

Ex Post-Evaluation Brief

PR OF CHINA: Communal wastewater disposal programme I



Sector	14020 Water, sanitation and wastewater management	
Programme/Client	Communal wastewater disposal programme I BMZ No. 1997 65 645*	
Programme executing agency	Municipal authorities, communal wastewater utilities and private operators	
Year of sample/ex post evaluation report: 2013/2013		
	Appraisal (planned)	Ex post-evaluation (actual)
Investment costs (total)	Up to EUR 180 million	EUR 105.5 million
Counterpart contribution (company)	Up to EUR 150 million	EUR 77.7 million
Funding, of which budget funds (BMZ)	EUR 30.7 million	EUR 27.8 million
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* random sample 2013

Short description: The project involved the construction and/or equipment of six urban wastewater treatment plants in Kashgar, Kaili, Yangzhou, Huaibei, Fuxin and Anqing as well as a smaller operation to re-equip the treatment plant in Haikou.

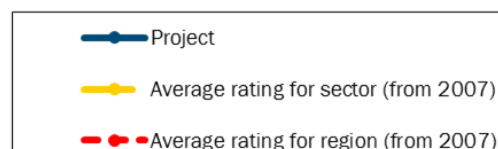
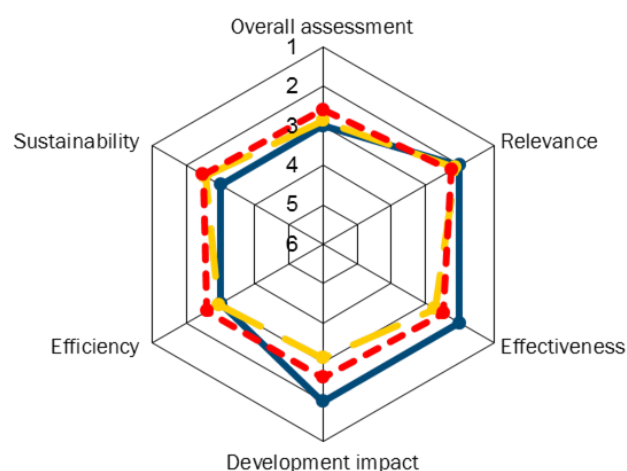
Objectives: Overall objective: Contribution to water conservation in the PRC and hence to securing sustainable development of the country. Programme objectives: Improvement of wastewater disposal in the programme cities and reduction of the risk to health resulting from contaminated water.

Target group: Entire population of the programme cities as well as people living downstream by the rivers into which the treated wastewater is discharged.

Overall rating: 3

The programme is relevant, the programme objectives were largely achieved and the measures were implemented efficiently. Due to inadequate sewer installation and numerous incorrect connections within the sewer networks in the programme cities, only approx. 50-70% of the predominantly domestic wastewater is actually treated; the contribution that the programme provide to water conservation needs further development, hence environmental sustainability has not yet been adequately ensured. Furthermore, the wastewater tariffs in most cities still do not cover full costs and at one location do not even cover operation and maintenance costs, so the cities are dependent on budget allocations from the provincial governments.

Rating by DAC criteria



EVALUATION SUMMARY

Overall rating

Rating: 3

Relevance

At the time of the programme appraisal, there were only approx. 200 wastewater treatment plants throughout the country, and rivers and lakes were so contaminated in many places that the water should no longer be used as drinking water resource. In fact, drinking water continued to be supplied in part from contaminated surface water and groundwater, with the associated health risks only being minimised as water was traditionally boiled before consumption. The number of statistically proven cases of water-borne diseases was very low at the time of the programme appraisal, though a large number of unrecorded illnesses must be assumed. The Chinese environment yearbook named environmental pollution as one of the four main causes of illness and death; however, no concrete study results were publicly available. Water contamination therefore counted officially, alongside air pollution, as one of the PRC's biggest environmental problems (core problem). In the context of the open programme, plans were made to implement 6-12 individual projects, with programme activities set to include the following:

- extension of main collectors
- construction of wastewater pumping stations
- construction of new / expansion of existing wastewater treatment plants

The German contribution was meant to finance the mechanical/electrical components to be imported for the wastewater pumping stations and the wastewater treatment plants. From the current view, the measures were appropriate for helping to solve the core problem. However, there was only a limited causal connection between the measures and the programme objective ("Improvement of wastewater disposal in the respective cities and reduction of the risk to health resulting from contaminated water"). On the one hand, the co-financing of the construction of new treatment plants and the equipping of them only actually created the prerequisites to improve the wastewater disposal. On the other hand, the construction/equipping of wastewater treatment plants alone does not reduce the risk to health from contaminated water. In many places, the urban sewage system is so inadequate that part of the wastewater is discharged untreated into rivers/lakes and here and there seeps into the groundwater. At the request of the Chinese side, the programme did not include activities in wastewater networks, apart from limited financing of the construction of main collectors.

In this respect, measures that help to solve the persisting core problem remain a priority for China. As the classic FC with budgetary funds from the German Federal Government is coming to an end, domestic water services are no longer a focus of the cooperation. The programme supplemented the projects of multilateral donors (World Bank, Asian Development

Bank) that are also currently active in the sector. However, since the domestic water service sector is decentralised, there was no need for conventional donor coordination as there was no overlap between the projects.

Sub-Rating: 2

Effectiveness:

The programme objective was to improve wastewater disposal in the respective cities. The programme objective of reducing the health risk, as also defined during the appraisal, is actually an overall objective according to present standards and is discussed separately. The programme objective should be regarded as achieved if 90% of the individual projects financed under the overall project fulfil the following conditions:

- utilisation of 70% of the installed capacity three years after commissioning
- compliance with statutory discharge values
- environmentally friendly disposal of sewage sludge

With respect to hydraulic capacity utilisation and compliance with discharge values, all the individual projects satisfy the indicators. However, the measured inflow values suggest that, due to incorrect connections, some of the domestic wastewater is discharged through the rainwater drainage system and, in its place, water from other sources (rainwater and groundwater) is fed via the sewers to the sewage treatment plants. This means that satisfaction of the indicator by itself is not meaningful enough.

With respect to the environmentally friendly disposal of sewage sludge, the sludge is incinerated at three locations in power stations, at two locations the sludge is stored in urban landfills after it has been drained, and at one location it is used in the production of bricks. As according to Chinese law, sludge must be more dewatered before landfilling as it is practice at the moment, the two wastewater treatment plants are working on alternative solutions.

No indicator has been defined for the second programme objective, which actually is an overall objective – “Reduction of the risk to health resulting from contaminated water.” Given that water was and is traditionally boiled before consumption, only a very low risk to health existed at the time of the programme appraisal as well. For that reason a decision should have been taken to forgo the naming of the second programme objective.

In general, the extent of programme objective achievement to date is rated as good.

Sub-Rating: 2

Efficiency

The measures were implemented cost-effectively. Even taking into account the local own contributions, the specific investment costs per inhabitant are reasonable. It is more difficult to assess adequacy in terms of a macroeconomic rate of return and an economically efficient and “conservative” use of resources. On the one hand, due to the political will the wastewater tariffs are set so low in 5 of the 6 cities that adequate maintenance costs are not covered by revenues and therefore theoretically would endanger the achievement of the long-term effectiveness if budget allocations from local financial departments, as is currently practice, were not sufficient for the sustainable operation of the plants. However, this permanent subsidisation from budgetary funds leads to a distortion of allocation efficiency. On the other hand, this distortion can be rated as still reasonable with respect to the environmental impact of the programme.

In comparison of alternatives, a joint construction of wastewater treatment plants and wastewater networks in fewer locations could theoretically have increased the impact of the project. However, due to the special Chinese context and the fact that the development partners did not desire any co-financing from the German side in the wastewater networks, this was not feasible in practice.

Sub-Rating: 3

Impact

At programme appraisal the overall objective was formulated as follows: “Contribution to water conservation in the PRC and hence to securing sustainable development of the country.” No indicators were defined for measuring the achievement of the overall objective at programme appraisal.

The current 5-year plan specifies concrete targets for reducing key contamination factors for water resources. In order to be able to reach these, additional treatment plants must be built, while many existing plants must be used more efficiently and some re-equipped. The further economic development of China can only be sustainable if it is not as in previous decades at the expense of the environment, but only if the development will be in harmony with environment and resources protection.

In all programme cities, the water quality class of the receiving water body has improved by one class since the commissioning of the treatment plants. This improvement is for a river like the Yangtze for example, into which the city of Yangzhou discharges, locally limited and the effect of the programme could be increased by eliminating the aforementioned incorrect connections and leakages. However, compared with the initial situation, the project has helped to raise political and public awareness of the topics environmental protection and water conservation.

Sub-Rating: 2

Sustainability

In view of the fact that due to the political framework conditions revenues from wastewater tariffs only cover the full costs at one location, economic sustainability would not be assured if budget allocations would not be sufficient in future. Although budgets for treatment plants in the past were sufficient to ensure appropriate operation, half of the treatment plants did not have an adequate, regular maintenance budget. When acute problems occurred, special allocations were made, so the maintenance condition of all the plants is at the least still satisfactory.

With respect to the environmental sustainability, the project was only able to achieve a satisfactory result as the measures did not take into adequate consideration the poor constructional quality of the sewer networks (outside the programme scope), the percentage of population connected to the sewer system and thus to the treatment plants as well as effects of the sewer system operations on the operation of the wastewater treatment plant. In all cities visited people in charge were aware of the necessity to dispose the sewage sludge in an environmental friendly way and it was implemented.

Some locations had already installed adequate additional measures. The environmental impact thus remains limited but overall still satisfactory.

Sub-Rating: 3

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).