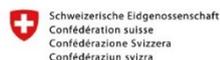




Pre-Feasibility Study on Wastewater Treatment and Recycling Management for Handan City (Hebei Province, China)

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Executive Summary

Prepared by WorleyParson



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i. Executive Summary

Please find hereafter a summary of some of the key points developed in the various chapter of this report. This summary is not exhaustive, for more information please refer to the analysis in the rest of this report.

At the end of this summary we provide some recommendation and preliminary conclusions from our analysis. Please note that those elements are mainly indicative and will be subject to further analysis or confirmation in a subsequent and separate Feasibility Study.

We have also provided after this executive summary, a simplified list of “key findings and recommendation” in both English and Chinese. This list has been drafted to communicate with Handan Municipal Drainage Company and Handan authorities about the essential points for the development of the project and our analysis with the objective to raise funds for the project.

1. The City of Handan is undergoing an aggressive “3-year face-lifting plan” for the City. The plan started in 2008. As part of the program, the City development is expedited and the infrastructure upgraded to meet the increasing needs of the City posed by the increase in population and deteriorating infrastructure. To go hand-in-hand with the City plan, HWTC has a plan to develop five sub-projects for upgrading its waste water collection and treatment capabilities in both quantity and quality.

2. Other than expanding sewerage coverage and treatment capacity, HWTC also wants to upgrade its facilities to develop further the waste water recycling solutions to reduce the stress on the scarce water resources in the area. The recycled water can be sold to the industrial and other users in the area for additional revenue generation.

3. Handan wishes to create a special project company, namely Handan Municipal Drainage Company (HMDC), to take up the construction, operations, and maintenance of the facilities. The HMDC will constitute a separate “perimeter” with specific mission, roles and duties in line with the waste water treatment activity for the City. Current thinking is the old company (HMWC) would take up the operation and maintenance of the wastewater and storm water pipeline and pump stations, as well as flooding prevention in the City. The new company would be in charge of all the Wastewater Treatment Facilities and the Sludge Facility in the City. However, the “transfer of assets” from the old to new company would preclude the transfer of liabilities, which would stay with the old company. This would ensure the financial health of the new company.

4. Proposed system improvements (plants and pipeline) have been developed using proven technologies in the industry, which the HWTC staff are familiar with. New technologies may bring some benefits in terms of improved capital costs, operations and maintenance (O&M) costs, and water quality. The higher quality recycled water can be sold to more users, which will increase the revenue stream for HWTC. However, the investigation and comparison of alternate technologies is beyond the scope of this study.

5. All five sub-projects will be combined under one loan agreement. This would even out the revenue and expenses to improve payback efficiency and loan repayment capability. HMDC is responsible for the repayment of the ADB loan for the project.

6. Social and Environmental benefits of the project

6.1 Establishment of two new wastewater plants will improve the living environment for the local residents by enhancing the treatment capacity of

wastewater for in Handan City (the treatment rate will increase the coverage rate from the currently 80% to 100%, eliminating pollution of rivers, surface water and other water bodies, as well as diseases associated with untreated wastewater discharging to the open waters.

6.2 Establishment and operation of two wastewater reuse facilities will benefit the reuse of our precious resource - water, reducing the discharge of wastewater into, and dispose of municipal wastewater in a low-cost and sanitary way. The proposed sub-projects will create a clean and green living environment for the entire population of Handan City through the reuse of recycled water for landscape gardening and watering the river ways surrounding three public parks which are main places for local people to do outdoor activities.

6.3 Inhabitants in Huangliangmeng Township and the South side of the City, who are not covered by any existing wastewater discharge system, will directly benefit from the improvement of living environment through a clean environment due to safe wastewater disposal with the establishment of the Huangliangmeng and South Wastewater treatment Plants.

6.4 Residents in the project areas and throughout the City can also benefit indirectly from accelerated development of the area and the increased business opportunities. The value of the land and properties in the area will also increase with improved living conditions, better environment and establishment of the eco-city. This would help more people get out of poverty with improved lives and be financially self-sustainable.

7. Large-scale enterprises like Handan power plants and the Handan Iron and Steel Group Company will provide some of the needed revenue to operate the wastewater reuse facilities in a financially sustainable fashion but considering the overall economy of the project and potential loan terms, recycled water sales revenue may not be able to cover all costs and additional revenues coming from waste water treatment charges of HMDC will be required to make the project financially sustainable.

8. The social safeguard issue will not be significant in the project areas as (i) the proposed projects will not affect any ethnic minorities or indigenous people; (ii) no relocation of affected communities or dwellers will be required; and (iii) land acquisition will be limited to small-scale areas and small rural population.

9. Land acquisition would be required for constructing the two new wastewater treatment plants, which would be the key negative impact for local residents on this project. Further consultation with the residents and analysis of the impact would be carried out to determine the details of the land acquisition and mitigation effort: land compensation, income loss due to loss of productive land, transitional arrangements, and income restoration. A mitigation plan is being prepared by HMDC to address all these outstanding issues.

10. Both the wastewater tariff and the recycled water tariff need to be accounted for in the repaying of the loan and O&M of the facilities identified in the project. Wastewater discharge tariff generated revenues will provide a reliable source of income but counting in the wastewater discharge tariff alone is not adequate for the loan repayment and O&M of the project. Currently, the recycled water revenue mechanism for Handan is not well established, hence its revenue not easily guaranteed. Hence, as part of this project, there should be institutional strengthening on the recycled water tariff mechanism to ensure its revenue stream, major and minor users alike, to make this project more financially viable.

11. Further dialogue should be conducted with the agencies and entities to get a better understanding of the terms and conditions of the loan from the ADB, Local Banks, and Local Government – before committing itself to a loan for the project. This is critical as the loan repayment terms and conditions directly affect the financial feasibility of the project.
12. HWTC should solicit financial support from the Handan Government for the project.
 - 12.1 government commitment on annual review and adjustments of tariff to meet the financial needs of the HWTC
 - 12.2 government subsidies for certain period of cashflow shortfall with HWTC
 - 12.3 funding commitment from the government if HWTC is unable to provide the necessary equity investment upfront
13. HWTC should obtain a letter of commitment from the major recycled water users that purchase from HWTC on the minimum monthly/yearly volume they would purchase at designated price. This would put a guarantee on the income revenue for the HWTC and its facilities.
14. For the funding arrangements of the subprojects, there are one base case and two scenarios presented in the report. The base case reflects the condition as set out on the original project scope, which includes five projects. Two scenarios (scenario 1 and 2) have been developed under the assumption that only three projects (Project East, West, and Sludge) will be transferred into HMDC. In addition, in the scenario analysis, it is projected that ADB can finance 50% of total investment assuming the project costs are less than US\$40 million. Scenario analysis also includes a minor change to loan terms and conditions. Two scenarios were developed in a way to make the project more financially viable.
15. In the base case, the preliminary cost estimate on the five sub-projects is about USD65 million total. HMWT plans to finance the project through three funding sources – ADB, Local Banks, and HMWT/Handan City own funds. ADB can fund up to 25% of the project cost, local bank will fund up to 45%, and the rest (up to 30%) by HMWT/Handan City. The project IRR in the base case is 9.29%.
16. Under Case B (alternate case) scenario 1, only East WWTP Water Recycling Project, West WWTP Water Recycling Project and Sludge Treatment Project will be transferred to the HMDC. As the project costs are less than US\$40 million, it is projected that ADB can finance 50% of total investment and projected that 20% of total investment will be financed by Chinese development banks while 30% of total investment will be financed by equity. ADB loan is assumed to be a 12-year fixed US dollar-dominated loan at an interest rate of 4.2% with a two year grace period. Local loans are assumed to be an eight-year fixed RMB-dominated loan at an interest rate of 6.8% with a two-year grace period.
17. The IRR for the overall project as calculated in scenario 1 is 11.307% and has improved in comparison with 9.29% calculated in the base case. The DSCR analysis shows that in the scenario 1 there is only a CFADS (cashflow available for debt service) shortfall in 2012 and it is assumed that projected cash flow is sufficient to service its debt in the remaining years.
18. Under Case B (alternate case) scenario 2, all the terms and condition are same as those specified in scenario 1 other than the assumption that ADB loan is assumed to be a 12-year fixed RMB-dominated loan at an interest rate of 6.5% with a two-year grace period rather than a 12- year fixed US-dominated loan at an interest rate of 4.2% with a two-year grace period.

19. The IRR for the overall project that is calculated in scenario 2 is 11.309%, a slightly improvement in comparasion to scenario 1 given the tax shields for interest on borrowing. The DSCR analysis domostrates the same results as presented in scenario 1.

20. For the base case with 5 projects included: Due to low DSCR and sensitivity cases on lower tariff cases, obtaining the loans will be easier with a third party / private sector investor. In that situation some better commercial loan could be available and will also improve DSCR.

For the Scenario cases with 3 projects only, non sovereign financing approach with 50 % ADB loan would possible but bankability will be improved with the support of high level guarantors towards overall loan and especially tariff policy.

21. It is essential to obtain partial or complete funding commitment upfront from the Provincial/Municipal government to cover 30% of the project funding needs in order to obtain the remaining 70% project loans from international and local sources to make this project viable. Handan will attempt to apply for partial or complete funding under the environmental projection fund of the 12th five-year plan. Any shortfall could then be filled by tapping into the Provincial/local government and/or the interest of the private sector through a possible joint venture structure.

22. Existing HWTC has a board of director of 7 people and board of supervisors of 5 people. The existing HWTC has 425 staffs with two wastewater treatment plants and 9 departments. The proposed HMDC has board of director of 5 people and board of supervisors of 3 people. West WWTP with water recycling 80 staff; East WWTP with water recycling 80 staff; Huang Liang Meng WWTP 40 staff; South WWTP 40 staff; Sludge Treatment Plant 40 staff. Finance department 5 staff; technical/production department 5 staffs; Engineering department 10 staff; Human resources department 3 staff; Administration department 3 staff, and top management level 4 staff. The new company will consist mainly of staff from the existing company for consistency, ease of transition, and minimal staff turnover. The staff from the old to new company will also be matched with their expertise to the right department to smoothen the transition. Only "assets" of the existing company will be transferred to the new company, but not the "liabilities" to improve the financial viability of the project.

23. HWTC/Handan government should consult with MOF on the specific terms and conditions of the loan. The possibility to include a Joint-Venture partner should be explored to ensure that a non-sovereign loan, which is denominated in USD, can be obtained from ADB.

24. Considering the overall importance of this project for Handan waste water needs, private investors including international operators should be considered as potential partners on the project with inputs on technology expertise, source of additional funds (equity, loans, bonds), partnership support, and knowledge transfer.

25. Improving experience, training, reference and advisory support for HWTC managers will be important to increase the project's success, and approval of international loans. The overall capability of the proposed project team and HWTC will also be evaluated for loan approval, to assure the lenders that the project will work per business plan and that HWTC will be able to repay the non-sovereign loan. Hence, institutional development and training is essential to the project's success.

ii. Conclusion

As a result of our analysis we believe the project could potentially be implemented on non sovereign loan financing basis, but the overall business model of the new project company to be set up should include waste water discharge tariff generated revenue on top of potential recycled water sales generated revenue for better economic viability.

In this spirit, we have developed together with Handan authorities the Case B (scenarios 1 and 2) that is indicated in this report.

Nevertheless, even though the preliminary analysis indicates that the overall economy of Case B (scenarios 1 and 2) appears to be more financially viable than the base case, more detailed analysis and risk assessments will be required to confirm Case B viability after the assumptions are confirmed. Foreign currency loan and safe approval requirements need to be further investigated for this project to assess eligibility as well as conditions.

Detailed analysis of the viability for Case B should be performed once the assumptions have been confirmed, for instance the wastewater and recycled water tariffs and volumes, funds/equity contribution proportion, and terms and conditions of the loans/grants.

The business plan and final report have been written up on the Base Case as well as the 2 scenarios of Case B. Further discussion and presentation will be carried out with HMDC, Handan authorities, the steering committee and CDIA to finalize on the funding arrangements of the project.