 			


water in core		STRATEGY 2: PROTECTION OF WATER RESOURCES AND ENVIRONMENT STRATEGY ACTION PROGRAMME 2.1 PROTECTION OF SURFACE WATER	
Number:	2.1.7.	PRIORITY:	Medium
Title of Action:	Implementation of the Directive 91/271/EEC (basic measure of the RBMP) and the relevant supplementary measures of the RBMP in order to increase the percentage of the population served by WWTP		
IMPELENTATION AREA:	Larnaca, Aradippou Municipalities, Kiti, Pervolia, Meneou and Dromolaxia Communities		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> To improve ecological status of surface and groundwater of HR8 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Department of Environment Department of Agriculture Larnaca Sewage Authority 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Very high		National funds	
IMLEMMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Long	Medium	Medium	
INDICATORS:			
<ul style="list-style-type: none"> Number of population connected to WWTP 			

		STRATEGY 2: PROTECTION OF WATER RESOURCES AND ENVIRONMENT STRATEGY ACTION PROGRAMME 2.1 PROTECTION OF SURFACE WATER	
Number:	2.1.8.	PRIORITY:	High
Title of Action:	Allow for the ecological flow downstream of the Lefkara, Dypotamos and Kalavastos dams		
IMPELENTATION AREA:	Lefkara, Dhypotamos and Kalavastos Communities		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> • Preserve ecology downstream of dams and recharge the river bed 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> • WDD • Lefkara Community Council • Dhypotamos Community Council • Kalavastos Community Council 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		National funds	
IMLEMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Long		High	Medium
INDICATORS:			
<ul style="list-style-type: none"> • Quantities of water allowed for ecological flow/year 			

STRATEGY 2: PROTECTION OF WATER RESOURCES AND ENVIRONMENT STRATEGY	
ACTION PROGRAMME 2.2. Protection of Ground Water	
Purpose / Description	
<p>Quantitative status in all WBs within HR8, but Aradippou, is poor. However, every effort is made to alleviate the situation through the enforcement of the new Law on Unified Water Management (LAW79/I/2010), which provides for registration of all boreholes, abstractions control through the enforcement of a meter on every single borehole and also heavy fines in cases where licensed quantities are exceeded. In all, the WBs which at present have poor status, they will still be in the same status in 2015, however the enforcement of the Law along with the pricing policy on agriculture, is expected to alleviate diminishing of the aquifer.</p> <p>The aim for the groundwater WBs, in HR8 is to improve their status by 2015.</p>	
ACTIONS	
2.2.1. Enhancement of water balance with treated waste water (aquifer recharge)	
2.2.2. Completion of the scheduled wastewater collection network expansion and the WWTP upgrading	
2.2.3. Construction of common WWTP's in small communities	
2.2.4. Application of the Programme of Measures of the RBMP to improve the status of groundwater water bodies	
2.2.5. Implementation of the Directive 91/271/EEC (basic measure of the RBMP) and the relevant supplementary measures of the RBMP in order to increase the percentage of the population served by WWTP	

water in core		STRATEGY 2: PROTECTION OF WATER RESOURCES AND ENVIRONMENT STRATEGY ACTION PROGRAMME 2.2 PROTECTION OF GROUND WATER	
Number:	2.2.1.	PRIORITY:	High
Title of Action:	Enhancement of water balance with treated waste water (aquifer recharge)		
IMPELENTATION AREA:	Kiti aquifer irrigated area at Kiti, Pervolia, Dromolaxia		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> To control groundwater overexploitation. 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Geological Survey Department Department of Environment Department of Agriculture Larnaca Sewage Authority 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
High		National funds	
IMLEMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Medium		Medium	Medium
INDICATORS:			
<ul style="list-style-type: none"> % of treated water used for aquifer recharge 			

		STRATEGY 2: PROTECTION OF WATER RESOURCES AND ENVIRONMENT STRATEGY ACTION PROGRAMME 2.2 PROTECTION OF GROUND WATER	
Number:	2.2.2.	PRIORITY:	Medium
Title of Action:	Completion of the scheduled wastewater collection network expansion and the WWTP upgrading		
IMPELENTATION AREA:	Meneou, Pervolia, Dromolaxia, Aradippou, Voroklini and Kiti Communities		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> To protect the groundwater from deterioration To increase the reuse of treated water and control groundwater overexploitation 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Larnaca Sewage Authority Meneou Council Pervolia Council Dromolaxia Council Aradippou Council Voroklini Council Kiti Council 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Very high		National funds, European funds	
IMLEMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Medium	High	Medium	
INDICATORS:			
<ul style="list-style-type: none"> % of completion of the scheduled works 			

		STRATEGY 2: PROTECTION OF WATER RESOURCES AND ENVIRONMENT STRATEGY ACTION PROGRAMME 2.2 PROTECTION OF GROUND WATER	
Number:	2.2.3.	PRIORITY:	Low
Title of Action:	Construction of common WWTP's in small communities with population equivalent less than 2000		
IMPELENTATION AREA:	Tersephanou, Lefkara, Agioi Vavatsinias, Anglisides Communities		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> To protect the groundwater from deterioration To control groundwater overexploitation 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD, Tersephanou council Lefkara council Agioi Vavatsinias council Anglisides council 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
High		National funds	
IMLEMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Long	Medium	Low	
INDICATORS:			
<ul style="list-style-type: none"> % of completion of the scheduled works 			

		STRATEGY 2: PROTECTION OF WATER RESOURCES AND ENVIRONMENT STRATEGY ACTION PROGRAMME 2.2 PROTECTION OF GROUND WATER	
Number:	2.2.4.	PRIORITY:	High
Title of Action:	Application of the Programme of Measures of the RBMP to improve the status of groundwater water bodies		
IMPELENTATION AREA:	All aquifers of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> To control groundwater overexploitation, so as to improve both quality and quantity of groundwater 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Community Councils 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Medium		National funds	
IMLEMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Medium		Medium	Medium
INDICATORS:			
<ul style="list-style-type: none"> number of aquifers not deteriorating in HR8 			

water in core		STRATEGY 2: PROTECTION OF WATER RESOURCES AND ENVIRONMENT STRATEGY ACTION PROGRAMME 2.2 PROTECTION OF GROUND WATER	
Number:	2.2.5.	PRIORITY:	Medium
Title of Action:	Implementation of the Directive 91/271/EEC (basic measure of the RBMP) and the relevant supplementary measures of the RBMP in order to increase the percentage of the population served by WWTP		
IMPELENTATION AREA:	Larnaca, Aradippou Municipalities, Kiti, Pervolia, Meneou, Dromolaxia Communities		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> To improve ecological status of surface and groundwater of HR8 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Department of Environment Department of Agriculture Agricultural Research Institute 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Very High		National funds, European funds	
IMLEMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Long	Medium	Medium	
INDICATORS:			
<ul style="list-style-type: none"> Number of population connected to WWTP 			

STRATEGY 2: PROTECTION OF WATER RESOURCES AND ENVIRONMENT STRATEGY	
ACTION PROGRAMME 2.3. Protection of the Environment	
Purpose / Description	
Climate change as well as human activities have degrade environment to such an extent that drastic measures are required to cope with the situation and prevent further deterioration	
ACTIONS	
2.3.1. Implementation of the National Action Plan to Combat Desertification measures in order to mitigate the desertification impacts on the affected areas	
2.3.2. Completion and implementation of the Management Plans of the Natura 2000 areas	
2.3.3. Application of the Programme of Measures of the RBMP to improve the ecological status/potential of surface water bodies	
2.3.4. Implementation of the Directive 91/271/EEC (basic measure of the RBMP) and the relevant supplementary measures of the RBMP in order to increase the percentage of the population served by WWTP	

		STRATEGY 2: PROTECTION OF WATER RESOURCES AND ENVIRONMENT STRATEGY ACTION PROGRAMME 2.3 PROTECTION OF THE ENVIRONMENT	
Number:	2.3.1.	PRIORITY:	Medium
Title of Action:	Implementation of the National Action Plan to Combat Desertification measures in order to mitigate the desertification impacts on the affected areas		
IMPELENTATION AREA:	All area of HR8 is prone to desertification		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> • Take proactive measures to halt loss of biodiversity in HR8 • Allow for water realises downstream of dams to preserve flora and fauna 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> • WDD • Department of Environment • Department of Agriculture • Local Authorities 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Medium		National funds	
IMLEMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Medium		Medium	Medium
INDICATORS:			
<ul style="list-style-type: none"> • % of biodiversity loss in HR8 			

		STRATEGY 2: PROTECTION OF WATER RESOURCES AND ENVIRONMENT STRATEGY ACTION PROGRAMME 2.3 PROTECTION OF THE ENVIRONMENT	
Number:	2.3.2.	PRIORITY:	High
Title of Action:	Completion and implementation of the Management Plans of the Natura 2000 areas		
IMPELENTATION AREA:	All Natura areas of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> • Take proactive measures to halt loss of biodiversity in HR8 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> • WDD • Department of Environment • Local Authorities 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Medium		National funds	
IMLEMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Medium		High	Medium
INDICATORS:			
<ul style="list-style-type: none"> • % of Natura management plans completed according to plan 			

		STRATEGY 2: PROTECTION OF WATER RESOURCES AND ENVIRONMENT STRATEGY ACTION PROGRAMME 2.3 PROTECTION OF THE ENVIRONMENT	
Number:	2.3.3.	PRIORITY:	High
Title of Action:	Application of the Programme of Measures of the RBMP to improve the ecological status/potential of surface water bodies		
IMPELENTATION AREA:	All area of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> Take proactive measures to halt loss of biodiversity in HR8 Allow for water realises downstream of dams to preserve flora and fauna 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
WDD			
ESTIMATED BUDGET:		FUNDING SOURCES:	
High		National funds	
IMLEMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Medium		Medium	Medium
INDICATORS:			
<ul style="list-style-type: none"> % of ecological status improvement 			

water in core		STRATEGY 2: PROTECTION OF WATER RESOURCES AND ENVIRONMENT STRATEGY ACTION PROGRAMME 2.3 PROTECTION OF THE ENVIRONMENT	
Number:	2.3.4.	PRIORITY:	Medium
Title of Action:	Implementation of the Directive 91/271/EEC (basic measure of the RBMP) and the relevant supplementary measures of the RBMP in order to increase the percentage of the population served by WWTP		
IMPELENTATION AREA:	Larnaca, Aradippou Municipalities, Kiti, Pervolia, Meneou and Dromolaxia Communities		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> To improve ecological status of surface and groundwater of HR8 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Larnaca Sewage Authority Local Authorities 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Very High		National funds, European funds	
IMLEMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Long	Medium	Medium	
INDICATORS:			
<ul style="list-style-type: none"> % of population connected to WWTP 			

STRATEGY 3: DROUGHT MANAGEMENT STRATEGY	
ACTION PROGRAMME 3.1. Drought Management Plan	
Purpose / Description	
	The Drought Management Plan, is supplementary to the River Basin Management Plan of Cyprus and has been designed so as to provide guidelines and directions on optimizing water balance so as to satisfy demand and avoid tough practices of the past such as water rationing in domestic and irrigation water, while safeguarding dams sustainability on consecutive years of droughts and or minimizing overflows from dams and the use of desalination in wet years.
ACTIONS	
	<p>3.1.1. Application of the Drought Management Plan (as integrated in the RBMP) to increase the degree of meeting the needs of irrigation, industrial and livestock demand</p>
	<p>3.1.2. Application of the DMP to decide on</p> <ul style="list-style-type: none"> a) the degree of using water, b) the source of water for the various sectors and c) the level of the use of desalinated water.

water in core		STRATEGY 3: DROUGHT MANAGEMENT STRATEGY ACTION PROGRAMME 3.1 DROUGHT MANAGEMENT PLAN	
Number:	3.1.1.	PRIORITY:	Medium
Title of Action:	Application of the Drought Management Plan (as integrated in the RBMP) to increase the degree of meeting the needs of irrigation, industrial and livestock demand		
IMPELENTATION AREA:	All area of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> • Increase the degree of meeting the needs of irrigation, industrial and livestock demand under drought years 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> • WDD • Farmers • Local Authorities • Industries 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		National funds	
IMLEMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Medium		Medium	Medium
INDICATORS:			
<ul style="list-style-type: none"> • % of demand irrigation water satisfied under drought years • % of demand industry water satisfied under drought years • % of demand livestock water satisfied under drought years 			

water in core		STRATEGY 3: DROUGHT MANAGEMENT STRATEGY ACTION PROGRAMME 3.1 DROUGHT MANAGEMENT PLAN	
Number:	3.1.2.	PRIORITY:	High
Title of Action:	Application of the DMP to decide on a) the degree of using water, b) the source of water for the various sectors and c) the level of the use of desalinated water.		
IMPLEMENTATION AREA:	All municipalities and Communities of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> • Set ceiling and bottom levels in Kalavassos, Dypotamos and Lefkara Dams to be used as an early warning system in dry years • Relate Larnaca desalination production with water levels to avoid overflows in dams or water rationing 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> • WDD, • Larnaca Desalination Plant 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Medium		National funds	
IMPLEMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Medium	High	Medium	
INDICATORS:			
<ul style="list-style-type: none"> • Application of DMP at min cost 			

STRATEGY 4: WATER SAVING AWARENESS STRATEGY	
ACTION PROGRAMME 4.1. Water Awareness Targeting Different Stakeholders	
Purpose / Description	
	Different stakeholders have different needs & perceptions and thus various appropriate tools are required in each case to intrigue their attention and motivate them to act. The aim of this program is to use various marketing tools to sell the idea that water is a precious resource in Cyprus and that every drop counts
ACTIONS	
	4.1.1. Promote existing water saving measures
	4.1.2. Increase public awareness and participation in water management and protection for farmers through small informative workshops and specially designed leaflets
	4.1.3. Promote educational programs to increase public awareness in water management and protection of the environment for farmers, touristic industry, for households and for industry
	4.1.4. Send information leaflets on water saving for adults, though water billing services
	4.1.5. Prepare an internet site and an interactive education programme on environmental protection, water inclusive, for school children
	4.1.6. Continue the education of children at school though specially designed PowerPoint presentations made by WDD

water in core	STRATEGY 4: WATER SAVING AWARENESS STRATEGY ACTION PROGRAMME 4.1 WATER AWARENESS TARGETING DIFFERENT STAKEHOLDERS		
Number:	4.1.1.	PRIORITY:	High
Title of Action:	Promote existing water saving measures		
IMPELENTATION AREA:	All municipalities and Communities of HR8		
PURPOSE/ DESCRIPTION:	Design appropriate actions to target different groups of consumers such as: <ul style="list-style-type: none"> children at nursery, primary and high school the army the farmers householders 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD, Media, General public 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Medium		National funds	
IMLEMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Medium	High	High	
INDICATORS:			
<ul style="list-style-type: none"> % of potable water saving /year 			

water in core	STRATEGY 4: WATER SAVING AWARENESS STRATEGY ACTION PROGRAMME 4.1 WATER AWARENESS TARGETING DIFFERENT STAKEHOLDERS		
Number:	4.1.2.	PRIORITY:	High
Title of Action:	Increase public awareness and participation in water management and protection for farmers through small informative workshops and specially designed leaflets		
IMPELENTATION AREA:	Kiti, Pervolia, Aradippou		
PURPOSE/ DESCRIPTION:	8 informative workshops (4 for Kiti and Pervolia and 4 for Aradippou) with the presence of qualified scientist. Production and distribution of 10,000 brochures		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Media Kiti Pervolia Aradippou 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Medium		National funds	
IMLEMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Medium	High	High	
INDICATORS:			
<ul style="list-style-type: none"> Number of informative leaflets send to recipients Number of participants at the workshops 			

water in core		STRATEGY 4: WATER SAVING AWARENESS STRATEGY ACTION PROGRAMME 4.1 WATER AWARENESS TARGETING DIFFERENT STAKEHOLDERS	
Number:	4.1.3.	PRIORITY:	Medium
Title of Action:	Promote educational programs to increase public awareness in water management and protection of the environment for farmers, touristic industry, households and industry		
IMPELENTATION AREA:	All municipalities and Communities of HR8		
PURPOSE/ DESCRIPTION:	Design educational programs to target different groups of consumers such as: <ul style="list-style-type: none"> Tourist industry industry the farmers householders 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Cyprus Tourist Organisation Farmers Local Authorities 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		National funds	
IMLEMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Medium	High	High	
INDICATORS:			
<ul style="list-style-type: none"> Number of educational programs prepared Number of people received the message 			

water in core	STRATEGY 4: WATER SAVING AWARENESS STRATEGY ACTION PROGRAMME 4.1 WATER AWARENESS TARGETING DIFFERENT STAKEHOLDERS		
Number:	4.1.4.	PRIORITY:	Medium
Title of Action:	Send information leaflets on water saving for adults, through water billing services		
IMPELENTATION AREA:	All municipalities and Communities of HR8		
PURPOSE/ DESCRIPTION:	Production of information leaflets and distribution of detailed brochures to households		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Larnaca Water Board Community Councils 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Medium		National funds	
IMLEMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Long	High	Medium	
INDICATORS:			
<ul style="list-style-type: none"> Number of leaflets send 			

water in core	STRATEGY 4: WATER SAVING AWARENESS STRATEGY ACTION PROGRAMME 4.1 WATER AWARENESS TARGETING DIFFERENT STAKEHOLDERS		
Number:	4.1.5.	PRIORITY:	Medium
Title of Action:	Prepare an internet site and an interactive education programme on environmental protection, water inclusive, for school children		
IMPELENTATION AREA:	Schools of HR8		
PURPOSE/ DESCRIPTION:	Design an interactive internet site to educate on water issues and build water awareness targeting: children at nursery, primary and high school		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD, Ministry of Education, Children and teenagers 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Medium		National funds	
IMLEMMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Medium	Medium	Medium	
INDICATORS:			
<ul style="list-style-type: none"> Number of visitors of the website 			

water in core		STRATEGY 4: WATER SAVING AWARENESS STRATEGY ACTION PROGRAMME 4.1 WATER AWARENESS TARGETING DIFFERENT STAKEHOLDERS	
Number:	4.1.6.	PRIORITY:	High
Title of Action:	Continue the education of children at school through specially designed PowerPoint presentations made by WDD		
IMPLEMENTATION AREA:	All schools of HR8		
PURPOSE/ DESCRIPTION:	Design three presentations to target children at nursery, primary and high schools respectively		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Ministry of Education 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		National funds	
IMPLEMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Short	High	High	
INDICATORS:			
<ul style="list-style-type: none"> Number of Schools attending the program Number of children educated through the program 			

STRATEGY 4: WATER SAVING AWARENESS STRATEGY	
ACTION PROGRAMME 4.2. Education on Water Issues	
Purpose / Description	
Due to the frequent droughts periods, people in HR8 are well aware of the development of water resources in Cyprus, however they have insufficient knowledge on LA21 principles and benefits. The aim is to educate people on LA21 issues in order to enhance their ability and their competencies to implement LA21 in water management in HR8.	
ACTIONS	
<p>4.2.1. Provide information on water issues through the media, agrotis magazine, articles in the newspapers, interviews on radio and television. Such issues include and are not exhausted to desalination, quality and reuse of treated wastewater, methods of conservation of water in households and irrigation, developmental water projects and their operation and management, protection of the environment, etc.</p>	
<p>4.2.2. Provide adequate information on water issues and LA21 principles to the HR8 inhabitants through local meetings and social discussion</p>	

water in core		STRATEGY 4: WATER SAVING AWARENESS STRATEGY ACTION PROGRAMME 4.2 EDUCATION ON WATER ISSUES	
Number:	4.2.1.	PRIORITY:	High
Title of Action:	Provide information on water issues through the media, agrotis magazine, articles in the newspapers, interviews on radio and television. Such issues include and are not exhausted to desalination, quality and reuse of treated wastewater, methods of conservation of water in households and irrigation, developmental water projects and their operation and management, protection of the environment, etc.		
IMPELENTATION AREA:	General public of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> Articles by specialised personnel and appropriate promotion through media 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD General Public 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
High		National funds	
IMLEMMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Medium		Medium	Medium
INDICATORS:			
<ul style="list-style-type: none"> Number of articles per year Number of radio / TV discussions 			

water in core		STRATEGY 4: WATER SAVING AWARENESS STRATEGY ACTION PROGRAMME 4.2 EDUCATION ON WATER ISSUES	
Number:	4.2.2.	PRIORITY:	High
Title of Action:	Provide adequate information on water issues and LA21 principles to the HR8 inhabitants through local meetings and social discussion		
IMPELENTATION AREA:	All municipalities and Communities of HR8		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> • Communication techniques to educate people on water related issues and LA21 principles through active discussions during 8 meetings 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> • WDD • Municipalities • Local communities 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		National funds	
IMLEMENTATION TIMETABLE:	MATURITY	FEASIBILITY DEGREE:	
Medium	High	Medium	
INDICATORS:			
<ul style="list-style-type: none"> • Number of Local meetings/year • Number of people attended the meetings 			

3.3. ENVIRONMENTAL AGREEMENT

ENVIRONMENTAL AGREEMENT
ACTION PROGRAMME A: POTABLE WATER SAVING
Purpose / Description
<p>In recent years domestic water consumption has more than doubled mainly due to changes in household habits. However, long repetitive periods of drought that HR8 is experiencing have caused many serious water shortages. To cope with the situation, desalination water is used to cover domestic demand of households in all municipalities and large communities in the area. This means more energy consumption, higher CO₂ emissions in the atmosphere and higher water bills.</p> <p>The aim of this agreement is to apply LA21 principles and reduce potable water consumption by installing water saving devices (aerators) in households at community level.</p>
ACTIONS
Install water saving devices at Community level

water in core	ENVIRONMENTAL AGREEMENT ACTION PROGRAMME POTABLE WATER SAVING		
Number:	A	PRIORITY:	Very High
Title of Action:	Install water saving devices at Community level		
IMPELENTATION AREA:	Pervolia Community		
PURPOSE/ DESCRIPTION:	<ul style="list-style-type: none"> Decrease of the unit water consumption (per household or per meter). 		
STAKEHOLDERS AND COMPETENT AUTHORITIES:			
<ul style="list-style-type: none"> WDD Pervolia Community 			
ESTIMATED BUDGET:		FUNDING SOURCES:	
Low		National funds, Private funds	
IMLEMENTATION TIMETABLE:		MATURITY	FEASIBILITY DEGREE:
Short		Very High	High
INDICATORS:			
<ul style="list-style-type: none"> Decrease in total water consumption compared to that of the base year (quantitative indicator) Decrease of the unit water consumption (per household or per meter) by distinguishing urban consumption, commercial (industrial) and tourist use (quantitative indicator) Expenditure by WDD on community advertising (quantitative indicator) Other requirements by the WDD to the community (qualitative indicator) 			

3.4. CONCLUSIONS

The integration of the principles of LA21 in water management is a process which is going through its first steps in Europe. Neither the methodological framework has been fully clarified, nor the analytical processes have crystallized or the results have been evaluated.

The process aims to encourage and assist local authorities (municipalities and municipal and community councils) in establishing systems for integrated environmental management to improve environmental performance across a broad range of issues, that can be implemented in a short time horizon of 3 to 5 years through,

- a) The adoption of actions adapted to local realities and priorities of citizens,
- b) The formulation of wider aspirations of local authorities to undertake responsibilities, and
- c) The acceptance of common positions to be promoted especially by the state.
- g) Strengthening of the Shared Responsibility in water management.

In HR8 of Cyprus, the attempt of introducing the principles of LA21 in water management has resulted in the:

- Approval of an Action Plan with the aim to enhance sustainability in water resources management of HR8.

This action plan is part of the River Basin Management Plan of Cyprus which is currently in place.

- Conclusion of an Environmental Agreement with Pervolia community council which actively contributes to the potable water saving campaign.

Through this project the level of water consciousness at community level is enhanced and it seems that the whole community can contribute to social consensus in water management.

It is worth mentioning that, this agreement is a pioneering by Cyprus standards as it is the first time that an environmental agreement has been made concerning water issues. For the implementation of this agreement WDD agreed to subsidise 50% of the purchase of the water saving devices by own funds. In order to reach final conclusions, the water consumption results will be collected and analysed annually until 2015. Depending on the results, WDD could expand this kind of agreements to communities in other regions.

The following concentrated table provides main conclusions about the actions needed to be taken in the pilot basin:

Number of Strategy/ Action Programme/ Action	Proposed action	Implementation Area	Priority	Maturity	Indicative budget	Funding Source	Implementation Timetable	Stakeholders Competence Authorities
1.1.1.	Promote water saving appliances for government and home premises	All municipalities and Communities of HR8	High	Medium	Low	National funds	Long	WDD, Municipalities, Community councils
1.1.2.	Installation of central flowmeters to all Communities' domestic water supply network	All Communities of HR8	High	High	Low	National funds	Short	WDD, Community councils
1.1.3.	Reduce losses in water supply distribution system, especially in small communities	All Communities of HR8	Medium	Medium	Very High	National funds	Long	WDD, Community councils
1.1.4.	Increase water price to reflect full cost recovery for potable water	All area of HR8	Medium	High	Low	National funds	Short	WDD, Cyprus Parliament
1.1.5.	Provide incentives for grey water use in sanitary appliances	All premises of HR8	Medium	Medium	Low	National funds	Medium	WDD, Private Sector
1.1.6.	Provide incentives for borehole water use in Larnaca and Aradippou areas for gardening	Larnaca and Aradippou municipalities	Medium	Medium	Low	National funds	Long	WDD, Private Sector
1.1.7.	Optimise supply vs demand between dams and desalinated water	HR8	Medium	High	Low	National funds	Long	WDD, Water Boards, Community Councils

Number of Strategy/ Action Programme/ Action	Proposed action	Implementation Area	Priority	Maturity	Indicative budget	Funding Source	Implementation Timetable	Stakeholders Competence Authorities
1.2.1.	Control of abstractions with control and authorization of the many illegal boreholes	All area of HR8	High	Medium	Low	National funds	Medium	WDD, Private Sector
1.2.2.	Installation of flowmeters to private boreholes	All area of HR8	Medium	Medium	Low	Private funds	Medium	WDD, Private Sector
1.2.3.	Application of the new Law79(I)/2010 regarding the licensing of boreholes to reverse the trends of groundwater depletion in HR8.	All area of HR8	High	Medium	Low	National funds	Long	WDD
1.2.4.	Reduction in crop water requirements through the use of less water intensive crops	All area of HR8	Medium	Medium	Medium	Private Funds	Long	WDD, Department of Agriculture, Farmers
1.2.5.	Expand the use of advanced irrigation systems to HR8	All area of HR8	Medium	Medium	Medium	Private Funds	Long	WDD, Farmers
1.2.6.	Promote effective use of water through the application of Best Irrigation Practices under drought conditions	All area of HR8	Medium	Medium	Low	National funds	Long	WDD, Department of Agriculture, Farmers
1.2.7.	Give incentives to use the treated wastewater	Agricultural land	Medium	Medium	High	National funds	Long	WDD, Larnaca Sewage Authority, Farmers, Private Sector

Number of Strategy/ Action Programme/ Action	Proposed action	Implementation Area	Priority	Maturity	Indicative budget	Funding Source	Implementation Timetable	Stakeholders Competence Authorities
1.2.8.	Increase of cost recovery in agricultural sector	Agricultural land	High	High	Low	National funds	Medium	WDD, Cyprus Parliament
1.2.9.	Establishment of a central mechanism for the collection and use of revenues from the recovering of environmental and resource cost	All area of HR8	High	Medium	Low	National funds	Medium	WDD
1.2.10.	Enhancement of water balance with treated waste water for irrigation	All area of HR8	High	Medium	Low	National funds	Long	WDD
1.3.1.	Provide incentives for reusing the industrial wastewater	All industrial areas of HR8	Medium	Low	Low	National funds	Medium	WDD, Industrial Sector
1.3.2.	Increase water cost recovery	All industries in HR8	High	Medium	Low	National funds	Medium	WDD, Cyprus Parliament
1.3.3.	Promote water saving culture	All industrial area of HR8	Low	Medium	Low	National funds	Medium	WDD, Industries
2.1.1.	Completion of the scheduled wastewater collection network expansion and the WWTP upgrading	Larnaca and Aradippou	Medium	High	Very high	National funds – European funds	Medium	WDD, Larnaca Sewerage Authority, Aradippou Council

Number of Strategy/ Action Programme/ Action	Proposed action	Implementation Area	Priority	Maturity	Indicative budget	Funding Source	Implementation Timetable	Stakeholders Competence Authorities
2.1.2.	Construction of common WWTP's in small communities (population equivalent < 2000)	Anglisides, Tersephanou, Agioi Vavatsinias and Lefkara Communities	Medium	Medium	High	National funds	Medium	WDD, Community Councils
2.1.3.	Register of all installations that impose a threat of pollution to water and soil and continuing of the licensing of these installations	All polluting industries of HR8	High	Medium	Low	National funds	Medium	WDD, Department of Environment
2.1.4.	Use of technology for the collection and monitoring of water resources data, especially in the field of the collection and processing of agro-meteorological data in order to identify the crop irrigation demands depending on the irrigation system applied	All irrigated area of HR8	Medium	Medium	High	National funds	Long	WDD, Meteorological Service, Department of Agriculture
2.1.5.	Improve the quality of treated wastewater in HR8 by applying advanced treatment methods	Larnaca, Aradippou and communities with population greater than 2000 of HR8	Low	Medium	High	National funds	Long	WDD, Larnaca Sewage Authority, Community Councils
2.1.6.	Application of the Programme of Measures of the RBMP to improve the ecological status/potential of surface	Tremithos, Pouzis, Vasilikos river and Kalavastos, Dhypotamos, Lefkara dams,	High	High	Very high	National funds	Medium	WDD, Department of Environment, Department of Agriculture, Fisheries Department, Community

Number of Strategy/ Action Programme/ Action	Proposed action	Implementation Area	Priority	Maturity	Indicative budget	Funding Source	Implementation Timetable	Stakeholders Competence Authorities
	water bodies	Alyki salt lakes						Councils
2.1.7.	Implementation of the Directive 91/271/EEC (basic measure of the RBMP) and the relevant supplementary measures of the RBMP in order to increase the percentage of the population served by WWTP	Larnaca, Aradippou Municipalities, Kiti, Pervolia, Meneou and Dromolaxia Communities	Medium	Medium	Very high	National funds	Long	WDD, Department of Environment, Department of Agriculture, Larnaca Sewage Authority
2.1.8.	Allow for the ecological flow downstream of the Lefkara, Dypotamos and Kalavastos dams	Lefkara, Dhypotamos and Kalavastos Communities	High	High	Low	National funds	Long	WDD, Lefkara Community Council, Dhypotamos Community Council, Kalavastos Community Council
2.2.1.	Enhancement of water balance with treated waste water (aquifer recharge)	Kiti aquifer irrigated area at Kiti, Pervolia, Dromolaxia	High	Medium	High	National funds	Medium	WDD, Geological Survey Department, Department of Environment, Department of Agriculture, Larnaca Sewage Authority
2.2.2.	Completion of the scheduled wastewater collection network expansion and the WWTP upgrading	Meneou, Pervolia, Dromolaxia, Aradippou, Voroklini and Kiti Communities	Medium	High	Very high	National funds, European funds	Medium	WDD, Larnaca Sewage Authority, Meneou Council, Pervolia Council, Dromolaxia Council, Aradippou Council, Voroklini Council, Kiti Council

Number of Strategy/ Action Programme/ Action	Proposed action	Implementation Area	Priority	Maturity	Indicative budget	Funding Source	Implementation Timetable	Stakeholders Competence Authorities
2.2.3.	Construction of common WWTP's in small communities with population equivalent less than 2000	Tersephanou, Lefkara, Agioi Vavatsinias, Anglisides Communities	Low	Medium	High	National funds	Long	WDD, Tersephanou council, Lefkara council, Agioi Vavatsinias council, Anglisides council
2.2.4.	Application of the Programme of Measures of the RBMP to improve the status of groundwater water bodies	All aquifers of HR8	High	Medium	Medium	National funds	Medium	WDD, Community Councils
2.2.5.	Implementation of the Directive 91/271/EEC (basic measure of the RBMP) and the relevant supplementary measures of the RBMP in order to increase the percentage of the population served by WWTP	Larnaca, Aradippou Municipalities, Kiti, Pervolia, Meneou, Dromolaxia Communities	Medium	Medium	Very High	National funds, European funds	Long	WDD, Department of Environment, Department of Agriculture, Agricultural Research Institute
2.3.1.	Implementation of the National Action Plan to Combat Desertification measures in order to mitigate the desertification impacts on the affected areas	All area of HR8 is prone to desertification	Medium	Medium	Medium	National funds	Medium	WDD, Department of Environment, Department of Agriculture, Local Authorities
2.3.2.	Completion and implementation of the Management Plans of the Natura 2000 areas	All Natura areas of HR8	High	High	Medium	National funds	Medium	WDD, Department of Environment, Local Authorities

Number of Strategy/ Action Programme/ Action	Proposed action	Implementation Area	Priority	Maturity	Indicative budget	Funding Source	Implementation Timetable	Stakeholders Competence Authorities
2.3.3.	Application of the Programme of Measures of the RBMP to improve the ecological status/potential of surface water bodies	All area of HR8	High	Medium	High	National funds	Medium	WDD
2.3.4.	Implementation of the Directive 91/271/EEC (basic measure of the RBMP) and the relevant supplementary measures of the RBMP in order to increase the percentage of the population served by WWTP	Larnaca, Aradippou Municipalities, Kiti, Pervolia, Meneou and Dromolaxia Communities	Medium	Medium	Very High	National funds, European funds	Long	WDD, Larnaca Sewage Authority, Local Authorities
3.1.1.	Application of the Drought Management Plan (as integrated in the RBMP) to increase the degree of meeting the needs of irrigation, industrial and livestock demand	All area of HR8	Medium	Medium	Low	National funds	Medium	WDD, Farmers, Local Authorities, Industries
3.1.2.	Application of the DMP to decide on a) the degree of using water, b) the source of water for the various sectors and c) the level of the use of desalinated water.	All municipalities and Communities of HR8	High	High	Medium	National funds	Medium	WDD, Larnaca Desalination Plant
4.1.1.	Promote existing water saving measures	All municipalities and	High	High	Medium	National	Medium	WDD, Media, General public

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		Communities of HR8				funds		
4.1.2.	Increase public awareness and participation in water management and protection for farmers through small informative workshops and specially designed leaflets	Kiti, Pervolia, Aradippou	High	High	Medium	National funds	Medium	WDD, Media, Kiti, Pervolia, Aradippou
4.1.3.	Promote educational programs to increase public awareness in water management and protection of the environment for farmers, touristic industry, households and industry	All municipalities and Communities of HR8	Medium	High	Low	National funds	Medium	WDD, Cyprus Tourist Organisation, Farmers, Local Authorities
4.1.4.	Send information leaflets on water saving for adults, though water billing services	All municipalities and Communities of HR8	Medium	High	Medium	National funds	Long	WDD, Larnaca Water Board, Community Councils
4.1.5.	Prepare an internet site and an interactive education programme on environmental protection, water inclusive, for school children	Schools of HR8	Medium	Medium	Medium	National funds	Medium	WDD, Ministry of Education, Children and teenagers
4.1.6.	Continue the education of children at school though specially designed	All schools of HR8	High	High	Low	National funds	Short	WDD, Ministry of Education

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	PowerPoint presentations made by WDD							
4.2.1.	Provide information on water issues through the media, agrotis magazine, articles in the newspapers, interviews on radio and television. Such issues include and are not exhausted to desalination, quality and reuse of treated wastewater, methods of conservation of water in households and irrigation, developmental water projects and their operation and management, protection of the environment, etc.	General public of HR8	High	Medium	High	National funds	Medium	WDD, General Public
4.2.2.	Provide adequate information on water issues and LA21 principles to the HR8 inhabitants through local meetings and social discussion	All municipalities and Communities of HR8	High	High	Low	National funds	Medium	WDD, Municipalities, Local communities



Number of Strategy/ Action Programme/ Action	Proposed action	Implementation Area	Priority	Maturity	Indicative budget	Funding Source	Implementation Timetable	Stakeholders Competence Authorities
A	Install water saving devices at Community level	Pervolia Community	Very High	Very High	Low	National funds, Private funds	Short	WDD, Pervolia Community