WATER FRAMEWORK DIRECTIVE IMPLEMENTATION: ASSESSMENT OF THE RBMP AS REPORTED BY CYPRUS

Meeting with Cyprus
DG Environment, 16/09/2013

CYPRUS REPLY

Final Action Plan

It is noted that this action plan was drafted under tight budgetary constraints and is subject to adjustments that may be necessary depending on the progress of recovery of the Cyprus economy.

2. Delineation of WB and Characterisation of RB

A review of Cyprus Rivers is being undertaken in the framework of the review and update of Article 5 WFD within which the deletion of a number or ephemeral river WBs is being undertaken and will be completed for the 2nd RBMP. The reasoning and the methodology supporting the deletion of a number of river water bodies in the next cycle will be explained and justified in the 2nd RBMP, as well as the fact that these water bodies will remain under protection. This information will go into public consultation. CY will indicate the proportion of the overall RBD in surface that is concerned by this deletion.

Reference conditions for Lakes types L1, L2 and L5 will be set following the completion of a contract for the fulfillment of measure #142 by the end of 2015. Even though the contract will not be finished in time for the 2nd cycle, the information from this study will feed into the second cycle as much as possible.

Pressure identification and risk assessment required under Art. 5 will be improved in the 2nd cycle following the inventory of emissions, discharges and losses of Priority Substances (PS) and pollutants listed in Part A of Annex I to the Directive 2008/105/EC and reflecting the knowledge gained during the 1st cycle and with criteria for the assessment of significance. Every effort will be made to improve the situation related to abstractions and quantitative pressure.

3a. Monitoring and assessment of ecological status

BQEs for macrophytes in rivers will be considered for the 2nd RBMP and the results from a recent 2010-2012 project on river fish, despite their qualitative nature, will be taken into account for the development of the 2nd RBMP. CY will explain in the 2nd RBMP why there are no indigenous fish in its freshwaters except eel, taking into account historical information on ecology, climate and pressures. As fish is one very important biological quality element for river status classification under the WFD, CY will clearly provide data and explanations if this is proved not to be relevant for freshwaters in CY. This information will be included in the RBMPs.

With regard to hydromorphological quality elements in rivers, the available data are being used for status classification and will thus inform the elaboration of the 2nd RBMP. Also, following COM recommendation, CY will try to accelerate the development of complete assessment methods; this will include an evaluation of application of such a method in water reservoirs (impounded rivers) in addition to the water level monitoring that is already ongoing in these water bodies.

Financial needs for developing data collection, methodology and skills to ensure a sound monitoring may be covered by EU funds. CY will express these needs in the Partnership Agreement currently under elaboration.

As for coastal waters, physicochemical parameters, the 4 BQEs, as well as priority substances, are being monitored on a constant basis in the framework of Cyprus CW monitoring programme under Art. 8. In the absence of an assessment method for hydromorphological quality of coastal waters, Cyprus does not monitor hydromorphological quality elements. Nevertheless, some relative data do exist from various sources & coastal areas, but are not yet compiled under a specific framework.

New monitoring stations have already been added to monitoring network. Of course this is an ongoing process depending on the findings and the needs arising, and new monitoring stations are planned to be added from 2014 and onwards.

With respect to River Basin, Specific Pollutants, Cyprus is taking a precautionary approach and is analyzing for roughly 160 substances (including substances of Directive 2008/105/EC), i.e. many substances (heavy metals, pesticides, PCBs, organic micro-pollutants, VOCs) are analyzed and assessed in addition to the specific pollutants mentioned in the 1st RBMP. CY will continue its precautionary approach and will identify additional RBSPs if necessary.

CY considers to adjust the EQS used for Arsenic in rivers and to apply the EQS of the currently in force Drinking Water Directive. For the other identified RBSPs, Cyprus considers the EQS applied for the 1st RBMP to be appropriate for the 2nd RBMP too.

Tables with the RBSPs can be found in Table 3.1-8 (Rivers) and in Chapter 3.1.2.2 (Lakes, reservoirs) in the "Report on the evaluation of the results of the monitoring programme for surface waters under Art. 8 WFD", which is available (in Greek) at
http://www.moa.gov.cy/moa/wdd/wdd.nsf/all/40F49A06EAC31529C225772900390C2B?opendocument

The Intercalibration results of Commission Decision 2013/480/EU have been translated into the national assessment systems for rivers and reservoirs. With regard to Intercalibration for phytoplankton in coastal water, although the appointment of the new BQE leader is still pending, CY will be proactive so that it can be completed in a timely manner. However, it is a fact, that in order for this BQE to be fully and successfully intercalibrated, all involved member

states must participate in this IC Phase 3, since intercalibration is applied at the Type level (e.g. Type-IIIE, Eastern Mediterranean in the case of Cyprus) and not at the Member State level.

3b. Monitoring and assessment of chemical status (surface waters)

For the 2nd RBMP, around 160 substances (including substances of Directive 2008/105/EC, heavy metals, pesticides, PCBs, organic micropollutants, VOCs) were monitored in 27 of the about 52 river monitoring sites and in all 14 monitored water reservoirs. In addition, data on priority substances has been collected from several rivers that were reported to have high uncertainty in their chemical status in the 1st RBMP, e.g. Kambos, Marathasa, Kargotis, Peristerona, Pedhiaios, Yialias, Tremithos, Kryos, as well as from Achna Lake WB which was classified as unknown chemical status in the 1st RBMP.

CY will try to consider more substances behaving like uPBTs at least once in the 2nd cycle in the context of surveillance monitoring.

CY will list the priority substances it is monitoring separately from the other chemicals it is monitoring, and indicate CAS numbers where possible, or at least the number of the priority substance that appears in the EQS Directive.

In addition, CY is carrying out trend monitoring for all substances in Directive 2008/105/EC Article 3(3) apart from 6 substances mentioned in 2008/105/EC Article 3(3) (numbers 7, 12, 16, 17, 18, 26), for which the State General Laboratory currently cannot, with the existing staff, develop methods for their analysis in sediments. However, CY confirms that substances 7, 14, 17, 26, and 31 will be measured in 2014 and 24, 25 and 27 in 2015.

CY will clarify in the next RBMP when referring to unknown status, what the reason is. If the Best Available Techniques (BAT) are not sufficiently sensitive, ''discarding'' the affected substances in the assessment will in future (under the new EQS Directive) be allowed, but should be declared. If the concentrations are unknown for another reason, the status should be considered unknown with regard to those substances. There should be transparency in the reporting regarding the basis of the assessment in the RBMPs.

Cyprus tries to monitor for more potential pollutants and to react to new substances. With respect to substances of Directive 2008/105/EC, efforts will be made in 2014 to include Isodrin, C10-13 Chloroalkanes and Pentachlorobenzene in the monitoring programme. In 2015, efforts will be made to include Nonylphenol, Octylphenol and Pentachlorophenol in the monitoring programme. Hexachlorobenzene and Hexachlorobutadiene are routinely monitored in surface waters and the EQS laid down in Part A of Annex I of the Directive 2008/105/EC for Mercury also are applied.

In the coastal waters of Cyprus, hexachlorobenzene, hexachlorobutadiene, and mercury are monitored in biota (fish Mullus barbatus), following the option of article 3(2)(a) of the Directive

2008/105/EC, whereas Cd, Ni and Pb are monitored regularly in water. In the framework of other coastal water monitoring programmes, a number of other priority substances and organic pollutants are monitored in biota.

3c. Groundwater monitoring and status assessment

Adequate GW monitoring is essential for the 2nd cycle. Water is a key resource for CY and key constraint on Economic activity and the adequate resources should be allocated.

Most of the inadequacy on evaluating with confidence the GW status for the 1st RBMP was primarily due to the short time series CY had on GW quality and secondly due to the areal coverage of the monitoring points. When the evaluation of the GW status was carried out in 2010, CY had 6 to 8 samples from each monitoring point. The short time series (6-8 readings for each chemical element) did not give CY an acceptable statistical confidence. At present, the time series has increased (almost doubled) with the addition of extra 6 readings from each GW quality monitoring point which definitely will improve the statistical confidence on the evaluation of the GW quality status.

In an effort to improve spatial coverage and Ground Water Body representativeness, new monitoring stations will be added and/or existing ones will be replaced /moved, where needed. Definitely the planned 10% increase by the end of 2014 in Groundwater monitoring points will greatly improve the areal coverage within a GW body which will result to an increase in statistical confidence, especially in water quality and on the evaluation of GW status. Everyone acknowledges that GW monitoring network is dynamic and its revision and improvement is a continuous process.

Cy did not identify any substance which warrants further, long term investigation. All exceedances and near exceedances are being investigated appropriately. As for pesticides, there is a decreasing trend in the frequency of their detection in groundwater and no pesticides were detected in 2012. Nevertheless, CY will continue to monitor for pesticides in the 2nd cycle.

Apart from monitoring, the sampling frequency is being also updated. By improving spatial coverage and by ensuring time series data accumulation, we will eventually be able to asses significant and sustained upward as well as reversal trends. The establishment of a methodology for assessing and reversing trends of groundwater pollution is a requirement of the directive and is expected for the 2nd cycle. Even though the process needs long time series of monitoring data, it is required that the monitoring and the methodology for its assessment is in place.

CY will develop a methodology on trend assessment and on trend reversal which will be in place by the end of 2014. Definitely the planned 10% increase by the end of 2014 in Groundwater monitoring points will provide more data for this. Regarding the adequacy of the data from the increased monitoring, this will be assessed on the way and the monitoring network will be adjusted accordingly.

By the end of 2014 CY plans to have in place methodologies for the status assessment of GW bodies which will be utilised in the 2nd cycle evaluation.

Regarding groundwater dependent terrestrial ecosystems (GWDTE), in Cyprus there is only one GWDTE which is lowland marsh (Phasouri Marshes) containing fresh and brackish water changing with the seasons. A Phasouri Marshes management plan is planned to be developed within the next couple of years.

4. Heavily Modified Water Bodies (HMWBs) designation and Good Ecological Potential

The Guidance Document 4 toolbox and /or compatible acceptable method will be used for the designation of new HMWBs such as Kannaviou dam, which was constructed during the elaboration of the RBMP as well as for Arminou, Tamassos and Akaki-Malounda dams. With regard to the small abstraction works, one of the proposed measures (#89) is the development of a registry of small dams/diversions that will support the development of quantitative criteria for determining the substantial changes in river WBs. For the designation of HMWBs in the next cycle CY will follow a process including the assessment of modifications, whether there is change and whether it can be restored. For water bodies downstream of the dams it is important to consider ecological flow; if the release of E-Flows is not possible, CY will assess the reasons. The designation as a HMWB doesn't prevent from implementing mitigation measures, as these are required to achieve good ecological potential. The designation of HMWBs will be reviewed by CY for 2nd RBMP with a focus on water bodies downstream of dams. Impounded rivers will be designated as HMWB Rivers (and not lakes).

Although CY has indicated that the study for developing of a methodology for defining Good Ecological Potential is envisaged in the future, as that to be available for the 3rd cycle, CY will try to accelerate the development of the assessment methods for the determination of GEP so to inform the elaboration of the 2nd RBMP.

5. Objectives and Exemptions

Every effort will be made to assess objectives and exceptions following the recommendations of GD20, so as in the 2nd RBMP to include justifications on concrete terms of exemptions at WB level and to have concrete/detailed justification for each WB.

As for the assessment of WBs of unknown status, CY considers the removal of small episodic/ephemeral streams (< 10km^2 catchment areas) from the Water Body network, and the assessment for episodic/ephemeral streams with catchment area > 10km^2 and with existing riverbed, by applicable hydromorphological parameters and available monitoring data.

One GWB, that is, CY_1 Kokkinochoria has been exempted in CY RBMP according to Article 4.5 WFD. Documentation can be found in Annex I RBMP, Chapter 7.3, Table 7.3-7 and Figure 7.3-7

and in Annex VII-Report on Water Policy of the RBMP, Chapter 3.2.1., which is available (in Greek) at
http://www.moa.gov.cy/moa/wdd/Wdd.nsf/guide_gr/guide_gr?OpenDocument

CY will reassess the application of the Article 4.5 for the 2nd cycle in the case of GWB CY_1 Kokkinochoria, so, that the conditions of the above mentioned article are met:
(a) The environmental and socioeconomic needs served by such human activity cannot be achieved by other means;
(b) CY ensures,

— For surface water, the highest ecological and chemical status possible is achieved, given impacts that could not reasonably have been avoided due to the nature of the human activity or pollution,

— For groundwater, the least possible changes to good groundwater status, given impacts that could not reasonably have been avoided due to the nature of the human activity or pollution;

(c) No further deterioration occurs in the status of the affected body of water;
(d) The establishment of less stringent environmental objectives, and the reasons for it, are specifically mentioned in the river basin management plan required under Article 13 and those objectives are reviewed every six years.

CY will inform the Commission on the outcome of pending EIAs and article 4.7 assessments and applied methodology as soon as they are finalized. Assessments for projects planned within the 2nd cycle will be made in due course and will be included in the 2nd RBMP.

With regard to protected areas objectives, Cyprus has designated in 2011 a new NVZ area in Orounda village according to the Ordinance 41/2011. Also, additional objectives have been set for Natura 2000 areas. Hydrological studies for the Wetlands of Oroklini and Paralimni in order to assess and implement the needs of the species and habitats were carried out. Additionally a LIFE project (LIFE Water, ICOSTACY and Oroklini) has been carried out for the Larnaka Salt, Paralimni and Oroklini Lakes in order to identify the ecological characteristics of the ecosystem (wetlands).

6a. Program of measures (agriculture)

The Rural Development Programme (RDP) 2007-2013 aims to improve the environment and rural development, especially under the Priority Axis 2. The priority of the strategic rural development is the reversal of the degradation and the improvement of the quality of the natural environment of the rural areas of Cyprus.

More specifically, the current RDP2007-2013 and the environmental measures under Priority Axis 2, aim to improve water quality, reduce the use of fertilizers and pesticides, increase soil

fertility, reduce the risk of soil erosion and maintain biodiversity. Emphasis is given to the cultivation of wine vines, citrus and potatoes, as well as the promotion of organic farming.

Under the new RDP 2014-2020, the possibility to incorporate other crops in specific environmental measures is explored, with the aim to protect water from the misuse of pesticides and fertilizers. The crops which are already included in the existing RDP are mainly citrus and potatoes, whereas deciduous and olive trees are expected to be included in the Programme, covering an area of approximately 10,000 to 15,000 hectares.

The application of good agricultural and environmental practice in the framework of the RDP 2007-2013 Cross Compliance relates to measures that aim to protect the soil and water from pollution, through the establishment of buffer strips along the water streams where the use of nitrogen fertilizers is limited. This provision will be implemented in the new RDP 2014-2020.

Under the current RDP 2007-2013, individual eligible actions are being subsidized, such as improved irrigation systems for conservation and rational management of water in various crops, which at the same time aims to eventually improve the quantitative status of underground aquifers. In parallel, various land reclamation projects are promoted or subsidized with the aim to protect the soil from erosion and maintain the productivity and fertility of the land. For example, projects such as, levelling, terracing and constructing of retaining walls and masonry / stone structures have a significant contribution to the rational use of water and the recharge of the aquifers. Additionally, the eligible actions include tanks and storm water collection systems, e.g. from greenhouses rooftops for storage and reuse in irrigation.

CY, in the framework of implementation of its environmental and social policy, applies measures for the demolition and/or relocation of intrusive livestock buildings for health and environmental reasons. These measures are designed to compensate farmers for the demolition and/or relocation of their livestock buildings, that became intrusive or a source of pollution for groundwater aquifers. The existing measures ended on 31/12/2013; therefore CY has initiated the process for the preparation of new similar / revised measures for the new programming period 2014-2020.

Within the framework of the rational use of all available water resources and the increasing quantities of recycled water that is expected to be produced, CY aims to maximize the utilization of recycled water for agricultural purposes. Several areas all over Cyprus are already irrigated with recycled water. The recycled water is used for the irrigation of agricultural crops, fruit trees, seasonal vegetables, etc., always in accordance with the Code of Good Agricultural Practice. It is noted that CY aims to integrate recycled water in all agricultural sectors, given the arid climate of Cyprus and the continuing droughts. Recycled water can be classified as a new, constant and reliable source of water, which can help reduce the negative water balance. CY aims to include a specific measure in the new RDP 2014-2020, for the construction of solid livestock waste areas (platforms). Beneficiaries will be livestock farmers (pigs, poultry, cattle, sheep and goat).

Through the new RDP and /or other EU funds, three measures are under discussion, such as the Development of an Intelligent System for the Management of Irrigation Networks-Optimization of the use of energy and other sources through GIS; a Project for recycled water reuse for irrigation, incorporating a storage pond and irrigation network, in Anthoupolis; and Modernization of small Irrigation Divisions for effective use of scarce water resources.

Finally, it is noted that the rational utilization of water and the proper use of fertilizers, pesticides and livestock waste is promoted through various television and radio programmes, press releases, multipage manuals and announcements, lectures at times convenient to farmers and site visits by officers of the Department of Agriculture at farmer level.

The Action Program for protecting Nitrate Vulnerable Zones from agricultural sources was recently revised, after several bilateral communications between Cyprus authorities and the DG Environment. The amendments of the Action Program include the following:

- Including definitions of various terms used in the program,
- The prohibition of using nitrogen fertilizers from 1st of November of each year until 31st of January of the following year,
- Add information on the calculation of the required capacity of the evaporation lagoons, considering the rainfall and evaporation.
- Set clear requirements for temporary storage of solid manure,
- Add provisions for monitoring the implementation of Action Program by a Committee.
- Add provision for soil analysis every two years for trees and cereals and every year for vegetables and water analysis every three years.
- Add information and examples for easier calculation of the maximum quantity of manure which farmers can use in order to comply with the limit of 170Kg of Nitrogen per hectare per year.

Furthermore, it is noted that Cyprus authorities are in the process for a new revision of the Action Program. The purpose of the new revision is to include:

(a) A new table for the crop nitrogen needs in relation to the yield and irrigation needs, and
(b) A new analytical table containing the manure and annual nitrogen excretion by several categories and subcategories of animals.

6b. Programm of measures - Chemical Pollution

The six substances that caused WBs to fail good status in the 1st RBMP are Ni, Pb, Hg, Cd, Trifluralin and Alachlor. These have been treated through increasing monitoring frequency and specific measures are already implemented, such as Vati restoration, or will be completed in due course, such as rehabilitation of Amiantos mine.CY will explain in the 2nd RBMP when the monitoring frequency is less than 12 times per year, why a lower frequency (e.g. 4, 6 or 9) is justified.

6c. Programm of measures - Hydromorphology

It is believed that the increased availability of biological monitoring results will allow better targeting any hydromorhology-related measures in the 2nd RBMP. Hydromorphological measures in the 2nd RBMP should be based on all available information from studies. A more ambitious programme for hydromorphological measures as compared to the 1st cycle is expected.

6d. Programm of measures - Groundwater

The rate of improvement in GW status is low because of the socioeconomic parameter taken into account in the reduction of groundwater pumping and also to the fact that the measures addressing over and self-abstraction are not fully operational yet. We acknowledge however the fact that socioeconomic situation will be worse if this groundwater problem is not addressed and that enforcement of the ''Integrated Water Management Law'' is crucial for groundwater status improvement. It is envisaged that by mid 2014, the Integrated Water Management Law will be in full force and WDD will be able to address self-abstraction more efficiently. In addition to the enforcement of the law other actions such as change of crops, cropping patterns will be considered. CY will also consider how EU funding opportunities can support these actions.

6e. Programmes of measures Urban Waste Water Treatment

In Cyprus the collecting systems and the treatment plants were not fully operational yet in the reported period year (2009), however, significant progress has been made since then and recent compliance rates are much higher (62,0% of the population equivalent according to 2010 data). Moreover, CY participates in the Pilot Exercise for the UWWTD SIIF» and a revised National Implementation Plan (NIP) plan is currently under preparation. Although it is very difficult, CY will make every effort to implement all UWWTD measures using EU funds so as to have compliance with UWWD by the 2nd cycle.

6f. Measures in Protected areas

In protected GW areas horizontal measures tackling nitrogen pollution, along with implementation of Good Agricultural Practices Code are already in place, and efforts are being made to implement the abstraction reduction policy specified under Annex VII- Water Policy.

Monitoring and mapping of all Natura 2000 areas for both habitats and species have been initiated and is an ongoing process. For the lakes of Paralimni and Oroklini, hydrological studies have been prepared, and for Larnaca Salt Lakes an ecological as well as a hydrological study has been conducted. The reference conditions for the Akrotiri and Larnaca Salt Lakes and for Oroklini and Paralimni Lakes will be established by an external consultant by 2015 (measure #142). For most of the Natura 2000 sites the conservation framework and subsequent decree under Natura Law will be finalized by 2014, and thus it is expected that all measures will be put in place within this period.

Water requirements for Natura 2000 will be considered in 2nd RBMP and addressed with specific measures.

6g. Financing of PoM

Cyprus aims at maximising the use of EU funds and is currently in the process of formulating its programming documents for the utilisation of EU funds, for the upcoming programming period 2014 – 2020. CY will further consider and pursue funding of POMS (for 1st, 2nd and 3rd cycle) through the next Partnership Agreement for 2014-20 that is currently being drafted between Cyprus and the Commission.

7. Climate Change Adaptation, Water Scarcity and Droughts and Flood Risk Management

Cyprus is a naturally water scarce country. Demand reduction is therefore dealt with in the Report on Water Policy while the Drought Management Plan deals with the identification of any measures to deal with high intensity – prolonged drought conditions. The fact that in a country as water scarce as Cyprus, drought resilience should stem from the measures of Standard water policy rather than Emergency Water Policy is explained in the Drought Management report. Measures for demand management form a significant part of the programme of measures. In 2011, WDD carried out a review of the water resources demand management (WDM) measures being implemented under different plans and policies in Cyprus for all sectors, and recorded them as they had been applied over time by the Water Development Department (WDD) and possibly by other stakeholders. The results of the study were used not only for evaluation purposes but also for Water Demand Management Planning.
Climate change was taken into consideration in the review of the Water Policy Annex VII. Two climate change scenarios were developed for stream-flows and evaporation leading to two alternative time-series. The water policy rules and their effects were examined for the two climate change scenario.

CY will further develop sector integration of water resource protection for the 2nd cycle.

CY will promote measures that promote resilience to Climate Change in the 2nd cycle.

8. Economic Analysis and Art 9

Based on the water resources as well as on the national institutional model related to water management, Drinking Water Supply, Irrigation Water Supply, Waste Water Collection and Treatment and Recycled Water Reuse were identified as Water Services in Cyprus, with a number of subservices. For the economic analysis of water as well as for the estimation of the corresponding costing/pricing policies, impoundment, storage, self-abstraction (surface and groundwater), waste water treatment, irrigation for all water uses including households, industry and agriculture were identified and evaluated as water resources or water uses. Thus, they are taken into consideration for the estimation of cost of water services.

As for the rest of the services mentioned in EC comments, rainwater harvesting will be considered in the future management cycles, in relation with the implementation of the Floods Directive 2007/60/EC in Cyprus. As for hydropower and energy (cooling), please note that they are not considered to be water service, as water is not used for either hydropower or cooling in Cyprus.

CY will include more water demand decreasing measures in the second cycle and focus on changing behaviour rather infrastructure.

CY will consider relation between calculation of ERC and the financing of POMS.

CY will provide to COM information on adoption of planned legislative proposals related to inclusion of ERC to CR, setting up water pricing for self-abstraction, resolving problem of illegal abstraction, and implementation of PPP in relation to point and diffuse pollution. CY will notify the Commission on whether and when these are voted by parliament.

The legislative proposals (regulations on water pricing policies according to Art 9) were approved by the Council of Ministers in July 2011 and sent to the Parliament to be voted according to the National Law (The Water Protection and Management Law 13(I)/2004 which is the adoption of WFD to the National legislation). At present, they are being discussed by the Parliament competent committees. CY hopes to be voted as soon as possible.