



Review & Recommendations

Upgrading of Wastewater Collection & Treatment in Sam Son

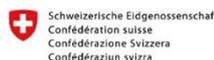
Institutional Strengthening of Thanh Hóa URENCO, Sam Son URENCO,
and Thanh Hóa Water Supply Company

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Executive Summary

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i. EXECUTIVE SUMMARY

A. Summary of Engineering Recommendations

1. The upgrade to the Sam Son town wastewater treatment and drainage / sewerage system should be approached in two Phases:

Phase 1: To provide, at a relatively modest budget of under \$5m, for near-term improvements to the ponds and a new sewerage pumping station, and incremental extension of the collection / sewerage system to the extent feasible given available financing, towards the east of Nguyen Du street in the North and towards Ha Ba Trung Street in the South to keep up with rapidly increasing wastewater generation in the areas of most rapid tourism development and construction.

Phase 2: To provide for continued extensive expansion of the wastewater collection, sewerage and drainage pipe network to deliver wastewater to the ponds, and further upgrade to the ponds (treatment facility)

Concurrent: Training and capacity-building for SS URENCO staff with regard to operations of new equipment, plus public awareness and education campaign for SS residents and businesses on environmental protection and waste management.

B. Summary of Financing Strategy

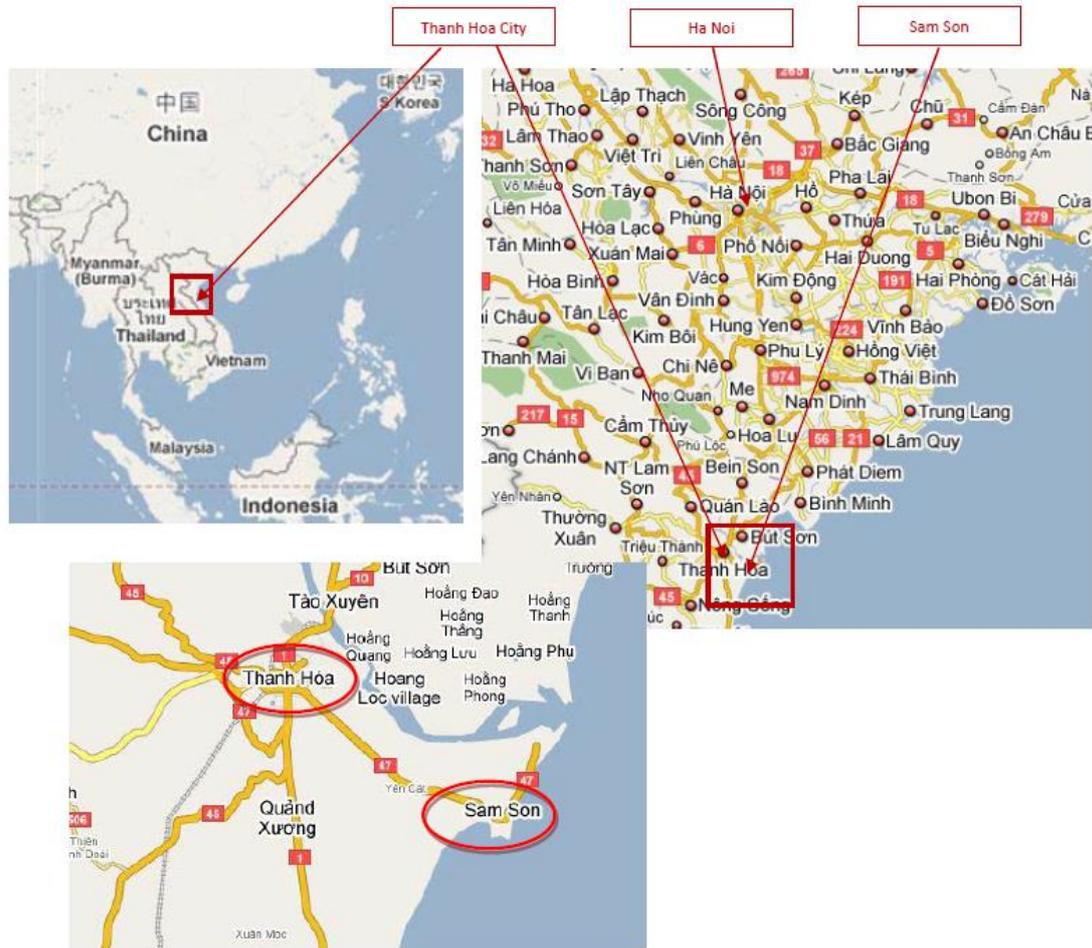
2. This report recommends that funding for the bulk of network expansion be sought from multilateral sources. The long lead time of such financing, compared with the rapid current growth of the SS tourism industry, however, means that small interim steps must be taken. In the interim, other financing should be sought from all sources, including Vietnamese and international private wastewater developers and operators, for near-term upgrade in the existing wastewater settlement ponds or lagoons. Attention should also be paid to possibilities of bundling the potentially revenue-producing components of projects, e.g. SS solid waste treatment and wastewater treatment for methane extraction for electricity generation.

C. Summary of Implementation and Recommendations:

3. The proposed upgrade program should be managed by the recently-corporatized and part-privatized SS URENCO under whatever procurement procedures may be specified or agreed by investors or lenders (e.g. Thanh Hoa LDIF, if available, ODA or commercial lenders, etc.). As the proposed improvements are phased and incremental, URENCO can use the project to further develop internal planning and project management capacity. It is recommended that management of wastewater treatment operations be organizationally segregated somewhat from the other activities of URENCO so as to establish clear accountability for personnel involved in the upgrading project.

4. At the same time, it is recognized that there is a generally low level of awareness and appreciation, among the general public and business operators especially, of the detrimental environmental and health effects of their casual discharge of untreated wastewater. For this reason, this study recommends a concurrent public awareness and educational campaign to raise this level of awareness and to encourage the public not to discharge wastewater into the environment.

ii. LOCATION & ORIENTATION MAPS



Location of facilities discussed in this report:

