

PPA:MAL 15027

**ASIAN DEVELOPMENT BANK**

**PROJECT PERFORMANCE AUDIT REPORT**

**ON THE**

**SECOND TRENGGANU TENGAH DEVELOPMENT PROJECT  
(Loan No. 583-MAL)**

**IN**

**MALAYSIA**

**January 1996**

## CURRENCY EQUIVALENTS

Currency Unit - Malaysian Ringgit (RM)

		At Appraisal	At Project Completion	At Postevaluation
RM1.00	=	\$0.43	\$0.37	\$0.40
\$1.00	=	RM2.31	RM2.70	RM2.47

## ABBREVIATIONS

DOE	-	Department of Environment
EIRR	-	Economic Internal Rate of Return
FELDA	-	Federal Land Development Authority
FIRR	-	Financial Internal Rate of Return
JBA	-	State Water Supply Department (Jabatan Bekalan Air Negeri)
JKR	-	Federal Public Works Department (Jabatan Kerja Raya)
KETENGAH	-	Trengganu Tengah Development Authority (Lembaga Kemajuan Trengganu Tengah)
PCR	-	Project Completion Report
PEM	-	Postevaluation Mission
PPAR	-	Project Performance Audit Report

## WEIGHTS AND MEASURES

m <sup>3</sup>	-	cubic meter
ha	-	hectare
km	-	kilometer

## NOTES

- (i) The fiscal year (FY) of the Government of Malaysia ends on 31 December.
- (ii) In this Report, "\$" refers to US dollars.

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**BASIC PROJECT DATA**  
**Second Trengganu Tengah Development Project (Loan No. 583-MAL)**

<b>KEY PROJECT DATA (\$ million):</b>	<b>As per Bank Loan Documents</b>	<b>Actual</b>
Total Project Cost	77.05	39.50
Foreign Currency Cost	34.61	17.86
Bank Loan Amount/Utilization	30.20	16.80
Bank Loan Amount/Cancellation		13.40

<b>KEY DATES:</b>	<b>Expected</b>	<b>Actual</b>
Fact-Finding		11-21 May 1981
Follow-up		27 Jan-9 Feb 1982
Appraisal		18-31 Mar 1982
Loan Negotiations		18-20 Aug 1982
Board Approval		28 Sep 1982
Loan Agreement		10 Nov 1982
Loan Effectivity	8 Feb 1983	24 May 1983
Project Completion	31 Dec 1986	31 July 1990
Loan Closing	30 Jun 1987	12 July 1989
Months (Effectivity to Completion)	47	86

<b>KEY PERFORMANCE INDICATORS (%):</b>	<b>Appraisal</b>	<b>PCR</b>	<b>PPAR</b>
Economic Internal Rate of Return			
- Project	21.2	12.4	n.c. <sup>1</sup>
- Feeder Road Component	26.9	19.1	3.0
Financial Internal Rate of Return			
- Town Development Component <sup>2</sup>	3.0	3.6	n.c.
- Water Supply Extension	10.0	4.2	negative

**BORROWER:** Government of Malaysia

**EXECUTING AGENCIES:** Trengganu Tengah Development Authority (KETENGAH)  
Federal Public Works Department (JKR)<sup>3</sup>

**MISSION DATA:**

<b>Type of Mission</b>	<b>No. of Missions</b>	<b>Person-days</b>
Fact-Finding	1	22
Follow-up <sup>4</sup>	1	47
Appraisal	1	70
Loan Inception <sup>4</sup>	1	6
Project Administration		
- Review <sup>4</sup>	8	39
- Disbursement <sup>4</sup>	1	1
- Project Completion	1	24
Postevaluation	1	17

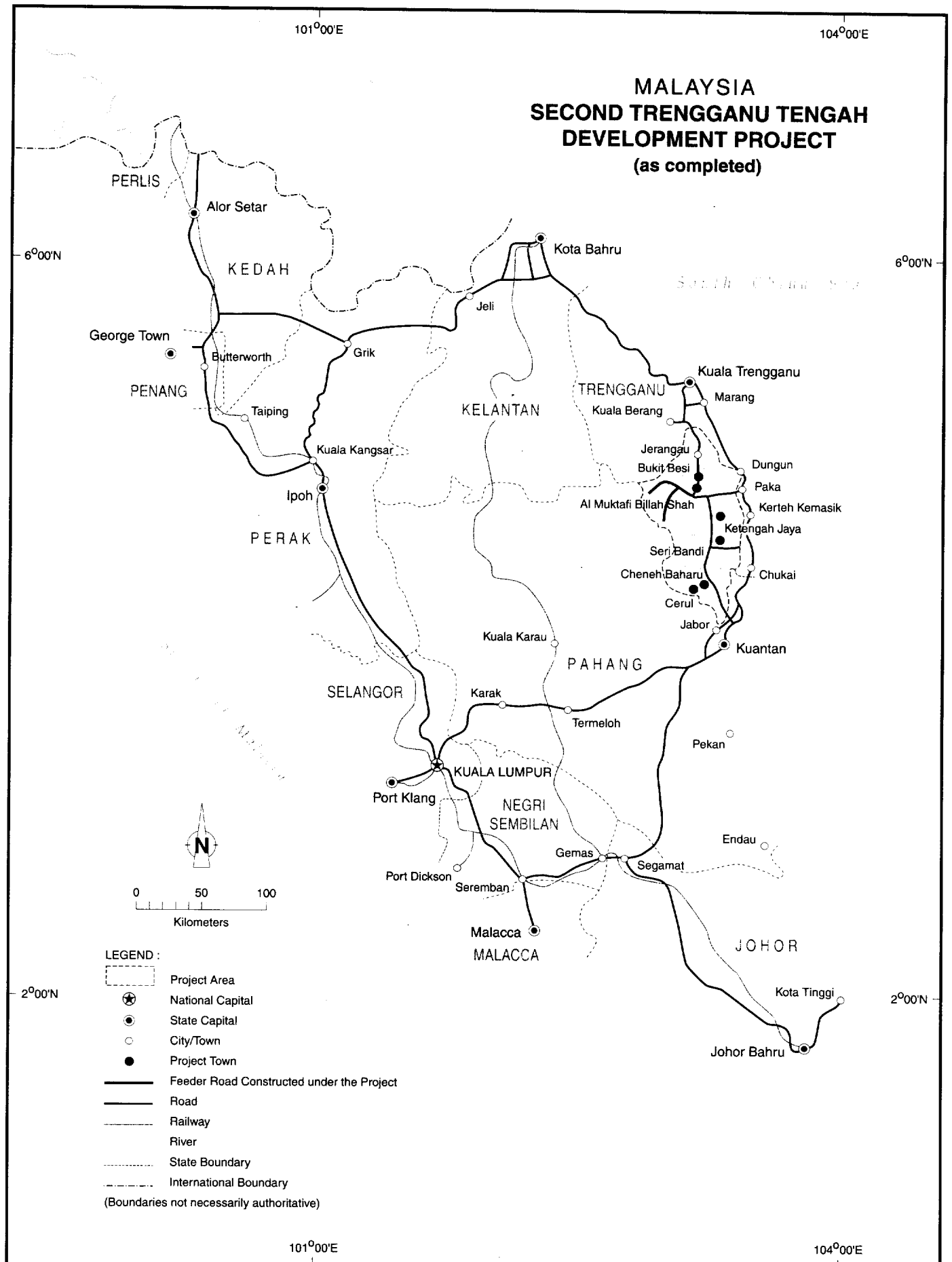
<sup>1</sup> n.c. = not calculated

<sup>2</sup> Inclusive of Part I: Town Development and Part IV: Housing.

<sup>3</sup> The responsibility for the water supply systems was transferred from the JKR to the State Water Supply Department (JBA) in 1985.

<sup>4</sup> Conducted in conjunction with the review of other projects and the number of person-days for the Project has been prorated.

# MALAYSIA SECOND TRENGGANU TENGAH DEVELOPMENT PROJECT (as completed)



## I. HIGHLIGHTS

1. **Objectives and Scope.** The Project formed part of the Trengganu Tengah regional development scheme that commenced in 1974. The major objective of the Project was to expand five towns and to establish a sixth town to accommodate the people migrating into the area in response to the scheme's agricultural development. The main outputs of the Project were serviced building sites, low cost houses, shophouses, and extension of the town water supply to the sixth town. The alternative to the Project was to house the workers and their families on the agricultural estates. Through the creation of towns it was expected that a sufficiently large and dense population would be settled so the provision of a wide range of services would be more cost-effective. The towns also were expected to generate job opportunities in the service sector and in secondary industries, and to be attractive to young people and slow down their migration to the cities. A second major component of the Project was a feeder road to develop agricultural and forestry areas in the western part of the region.
2. **Cost, Financing, and Schedule.** The actual total cost of the Project was \$39.5 million, which was only about 51 percent of the expected cost because of a decrease in the size. The Bank disbursed \$16.8 million out of an approved loan amount of \$30.2 million. The Project was completed in 1990, 43 months behind schedule.
3. **Implementation.** The growth in population was much less than expected and the planned number of houses and sites was reduced during implementation. Eventually, about 64 percent of the serviced sites, and one-third of the low cost houses were established but none of the shophouses were established. A small number of houses were damaged and are inhabitable but the town development was generally of good standard. During the implementation period, the number of houses and sites available for use exceeded demand, but by mid-1995 almost all of the habitable houses were occupied. The water supply system was expanded as planned, but the demand for water is much less than expected and has resulted in a large excess capacity. The feeder road was constructed and has reduced log extraction costs from the timber reserves in the area, but the majority of the expected agricultural development along the road has not occurred yet.
4. **Institutional Aspects.** The implementation of the Project by a regional development authority was satisfactory. However, the authority will be phased out and long-term institutional arrangements for the administration and further development of the towns, including funds, are needed.
5. **Environmental Aspects.** The area has a high potential for erosion, and although some erosion occurred during construction, incorporating the lessons from previous developments minimized the impact. The presence of tigers and elephants in the area was not sufficiently studied and expensive relocation of animals has been necessary.
6. **Cost/Benefit Assessment.** The recalculated economic internal rate of return (EIRR) for the feeder road component was only 3 percent, much less than the estimate at appraisal of 26.9 percent. The EIRR was not considered an appropriate evaluation criterion for the township development because it should be assessed on the basis of social considerations. The reassessment shows a negative financial internal rate of return (FIRR) for the investment in the extension of the water supply system.

7. **Overall Performance and Sustainability.** Most of the social objectives of the township components are being met. Although the expansion in the employment opportunities was minor, compared with other types of settlement in the area, the occupants of the towns have access to a wide range of services, have higher incomes, and have young families. However, the lower than expected population has increased the cost per house site of the central facilities from which these benefits are derived. Because of the designed low housing density, the average cost per house site of these central facilities was already relatively high. The service levels are considered sustainable, and this will be strengthened with the spillover of population from the coastal areas. The incorporation of the sixth town as part of one of the other towns would have improved the situation and would have avoided the excess capacity in the water supply facilities. The feeder road component, which accounted for 37 percent of the expenditures on the Project, did not generate the expected benefits as reflected by its low EIRR. Overall, the Project was rated as partly successful.

8. **Feedback.** The Project demonstrates the benefits of creating towns when settling new agricultural areas. However, if the development takes place over an extended period and follows a master plan, continuous reassessment and planning is required. The environmental impact could have been managed better if an environmental impact assessment had been conducted during the planning stage and the maintenance of drainage facilities had been given more attention.

## II. BACKGROUND

### A. Rationale

9. The Project formed part of the regional development scheme for Trengganu Tengah, a 440,000 hectare (ha) area in eastern Peninsular Malaysia. At the start of development in 1974, the area was mostly forest. The main focus of the scheme was to develop oil palm, rubber, forestry, and the related processing factories. The scheme was part of the national effort to provide additional opportunities for subsistence and unemployed people, particularly the *Bumiputra*,<sup>1</sup> to reduce poverty and eliminate race-related socioeconomic disparities. Although estate<sup>2</sup> style housing and amenities could have been provided for the new workers, which would have resulted in many small, scattered settlements, the scheme was based on the creation of townships, which resulted in fewer, but larger centers of population. Compared with the estate type settlement pattern, the more concentrated population in the townships was expected to result in significant social benefits, such as (i) cost-effective provision of services by the different Government agencies; (ii) the growth of secondary and tertiary industry, which would provide more job opportunities for the settlers; and, (iii) a decline in the migration of young people to the cities. Although most of the agricultural development had been initiated prior to the Project, additional permanent workers were required to support the development of the area. The purpose of the Project was to facilitate the establishment of services and the migration of workers into the area by expanding the township areas. By constructing a feeder road, the Project also was expected to facilitate new agricultural and forestry activities in the western part of the region.

<sup>1</sup> People of Malay race, as opposed to Malaysians of Chinese and other ethnic origins.

<sup>2</sup> Including private estates and the Federal Land Development Authority (FELDA) estate schemes where the houses and amenities for the estate workers (and families) are constructed on each estate.

## B. Formulation

10. The main features of the development scheme were embodied in a set of planning guidelines prepared by international consultants in 1974. In 1975 and 1978, the Bank funded several components of the scheme under two projects: the Jerangau-Jabor Development Road Project<sup>1</sup> and the Trengganu Tengah Township Development Project.<sup>2</sup> Based on this earlier work and the planning guidelines, the Bank formulated the Project during Pre-appraisal and Follow-up Missions in 1981 and 1982. The Project was appraised in March 1982.

## C. Objectives and Scope at Appraisal

11. The objectives of the Project were to expand services, support a wider range of employment opportunities and prevent youth from migrating to the cities. These objectives were to be achieved by developing urban areas in the five towns previously created under the Trengganu Tengah Township Development Project and a new, sixth town by: (i) creating 6,200 serviced sites, (ii) extending the Cheneh Baharu water supply system to the sixth town, Cerul, (iii) constructing some low cost houses and commercial buildings in the towns, (iv) training the staff of the Trengganu Tengah Development Authority (KETENGAH) in operation of the sewerage system, and (v) providing consultants. The Project also included funding for the construction of 57 kilometers (km) of feeder roads in Pasir Raja to open up the area for agriculture and to support forestry operations. The houses and employment opportunities were to be made available only to *Bumiputra* in view of the overall development goal of correcting race-related disparities.

## D. Financing Arrangements

12. At appraisal, the cost of the Project was estimated at \$77.05 million,<sup>3</sup> of which \$34.61 million was the foreign exchange component. On 28 September 1982, the Bank approved a loan of \$30.20 million from the ordinary capital resources to finance part of the foreign exchange costs of the urban development, including the extension of the water supply, the feeder road, the training, and the consultants. The balance of \$46.85 million, equivalent to 61 percent of the total cost was to be financed by the Government. The Borrower was the Government of Malaysia, while KETENGAH was the Executing Agency for all components except the water supply. Implementation of the water supply component was initially under the Federal Public Works Department (JKR), but the responsibility was transferred later to the State Water Supply Department (JBA) after it was established. KETENGAH and the JKR had been the Executing Agencies for the two earlier Bank-funded projects for the development scheme.

## E. Project Completion

13. The Project was completed in July 1990, 43 months behind schedule. The Project Completion Report (PCR), prepared by the Bank's former Infrastructure Department, was circulated to the Board in December 1992. The PCR discusses the design, scope, implementation and operational aspects of the Project and provides a reassessment of the

<sup>1</sup> Loan No. 238-MAL for \$23.7 million, approved on 13 November 1975 and postevaluated in December 1982.

<sup>2</sup> Loan No. 344-MAL for \$16.0 million, approved on 29 June 1978 and postevaluated in August 1986.

<sup>3</sup> Because of errors in addition, the Appraisal Report shows the total as \$75.7 million.

Project benefits and economic impact. Further investigations at postevaluation revealed that it is necessary to modify the assessments in the PCR about the institutional arrangements for handling environmental issues (see para. 25) and the economic and financial impacts of the Project (see paras. 40 to 42).

#### **F. Postevaluation**

14. This Project Performance Audit Report (PPAR) is based on a review of the PCR, the Appraisal Report, material in the Bank's files and the records of the Executing Agencies, and discussions with staff members of the Bank. It also takes into account the findings of a Postevaluation Mission (PEM) which visited the Project from 22 May to 7 June 1995 and discussions with staff of the Executing Agencies and other concerned Government agencies of the Borrower, the beneficiaries, and the operators of commercial establishments in the area covered by the Project. This PPAR focuses on pertinent aspects of the Project. Copies of the draft PPAR were provided to the Borrower, the Executing Agencies, and Bank staff concerned for review and comments. The comments received were incorporated in the final PPAR.

### **III. IMPLEMENTATION PERFORMANCE**

#### **A. Design**

15. During implementation, the size of several of the township components was reduced, as shown in Table 1, and the policy of limiting the houses only to *Bumiputra* families working in the region was relaxed so that two towns, Ketengah Jaya and Seri Bandi, also now provide housing for people, including non-*Bumiputra*, working in the industrial sites in the adjacent coastal areas. The reduction in the number of sites and buildings and the change in the housing policy were appropriate in view of the slowdown in migration into the area and the shortage of housing in the coastal areas. Compared with the revised targets, however, more serviced sites and fewer houses were constructed. Part of the Pasir Raja feeder road was deleted from the Project because of the delay in the implementation of the component, but that part was subsequently constructed by the Borrower. At appraisal, the road was to be constructed along the western bank of the Dungun River, but prior to the implementation of this component, a new alignment along the eastern bank was selected and a gravel surface access road running part of the way on the western bank was added. This change did not increase the cost significantly but it did provide easier access to many of the small *kampungs*<sup>1</sup> along the river.

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<sup>1</sup> Villages.

**Table 1: Output Targets and Achievements**

	Appraisal Target	Revised Target	Achievement
Establishment of Cerul township	Yes	Yes	Yes
Extend water supply to Cerul	Yes	Yes	Yes
Size of service reservoir at Cerul (mn. gal)	0.5	0.5	0.5
Area of urban land developed (ha)	900	500	500
No. of serviced sites	6,200	2,700	3,965
No. of low cost houses	2,285	1,130	837
No. of commercial buildings	334	0	0
Length of feeder road (km)	57	48	37

16. The house sites in the towns have a minimum area of 6,000 square feet (about 540 square meters) with 60 feet (18 meters) frontages. The roads are wide and curve gently and, along with other nonresidential areas, occupy large proportions of the town areas, even though the towns are primarily residential areas (see Appendix 1). The housing density averages 5 houses per ha of township and 12 houses per net ha of land developed for housing. This density is relatively low for low-income areas and results in a higher than necessary cost per household for road, water, electricity, and sewerage services (see para. 39). Settlements with neighborhoods based on rectilinear road grids and narrower, longer lots would have been more cost-effective. In addition, the large lot sizes have not been necessary. The additional land was provided to enable the beneficiaries to plant vegetable gardens, but very few of the households have gardens. Although the features of the towns are more appropriate for middle-income areas rather than low-income settlements, these features were determined by the planning guidelines in 1974 and the development under previous projects. Since the Project was limited to the extension of the urban areas in five existing towns and the establishment of a sixth town, changing the design of the settlement would have been very difficult and would have introduced problems of inequality between older and newer settlers.

17. The number of towns and their locations were determined by the basic planning criterion that the agricultural settlers should not be more than one half hour from their fields. This was translated into distance on the basis of foot and bicycle transport. Consequently, seven towns were proposed. However, since the spatial plan was prepared, several changes occurred that made the plan less desirable. First, the population is much lower than expected, and the distribution of the smaller population over the same number of towns has reduced the range of services that can be cost effectively provided. Second, the growth in ownership of motorcycles and motorscooters means that workers can travel further in half an hour. In retrospect, a smaller number of more widely spaced towns would have sufficed, and would have resulted in a lower cost of development with a higher residential to nonresidential land use ratio<sup>1</sup> and more services could have been provided.

<sup>1</sup> The average cost to develop one serviced house site was RM8,500, but an additional RM11,500 per house site was spent to provide the supporting town facilities (see para. 39).

18. Five of the area's towns had already been established prior to the Project, the sixth town, Cerul, was established under the Project, but it was unnecessary, for the reasons cited in para. 17. Cerul has a very small population, about 2,044 in 1994, and is located within 12 kilometers of Cheneh Baharu. The 343 houses constructed in Cerul could have been added to Cheneh Baharu, which would have reduced the need to construct the central shop and public facilities at Cerul and would have enabled an even higher level of service to be provided in Cheneh Baharu. The water supply system constructed under the Project, which is grossly underutilized (see para. 33), also would not have been required. The slowdown in the growth of the population immediately prior to, and during the early part of the Project indicated the plan for establishing Cerul needed to be revised; but the development continued because FELDA, which was providing the agricultural land for the inhabitants, considered the extra distance from Cheneh Baharu to be a disadvantage.

## **B. Contracting, Construction, and Commissioning**

19. Of 3,209 houses constructed under the Project and other programs up to March 1995, 97 had to be demolished and 57 were damaged by storms, fires, and vandalism.<sup>1</sup> The houses that were demolished had deteriorated because they were vacant for a long time, which was aggravated by some defects during construction. The most noticeable defect was the erosion of the sites for the houses which had not been leveled. Given the general oversupply of houses during most of the 1980s and early 1990s, there was no need for beneficiaries to take possession of houses which had defects. The number of houses constructed under the Project with defects was not recorded.

20. The water supply systems in the area have high losses because of leakage. The JBA attributes the leakage to the use of asbestos pipes for the water mains, and is currently replacing many of these mains with steel pipes. Data was not available on the performance of the water supply system at Cerul, which was constructed under the Project; but the same types of pipes were used for that system so there are probably leaks.

21. A section of the Pasir Raja feeder road is being affected by severe erosion and the side of the road is being undermined. The most likely cause is inadequate size of the drainage structures combined with an inadequate level of maintenance.

22. With the exception of the erosion problems and the probable leakage from the pipes in the water supply system, the standard of the remaining construction is adequate despite the underbidding by contractors, several minor defaults by contractors and an inability to attract many large contractors because of the small size of the contracts. The penalty clauses in the contracts were too small to be effective in addressing defaults by contractors.

## **C. Organization and Management**

23. All of the development work and budget, with the exception of the construction of the water supply at Cerul, were consolidated under KETENGAH. The civil works for the towns, as well as the feeder road, were undertaken by the JKR through a special unit attached to KETENGAH. Although the implementation of the Project was affected by many small problems and delays, the involvement of KETENGAH produced better results than if the different tasks

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<sup>1</sup> Separate data for only the houses constructed under the Project was not available.

were distributed among the different agencies. It improved the coordination among the creation of building sites for clinics and schools, the supply of social services such as health and education, and the buildup of the population in the townships.

24. KETENGAH was more concerned with implementing the planned works, such as those under the Project, than with long-term planning. If it had been more concerned with planning, the small town of Cerul might have been incorporated as part of Cheneh Baharu, the construction of the Pasir Raja road might have been better planned in relation to the timing of development in its catchment area (see para. 37) and the recently planned industrialization program might have been more focused (see para. 51).

25. Severe erosion problems in the early stages of the regional development prompted several institutional changes. Prior to the Project, a joint committee of the Ministry of Science, Technology and Environment, KETENGAH, and the JKR was to be formed to oversee the implementation of measures to mitigate against negative environmental impacts. However, this committee was not formally established.<sup>1</sup> A special environmental unit within KETENGAH was formed and operated until 1984 when it was absorbed within the newly created Department of the Environment (DOE) at the state level. The DOE makes environmental assessments for developments of over 50 ha in size and monitors effluent and emission qualities. The staff of KETENGAH and the JKR also are aware of the environmental issues, and this helps in the design and the supervision of construction. However, these institutional arrangements have not been effective in all areas as evidenced by the continuing erosion during construction (see para. 47).

#### **D. Actual Cost and Financing**

26. The actual cost of the Project was \$39.5 million, about 51 percent of the expected amount (see Appendix 2). The PEM agrees with an analysis in the PCR which showed that after adjusting for inflation and fluctuations in the exchange rate, the real cost underrun, in constant 1982 prices, was 53 percent. The major cause of the cost underrun was the decrease in the number of serviced sites and buildings and in the length of the feeder road constructed under the Project. The Bank disbursed \$16.8 million compared with the expected \$30.2 million. The balance of the cost of the Project was borne by the Government whose proportionate contribution decreased slightly from the planned 61 percent to 58 percent.

#### **E. Implementation Schedule**

27. The Project was completed in July 1990, 43 months behind schedule. Most of the delay was in the feeder road component which was delayed by 3.5 years because the works were divided into several consecutive packages, which amplified the many small delays, and the changes in the road design. The town development and housing works were delayed by about two years because of the slow progress of the work and decision making, unfavorable weather conditions, unexpected poor site conditions, and changes in detailed designs. However, the delays in implementation were not a constraint to the achievement of the benefits of the Project because the outputs were available before they were required (see para. 32).

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<sup>1</sup> The PCR cited this unit as one of the measures which improved the control of erosion (para. 37 of PCR).

## F. Effectiveness of Technical Assistance

28. The Project was not preceded by Bank-funded technical assistance; instead it was based on the planning guidelines for the Trengganu Tengah regional development scheme prepared by international consultants in 1974. The guidelines were comprehensive, particularly in the description of the rationale for townships and in the analysis of the size and the viability of the townships. In most areas they provided a broad basis for the detailed design of the Project, although by the time of appraisal, the population projections were already different from the actual levels and required updating.

## G. Compliance With Loan Covenants

29. Except for the requirement to keep separate records for the components funded by the Bank, the loan covenants were adequately complied with.

# IV. PROJECT RESULTS

## A. Operational Performance

### 1. Township Size and Utilization of Project Facilities

30. By 1994, the population of the six towns supported under the Project had reached 35,109. This was significantly below the expected population of 75,750 for 1990 (the last year for which a projection was made at appraisal). The actual population for each town and nontown area, the projections at appraisal, and the estimated population in 1974 before the development scheme started, are in Table 2.

**Table 2: Regional Population Data**

	Master Plan Estimate for 1974	Appraisal Projection for 1990	Survey Result for 1994
Bukit Besi (Town A)	--	7,540	3,551
Ketengah Jaya (Town B)	--	13,580	12,888
Al Muktafi Billah Shah (Town C)	--	16,750	5,840
Seri Bandi (Town D)	--	12,270	3,636
Cheneh Baharu (Town E)	--	17,790	7,150
Cerul (Town J)	--	7,820	2,044
ALL TOWNS	--	75,750	35,109
OTHER SETTLEMENTS	30,700	no est.	44,183
TOTAL	30,700	no est.	79,292

Sources: KETENGGAH, Planning Guidelines (1974) and Appraisal Report.

31. The slow population buildup was the result of several factors, chief of which was the attraction of potential migrants to the fast-industrializing coastal area of Trengganu and to the development schemes in other states.<sup>1</sup> The agricultural development in Trengganu Tengah continued, however, through the use of non-Malaysian labor and changes in agricultural practices that required lower labor inputs. The non-Malaysian labor was not entitled to housing within the towns and barracks were established on the estates for them. It was also assumed that part of the population of the towns would come from people relocated from the existing *kampungs* in the area, which did not occur. The cost of housing is not considered too high to discourage people to move to live in the Project towns. The amortization payment to cover the cost of houses ranged from RM37 to RM75 per month.<sup>2</sup> The higher level of monthly amortization payment was equivalent to about 18 percent of the household income at the poverty line. The housing cost to the town settlers was kept low by limiting the amount to be recovered to the actual cost of the house plus a nominal charge of RM400 for the house site.

32. In view of the slow population buildup, the number of serviced sites and houses for construction under the Project were reduced during the implementation period. Given the achievements under previous township development works, during the implementation period of the Project, there were always more sites and houses available than needed. Subsequently, the excess capacity declined with the growth in population and the change in policy that enabled people working in other areas to occupy the houses. As of May 1995, only 22 out of the 837 houses constructed under the Project were unoccupied, and only about 600 serviced housing sites out of 3,965 were not built upon. All houses released for occupancy in 1994 and 1995 had attracted a large number of applicants.

33. The water supply extension to Cerul served approximately 350 connections in early 1995 with a consumption of about 3,600 cubic meters (m<sup>3</sup>) per month. This is substantially below the consumption of 31,500 m<sup>3</sup>/month expected at appraisal for 1990. The shortfall is due to both the lower than expected population growth in Cerul and a lower average household consumption. The average water consumption is about 10 m<sup>3</sup>/month, which is close to the minimum chargeable amount levied by the JBA.

## 2. Services, Employment, and Youth Migration

34. Facilities and services within the *kampungs* have been upgraded since the planning study, but the quality and the range of facilities and services within the towns exceed those in the *kampungs* and estate settlements. The towns have piped water, electricity, and sealed access roads, which are also available in some of the *kampungs* and estate settlements, but the towns have sewerage<sup>3</sup> and solid waste disposal facilities, superior education and medical services, sporting and recreational facilities, shops, and, in most cases, postal services and banks, which are not available in the other settlements (see Appendix 3). Thus, the major rationale for establishing the towns i.e., a higher level of services than would otherwise have been possible, has been met.

<sup>1</sup> The lower than expected growth in population also affected the regional development schemes in other states.

<sup>2</sup> The monthly installment depends upon the actual construction cost which is related to the year of construction. The range includes houses constructed under prior projects and the Project.

<sup>3</sup> All the towns except Cerul are provided with sewers, but the houses provided by FELDA have no sewer connection.

35. The induced secondary and tertiary industries in the towns have grown slowly and in 1995 comprised shops, restaurants, and home industries such as sewing, food processing, and concrete products. These serve only the local population. Nevertheless, about 49 percent of the employed town dwellers are in nonagricultural activities. This is much higher than in the estate settlements where the comparable figure is 14 percent, but it is the same as in the *kampungs* (see Appendix 4). Several palm oil and rubber factories and sawmills are located in the area covered by the Project and obtain labor from all the settlements.

36. The limited data on age profiles in the different settlements (see Appendix 5) indicate that the towns have a higher proportion of young persons as heads of households, suggesting, although not conclusive, that youth are being attracted into the towns, which is helping to reverse the migration to the cities.

### **3. Pasir Raja Feeder Road**

37. The agricultural development along the Pasir Raja feeder road did not occur as planned. Only about 1,200 ha were planted, instead of 8,500 ha. The area planted consisted of a small FELDA oil palm scheme established in the early 1990's. The shortfall was the result of a decision by KETENGAH in 1995 that the remaining agricultural area in the region should be reserved for fruit trees. No entrepreneur has come forward yet and most of the unplanted area remain idle. The road has reduced the operating costs of the forestry company logging the surrounding forest and will also provide access to a tourist park planned for part of the agricultural land as well as to several small *kampungs*.

## **B. Institutional Development**

38. The Project was a continuation of existing programs to construct towns and roads and did not include any major institutional development. Under the Project, some KETENGAH staff were trained in the operation of sewerage systems. However, the quality of the effluent, as shown by laboratory analyses done in early 1995, is below standard and further development of KETENGAH's capability to operate the sewerage system is required.

## **C. Financial Performance**

39. Much of the township development, such as the sealed roads, water distribution, sewerage and solid waste disposal facilities, drainage and housing sites, as well as many of the houses and community facilities was financed by Government through KETENGAH.<sup>1</sup> At the end of 1994, KETENGAH's total equity and long-term liabilities amounted to RM357 million (about \$145 million). Of this, RM202 million (\$82 million) came from Government grants, RM91 million (\$37 million) from Government loans, and RM64 million (\$26 million) from KETENGAH's retained earnings (see Appendix 6). KETENGAH requires an annual income to finance repayment of the Government loan and expenditure on township operation and maintenance. Until recently, KETENGAH received Government grants that covered many of these expenditures. However, now that the grants have ceased, it is not certain that KETENGAH can generate enough income from its dividends from subsidiaries, interest on deposits, fees, shop

<sup>1</sup> Other facilities such as electricity, schools, medical clinics, police and fire stations have been established through the Government departments providing these services. KETENGAH also is responsible for township maintenance and collection of rents and amortization payments for the houses, and has financed the establishment of several subsidiary companies involved in economic activities within the region.

rents, and house amortization payments. Partly this is due to KETENGAH's large investment in facilities, such as roads and housing sites, for which the costs will not be recouped and which will not generate income. KETENGAH has spent an average of about RM14,000 per house, which is repaid with interest by the settler beneficiaries. However, KETENGAH invested an additional RM8,500 for each serviced site and RM11,500 for each house site for other town facilities. These will not be recouped or generate significant incomes.

#### **D. Financial and Economic Reevaluation**

40. At appraisal and upon completion of the Project, an EIRR was calculated for the whole Project by comparing the net incremental value of agricultural output with the investment costs for agricultural development and the Project. This approach was not adopted for postevaluation. The main reason is that, apart from the feeder road component, the focus of the Project was on the formation of townships, which was a small part of the total cost incurred for regional development and only indirectly linked with the generation of the agricultural benefits. The agricultural benefits could have been achieved under a variety of settlement patterns. The township pattern, which was not the least-cost option, was selected for social reasons (see para. 9) rather than for economic reasons and should be evaluated accordingly.

41. An EIRR was recalculated for the Pasir Raja feeder road component. It was 3 percent (see Appendix 7), less than estimated at both appraisal (26.9 percent) and upon completion of the Project (19.1 percent). The main reason why the result was lower was that most of the planned agricultural development in the area did not occur, and the benefits from forestry in the reevaluation were estimated in terms of avoided costs rather than incremental output as was the case at appraisal and upon completion of the Project. The former method for determining benefits was used because the logging company had planned to log the area with or without the feeder road provided under the Project.

42. The FIRR for the extension of the water supply to Cerul was reevaluated (see Appendix 8) to be negative compared with 10 percent at appraisal and 4.2 percent upon completion of the Project. The lower result at postevaluation was due to the smaller than expected actual population and per household water consumption rate.

#### **E. Socioeconomic and Sociocultural Results**

43. The Project contributed to the implementation of the policy of increasing income earning opportunities for *Bumiputras*. Under the development scheme, this was done by restricting housing and the award of contracts to *Bumiputras*. Only a small number of non-*Bumiputra* families live in the towns. The survey data indicate that income levels in the towns are higher than outside (see Appendix 9). About 77 percent of the households in the towns earned more than RM300 per month, whereas in the *kampungs*, only 60 percent of the households were in this category. People in the towns also have benefited from a higher level of services and the acquisition of a housing lot (with house) at a highly subsidized price since the payment for this is a nominal amount of RM400<sup>1</sup> compared with the development cost of RM8,500.

<sup>1</sup>

Paid to the State Government .

44. Although not part of the Project, conditions in the *kampungs* also have been upgraded by KETENGAH following the realization that fewer families from the *kampungs* would relocate into the townships than was earlier expected. The Pasir Raja feeder road has improved access to other areas and services for about 2,000 people along the Dungun River.

45. The population in the area covered by the Project is relatively uniform, being predominantly *Bumiputra* Malay, in the low income group, and engaged in agricultural labor. The growth of mixed communities of middle and low income groups has been limited, so far.

#### **F. Women in Development**

46. Women have benefited from improved access to services, such as the prenatal and postnatal health care, and increased employment opportunities. Women are employed in offices, trading, small-scale home industries such as dressmaking and food processing, and in agriculture. In the socioeconomic survey in 1994, less than 2 percent of female respondents defined themselves as housewives. The towns have schools and kindergartens, and some have crèche facilities, all of which facilitate the entry of women into the workforce.

#### **G. Environmental Impacts and Control**

47. The potential for soil erosion in the area covered by the Project is high because of the nature of the soils and the high rainfall. The experience with previous projects led to improvements in physical designs, such as using benches to shorten the lengths of slopes, leveling house sites, using mitigation measures during construction, and turfing bare areas after construction. However, these provisions, particularly the mitigation measures during construction, were not always effective. Consequently, erosion during past and ongoing construction appears to have been high, causing sedimentation in low lying areas and clogged drainage lines. The clogging of the drainage lines was exacerbated by inadequate maintenance, which resulted in an excessive growth of vegetation. Part of the Pasir Raja feeder road has been badly eroded and sections have been undermined as a result of inadequate design of the drainage structures and maintenance.

48. The regional development has taken part of the habitat of elephants and tigers. Some of the animals have been caught and relocated to nearby national parks at considerable expense, but others have escaped capture. The elephants that were left behind are causing damage locally to the agricultural plantations. The impact of forest clearing on wildlife was not sufficiently studied beforehand, and subsequent mitigation measures have been difficult and costly.

#### **H. Gestation and Sustainability**

49. The sustainability of the Project will depend on three factors: (i) the continued settlement of the towns combined with the successful transfer of the houses to the settlers and their corresponding payment for the houses; (ii) the towns reaching a sufficient size to justify continuation of the improved level of services by the different Government agencies; and (iii) the adequate maintenance of town facilities, which is dependent upon KETENGAH or its successor obtaining adequate income for maintenance. Since the early 1990s, the demand for housing in each of the towns has been strong, while the process of transfer and repayment is proceeding. With respect to township size, the planning study estimated that the threshold

population for the cost-effective provision of social services in the towns would be 12,000 and expected four towns to reach this level by 1990.<sup>1</sup> Table 2 shows that only one town, Ketengah Jaya, had a population of 12,000 by 1995. However, each of the towns serves a significant population living in *kampungs* and on estates that are connected to the towns by good quality roads. In addition, the service delivery standards have been improved since the planning study; for example, the ratio of doctors to population has been upgraded from 1:18,000 in 1974 to 1:4,000 in 1990; and to 1:2,000 in 1995. Consequently, the viability of the townships in terms of the cost-effective provision of the improved range of social services is now achieved with lower populations in the towns. Three towns, Ketengah Jaya, Cheneh Baharu, and Al Muktafi Billah Shah are considered viable at the highest range of planned services from this point of view. A fourth town, Seri Bandi, while only having a small population in 1995 is expected to grow fast by incorporating the population from the adjacent industrial area on the coast and reach a viable level. The other smaller towns also will be able to support the lower level of services projected for them. The adequacy of arrangements for maintenance of the town facilities is not clear following the Government's decision to dissolve, in the near future, all regional development authorities such as KETENGAH. An alternative arrangement for town administration has not been defined yet. In the interim, KETENGAH has continued to maintain the towns. The resolution of this issue and the provision of adequate funds will assure the sustainability of the towns.

## V. KEY ISSUES FOR THE FUTURE

### A. Future Town Administration and Funding

50. Currently, the development and administration of the towns is carried out by KETENGAH, although this organization, like the other regional development authorities is expected to be phased out. The uncertain future of KETENGAH is reflected in its current operations, which lack a clear, unifying objective. The maintenance of town facilities may also suffer as a result of KETENGAH's uncertain involvement and because Federal grant funds are no longer provided, while the normal funding for the towns from the state has not been established yet. This situation should be resolved by determining an appropriate administrative framework and funding arrangements for the towns.

### B. Industrial Development

51. The future development plan for each town involves the establishment of an industrial estate to increase nonagricultural employment. However, unemployment in the area is small, and without further migration, the towns will have to compete among each other for the limited labor supply. Moreover, many parts of Malaysia have similar industrial development programs. The region would have more success in attracting new industries to it if the authorities adopted a focused approach based on its competitive advantages. The competitive advantages of the region are in downstream industries related to forestry, oil palm, and rubber, which are produced in the area. A focused approach would also limit the industrial estate development to one or two towns that have the most competitive advantages.

<sup>1</sup> The other towns were designated as "estate" towns in which the range of services was to be midway between the larger towns and existing settlements.

## VI. CONCLUSIONS

### A. Overall Assessment

52. The development of townships helped improve the range and the quality of the services for new settlers in Trengganu Tengah, although the number of beneficiaries was below the expected level because of the slow build-up of the population in the townships. The Project also contributed to a small increase in the range of employment opportunities and appears to be encouraging young people to stay in the rural areas. Furthermore, the majority of settlers in the townships are *Bumiputras*; thus, the Project contributed to the Government's development goal of improving opportunities for *Bumiputras*. On the negative side, the townships were of relatively high cost for low income groups because of the initial design and the smaller actual population. The Cerul township was unnecessary and the expansion of the water supply system to Cerul was overdesigned and resulted in a negative FIRR for this component. The EIRR for the Pasir Raja feeder road, which accounted for 37 percent of the costs of the Project, was recalculated to be only 3 percent. As a result of this combination of both positive and negative outcomes, the Project was rated as partly successful.

### B. Lessons Learned

53. The Project demonstrated the following lessons:

- (i) The development of towns does enable a higher level and range of services to be provided in settlement areas compared with an estate type settlement pattern, and can encourage youth to remain in rural areas.
- (ii) Planning is a continuous process. While a master plan can provide overall guidelines, the assumptions and details need to be continually reassessed. This requires a capability within the executing agency for assessment and long-term planning.
- (iii) The environmental problems such as soil erosion and impact on wildlife could have been managed better and minimized if an environmental impact assessment had been carried out during the design stage and the mitigation of impact properly designed and implemented.
- (iv) The erosion along the feeder road could have been minimized if the maintenance of drainage structures had received more attention.

### C. Follow-up Actions

54. Follow-up is required about the establishment of long-term administrative and funding arrangements for the towns, and the improvements in the operation of the sewerage system, particularly the oxidation ponds.

## APPENDIXES

<b>Number</b>	<b>Title</b>	<b>Page</b>	<b>Cited On (page,para.)</b>
1	Percentage Distribution of Land Use	16	5,16
2	Appraisal and Actual Project Costs	17	7,26
3	Number of Urban Services/Facilities	18	9,34
4	Major Occupations of Households in Settlements of Different Types	19	10,35
5	Age Distribution of Household Heads in Settlements of Different Types	20	10,36
6	Trengganu Tengah Development Authority Balance Sheet	21	10,39
7	Reevaluation of Pasir Raja Feeder Road	22	11,41
8	Financial Evaluation of the Extension of the Water Supply to Cerul Town	25	11,42
9	Income Distribution of Households in Settlements of Different Types	26	11,43

## PERCENTAGE DISTRIBUTION OF LAND USE

Year	Bukit Besi		Ketengah Jaya		Al Muktafi Billah Shah		Seri Bandi		Cheneh Baharu		Cerul		Total	
	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
Housing	77.67	41.60	207.38	46.97	189.57	37.88	122.69	43.34	147.40	40.44	33.00	54.73	985.09	43.24
Commercial	1.09	0.58	1.33	0.30	11.02	2.20	1.89	0.67	7.51	2.06	0.20	0.33	24.37	1.07
Industry <sup>a</sup>	27.28	14.62	7.55	1.71	101.75	20.33	47.29	16.70	91.59	25.12	—	0.00	283.01	12.42
Institutional	34.47	18.46	51.33	11.63	76.45	15.28	56.38	19.92	42.75	11.73	8.90	14.76	321.61	14.12
Open Space	8.14	4.36	100.45	22.75	34.78	6.95	6.79	2.40	24.77	6.80	0.40	0.66	275.78	12.11
Roads	38.05	20.38	73.45	16.64	86.83	17.36	48.03	16.97	50.49	13.85	12.20	20.23	382.5	16.79
Unused	—	—	—	—	—	—	—	—	—	—	5.60	9.29	5.6	0.25
<b>TOTAL</b>	<b>186.70</b>	<b>100.0</b>	<b>441.49</b>	<b>100.0</b>	<b>500.40</b>	<b>100.0</b>	<b>283.07</b>	<b>100.0</b>	<b>364.51</b>	<b>100.0</b>	<b>60.30</b>	<b>100.0</b>	<b>2,277.96</b>	<b>100.0</b>
Saleable	106.04	56.80	216.26	48.98	302.34	60.41	171.87	60.71	246.50	67.62	33.20	55.06	1,292.47	56.7

Source: KETENGGAH

<sup>a</sup> In addition, some towns have separate industrial estates nearby with their own roads planned, but these have not been developed yet.

# **APPRAISAL AND ACTUAL PROJECT COSTS**

	Appraisal Estimate (\$'mn)			Actual Cost (\$'mn)		
	Foreign Exchange	Local Cost	Total	Foreign Exchange	Local Cost	Total
Development of Serviced Sites	13.35	14.60	27.95	9.58	9.64	19.22
Pasir Raja Feeder Road	9.63	11.61	21.24	6.42	8.11	14.53
Extension of Water Supply	0.36	0.25	0.61	0.19	0.15	0.34
Houses and Shophouses	2.60	7.42	10.02	0.87	3.45	4.32
Training	<u>0.61</u>	<u>0.05</u>	<u>0.66</u>	<u>0.80</u>	<u>0.29</u>	<u>1.09</u>
Total Base Cost	26.55	33.93	60.48	17.86	21.64	39.50
Physical Contingencies	2.57	2.71	5.28			
Price Contingencies	<u>5.49</u>	<u>5.80</u>	<u>11.29</u>			
<b>TOTAL</b>	<b>34.61</b>	<b>42.44</b>	<b>77.05</b>	<b>17.86</b>	<b>21.64</b>	<b>39.50</b>

Source: Project Completion Report

Note: The cost of the Project in the Appraisal Report was \$75.70 million. The difference from the figure above is due to calculation errors in the Appraisal Report.

## NUMBER OF URBAN SERVICES/FACILITIES

Services/Facilities	TOWNS									
	Bukit Besi	Ketengah Jaya	Al Muktafi Billah Shah	Seri Bandi	Cheneh Baharu	Cerul				
	A	B	C	D	E	J				
Kindergarten	1	2	2	1	1	1				
Primary School	1	2	2	1	2	1				
Secondary School	-	1	1	-	1	-				
Library	1	1	1	1	1	-				
Mobile Library	-	-	1	-	-	-				
Major Health Center	-	1	1	-	1	-				
Minor Health Center	1	-	-	1	-	1				
Private Clinic	-	-	1	-	-	-				
Community Hall (Badminton, etc.)	1	1	2	1	1	-				
Mosque	1	4	1	1	1	1				
Cultural Center, etc.	-	2	-	-	-	-				
Town Bus Stand	1	1	1	1	1	-				
Post Office	-	1	1	1	1	-				
Telephone (Public)	3	8	8	4	7	2				
Fire Station	1	1	1	1	1	-				
Police Station	1	1	1	1	1	-				
Weekly Market	1	1	1	1	1	-				
Retail Shop	12	27	34	12	24	1				
Stalls	14	14	24	8	9	5				
Bank	-	1	2	-	1	-				
Cooperative	-	1	2	1	1	-				
Motor Repair	4	4	5	1	4	-				
Home Industry	7	8	11	4	7	-				
Industry	2	1	5	1	5	-				

Source: KETENGGAH

**MAJOR OCCUPATIONS OF HOUSEHOLDS  
IN SETTLEMENTS OF DIFFERENT TYPES  
JUNE 1993**

Items	Total Ketengah		Ketengah Towns		FELDA/FELCRA <sup>a</sup> / Estates <sup>b</sup>		Kampungs	
	No.	%	No.	%	No.	%	No.	%
Technical	148	1.3	118	1.9	6	0.3	24	0.7
Professional	108	0.9	90	1.4	5	0.2	13	0.4
Administration/ Management	397	3.4	322	5.2	21	1.0	54	1.6
Clerical	117	1.0	99	1.6	6	0.3	12	0.4
Sales	317	2.7	161	2.6	14	0.6	142	4.2
Services	2,570	21.9	1,447	23.3	126	5.9	997	29.6
Agriculture	5,920	50.4	3,003	48.3	1,692	79.1	1,225	36.3
Manufacturing	1,328	11.3	808	13.0	122	5.7	398	11.8
Housewife	41	0.3	13	0.2	1	0.0	27	0.8
Unemployed	292	2.5	76	1.2	1	0.0	205	6.1
Others	497	4.2	76	1.2	144	6.7	277	8.2
Subtotal	11,735	100	6,213	100	2,138	100	3,374	100
No Data	437		162		42		235	
<b>TOTAL</b>	<b>12,172</b>		<b>6,375</b>		<b>2,180</b>		<b>3,609</b>	

Source: University of Science, Malaysia, Socio-Economic Profile of KETENGAH, March 1994, page 2-7.

<sup>a</sup> FELCRA – Federal Land Consolidation and Rehabilitation Authority

<sup>b</sup> These are located outside of the townships boundaries.

**AGE DISTRIBUTION OF HOUSEHOLD HEADS  
IN SETTLEMENTS OF DIFFERENT TYPES  
JUNE 1993**

Age Range	Total Ketengah		Ketengah Towns		FELDA		Kampungs	
	No.	%	No.	%	No.	%	No.	%
<4	—	—	—	—	—	—	—	—
5-9	—	—	—	—	—	—	—	—
10-14	—	—	—	—	—	—	—	—
15-19	44	0.4	24	0.4	3	0.1	17	0.5
20-24	336	2.8	231	3.7	19	0.9	86	2.4
25-29	1,190	9.9	875	14.0	66	3.0	249	7.0
30-34	1,901	15.8	1,255	20.1	189	8.6	457	12.8
35-39	2,205	18.3	1,325	21.2	406	18.4	474	13.3
40-44	1,956	16.2	1,116	17.8	450	20.4	390	11.0
45-49	1,681	14.0	791	12.6	426	19.3	464	13.0
50-54	923	7.7	289	4.6	197	13.5	437	12.2
55-59	655	5.4	173	2.8	162	7.4	320	8.9
60-64	506	4.2	80	1.3	84	3.8	342	6.8
65-69	243	2.0	48	1.0	53	2.4	142	4.0
>70	401	3.3	52	0.8	49	2.2	300	8.4
Sub-Total	12,041	100	6,259	100	2,104	100	3,678	100
Not Available	233		116		86		31	
<b>TOTAL</b>	<b>12,274</b>		<b>6,375</b>		<b>2,190</b>		<b>3,709</b>	

Source: University of Science, Malaysia, Socio-Economic Profile of KETENGAH, March 1994, page 3-4.

**TRENGGANU TENGAH DEVELOPMENT AUTHORITY**  
**BALANCE SHEET**  
**(RM Million)**

As of 31 Dec.	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
<b>Current Assets</b>													
Deposits & Advances	3.0	3.1	4.7	4.8	15.6	7.7	7.0	5.9	14.4	21.2	27.4	20.1	23.1
Fixed Deposits	46.5	50.7	61.8	92.3	100.8	99.2	87.2	71.2	75.5	79.0	79.3	72.4	53.7
Cash on Hand & in Bank	5.1	3.6	5.8	4.9	5.0	2.8	6.1	6.3	1.9	0.3	5.6	0.7	10.0
Advances to Contractors	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	4.6
Hire Purchase (Housing)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.9	0.8	0.8	0.8	1.0
Other Current Assets	0.6	0.5	2.9	0.5	0.6	4.7	2.6	7.4	5.7	10.0	2.7	0.0	0.0
<b>Total Current Assets</b>	<b>55.2</b>	<b>57.9</b>	<b>75.2</b>	<b>102.5</b>	<b>122.0</b>	<b>114.4</b>	<b>102.9</b>	<b>91.1</b>	<b>98.4</b>	<b>111.3</b>	<b>115.8</b>	<b>99.3</b>	<b>92.4</b>
<b>Loans Receivable</b>	<b>14.9</b>	<b>16.1</b>	<b>13.2</b>	<b>13.8</b>	<b>17.0</b>	<b>15.9</b>	<b>15.9</b>	<b>15.9</b>	<b>15.6</b>	<b>16.5</b>	<b>15.0</b>	<b>13.7</b>	<b>12.3</b>
<b>Fixed Assets</b>	<b>1.9</b>	<b>2.5</b>	<b>1.6</b>	<b>1.3</b>	<b>1.6</b>	<b>1.9</b>	<b>1.7</b>	<b>1.9</b>	<b>2.4</b>	<b>2.1</b>	<b>7.9</b>	<b>7.5</b>	<b>11.8</b>
<b>Investments</b>													
Capital	101.8	123.0	146.5	175.1	218.0	236.1	249.1	265.1	277.6	192.1	179.8	188.6	229.2
Work in Progress	0.3	0.0	2.6	3.5	5.0	6.7	9.0	12.0	13.1	14.7	6.8	10.0	6.9
Subsidiaries & Joint Ventures	30.4	32.4	34.7	34.9	36.5	41.6	41.6	42.0	39.5	32.9	34.0	34.0	16.8
<b>Total Investments</b>	<b>132.5</b>	<b>155.4</b>	<b>183.8</b>	<b>213.5</b>	<b>259.5</b>	<b>284.4</b>	<b>299.7</b>	<b>319.1</b>	<b>330.2</b>	<b>239.7</b>	<b>220.6</b>	<b>232.6</b>	<b>252.9</b>
<b>Total Assets</b>	<b>204.5</b>	<b>231.9</b>	<b>273.8</b>	<b>331.1</b>	<b>400.1</b>	<b>416.6</b>	<b>420.2</b>	<b>428.0</b>	<b>446.6</b>	<b>369.6</b>	<b>359.3</b>	<b>353.1</b>	<b>369.4</b>
<b>Liabilities and Net Worth</b>													
<b>Current Liabilities</b>													
Deposits	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.4
Accrued Expenditures	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	3.5
Retention Fund of Contractors	0.5	0.5	1.8	2.8	2.3	0.7	0.6	0.6	0.6	0.7	0.7	0.2	0.2
Government Loans Payable	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.9	7.3	4.7	5.7
Other Current Liabilities	2.7	8.1	11.6	17.9	28.9	31.0	32.5	36.9	45.6	12.6	14.5	17.1	2.3
<b>Total Current Liabilities</b>	<b>3.4</b>	<b>8.8</b>	<b>13.4</b>	<b>20.7</b>	<b>31.2</b>	<b>31.7</b>	<b>33.1</b>	<b>37.5</b>	<b>46.2</b>	<b>44.2</b>	<b>22.5</b>	<b>26.1</b>	<b>12.1</b>
<b>Long - Term Liabilities</b>													
Federal Government Loan	82.1	84.5	87.0	97.8	102.5	96.6	95.9	91.9	90.1	87.6	111.2	110.7	90.5
<b>Total Liabilities</b>	<b>85.5</b>	<b>93.3</b>	<b>100.4</b>	<b>118.5</b>	<b>133.7</b>	<b>128.3</b>	<b>129.0</b>	<b>129.4</b>	<b>136.3</b>	<b>131.8</b>	<b>133.7</b>	<b>136.8</b>	<b>102.6</b>
<b>Equity</b>													
Government Grant	102.6	121.7	153.5	188.1	234.0	254.5	260.3	265.2	267.7	196.9	181.7	169.8	202.2
Retained Earnings	3.7	2.1	2.8	7.4	8.0	4.4	20.1	32.4	41.6	39.9	42.9	45.5	63.6
Revolving Fund	0.0	0.0	0.0	0.0	0.0	22.6	0.0	1.0	1.0	1.0	1.0	1.0	1.0
Reserve Fund	12.7	14.9	17.1	17.1	24.4	6.7	10.8	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total Equity</b>	<b>119.0</b>	<b>138.6</b>	<b>173.4</b>	<b>212.6</b>	<b>266.4</b>	<b>288.3</b>	<b>291.2</b>	<b>298.6</b>	<b>310.3</b>	<b>237.8</b>	<b>225.6</b>	<b>216.3</b>	<b>266.8</b>
<b>Total Liabilities and Equity</b>	<b>204.5</b>	<b>231.9</b>	<b>273.8</b>	<b>331.1</b>	<b>400.1</b>	<b>416.6</b>	<b>420.2</b>	<b>428.0</b>	<b>446.6</b>	<b>369.6</b>	<b>359.3</b>	<b>353.1</b>	<b>369.4</b>

Source: KETENGAH

## REEVALUATION OF PASIR RAJA FEEDER ROAD

### A. Benefits

1. The quantifiable benefits from the feeder road comprise the net value from incremental agricultural production in the area, and avoided costs for the forestry company operating the Jengai and Pasir Raja timber reserves. Other benefits would occur in the form of transport cost savings and improved social conditions for approximately 2,000 people in about 20 small settlements along the Dungun River. However, because this population is small, these other benefits would be relatively minor and have not been included in the analysis. The development plans for the area also include the construction of a nature park for tourism and future benefits in the form of road user cost savings and induced traffic relating to this venture are possible, but have not been included because of the uncertainty.

2. The agricultural development in the area is much less than expected and comprises only the Federal Land Development Authority (FELDA) Semarang scheme of 1,213 hectares (ha) of oil palm planted from 1992 to 1994. A palm oil mill, along with further areas of oil palm have been deleted from the development plan following a decision by Trengganu Tengah Development Authority in 1985 to reserve this area for crops other than oil palm in order to diversify the region's economy. With this restriction, no one has indicated interest in planting the area. In view of this, agricultural benefits from the undeveloped areas have not been included, although it is recognized that future planting may occur.

3. The net benefit from the 1,213 ha of oil palm is calculated on the basis of the net cash flow from the development comprising the establishment cost of the plantation, the value of the logs harvested from the cleared area, and the net annual farm gate cash flow for the plantation, i.e., value of sales less operating expenses. In addition, the value of the forestry output foregone as a result of converting the area to agricultural production is included as the opportunity cost of the land. It is to be noted that even though this is a FELDA scheme, it is to be operated entirely with contracted labor, and will not be operated by settlers as in the normal FELDA arrangement.

4. The forestry company would have logged the area even without the feeder road. Development of the feeder road, however, has enabled the company to (i) avoid alternative road construction costs of RM1.0 million estimated on the basis of the alternative of 40 kilometers (km) of forest road and a unit cost of RM25,000 per km; (ii) avoid maintenance costs of an estimated RM100,000 per year for the alternative forestry road; and (iii) reduce transportation costs for logs by an estimated RM14/cubic meter ( $m^3$ ).<sup>1</sup> The historical and projected log harvest from the area is as follows:

1990	236,138 $m^3$
1991	164,003 $m^3$
1992	127,601 $m^3$
1993	152,244 $m^3$
1994	156,246 $m^3$
annual projection for 1995 onwards	160,000 $m^3$

<sup>1</sup> The estimates are based on discussions with the timber company. All values are in constant 1994 values.

## **B. Costs**

5. The costs included in the analysis comprise the investment cost in the Project, the estimated cost for rehabilitation, in 1996, of a portion of the road damaged by severe erosion, and an annual allowance to cover maintenance.

## **C. Price Adjustments**

6. The value of the farm gate output of the incremental area of oil palm was derived from border prices for palm oil and palm kernel. Similarly, the value of logs was derived from the border prices assuming half the harvest was of good quality hardwoods and half of the lower valued meranti class. Border prices were taken from World Bank commodity forecasts. Labor was valued at its financial price in view of the high proportion of contract immigrant labor used in the forestry and agriculture activities around the Pasir Raja road and the relatively low unemployment in the area. A general conversion factor of 0.88<sup>1</sup> was used to adjust all other costs to border price equivalents. All prices were adjusted to 1990 values by use of the World Bank published Manufacturing Unit Value index for foreign exchange costs and the Malaysian Gross Domestic Product deflator for local costs.

## **D. Recalculated Economic Internal Rate of Return and Sensitivity Analysis**

7. The recalculated economic internal rate of return (EIRR) is 3 percent as shown in Table 1. If the remaining unplanted agricultural area of 7,300 ha is planted with a crop of equivalent economic value as palm oil over the period of 1997 to 2000, the EIRR would increase to 8 percent.

## **E. Comparison with Methodologies of Appraisal and Project Completion Reports**

8. At appraisal, the benefits for the development were assumed to come from increased agricultural output of 8,500 ha of oil palm and rubber, increased forestry output from 32,000 ha of forest, and the value added by a palm oil factory and several saw mills. These benefits differ substantially from those found at postevaluation, particularly the benefits from forestry, oil palm milling, and saw milling. The appraisal assumed that without the road, the forest reserves in the area would not be logged whereas the postevaluation found that the forestry company had planned to log the area with or without the road, but that the road enabled them to avoid substantial costs. The appraisal costs comprised those included in the postevaluation reevaluation plus the costs for developing a new settlement in the area (i.e., town G) and the costs of the palm oil factory and saw mills. The rest of the methodology is the same as that used at postevaluation. The appraisal estimated the EIRR at 27 percent.

9. The methodology in the Project Completion Report (PCR) is the same as that used for appraisal with the exception that a cost for township development was not included. The agricultural development planned at the appraisal stage was adopted, but it was assumed to occur at a future date. The EIRR was estimated by the PCR to be 19 percent.

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<sup>1</sup> See M.D. Veitch, 1986, *National Parameters for Project Appraisal in Malaysia*.



### **FINANCIAL EVALUATION OF THE EXTENSION OF THE WATER SUPPLY TO CERUL TOWN**

1. The water supply system for Cerul was created by extending the existing system that covered Cheneh Baharu and Neram. Water is pumped from the existing water treatment plant near Cheneh Baharu to an elevated storage tank from where it is fed by gravity to Cerul.
2. In May 1995, Cerul had 343 houses and 6 shops and stalls. The total number of connections, other than those of Trengganu Tengah Development Authority (KETENGAH) used for town maintenance, would be no more than 349. The figure of 571 connections for 1992 as reported in the PCR could not be verified. Separate data for production, sales, income, and expenses for the subsystem at Cerul is not maintained. However, State Water Supply Department estimated the Cerul consumption to be similar to that of other parts of the system.
3. In 1995, the complete system had 13,500 connections with daily sales of 4,690 cubic meters ( $\text{m}^3$ ) generating an income of RM1,547.70. KETENGAH water usage was estimated at less than 5 percent of the total. The minimum monthly water charge per household connection is RM3/month and the sales statistics indicate that the average household consumption is very close to this minimum, i.e., about  $10.4 \text{ m}^3/\text{month}$  (if KETENGAH consumption is ignored) for a bill of RM3.59/month.
4. The average revenue from water sales in Cerul is close to the minimum rate of RM0.33/ $\text{m}^3$ . In comparison, the average expenditure on water production is about RM0.60/ $\text{m}^3$ . Given this situation, a positive annual cash income would never have been generated up to 1995, nor is expected in subsequent years unless industries which are charged a much higher tariff of RM0.88/ $\text{m}^3$  are established. The capital investment was RM807,595 and the financial internal rate of return would be negative.

**INCOME DISTRIBUTION OF HOUSEHOLDS  
IN SETTLEMENTS OF DIFFERENT TYPES  
JUNE 1993**

Income Range (RM/month)	Total Ketengah		Ketengah Towns		FELDA		Kampungs	
	No.	%	No.	%	No.	%	No.	%
<100	288	2.5	73	1.2	26	1.2	189	5.4
101-200	960	8.4	308	5.2	159	7.5	493	14.2
201-300	2,175	18.9	991	16.8	470	22.1	714	20.5
301-400	2,659	23.1	1,352	22.8	648	30.8	659	18.9
401-500	1,262	10.9	657	11.1	183	8.7	422	12.1
501-600	1,063	9.2	612	10.3	155	7.3	296	8.5
601-700	724	6.3	420	7.1	127	6.0	177	5.1
701-800	591	5.1	367	6.2	80	3.8	144	4.2
801-900	342	3.0	202	3.4	54	2.5	86	2.5
901-1000	314	2.7	181	3.1	55	2.6	78	2.2
1001-1100	170	1.5	99	1.7	29	1.4	42	1.2
1101-1200	188	1.6	122	2.1	32	1.5	34	1.0
>1200	785	6.8	533	9.0	107	5.0	145	4.2
Sub-Total	11,521	100	5,917	100	2,125	100	3,479	100
No response	679		458		91		130	
<b>TOTAL</b>	<b>12,200</b>		<b>6,375</b>		<b>2,216</b>		<b>3,609</b>	

Source: University of Science, Malaysia, Socio-Economic Profile of KETENGAH, March 1994, page 4-6.