Ex Post-Evaluation Brief
Macedonia: Environmental Protection - Lake Ohrid

Programme/Client	Environmental Protection - Lake Ohrid BMZ No: 1999 65 195 (main investment)	
Programme executing agency	PROAQUA	
Year of sample/ex post evaluation report: 2011*/2011		
	Appraisal (planned)	Ex post-evaluation (actual)
Investment costs (total)	EUR 13.8 million	EUR 12.6 million
Counterpart contribution (company)	EUR 3.58 million	EUR 2.6 million
Funding, of which budget funds (BMZ)	EUR 10.89 million	EUR 11.0 million

* random sample

Project description: The developmental aim of this initiative was to contribute to reducing the sewage burden in Lake Ohrid and the Crni Drim River. This was to be achieved by providing an ecologically sound wastewater disposal system and a clean residential environment in Ohrid, Struga, Kalista and Radolista. Project measures included the rehabilitation and expansion of waste water sewers and storm water drains as well as rehabilitation of the sewage treatment plant. A training programme to develop managerial competence was also implemented, along with an accompanying measure that provided additional finance to improve operational processes.

Objective: The project objective was to ensure that Ohrid, Struga, Kalista and Radolista had an ecologically sound wastewater disposal system which supported a clean residential environment. This should contribute to the developmental objective of the measure (the overall objective), namely to reduce the sewage burden in Lake Ohrid and the Crni Drim River, as the wastewater was almost exclusively comprised of domestic sewage.

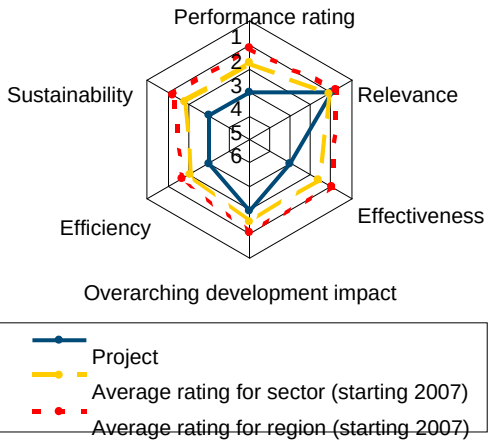
Target group: The target group were Lake Ohrid's permanent residents and seasonal visitors, together with those living downstream along the Crni Drim River, totalling around 120,000 in all.

Overall rating: 4

Although these investments were, for the most part, appropriately conceived, the sustainability of this project can only be assessed as poor. Financially - and in terms of technical operational capability - the project agency is barely capable of functioning, and it is also subject to political interference and frequent reorganisation. Due to system overloading, untreated wastewater is regularly discharged into the lake and the river during rainy weather. Furthermore, given the continuing deterioration in the maintenance situation, problems are also to be expected in the operation of the pumping stations.

Of note: The project agency was established shortly before the start of the project by bringing together several individual local operators from various towns. It has not developed into a profitable regional water supply/ wastewater disposal company.

Rating by DAC criteria



SUPPLEMENTARY INFORMATION TO THE PROJECT DESCRIPTION

Prior to project planning and design, the creation of a common water supply/ wastewater disposal company for the towns of Ohrid and Struga (PROAQUA) was made a precondition of funding. The aim here was to enable these services to be provided more efficiently; under the previous arrangement of three separate institutions, fragmentation had resulted in substantial waste as well as duplication of work, in both technical and commercial areas.

Since its founding in 1999, PROAQUA has undergone several reorganisations. Currently the company has two sections for the cities of Ohrid and Struga. From an operational standpoint, there is virtually no integration between these two sections. Furthermore, in 2010 an independent municipal civil engineering company was spun off to serve the city of Ohrid; this company is now responsible (on behalf of PROAQUA) for the maintenance and expansion of the water supply network and the wastewater infrastructure in Ohrid. In effect, the present situation amounts to a split-up of PROAQUA.

PROAQUA's financial situation can reasonably be described as bleak. The towns have since taken on the majority of the company's financial liabilities. Yet the liquidity position is stretched to such a degree that virtually no operating funds are available, and, as at October 2011, salaries had remained unpaid for three months. The main reasons for this are: firstly, a staffing level which is far too high (515 employees compared with 382 total staff positions at project appraisal, including 253 budgeted posts); and, secondly, inefficient business processes, whose consequences include excessively high electricity costs.

The town authorities are aware of all these problems, but so far no action has been taken. Currently, at the instigation of the city of Ohrid, an invitation to tender (on the basis of a concession) has been issued for PROAQUA's scope of activities. In view of PROAQUA's precarious financial and operational situation and the challenging political environment that exists, the prospects of success are far from clear. There is no alternative action plan in place.

EVALUATION SUMMARY

Overall rating: Although these investments were, for the most part, appropriately conceived, the sustainability of this project can only be assessed as unequivocally poor. Financially - and in terms of technical operational capability - PROAQUA, the project agency, is barely able to function, and is also subject to political interference and frequent reorganisation. Infrastructure maintenance in particular is being neglected, operations are mostly inefficient, and the company's liquidity situation gives serious cause for concern. The project's overall results are unsatisfactory. On this basis, the project overall has been assessed as 'no longer satisfactory'. There is a high risk that the condition of the infrastructure will continue to deteriorate due to lack of maintenance, and that the adverse environ-

mental impacts which occurred prior to project implementation will recur in future as a result. **Rating: 4**

Relevance: The overarching developmental objective of this measure was to reduce the sewage burden on Lake Ohrid and the Crni Drim River. This objective was, and still remains, in accord with the priorities established for German development cooperation with Macedonia as well as with the priorities of the Macedonian government and the Ministry for the Environment. It also conforms with the status of the lake as a UNESCO World Heritage site.

The region's wastewater is still composed almost entirely of residential sewage. Industrial effluents are of little significance. By including Ohrid and Struga within its remit, the project encompasses the two largest towns on the Macedonian section of the lake. Financial Cooperation (FC) is equally active in the wastewater sector in Pogradec, the largest town on the Albanian side of the lake. To this extent, we consider that the project's basic concept is still appropriate, and the chain of effects adopted is plausible.

The project financed measures in Ohrid to separate wastewater from water infiltrating into the sewage system. At the time these measures were completed, there were no indications of a still markedly high proportion of infiltrating water. However, according to reports, the infiltrated water proportion now amounts to 60% - 80%, even on dry days. Based on present-day understanding, it would have been useful to achieve a greater balance between the cost efficiency of certain sections of the network expansion (such as in the smaller suburbs) and additional cost-effective measures to reduce infiltration and inflow. However, taken altogether, the present package of measures is appropriate.

There was no formalised coordination between the donors operating in the sector, nor was there any joint dialogue with the relevant Ministries. The donors have reached rather informal, regionally based understandings over demarcation between the diverse projects they have initiated to protect Lake Ohrid. Judged overall, it was considered that relevance is still 'good', but this level has only just been achieved (Sub-Rating: 2).

Effectiveness: The project objective was to ensure that Ohrid, Struga, Kalista and Radolista had an ecologically sound wastewater disposal system which supported a clean residential environment. The indicators selected at project appraisal were: (1) connections to the central sewage disposal system to reach a level of at least 90% in Struga and at least 80% in the remaining locations; and (2) BOD_5 levels in effluent from the sewage treatment to be < 30 mg/l. In view of the operational situation at the outset and the staff support that was provided, it would also have been useful to include an indicator for effective management. To serve as indices for this ex post evaluation, we have used (3) qualitative indicators of proper management practice (including plant servicing status and staff qualifications).

92% of households in Ohrid and 90% of those in Struga are now connected to the wastewater network. Objective (1) has therefore been achieved.

The threshold value set as an indicator for the quality of effluent from the sewage works (2) is still appropriate, even by today's standards. This is currently < 30 mg/l BOD_5. However, due to the high proportion of water infiltrated into the sewage system (reportedly 10%-20%), untreated sewage is regularly diverted into the Crni Drim River. On at least ten occasions each year, during times of heavy rain, water which the pumping stations are unable to handle is routed directly into the lake. In the villages of Kalista and Elen Karmen the pumps are no longer operational; here sewage is fed into the sea untreated, all year round. But, as the sewage is infiltrated by a high proportion of infiltrated water, the burden is fairly low. Nevertheless, to sum up, indicator (2) is not being attained continuously.

Regarding the proper management of the water supply and wastewater disposal operations, i.e. the appropriate utilisation of the existing facilities, ex post evaluation has yielded the following indicators: a) clear signs of operational problems (e.g. silting, blocked conveyor screws, pumping stations no longer functional); b) maintenance routines and operational control routines only implemented occasionally; c) staff positions occupied by personnel without the appropriate technical qualifications. Since these indicators are not being attained, operational capacity is no longer satisfactory.

Only one out of three objective indicators is being attained; hence the project's effectiveness has been assessed as 'no longer satisfactory' (Sub-Rating: 4).

Efficiency: Prior to the FC project, the sewage treatment plant and most of the wastewater network was already in place. Its design (especially the gradients used) was elaborated in a direction which, from today's perspective, is causing unnecessarily high operating costs. This influences the project too. However, this aside, the unit costs, design and choice of technology adopted in the FC project were all appropriate. Nevertheless, the high proportion of water infiltrated into the sewer system observed during the ex post evaluation has resulted in much higher costs than planned for pumping and sewage treatment. The substantial delays in project implementation also had a negative impact on production efficiency.

Maintenance of the treatment works, the pumps and the sewer network is being neglected, and this will lead to high rehabilitation costs over the medium term. Appropriate controls are not in place at the sewage treatment works; capacity utilisation is less than optimal. Overall, from a facility operation viewpoint, the infrastructure that has been funded is not running in an efficient fashion.

However, it should be borne in mind that, insofar as it can be assessed, the development contribution that was being pursued - a reduced sewage burden, especially in Lake Ohrid -

was broadly achieved. Although this allocation effect fell well short of expectations, it is still judged as positive overall. This effect is not captured in a purely economic consideration.

From a business economics perspective, the operation is unsatisfactory. First and foremost, with 18 employees per 1,000 water/ sanitation connections, staffing levels are clearly too high. Only in certain areas is business conducted in a business-like manner. Control mechanisms are little used, and operational reports to management are rarely updated. Collection efficiency is estimated at 84% and thus conforms to the regional average. According to the auditor's report in the 2010 accounts, unrecoverable debts are not presented in a comprehensible fashion. This suggests that problems exist in the debt-collection area and that a significant proportion of outstanding claims are allowed to lapse. Production cost calculations confirm the overall picture of a business which is unsatisfactory from both a financial and an administrative viewpoint.

In summary, the project's efficiency has been assessed as 'clearly unsatisfactory' (Sub-Rating: 4).

Overarching developmental impact: The developmental objective of this measure was to reduce the sewage burden in Lake Ohrid and the Crni Drim River. Given that the water exchange interval is only once every 60 years, there is an extended time lag before significant changes can be measured and judgments made on the attainment of objectives; hence considerations on the basis of probability have been adopted here. The quality of bathing water at the lakeside beaches has started to improve with the construction of the sewage treatment plant previously to the project. The connection of additional town districts to the wastewater network by the project accounted for additional enhancement. To this extent, it thus seems reasonable that the water quality of the lake has benefited overall. However, in those areas where the wastewater network is no longer fully functional, intermittent pollution events keep recurring. For example, due to lack of maintenance and materials, two of the smaller pumping stations that were funded are no longer functioning, and sewage is repeatedly discharged into the Crni Drim River. Hence the current condition of the facilities falls short of original expectations. Progress towards the overall objective has therefore been assessed as just reaching a 'satisfactory' level (Sub-Rating: 3).

Sustainability: The project's sustainability can only be assessed as poor. PROAQUA, the project agency, has serious liquidity problems and no longer seems able to solve these by itself. The charges for water supply and sanitation services were last raised in 2001, in the run-up to the FC measure, even though - at the suggestion of PROAQUA - the city administrations (town councils) have meanwhile gained the freedom to determine the level of these charges by themselves.

Due to the stretched financial situation, scarcely any operating funds or materials for maintenance are available. Even maintenance routines and operational control routines, which

require the use of little or no materials, are only implemented occasionally. No state subsidies are provided.

PROAQUA's management has been replaced and reorganised on a number of occasions. This has presumably been politically motivated. Many key positions have been taken over by staff with little experience, whilst suitably qualified employees have been transferred to other posts. Overall the management does not seem to be in a position to take important business decisions of its own accord.

Since the main sewer runs along the banks of the lake and pump maintenance is so poor, there is a high risk that individual pumping stations will completely break down and PROAQUA will not be in a position to remedy the damage promptly. In such a case all the sewage arriving at the pump concerned will have to be discharged into the lake until the repair is carried out.

Due to the shortcomings described above, which threaten the operation and maintenance of the sewage system, the project's sustainability has been assessed as 'no longer satisfactory' (Sub-Rating: 4).

Notes on the methods used to evaluate project success (project rating)

Projects (and programmes) are evaluated on a six-point scale, the criteria being relevance, effectiveness, efficiency and overarching developmental impact. The ratings are also used to arrive at a final assessment of a project's overall developmental efficacy. The scale is as follows:

1	Very good result that clearly exceeds expectations
2	Good result, fully in line with expectations and without any significant shortcomings
3	Satisfactory result – project falls short of expectations but the positive results dominate
4	Unsatisfactory result – significantly below expectations, with negative results dominating despite discernible positive results
5	Clearly inadequate result – despite some positive partial results, the negative results clearly dominate
6	The project has no impact or the situation has actually deteriorated

Ratings 1-3 denote a positive or successful assessment while ratings 4-6 denote a not positive or unsuccessful assessment

Sustainability is evaluated according to the following four-point scale:

Sustainability level 1 (very good sustainability) The developmental efficacy of the project (positive to date) is very likely to continue undiminished or even increase.

Sustainability level 2 (good sustainability): The developmental efficacy of the project (positive to date) is very likely to decline only minimally but remain positive overall. (This is what can normally be expected).

Sustainability level 3 (satisfactory sustainability): The developmental efficacy of the project (positive to date) is very likely to decline significantly but remain positive overall. This rating is also assigned if the sustainability of a project is considered inadequate up to the time of the ex post evaluation but is very likely to evolve positively so that the project will ultimately achieve positive developmental efficacy.

Sustainability level 4 (inadequate sustainability): The developmental efficacy of the project is inadequate up to the time of the ex post evaluation and is very unlikely to improve. This rating is also assigned if the sustainability that has been positively evaluated to date is very likely to deteriorate severely and no longer meet the level 3 criteria.

The overall rating on the six-point scale is compiled from a weighting of all five individual criteria as appropriate to the project in question. Ratings 1-3 of the overall rating denote a "successful" project while ratings 4-6 denote an "unsuccessful" project. It should be noted that a project can generally be considered developmentally "successful" only if the achievement of the project objective ("effectiveness"), the impact on the overall objective ("overarching developmental impact") and the sustainability are rated at least "satisfactory" (rating 3).