

ASIAN DEVELOPMENT BANK

SAMUT PRAKARN WASTEWATER MANAGEMENT PROJECT

FIRST SEMIANNUAL

REPORT

TO THE BOARD OF DIRECTORS

ON

IMPLEMENTATION OF THE RECOMMENDATIONS

OF THE BOARD INSPECTION COMMITTEE

AS ADOPTED ON 25 MARCH 2002

September 2002

ABBREVIATIONS

ADB	–	Asian Development Bank
BIC	–	board inspection committee
CEF	–	community enhancement fund
EEZ	–	economic exclusion zone
EMP	–	environmental management plan
PCD	–	Pollution Control Department
TA	–	Technical assistance

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I. BACKGROUND

1. On 25 March 2002, the Board of Directors of the Asian Development Bank (ADB) met to consider the recommendations of the Board Inspection Committee (BIC) pursuant to the inspection of the ADB-funded Samut Prakarn Wastewater Management Project (the Project) in Thailand.¹ At that meeting, the Board noted the report of the BIC and, after due deliberation, approved its recommendations as follows:

- “(i) The Board approved the Committee’s recommendation 83(i) on ADB’s commitment to being an active participant in both the discussions with the Klong Dan community and all other efforts mentioned in paragraph 166 of the Panel’s Report with the clarification that this recommendation should be understood in the context of paragraphs 57, 58 and 81 of the Committee’s Report, specifically:
- ‘57. Paragraph 166(i) proposes that negotiations should be instituted to establish the extent of damages and “appropriate and adequate compensation” for those affected. Management’s Response has correctly pointed out (in paragraph 54) that “an inspection is not a judicial process and its purpose is not to adjudicate awards for damages or make suggestions for the settlement of possible damages.” The Committee also agrees with paragraph 55 of Management’s Response, which notes that the Government of Thailand is obliged (as a matter of Thai law and, by virtue of the loan documents for the project and ADB’s resettlement policy) to make appropriate arrangements for the calculation and payment of adequate compensation to those affected by the Project and that it is ADB’s job to ensure that ADB’s resettlement policy is complied with.
58. The Committee notes however that the Panel’s Report does not include any purported award of damages or any suggestion that the Panel regards it as part of the Panel’s job to make one. Rather the Committee’s interpretation of the Panel’s recommendation is that ADB should be an active participant in the process of facilitating the proper assessment of damages by the Thai government and where relevant the award of appropriate compensation.
81. With respect to the recommendations in paragraph 166, Management acknowledged the merits of improving community participation. In this context Management noted that the Pollution Control Department is currently working on a compensation mechanism, in line with ADB’s resettlement policy. Management will review progress on this matter every six months. Management further indicated that as an integral part of the EMP for the Samut Prakarn wastewater treatment plant, community liaison groups will be established to foster greater community involvement in the management and operation of the treatment plant. Management indicated that work on establishing baseline data for socioeconomic parameters; a mechanism for meaningful community involvement in the risk assessment of future problems; and a mechanism for timely public notifications is already under way. Management confirmed that while

¹ ADB, 1995, *Samut Prakarn Wastewater Management Project*, Manila.

strictly speaking it will not be a partner in any negotiations, it is keen to be an active participant in these efforts.’

- (ii) The Board approved the recommendation 83(ii) that Management continue to monitor resettlement effects and to ensure that all legitimate concerns with respect to consultation with and participation by affected people are met and, to this end Management provide semi-annual reports on the status of implementation of the resettlement plan including payment of compensation; and
- (iii) The Board approved the recommendation 83(iii) that the Board note paragraph 56 of Management’s Response, in which it is stated that data and mechanisms for monitoring the social and environmental impacts have either already been developed and incorporated in the EMP or are being developed as recommended in the EMP; and that the Board instruct Management to provide semi-annual reports on:
 - a. the system for monitoring of socioeconomic impacts, based on baseline data;
 - b. the progress in community involvement; and
 - c. problems associated with odor and effluent (if any), together with a description of measures taken.”

2. This report is the first semiannual report to Board covering the period from 26 March 2002 to 25 September 2002.

II. COMPENSATION PLAN

3. The Board required Management to provide semiannual reports on the status of implementation of the resettlement plan including payment of compensation.

4. The affected persons under the Project are the licensees in the economic exclusion zone (EEZ) that includes the construction area of the marine outfall. Only one licensee was affected during the construction of the marine outfall. Financial compensation was provided to the affected party. After project start-up, two licensees will be affected by the EEZ. Consultation with these licensees commenced in February 2002, with a view to developing a compensation plan (referred to as the resettlement plan in the BIC report). ADB is facilitating the consultation through a community facilitator engaged under small-scale technical assistance (TA 3517-THA) for community awareness and development².

5. For public health reasons, the PCD and the Fisheries Department consider it necessary to relocate the fishing licensees within the EEZ. In preparation for the relocation plan, satellite images of the coastal area were taken (2001 and 2002) to assess the farming areas, and to establish which licensees will be affected. This was necessary, as the actual areas farmed do not always correspond to the licensed areas.

² ADB, 2000, *Community Assessment and Development for the Samut Prakarn Wastewater Management Project*, Manila

6. Criteria for compensation have since been developed, and are based on temporary disruption and reestablishment costs, and are intended to ensure that the licensees do not suffer any adverse impact as result of the relocation. The criteria, together with the satellite images, form the basis for consultation for the compensation plan. The criteria have been discussed with the affected persons, who have generally been supportive of this initiative. The affected persons were consulted about the proposals for compensation during August and September 2002, and it is expected that agreement will be reached in October 2002. A formal agreement is likely to be drawn up in November/December 2002.

7. In addition to the financial compensation, PCD has been evaluating other means to assist the community in general as a measure of goodwill. In October 2001, PCD commissioned Kasetsart University to study mussel farming and small-scale fisheries in Samut Prakarn and nearby provinces, including the Khlong Dan area. The study reported on aspects of how to enhance mussel and fish production. The findings are being discussed with the community. During the consultation process, ADB has been playing an active role, through the Special Project Administration Mission in Thailand, as the facilitator for discussion between PCD and the affected persons.

III. MONITORING SYSTEMS

8. The Board required Management to provide semiannual reports on the system for monitoring of socioeconomic impacts, based on baseline data.

9. As required under the loan, a benefit monitoring and evaluation program has been built into the Project. The program focuses on the social and environmental aspects of the Project. Detailed baseline information on the population and health profile has been collated. This includes information on environment-related diseases; comparison of the birth, death, and infant mortality rates; quality of life along waterways and near the factories discharging wastewater; and a situation analysis of the low-income households that are seriously affected by the low lying nature of the Samut Prakarn province. The program has obtained information on conditions including hydrology and oceanography, geology and land subsidence, meteorology and ambient air quality, noise levels, water quality, coastal erosion, fishery resources and aquaculture, mangrove forest, and wildlife. To enhance the monitoring mechanism, a monitoring committee is to be established under the provincial administrative organization, with subcommittees to oversee the environment, public health, and socioeconomic aspects of the project impact.

A. Socioeconomic Monitoring

10. Socioeconomic data are being collected from the provincial and district level government offices, as well as by socioeconomic surveys. A socioeconomic survey of the overall project area, together with attitude surveys, was conducted during the feasibility study in 1995. Socioeconomic surveys of the Khlong Dan community were undertaken in 1999 by Mahidol University, in February-March 2002 by Chulalongkorn University and by an independent local research institute, the Professional Research Associates. Collectively, the data gathered from these surveys form the baseline for assessing community concerns and impacts. An attitude survey was also conducted in 2001 under TA 3517-THA; the findings of this survey are also being incorporated in the baseline data.

11. The surveys indicate that about 17% of the community are involved in aquaculture or fishery activities. The average household income of Baht20,000/month in Khlong Dan is significantly higher than the national average of Baht9,000/month, and slightly higher than the average household income of Samut Prakarn Province as a whole, at Baht18,000/month. The mean monthly income of households involved in aquaculture is around Baht21,000/month, and those involved in fisheries is considerably higher at Baht55,000/month.

12. The surveys show that water pollution awareness is low (70% of the residents do not see it as a community problem), and less than half appreciate the relationship between health and wastewater management. Factory discharge of wastewater is perceived by coastal villagers as the primary cause of pollution in the area, whereas inland communities tend to consider the problem to be the result of shrimp and fish farming. The perceived severity and source of pollution is a function of where people live within the community. The surveys also noted that many people do not know how to solve the wastewater pollution problem (about 26%) within the community, with only 11% advocating a collection system and treatment facility.

13. Although most people know about the Project, knowledge is vague and limited. Coastal villagers on the whole (65–85%) are far more aware of the details of the Project than people from inland villages (15–60%). The level of awareness about the Project has not changed significantly from 1999 (about the start of construction in the Khlong Dan area) to 2002. This clearly demonstrates the need to continue to strive for more effective communication with the community.

14. Community awareness enhancement efforts under TA 3517-THA are contributing to the general improvement in awareness and attitudes about the Project in the Khlong Dan community. PCD is to establish a community enhancement fund (CEF) to support this initiative. In accordance with the “polluter pays” principle, a percentage of the tariff collected from the operation of the wastewater management system will be allocated to the CEF. With these concerted efforts, the overall perception about the Project is expected to improve.

B. Public Health Monitoring

15. In terms of public health monitoring, the parameters have been established and data is being collected as part of the socioeconomic surveys. The data collected so far indicate that, although the general health of the population in Samut Prakarn Province is better than the national average (gross mortality rates being about 4.3 deaths per 1000 in Samut Prakarn and 5.9 in the country as a whole), conditions in Bang Bo district, which includes the Khlong Dan community, are significantly worse (8.4 deaths per 1,000). The two indicators of waterborne diseases (infant mortality and acute diarrhea) clearly show a condition in Samut Prakarn that is significantly worse than the national average. Infant mortality in Samut Prakarn is around 10 per 1,000 live births, nearly double the national average of around 6 per 1,000 live births. Similarly, the incidence of acute diarrhea in the province is about 40% higher than the national average.

16. A subcommittee under the Monitoring Committee (para. 9) will be responsible for reviewing the data and reporting on the progress of health monitoring. The subcommittee will also define and set up performance indicators for future monitoring. Details of these activities are being included in the benefit monitoring and evaluation program.

C. Environmental Monitoring

17. An extensive environmental monitoring program, involving data collection on the status of surface waters and marine waters in the project area as well as terrestrial and marine ecology in the Khlong Dan area, was put in place by PCD in late 1998. The data will constitute the baseline situation for the evaluation of environmental impacts. The establishment of baseline data for odor is more difficult, as it is a much more subjective parameter. Assessments however indicate that background odor levels (baseline) in the Khlong Dan community are already significant, and are associated with fish and shellfish processing, as well as stagnant ponds and drains. PCD established a meteorological data collection station at the treatment plant site in December 2001 to collect data for more accurate odor model predictions and management.

18. The monitoring of the marine environment off the coast of Samut Prakarn indicates that the seawater quality along the entire coast east of the Chao Phraya River is degraded and is highly variable, according to the season. During the wet season, the estuaries of the major watercourses (including Khlong Dan) and the nearby coastal waters are inundated by freshwater, which prohibits the farming of mussels during that period. Coliform bacteria levels are extremely high during the wet season, as they are transported by the rivers and khlongs. Pollutant spikes from coastal industries are noticeable, and the pollution plumes are generally carried eastward from the Chao Phraya River toward Khlong Dan. Heavy metal accumulation in the sediments is moderate to high, but not untypical of coastal waters adjacent to major cities suffering from pollution elsewhere in the world. There is considerable seasonal variation in the abundance of plankton and benthic animals off the coast of Khlong Dan. The quality of mussels and cockles reflect the degraded water quality. Heavy metals at elevated concentrations were found in both mussel and cockle flesh, but the levels are generally within Thai standards. Considering that mussels are grown for about 8 months of the year, the rate of bioaccumulation of heavy metals is very high.

19. Field surveys of the khlongs in the project area indicate that they are highly polluted with both chemical and microbiological contaminants. The khlongs are ecologically dead due to the very low oxygen levels and excessive ammonia concentrations, and heavy metal concentrations exceed the standards for some species in several khlongs. Khlong Dan, running through the community of the same name, contains high levels of organics and nitrogen and pathogens, mostly as a result of uncontrolled direct discharge of raw waste. The snake-skinned gourami, a popular local fish farmed widely in the province, also has significant traces of cadmium and lead, but at levels below the maximum allowed under Thai standards.

20. The semiannual ecological surveys of the treatment plant site at Khlong Dan, which have been undertaken by PCD over the past 3 years, indicate that the population and diversity of flora and fauna has not changed. Since the massive site clearance of mangroves during 1979–1986, the mangrove area has remained relatively unchanged. The surveys indicate that the rate of plant growth has been constant, and that the mangrove trees and other types of flora on the site are still a food source for the terrestrial animals. Sixty-one bird, three mammal, and six amphibian and reptile species habit the site; one of the mammal species is classified as threatened. PCD intends to put in place habitat preservation measures to ensure that this mammal is well protected. The site could also become a significant transit point for the 24 migratory bird species recorded.

IV. COMMUNITY INVOLVEMENT

21. **The Board required Management to provide semiannual reports on the progress in community involvement.**

22. TA 3517-THA has helped improve communication with the affected community. The initial phase of the TA was designed to collect socioeconomic data on the Khlong Dan community, assess perceptions of the Project, and establish effective communication channels to a broad cross-section of the community. This phase of the TA, which concluded in October 2001, noted that community members were concerned about the impact of the Project on their livelihoods, and it was determined that this was the result of inadequate communication. To address the situation, the TA made two key recommendations: (i) that greater efforts should be directed toward local community development; and (ii) that the Government should assure that the Project will not have adverse impacts. The second phase of the TA, which commenced in July 2002, is directed toward addressing these two key recommendations. A Thai institute has been engaged to facilitate the communication and consultation process with the community during the second phase of the TA.

23. The second phase of the TA has three key initiatives. The first involves working with the project-affected persons to develop a compensation plan (paras. 4-7). The second includes working with the Khlong Dan community on the design of small-scale development activities. These activities will also be supported by CEF (para. 14). In August 2002, ADB facilitated training and consultation sessions for the local community in value-added processing of mussels and enhanced mussel farming methods at the Sriracha Fisheries Research Station. The session was attended by around 40 community members, including community leaders, men, women, and children. The third key area is aimed at exploring the mechanisms for what may evolve into an environmental guarantee fund. Under this concept, the risks of various impacts will be assessed and discussed with all stakeholders. The Government will then consider making an arrangement with the community under which potential impacts can be monitored and, agreeing on compensation to be provided if they occur. Compensation is to be funded under the "polluter pays" principle. The next round of consultation on this issue is scheduled for November/December 2002.

24. Following the initiatives in Sriracha, Kasetsart University is working with the community in Khlong Dan to introduce enhanced mussel farming methods and improved value-added processing of mussels. This work is proving to be a valuable platform for constructive consultation with the community, and discussions on the CEF. The community leaders are noting growing enthusiasm in the community for the new concepts, and are actively discussing the CEF. In late August 2002, a study tour was organized for several community leaders to observe similar treatment plants in Denmark and Austria that have been in operation for many years. The initial feedback is positive, in that the participants were able to witness a similar treatment plant operating with no adverse environmental impacts. It is hoped that the participants will interact with other members of the community to help allay some community concerns.

25. With regard to the recommendation that there should be community participation or involvement in the operation and management of the treatment plant, the Government has informed ADB that it is impractical to have local communities participating in the operation and management of municipal wastewater treatment facilities. However, the community's participation can be effected through their involvement in monitoring. The community will be invited to send representatives for membership on the subcommittees that will be responsible

for monitoring aspects of the project impact (para. 9). Further, the monitoring mechanism will include a community liaison group, that will hold regular meetings at which community members can voice any concern. Volunteers will be sought within the community to report on any visible or odorous impacts—a hotline will be made available.

V. ODOR AND EFFLUENT MANAGEMENT

26. The Board required Management to provide semiannual report on problems associated with odor and effluent (if any), together with a description of measures taken.

27. The issue of odor has been analyzed extensively since the early stages of the project design and the impact at Klong Dan will be very low. To foster effective monitoring, a meteorological station has been built at the treatment plant site to collect local data, and this will be used to update the model. Odor will be monitored by the monitoring committee.

28. Effluent discharge and its potential adverse impact on human life and the environment is being addressed under the Project, both at the source of generation and at the final point of disposal. At source, a cleaner production program for industry has been incorporated in the Project to reduce the total pollution load, and a set of “discharge-to-sewer” standards is being developed to ensure that factory wastewaters do not adversely impact the treatment system. Factories will be required to reduce high levels of heavy metals and toxics by pretreating their wastewaters before discharging them into the sewer system. Wastewater will be treated to a level at which it can be safely assimilated into the environment after it leaves the marine outfall. The design of the treatment and disposal facilities is based on the premise that there must be no adverse impact on the environment or human life outside the EEZ. In fact, the Project is designed, as are all other such environmental projects, to enhance the quality of the environment. This is normal procedure for wastewater treatment systems throughout the world, whether the effluent is discharged into a marine or riverine environment. In the case of the Project, sensitivity analyses have been carried out to assess the impacts on the environment of “no pretreatment,” “existing levels of pretreatment,” and “full pretreatment.” The case of “no pretreatment” results in a final effluent that complies with Thai standards, but in both of the other cases, the effluent meets the higher international standards. As a safety precaution, the treatment plant has a built-in buffer capacity to divert, store, and treat illegal discharges of pollutants from other upstream sources.

29. Procedures for odor and effluent monitoring are being developed by PCD in accordance with the EMP, and are expected to be finalized by February 2003. The development process includes consideration of the key parameters to be measured, and frequency and locations of sampling. In addition, procedures for courses of action and persons to be contacted in case of emergency incidents are being formulated as part of the operation and commissioning task force established for all aspects of the Project. Community participation will be effected through the monitoring committee (para. 9).

VI. CONCLUSIONS

30. In conclusion,

- (i) a compensation plan is being developed in consultation with the project-affected persons and is expected to be finalized by December 2002;

- (ii) monitoring mechanisms are being put in place to cover the environmental, socioeconomic, and public health aspects of the Project;
- (iii) arrangements are being developed for community involvement, to the extent possible, in monitoring activities, and for assessing the risk of adverse environmental impacts; and
- (iv) odor and effluent management measures are being developed.