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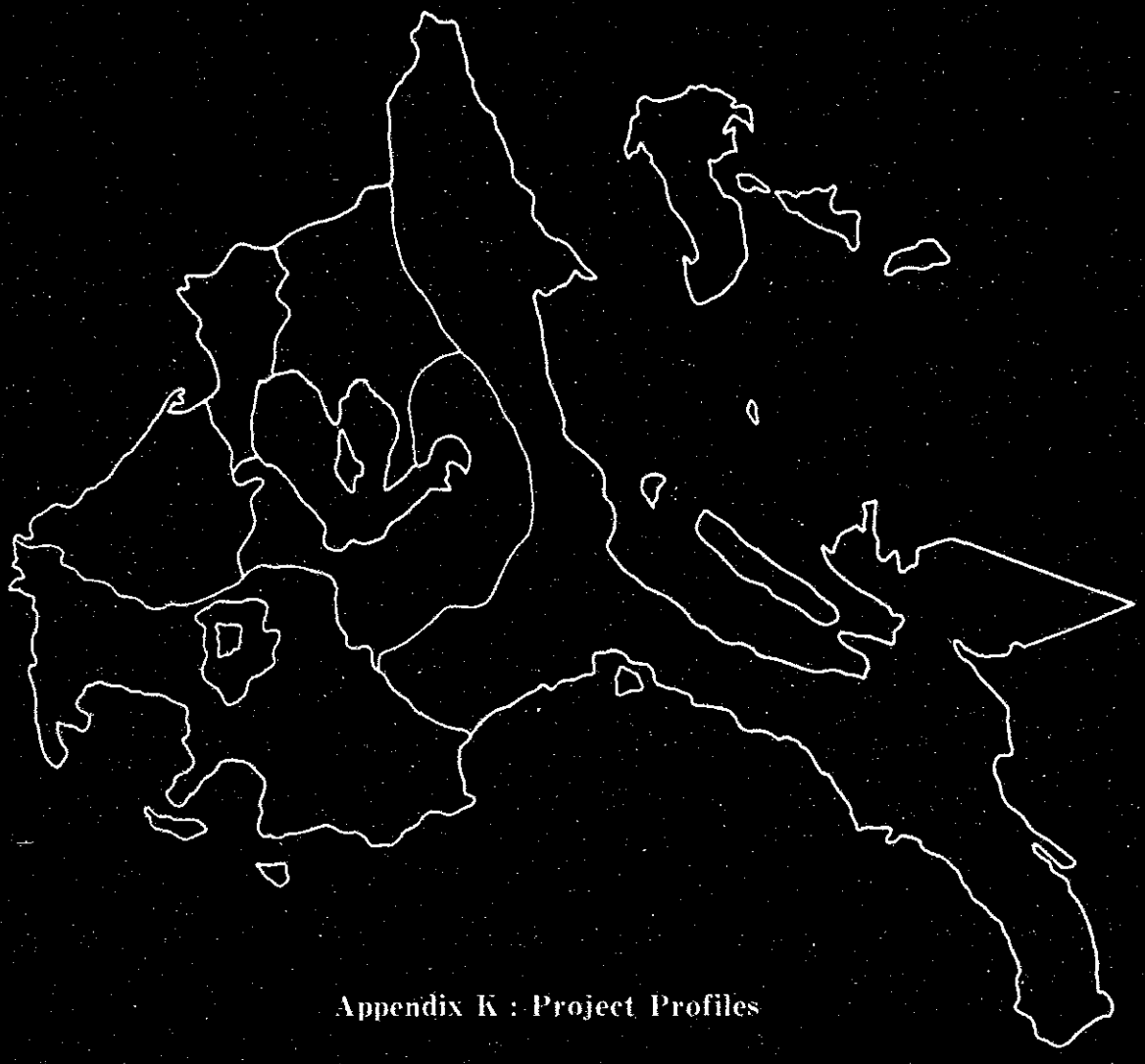
No.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF TRADE AND INDUSTRY

THE MASTER PLAN STUDY ON THE PROJECT CALABARZON

FINAL REPORT



Appendix K : Project Profiles

October, 1991

JAPAN INTERNATIONAL COOPERATION AGENCY

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DEPARTMENT OF TRADE AND INDUSTRY

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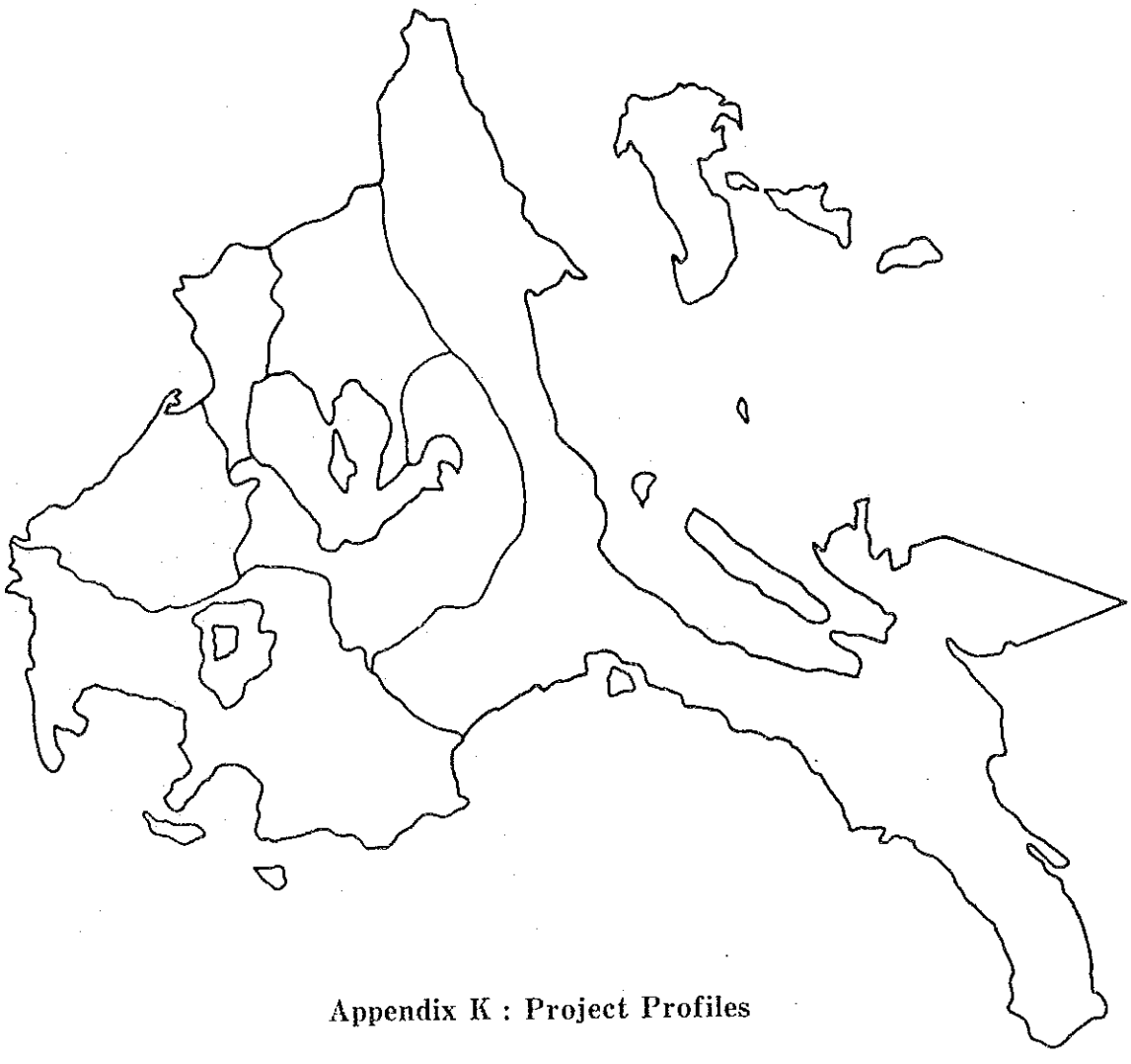

Appendix K : Project Profiles

October, 1991

JAPAN INTERNATIONAL COOPERATION AGENCY

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Appendix K : Project Profiles

Project profiles have been prepared for all the anchor projects, except those for which finance has been committed, and additional priority projects/programs. Some of them may be further elaborated on or modified for their scope in the subsequent stage, if necessary.

These projects are listed below by component of the Project CALABARZON.

Port Development

(1) Greater capital region integrated port development study

Roads and Highways

(2) Cavite north-south highway (F/S)
(3) Primary/secondary road rehabilitation/improvement
(4) Industrial development support roads

Industrial Supports

(5) Dasmariñas - Silang telecommunication system upgrading
(6) CALABARZON power transmission and distribution improvement
(7) CALABARZON groundwater potential study
(8) Provincial industrial estate development program
(9) Industrial finance and technology development

Urban Development

(10) Laguna west urban region development
(11) Batangas - Bauan urban development
(12) Taal lake multi-purpose water resources development study
(13) Integrated industrial/urban development program
(14) Rizal west urban region development

Agriculture

(15) Batangas east agricultural development (M/P)
(16) Research and extension program on inter-cropping and mixed farming
(17) Small water impoundment
(18) Cooperative-based post-harvest development
(19) Cattle auction market
(20) Feed crops expansion

Rural Development

(21) Laguna upland integrated rural development
(22) Quezon upland integrated rural development
(23) Rizal inland agro-industrial park
(24) Rural energy development program
(25) Rural road improvement and maintenance

Social Development (CSDPP)

(26) Southern Tagalog manpower and employment development program
(27) Batangas regional hospital upgrading
(28) Integrated regional livelihood development project
(29) Family health care development project
(30) Information, education, communication and motivation program
(31) Herbal production, dissemination, distribution, research and development program
(32) Intensified nutrition action program
(33) Disease control program package
(34) Environment and sanitation program
(35) Integrated population and development program
(36) Upgrading of strategically located district/medicare hospitals and RHUs/BHUs
(37) SCU integrated education and research development
(38) Cultural revival
(39) Expansion of access to education program
(40) Education for all
(41) Comprehensive non-formal education programs
(42) Provincial priority educational development project
(43) Expansion of school building construction programs
(44) Expansion of development and upgrading of teachers program
(45) Industrial education development program
(46) Comprehensive tech-voc education and entrepreneurial development program
(47) Bondoc peninsula education development program
(48) Family farm school development
(49) Strengthening of provincial science high school
(50) Comprehensive social welfare program for special/disadvantaged groups
(51) Integrated drug sweeping program
(52) Staff development program for NGO/GO in CALABARZON
(53) Pilot implementation of regional livelihood development project
(54) Batangas integrated housing program
(55) CALABARZON integrated shelter program

1.	Project Title	Greater Capital Region Integrated Port Development (Study)
2.	Location	Provinces of Cavite, Batangas, Quezon and Bulacan
3.	Implementing Agencies	NEDA in cooperation with DPWH
4.	Objectives	To analyze future flow of goods centering on Metro Manila : To clarify functional division among major ports in the greater Capital Region, including Manila ports, Batangas port, Sangley Point conversion, Subic US naval base, Mariveles port, Lucena port and Real port : and To prioritize the development /improvement of these port facilities.
5.	Estimated Project Costs	
6.	Implementation Schedule	2 Years (1992-1994)
7.	Expected Effects	Development of port facilities necessary for CALABARZON in the most cost-effective way, not generating social and environmental problems associated with such development
8.	Project Description	(In preparation)

1.	Project Title	Cavite North-South Highway Project
2.	Location	Cavite province
3.	Implementing Agency	DPWH
4.	Objectives	(1) To integrate the northern lowland and the southern upland of Cavite, (2) To serve the industrial estates and the suburbanization areas, and (3) To improve access to Tagaytay.
5.	Estimated Project Costs	
6.	Implementation Schedule	F/S and D/D by 1995 Implementation: first stage by 1999
7.	Expected Effects	Enhancement of comparative advantage of the existing/planned industrial estates in Cavite; and Catalyst for the further development of Cavite
8.	Project Description	As per attached

Cavite North-South Highway Project

1. Background

Cavite province

Cavite province is broadly divided into the lowland along the coast and to the north of the east-west highway connecting Carmona, Trece Martires and Naic and the upland to the south of the highway. The northern lowland, coterminous with Metro Manila, is a receiving area of the over-spill population from the Nation's capital. The southern upland is still predominantly rural, characterized by low population density, narrow winding roads, and many settlements of small population dispersed.

Project CALABARZON

The Project CALABARZON is a large-scale, multi-sectoral regional development planned for the provinces of Cavite, Laguna, Batangas and Rizal. Industrial development is expected to play a leading role in the CALABARZON regional development. With this respect, the role of Cavite is expected to be important due to its strategic location in relation to Metro Manila and major infrastructure facilities.

The province has the only export processing zone (EPZ) in CALABARZON, and the largest number of industrial estates planned/implemented. The existing estates are 1) the Cavite EPZ, 2) Dasmariñas NDC industrial estate, 3) Cavite-Carmona industrial estate, 4) Gen. M. Alvarez industrial estate, and 5) Bulihan NHA industrial estate. Additional estates are planned in Silang, Trece Martires and a few other areas.

2. Project Rationale

The road network is well developed in the northern part of Cavite, but transport capacity is already in adequate in several sections to meet the requirements of rapidly urbanizing area. Heavily congested roads include a few sections between Las Piñas and Alabang on the Manila South road, the road between Las Piñas and Dasmariñas and the coastal road between Las Piñas and Rosario.

Road access to the planned/existing industrial estates will be improved by planned road projects including these roads listed above and the east-west roads connecting to the South Super Highway. This, however, will result in further congestion of the already heavily utilized South Super Highway. Another north-south artery will become necessary. This artery will serve first the industrial areas and the suburbanization areas to the north of the Carmona-Trece Martires east-west road. In the subsequent stage, it will be extended by Silang all the way to Tagaytay.

Once this second north-south artery is established, the northern lowland and the southern upland of Cavite will be fully integrated. Production of high value-added horticultural crops will be encouraged in the southern upland for the growing urban market in the northern lowland. It will contribute to improving the access from Metro Manila to Tagaytay, the tourism center of CALABARZON. This, in turn, will provide an alternative route to the tourism areas around Nasugbu in the west. Linkages between this and other major axes and the urban transport system within Metro Manila via C-6 constitute a prerequisite to such development.

3. Objectives

The objectives of the project are to establish the second north-south artery in Cavite as an alternative to the South Super Highway in order (1) to integrate the northern lowland and the southern upland of Cavite, (2) to serve the industrial estates and the suburbanization areas, and (3) to improve access to Tagaytay.

4. Scope of Work for F/S

The first step to be taken for this project is to undertake a complete feasibility study, as no such studies are available. The study will consist of the following works.

(1) Topographic survey,
(2) Soil and geological investigations,
(3) Land use survey,
(4) Traffic demand analysis,
(5) Feasibility grade design,
(6) Cost estimate,
(7) Financial analysis on the possibility as a toll road, and
(8) Economic evaluation.

The study should clarify the linkage between the new highway and the urban transport system of Metro Manila and present a recommendable scheme.

5. Work Schedule

The feasibility study and detailed design will be conducted by the end of 1993, to be followed by financial arrangements and implementation. The first stage of the project, for the section north of the Carmona-Trece Martires east-west road, will be completed by 1996. The second stage, the extension to Tagaytay, will be implemented subsequently, conditional on the further development of industries, tourism and other activities in Silang and Tagaytay.

1.	Project Title	Primary/Secondary Road Rehabilitation/ Improvement Project
2.	Location	CALABARZON region
3.	Implementing Agency	DPWH
4.	Objectives	To improve the existing primary/secondary roads in order to remove bottlenecks for regional development
5.	Estimated Project Costs	
6.	Implementation Schedule	24 months (6 month for engineering study)
7.	Expected Effects	Promotion of regional development through effective linkages between urban centers
8.	Project Description	As per attached

Primary/Secondary Road Rehabilitation/Improvement Project

1. Background

The CALABARZON region is relatively well provided with roads compared with other regions of the Country. Primary roads link major activity centers of the region with Metro Manila, while secondary roads connect the primary roads with each other and with other activity centers. Although certain hierarchical deficiency is seen, it could be said that the basic road network exists in CALABARZON region, especially when various road projects currently ongoing are taken into account.

However, these primary/secondary network does not function fully. There are many sections in the system which form bottlenecks due to deteriorated pavement and structures, inadequate maintenance, lack of traffic management and so on. In parallel with or prior to new roads construction or significant improvement work, it is strongly recommended to implement proper measures to maximize the use of existing facilities.

2. Objective

This project aims at rehabilitating/improving the existing primary/secondary roads by removing various bottlenecks existing in the system.

Project roads covered will include the existing primary and secondary roads in the CALABARZON region. They are specifically as follow:

1) Expressway : South Luzon Expressway
2) Primary Roads
3) Secondary Roads

3. Project Outline

3.1 Engineering Study

1) Identification of bottleneck areas and causes.
2) Assessment and pavement structures.
3) Determination of improvement/rehabilitation measures.
4) Formulation of improvement/rehabilitation plans and designs.
5) Formulation of implementation program and method.

3.2 Implementation and Monitoring

1) Establishment of project management system.
2) Supervision and monitoring
3) Formulation of improved maintenance system of primary/secondary roads.

1.	Project Title	Industrial Development Support Roads Project
2.	Location	Provinces of Laguna and Cavite
3.	Implementing Agencies	
4.	Objectives	To provide the existing/planned industrial estates with proper road access; more specifically: 1) to formulate network plans, 2) to undertake detailed design of roads, and 3) to prepare an implementation plan with cost allocation among beneficiaries in the private sector and the public sector agencies
5.	Estimated Project Costs	
6.	Implementation Schedule	
7.	Expected Effects	Promotion of industrial locations in the existing/planned industrial estates by enhancing their comparative advantages
8.	Project Description	As per attached

Industrial Development Support Roads

1. Background

In CALABARZON region, there are a number of industrial estate development projects of different stages, both by public and private sectors. In some areas, these development movements are already so concrete and active that additional bottlenecks would be created unless proper infrastructures are provided. At present, the following areas need particularly attention:

- Canlubang area in Laguna
- Carmona/Dasmariñas areas in Cavite

As shown in Figure 1, most of these developments are served only by a limited number of substandard roads. Unless adequate road network is provided, the areas would suffer from traffic problems due to lack of capacity and mixture of industry and other traffic, as well as ineffective land use.

2. Objective

The project aims at providing proper road network in the areas where industrial estates developments are actively taking place to minimize adverse impact of industrial traffic and encourage coordinated urban development in those areas. The project has the following specific objectives:

1) To formulate network plans,
2) To undertake detailed design of the roads,
3) To prepare implementation plan with cost allocation among relevant beneficiaries including public sector and private developers.

3. Scope of Project

3.1 Plan Preparation

1) Review relevant industrial estates developments, their impacts, socio-economic activities, natural and environmental conditions, necessary infrastructure services, etc.
2) Estimate type and volume of traffic generating from the planned developments.

3) Prepare adequate road network and traffic management plans.
4) Estimate the project costs.
5) Evaluate the projects/project components.
6) Assessment of the benefits by beneficiary to prepare a guideline of cost allocation.
7) Determine project implementation method including organizational set-up and necessary institutional change

3.2 Detailed Engineering

1) Conduct necessary engineering surveys.
2) Prepare engineering drawings.
3) Estimate construction costs.
4) Prepare implementation program.

3.3 Project Implementation

1) Assist in tender.
2) Construction supervision.
3) Assist in project management.

4. Cost Estimate and Possible Funding

1.	Project Title	Dasmariñas - Silang Telecommunication System Upgrading Project
2.	Location	Province of Cavite
3.	Implementing Agency	
4.	Objectives	(1) To establish improved telecommunication services for the municipalities of Dasmariñas and Silang, and (2) To provide the improved telecommunication services to industrial estates in these municipalities
5.	Estimated Projects Costs	
6.	Implementation Schedule	3.5 years (1992 - 95)
7.	Expected Effects	Acceleration of the development of industrial estates in the municipalities of Dasmariñas and Silang; and Contribution to the overall development of these municipalities
8.	Project Description	As per attached

Dasmariñas- Silang Telecommunication System Upgrading Project

1. Background

Telecommunications in CALABARZON

The telephone density in terms of number of main telephone lines per 100 persons is only 0.49 in Region IV, ranked fifth among the 13 regions in the country. This is quite low, considering that Region IV contains areas around the Nation's capital. The telephone density in CALABARZON is 0.90 in Laguna, 0.80 in Cavite, 0.45 in Quezon, 0.38 in Rizal and 0.30 in Batangas.

Some of the existing facilities and equipment are deteriorated or outdated. For instance, almost all the telephone switching equipment operating in CALABAR are of electro-mechanical type rather than digital type.

Existing plans

To expand and improve the existing telecommunication services in CALABARZON, PLDT and other private companies as well as DOTC/TEL OF have been planning and implementing several projects. X-5/X-5C project is a nation-wide project to expand, improve and modernize PLDT's telephone network. NTP Tranche I-1 project aims at improving telecommunication systems in Region III, IV and V by introducing new automatic, fully digitized, store-programmed telephone switching system telegraph network and digital toll links composed of digital microwave radio links and optic fiber cable links. The completion of these projects will increase the telephone lines in CALABARZON by 2.9 times in three years (1990-93).

PLDT will provide telephone services to existing industrial estates in CALABARZON under the finance by PAP. After its completion in 1992, telephone calls from these areas con be carried on direct dialing basis. Quality of telecommunication services will be improved with the introduction of digital transmission links.

International telecommunication services for industrial areas have been improved under the Philippine global communication improvement program (1989 - 91) for telex, facsimile, telephone, leased channel, pocket switching and electronic mail. These services are provided by means of point-to-point circuits between each industrial area and Philcom's headquarters. The industrial areas to be served are (1) Cavite EPZ, (2)

People's Technology Complex in Carmona, (3) Canlubang industrial estate, (4) Science Park Industrial Complex, (5) Carmelray industrial estate in Canlubang, (6) Gateway industrial estate in Carmona, and (7) First Cavite industrial estate in Dasmariñas.

2. Project Rationale

Of the 14 industrial estates existing/planned in CALABARZON, those at advanced stage of development are supported by infrastructure already established or being improved. For instance, direct dialing services are available in the Canlubang exchange area, and Cavite EPZ in Rosario is equiped with direct lines to Sampaloc toll center to allow direct dialing services.

Most other industrial areas will be supported by improved telecommunication services after the completion of on-going projects. A few areas, however, have been left out.

Telecommunications development is urgently required in the municipalities where large industrial areas are planned but the present telecommunication services are inadequate. Such promising future industrial areas are located in the municipalities of Dasmariñas , General Trias and Silang.

3. Objectives

The objectives of the project are to provide improved telecommunication services and to accelerate the development of industrial estates planned in the municipalities of Dasmariñas and Silang where the progress of telecommunications development as planned is relatively slow.

4. Scope of Work

Scope of the project is the improvement of existing telephone exchanges at Dasmariñas and Silang and associated upgrading of toll transmission links. Consulting services for a feasibility study, supplemental surveys and preparation of tender documents, tender evaluation, and construction supervision are also included.

(1) Upgrading of step-by-step exchange to digital

Dasmariñas : Replacement of SxS exchange with 2800 line units SPC-D exchange

Silang : Replacement of SxS exchange with 1700 line units SPC-D exchange

(2) Upgrading of toll links

Digital radio links :

- Replacement of FDM radio link with 1.5 GHZ or 2 GHZ digital radio link (34 Mbps 480 CH) between Sampaloc Dasmariñas Rly.

Optic fiber cable links :

- Replacement of vf cable with optic fiber cable link (34 Mbps x (1+1) 480 CH) between Dasmariñas Rly. and Dasmariñas exchange.
- Replacement of vf cable with optic fiber cable link (34 Mbps x (1+1) 480 CH) between Dasmariñas exchange and Silang.

5. Work Schedule

The feasibility study of the project will take about nine months and will be completed by the end of 1992. Following financial arrangement for project implementation, the tendering and tender evaluation will be completed in the middle of 1994. The procurement, manufacturing and installation will take about 15 months, and the project will be completed by the end of 1995.

6. Project Costs

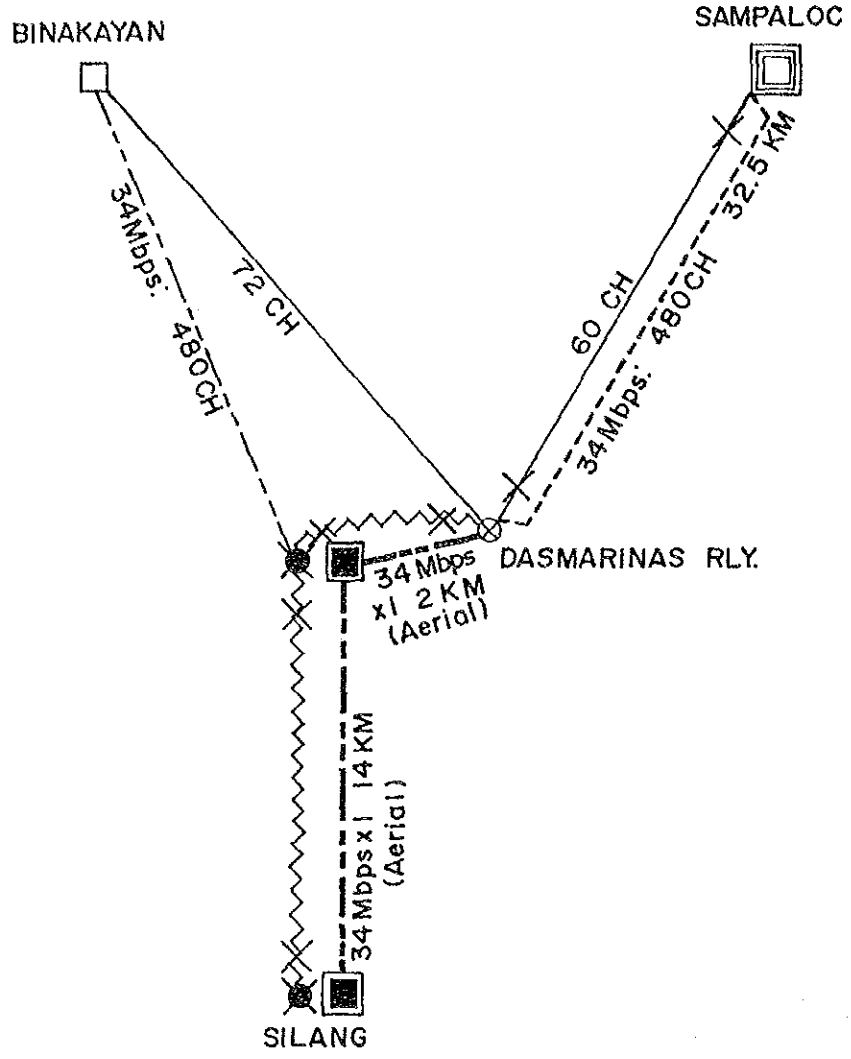


FIGURE: 1

FACILITIES PLAN FOR URGENT PROJECT

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF
THE PROJECT CALABARZON
JAPAN INTERNATIONAL COOPERATION AGENCY

LEGEND:

- EXISTING FDM RADIO SYSTEM
- NEW OPTIC FIBER CABLE SYSTEM
- EXISTING OPTIC FIBER CABLE SYSTEM
- EXISTING VF CABLE SYSTEM
- NEW DIGITAL RADIO SYSTEM
- RETIREMENT
- EXISTING SXS EXCHANGE
- EXISTING DIGITAL EXCHANGE (PC)
- NEW DIGITAL EXCHANGE (LE)
- EXISTING TERTIARY CENTER
- RADIO RELAY STATION

1.	Project Title	CALABARZON Power Transmission and Distribution Improvement Project
2.	Location	Provinces of Cavite, Laguna, Batangas and Rizal
3.	Implementing Agencies	NPC and / or MERALCO
4.	Objectives	(1) To expand the capacity of existing Dasmariñas and Rosario substations and construct a new transmission line between them, (2) To increase supply capacity and to reduce system energy losses in existing distribution networks, and (3) To supply stable and reliable power to areas of major industrial development
5.	Estimated Project Costs	US$ 102.4 million
6.	Implementation Schedule	3.5 years (1991 - 1995)
7.	Expected Effects	Acceleration of industrialization in the present and future industrial areas by enhancing comparative advantage of such areas to attract investors; and Contribution to improving urban functions with more stable and reliable power supply
8.	Project Description	As per attached

CALABARZON Power Transmission and Distribution Improvement Project

1. Background

Power demand growth

The Luzon grid is the dominant market of electricity, consuming over 75% of the national consumption. Some 93% of the total consumption in the Luzon grid is accounted for by consumers in Metro Manila and the CALABARZON region. The industrial sector has been the leading consumer, accounting for some 40% of the total consumption. The annual average growth of electricity in Metro Manila and CALABARZON recorded 12.4% overall and 16.5% for the industrial sector during 1986 - 88.

The peak load in Metro Manila and CALABARZONZONZON reached 2,516 MW in 1988, 86% of that in the Luzon grid. The annual growth of the peak load was 6.5% during 1986 - 88.

The high growth of demand for electricity is expected to continue in the future, and even accelerate within CALABARZON, where integrated regional development will take place led by the industrial sector. The peak load in CALABARZON is projected by the Project CALABARZON Master Plan to grow from 542 MW in 1990 to 937 MW in 1995 and 1,616 MW in 2000.

Existing plans

In order to overcome the serious power shortage experienced recently in the Luzon grid and to support the high industrialization envisaged, the Government has been advancing active programs for the expansion of power generating capacity and the improvement of transmission and distribution systems. Within the CALABARZON region, Calaca II Coal-fired thermal plant will be commissioned in 1993 with additional 300 MW. This is financed by World Bank and OECF together with a main 230 kV transmission line. Expansion of the substation capacity at Dasmariñas with two units of 100 MVA transformer is financed by IBRD.

2. Project Rationale

All the major development opportunities envisioned by the Project CALABARZON Master Plan will be supported by planned extension of the transmission and distribution systems within the Luzon grid. Thus, the most important strategy for power

development in CALABARZON is to secure finance for the proposed projects so that they can be implemented as scheduled.

Three packages of projects for transmission and distribution systems expansion are particularly important. The first and the most important package is the expansion of transmission systems in Dasmariñas and Biñan. The existing Dasmariñas substation is one of major substations in the Country and the only local load dispatching substation in Cavite. It is connected directly to the country's largest substation at Biñan with 230 kV transmission line. Both substations are receiving power generated at Calaca I, Sucat Mak-Ban and Kalayaan. The expansion of the Dasmariñas transmission system including local substations is crucial to meet rapidly growing electricity demand in the Cavite province and Laguna southwest , especially in Rosario, Imus, Carmona, Trece Martires, Canlubang and Sta. Rosa.

The second package is the overall improvement of distribution systems within CALABARZON. This is essential for improving supply reliability and reducing energy losses in the existing distribution networks.

The third package is related to direct services to particular industrial areas. Most industrial operations require continuous and reliable supply of electricity, while high fluctuation in receiving voltage and frequent supply interruption are two major complaints from customers at present. These problems are caused not only by shortage of generating capacity but also by deteriorated distribution facilities, short provision of protective devices, faults by other customers, and distribution facilities not enduring strong wind or other natural forces. It is desirable, therefore, that industrial areas be connected directly to the nearest substations and fed by exclusive lines of 115 kV, 69 kV or 34.5 kV. Both NPC and MERALCO can accommodate such a direct connection system under specific contracts with specific customers.

3. Objectives

The project has three objectives corresponding to the three packages outlined above. They are the following:

(1) To expand the capacity of the existing Dasmariñas and Rosario substations and construct a new transmission line between these substations so as to match the commissioning of Calaca II power plant to serve demand centers in Cavite;

(2) To increase supply capacity and to reduce system energy losses in the existing distribution networks; and

(3) To supply stable and reliable power to areas of major industrial development through construction of exclusive transmission lines connected to the nearest substations.

4. Scope of Work

Scope of the project is outlined by package.

Package 1

Scope of this package consists of the construction of the following;

(1) Expansion of substations

(a) The Rosario substation will be provided with additional two units of 115/34.5 kV transformers in total capacity of 100 MVA, together with related facilities.

(b) The Dasmariñas substation will be provided with additional 115 kV switchgears for a new transmission line to the Rosario substation.

(c) The Balibago substation will be provided with additional 115 kV switchgears for a new transmission line to the new Sta. Rosa substation.

(d) The Canlubang-1 and 2 substations will be provided with additional 115 kV switchgears for system interconnection with the new Sta. Rosa substation.

(2) New Substations

(a) The new Sta. Rosa substation will be located near the 230 kV of Calaca-Biñan line and provided with 230/115/13.8 kV transformers in total capacity of 600MVA and 115/34.5/13.8kV transformers in total capacity of 100MVA, together with related facilities.

(b) The Gateway substation will be located adjacent to the 115kV Dasmariñas-Ternate line and provided with 115/34.5/13.8kV, 50MVA transformer, with related facilities.

(c) The FCIE substation will also located adjacent to the 115kV Dasmariñas-Ternate and 115kV Dasmariñas-Tagaytay line and provided with two units of 115/34.5/13.8kV in total capacity of 100MVA, with related facilities.

(3) Transmission Lines

(a) A 115kV double circuit transmission line will be constructed between Dasmariñas and Rosario substations over approximately 15km.

(b) A cut-in 230kV line will tap one circuit of 230kV Calaca-Biñan line to the new Sta. Rosa substation, and 115kV lines to the Sta. Rosa substation will be constructed from Balibago over 8km and from Canlubang-2 over approximately 6km.

(c) Single circuit 115kV transmission lines will be constructed to the Gateway and FCIE substations by cutting-in the 115kV Dasmariñas-Ternate line, over 5km and 4km, respectively.

Package 2

Scope of this package encompasses field investigation works, planning and implementation as follows.

(1) Field investigations
- examination of existing facilities
- examination of present system operation
- review of power demand forecasts
- study of current system expansion and improvement programs
- detailed technical and financial analyses of the existing network

(2) Detailed planning
- establishment of basic policies for power system improvement in CALABARZON and each province
- detailed design for facilities involved in the system improvement and expansion, applying new technology of power distribution
- cost estimate and preparation of implementation schedule
- project evaluation

(3) Implementation

Package 3

Scope of this package is outlined for each of development areas identified by the Project CALABARZON Master Plan.

(1) Laguna west coast industrial area
- direct or primary connection from either the Biñan substation of NPC or a new substation of MERALCO at new San Pedro, Balibago, Canlubang, new Sta. Rosa or Science Park by a 230 kV, 115 kV or 34.5 kV overhead transmission line
- receiving end substation facilities within the industrial area
- additional feeder facilities at one of the substations

(2) Rosario - Imus industrial area
- direct or primary connection from either the Dasmariñas or the Rosario substation of NPC or a substation of MERALCO at DBO, Palico, Las Piñas, new Tanza or DBB by an overhead transmission line of 230 kV, 115 kV, 34.5 kV or 13.8kV.
- receiving end substation and other related facilities

(3) Carmona-Trece Martires industrial area
- direct or primary connection from either a NPC substation at Dasmariñas or Rosario or a MERALCO substation at Trece Martires, Pala-Pala, GMA, Ternate or Carmona (new) by an overhead transmission line of 230 kV, 115 kV, 34.5 kV or 13.8 kV
- receiving end substation facilities
- additional outgoing feeder facilities

(4) Greater Batangas industrial area
- direct or primary connection from a NPC substation at Batangas, Babloc, Rosario or Lipa by a 230 kV or 69 kV overhead transmission line
- receiving end substation facilities
- additional outgoing feeder facilities

(5) Rizal suburban industrial area
- direct or primary connection from either a NPC substation at Dolores, or a MERALCO substation at San Mateo, Antipolo (new), Cainta, Teresa, Morong or Marikina by a 230 kV or 115 kV overhead transmission line
- receiving end substation and related facilities

5. Work Schedule

Implementation schedule of the project is clarified by package.

Package 1

This package will be implemented in 42 months broken down into three steps as follows:

- Review of present design, detailed study of the project, and preparation of bidding documents - - 12 months
- Bidding and its evaluation, and contract - - 6 months
- Construction - - 24 months

Package 2

Field investigations and detailed planning will take about 12 months. Schedule for construction will depend on the scope and scale of projects formulated in detailed planning.

Package 3

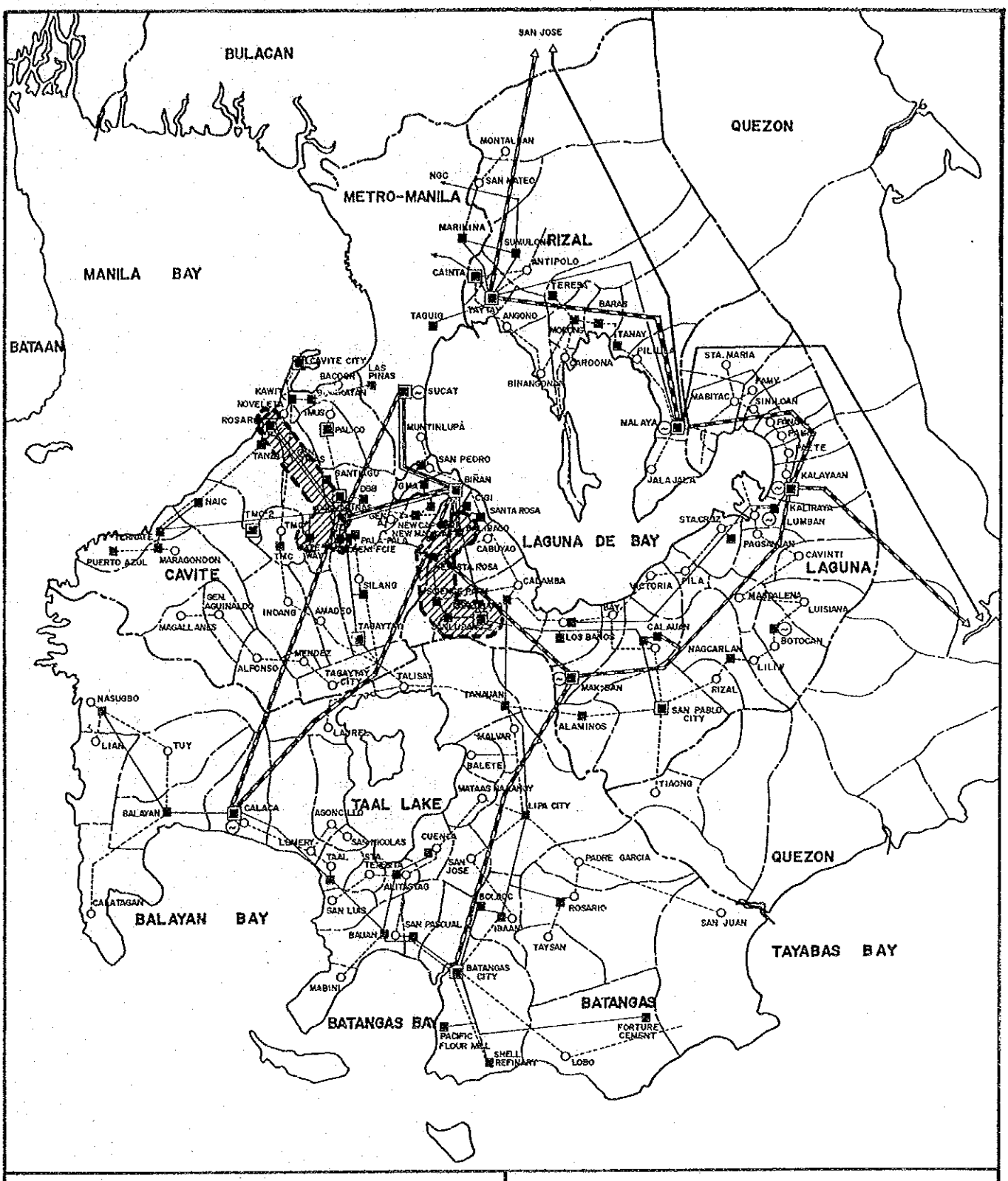
The construction period for each industrial area will be about two years after the conclusion of agreement with NPC or MERALCO.

6. Project Costs

Costs involved in the project covering the three packages are estimated to be US$ _____ million at a preliminary level.

	Costs (US$ million)
Package 1	34.5
Expansion of substations	10.0
New substations	19.5
Transmission lines	5.0
Package 2	42.2
Construction *	40.0
Consulting services	2.4
Package 3	25.5
Total	102.4

*Rough estimate; actual costs will depend on project formulation



SUBSTATION & TRANSMISSION SYSTEMS IN CALABAR AREA IN 1995

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF
THE PROJECT CALABARZON
JAPAN INTERNATIONAL COOPERATION AGENCY

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KILOMETERS

LEGEND: EXPANSION PROGRAM OF MAJOR SUBSTATIONS AND TRANSMISSION LINES IN THE PERIOD BETWEEN THE YEARS 1996 AND 2005

SUBSTATIONS

1. BINAN	ADDITIONAL 300 MVA, 230/115 KV TRANSFORMER WITH SWITCHGEARS:	BY 1998
2. DASMARINAS	ADDITIONAL 300 MVA, 230/115 KV TRANSFORMER WITH SWITCHGEARS:	BY 1998
3. KALAYAAN	ADDITIONAL 230 KV SWITCHGEARS :	BY 1999
4. BINAN	ADDITIONAL 230 KV SWITCHGEARS :	BY 1999
5. KALAYAAN	INSTALLATION OF 500 KV SWITCHGEARS :	BY 2000
6. DOLORES	ADDITIONAL 1,000 MVA, 500/115 KV TRANSFORMERS W/ SWITCHGEARS:	BY 2000
7. MAK-BAN	ADDITIONAL 50 MVA, 230/69 KV TRANSFORMER WITH SWITCHGEARS :	BY 2001
8. BATANGAS	ADDITIONAL 100 MVA, 230/69 KV TRANSFORMER WITH SWITCHGEARS :	BY 2002
9. KALAYAAN	INSTALLATION OF 500 MVA, 500/230 KV TRANSFORMER W/ SWITCHGEARS:	BY 2002
10. DOLORES	INSTALLATION OF 500 MVA, 500/230 KV TRANSFORMER W/ SWITCHGEARS:	BY 2002
11. DASMARINAS	ADDITIONAL 50 MVA, 115/34.5 KV TRANSFORMER WITH SWITCHGEARS:	BY 2003
12. DOLORES	ADDITIONAL 600 MVA, 500/115 KV TRANSFORMER WITH SWITCHGEARS:	BY 2004
13. BINAN	ADDITIONAL 230 KV SWITCHGEARS:	BY 2005

TRANSMISSION LINES

1. SAN JUAN - KALAYAAN	230 KV, 2-CIRCUIT LINE:	BY 1999
2. BINAN - KALAYAAN	230 KV, 2-CIRCUIT LINE:	BY 1999
3. COAL - B (TAYABAS) - KALAYAAN	500 KV, 2-CIRCUIT LINE:	BY 2000
4. KALAYAAN - DOLORES - SAN JOSE	500 KV, 2-CIRCUIT LINE:	BY 2000
5. NAGA - KALAYAAN	500 KV, 2-CIRCUIT LINE:	BY 2002
6. SAN JUAN - BINAN	230 KV, 2-CIRCUIT LINE:	BY 2005

SOURCE : NPC LUZON DEVELOPMENT PROGRAM (FILE NO. PEP90-WKI/EDC 43, LPD-SPO/ego, 18 MAY 1990)

1.	Project Title	CALABARZON Groundwater Potential Study
2.	Location	Cavite, Laguna, Batangas, Rizal and Quezon Provinces
3.	Implementing Agencies	DPWH in cooperation with the provincial governments of Cavite, Laguna, Batangas, Rizal and Quezon.
4.	Objectives	(1) to assess groundwater development potential in the CALABARZON Region
		(2) to provide information on safe yield volume or allowable pumping-up volume.
5.	Estimated Cost	5.5 million US dollars
6.	Implementation Schedule	3 years (1991 - 1994)
7.	Expected Effects	A balanced and environmentally sound development of groundwater and successful implementation of development projects in all sectors.

CALABARZON Groundwater Potential Study

1. Background

Growth of CALABARZON region

The CALABARZON region includes the provinces of Cavite, Laguna, Batangas, Rizal and Quezon, contiguous to the capital region of Metro Manila. In this region, a number of projects have been planned and partly implemented by various government agencies in recent years. Furthermore throughout the master plan study for the Project CALABARZON now on going, the various development efforts would be coordinated and implemented for the purpose of the realization of a balanced and environmentally sound growth of the region. The CALABARZON region is also expected to play a leading role in the attainment of national goals.

Role of Water for Development Activities

Water is an indispensable factor for all social, economic and human activities and it is not too much to say that the successful implementation of various development projects depend on water availability. To develop economically water of good quality makes a development project more feasible and viable.

On the other hand, water is also a component of nature and the exhaustion and the deterioration would cause a lot of unfavorable and serious problems for not only development projects but all human activities. Therefore, the water potential and availability should be properly evaluated for the purpose of a balanced and environmentally sound growth of the region.

In the CALABARZON Region, there are no large scale river basins with an abundance of water resource. Lake water may be a promising water source only from the aspect of water volume, but a large scale lake water development might produce an unfavorable effects on the natural and social environment in and around the lake.

Because of the difficulties of surface water development, groundwater development in the CALABARZON Region is essential to the regional development. Therefore, it is of significance to clarify the groundwater development potential for the growth of the CALABARZON Region.

Necessity of Potential Study for Groundwater Development

In water resource development, a well balanced development of surface water and groundwater reflecting their proper characteristics as a water source should be made for the purpose of stable water supply for a long period.

However, at present groundwater is developed as a major water source especially for municipal water supply and the necessity of groundwater development will increase in response to the further increase of population. Furthermore the promotion of industrialization in the region will accelerate groundwater development in order to obtain cheaper water of good quality. This also means that shortage of groundwater would be one of the most serious constraints for the growth of the region.

The increase of requirement for groundwater may cause some serious problems due to over-yielding and endanger the successful development in all sectors.

At present, several investigation or assessment reports on groundwater potential have already been prepared by concerned agencies, but they do not provide enough information both in quantity and quality for planning of various development activities.

Therefore, immediate implementation of potential study for groundwater is necessary. The study results would provide useful information for planning and implementation of various development projects.

2. Study Objectives

The objectives of the Potential Study for groundwater in the CALABARZON region are (1) to assess groundwater development potential in the CALABARZON region and (2) to provide information on safe yield volume or allowable pumping up volume. The study will contribute to a balanced and environmentally sound development of groundwater and successful implementation of development projects in all sectors.

3. Scope of Work

The following works will be carried out in order to attain the study objectives.

(1) Review of Previous Studies and Field Reconnaissance

This task includes a review of reports of the previous studies relating to groundwater investigation. And field reconnaissance will be carried out to identify major areas to require further investigation.

(2) Collection of Relevant Data/Information

At the beginning of the study, the following data/information will be collected.

Topographic condition

- aerophotos and topographic maps
- additional survey and mapping, as necessary

Meteorology and Hydrology

- daily rainfall data in and around the study area
- Other meteorologic data, such as, temperature, relative humidity, evaporation, etc.
- daily runoff discharge data and hydrograph

Hydrogeological condition

- geological map
- hydrogeological map
- data of existing boring test
- data of existing geological investigation
- water level record of existing wells

Facilities and Management

- existing wells and springs
- irrigation facilities
- operation records of the above structures/facilities
- water quality data of existing wells and springs
- hydrological observation facilities and the operation/maintenance

Land use

- data of surface soil condition
- existing land use map

(3) Preliminary Study and Analysis

To select the sites of test boring, the following studies, analyses and field reconnaissance will be carried out based on the collected data. At the same time, continuous water level observation of some existing wells will be started.

Hydrological survey

- periodical runoff measurement of some selected points
- observation of flow condition of rivers, streams and springs during dry and rainy seasons

Hydrogeological survey

- geological survey
- preparation of existing well inventory
- resistivity investigation

Preparation of hydrogeological map

- On the basis of the collected data, field survey and reconnaissance, hydrogeological map is prepared and further drilling sites for test wells are selected.

(4) Test Well Drilling and Pumping Test

Test well drilling

- the number and depth of wells are planned as follows :

500 m in depth	1 site
300 m in depth	4 sites
200 m in depth	4 sites
100 m in depth	10 sites
total depth	: 3,500 m

- pumping test and well recovery test
- water quality test in wells
- other relevant tests

(5) *Study and Analysis for Potential Evaluation*

- hydrological water balance analysis
- hydrogeological analysis based on the collected data and the results of pumping test
- preparation of groundwater contour map
- analysis of salt water intrusion into aquifer
- completion of hydrogeological map

(6) Recommendation of institutional measures

- monitoring system for groundwater yielding
- regulations to control the total yielding volume

4. Reporting

The output from the study will consist of the following reports:

(1) An "Inception Report" within 2 months after commencement of the study, describing the summary of the objectives of the study, initial findings and a detail plan of operation and methodology of the study

(2) A "Progress Report I" within 6 months after commencement of the study, giving a summary of the study team's activities, technical problems encountered, deviation from the original work schedule and the program of the works in the next study period.

At the same time, Inception Report for test well drilling works is prepared including drilling sites, well specification, work schedule and so on. After commencement of drilling work, Monthly Work Progress Report is submitted until the completion.

(3) An "Interim Report" within 12 months after commencement of the study, giving all study and survey results, technical problems encountered, deviation from the

original work schedule and the program of the works in the next study period including test well drilling works.

(4) A "Progress Report II" within 18 months after commencement of the study, giving all study and survey results, technical problems encountered, deviation from the original work schedule and the program of the works in the next study period.

(5) A "Completion Report" for test well drilling works within 24 months after commencement of the study, including all data and informations obtained through the test well drilling works.

(6) A "Draft Final Report" within 28 months after commencement of the study, including the all results of implemented survey and study for groundwater potential evaluation and recommendation of institutional measures for discussion and comment by concerned agencies.

(7) A "Final Report" within 30 months after commencement of the study, reflecting the comments provided by concerned agencies on the Draft Final Report

6. Experts

The study will be completed with about 30 months and the total of 120 man-months will be required for the study. Experts required for this study are listed below.

No.	Designation
1.	Team Leader
2.	Hydro-geologist
3.	Hydrologist
4.	Geo-physical expert
5.	Well drilling expert
6.	Water quality analysis expert

7. Costs

The 120 man-months of foreign experts will cost about US$ 2.9 million, including remuneration, overhead costs, mobilization costs, out-of pocket expenses and other direct cost. The test well drilling cost is approximately estimated at US$ 2.5 million including pumping test and other relevant tests.

Additional costs will be incurred for the procurement necessary for data compilation, measurement and analyses such as the followings :

Continuous water level measurement of wells
Meteoro-hydrologic measurement and analysis

Water quality test and analysis
Registivity investigation

8. Government input

The executing agency for the study is organized by the Philippine Government. Technical assistance is expected to be provided by overseas aid. Counterpart personnel and logistic support to the extent necessary shall be provided by the executing agency, and coordination and cooperation with other agencies related to the study shall be arranged through the counterpart staff.

1.	Project Title	Provincial Industrial Estate (PIE) Development program
2.	Location	The inland area of Batangas province.part of Quezon
3.	Implementing Agencies	DTI (Department of Trade and Industry), provincial government of Batangas/Quezon
4.	Objectives	To develop a PIE by the public sector initiatives and induce manufacturing industries to locate there based on the following study and program: 1) Selection of candidate sites to be developed as the PIE, 2) Formulation of the PIE's development and management program including establishment of measures for promoting small and medium scale enterprises (SMEs), 3) Development of the PIE, 4) Integration program for inducing the location of industries in and around the PIE.
5.	Estimated Project Cost	
6.	Implementation Schedule	Five (5) years (1991-1995)
7.	Expected Effects	1) Acceleration of industrial dispersal and the economic development of the Southern Tagalog Region 2) Revitalization of the public sector's role in regional industrialization 3) Diversification of industrial structure and regionally balanced development in the Southern Tagalog Region through the development of its inland area 4) Growth of SMEs by providing the space and facilities proper to them 5) Contribution to formation of the Regional Center in the Southern Tagalog Region
8.	Project Description	As per attached

Provincial Industrial Estate (PIE) Development Program

1. Background

Present situations of industrial location in Batangas and Central Quezon

Batangas province and part of Quezon province centering around Lucena City (Central Quezon) are situated in the southern part of the CALABARZON region. They have different feature in industrial location compared to the rest of the Region, respectively. Batangas has port areas of Batangas Bay, and port-oriented industries are intensively located along the coastal area. Central Quezon has also port areas including "Coco-related port", but its port development potential is smaller than that of Batangas with deep natural harbor.

In contrast to the coastal areas, the inland area of Batangas is less developed while there locates labor-intensive industries such as wearing apparel and agro-based industries including sugar milling and refining, and animal feeds. Central Quezon is likewise less developed while coconut processing is concentrated, centering on desiccated coconut.

This situation means that location manner of footloose type industries including export-oriented and large market-oriented industries in the Luzon Island is more or less affected by proximity not only in spatial distance but also in time distance to Metro Manila. In other words, the inland area of Batangas and Central Quezon is less advantageous in attracting investments of the above mentioned manufacturing industries than the the rest of CALABARZON, namely Cavite, Laguna and Rizal

Existing plans of industrial estate and improvement of transport conditions

There are two (2) plans of industrial estate development in Batangas, Batangas Regional Industrial Center (BRIC) and Bauan Provincial Industrial Estate (BPIE). Their areas to be developed are 750 ha and 350 ha, respectively. However, these estates are planned along the coastal area. There is no plan of industrial estate not only in the inland area of Batangas but also in Central Quezon.

Present situations of the public sector's role and activities in IE development

It is controversial who should develop and manage IEs. The Government policy appears to be directed toward promotion of IE development by the private sector in line with privatization. However, some IEs/EPZs have been developed by the public sector as described below.

Cavite EPZ is developed by the Export Processing Zone Authority (EPZA) who can also develop general IEs allowed by the charter but has not done so to date. The possibility of converting some EPZs into combined IE/EPZ has been discussed within the authority. As a result, "Special EPZ (SEPZ) is established within IEs developed by the private sector. The EPZA already granted SEPZ status to two private IEs (Science Park in Laguna and First Cavite in Cavite), and another two private IEs (Technopark in Laguna and Gateway in Cavite) expressed interest in SEPZ with the same incentives and privileges as EPZ.

The National Housing Authority (NHA) has developed two IEs in Cavite and continues to develop industrial and commercial lands adjacent to their housing areas, although management of these IEs is shared with the recipient city.

The PHIVIDEC Industrial Authority (PIA) established in 1973 to develop and manage IEs all over the country has developed one estate in Misamis Oriental in 1974, which is one of the better managed IEs.

The Food Terminal Incorporated (FTI) and the Technology Resource Center (TRC) are government-sponsored agencies under the Department of Human Settlement. Carmona municipal government provided the land site and Cavite provincial government developed the site. TRC has financed through its subsidiary and is responsible for overall management of the estate.

Bauan Provincial Industrial Estate (BPIE) is a unique project for regional industrialization since it is promoted through a government-private sector partnership called KABALANGKAS NG BAUAN (Co-Planner). The participant members are composed of twenty (20) large industries located there and scores of civic and religious organization. BPIE will be partly offered to the participants as an area to be developed into an industrial estate and as the ideal site for their industries. Feasibility study of BPIE is to be finished in the midst of 1991, and the so called "Third sector corporation" shared by municipality of Bauan and the private sector shall be established to develop and manage BPIE.

Regional Industrial Centers (RICs) including Batangas RIC and Cavite EPZ are designated by the DTI aiming to strategically focus on one location in each of the country's thirteen (13) regions and invest it with the full range of infrastructure needed by industries to establish there on a competitive footing. In this case, it depends on the situations who develop the RICs except EPZ, while the implementing body is in principle the DTI.

2. Project Rationale

Planned development of less-developed area by the public sector's initiative

The inland of Batangas and Central Quezon are now less developed but have relatively a large potential for industrial location/development. South Expressway extension (Sto. Tomas-Lipa City-Batangas City) is expected to enhance the potentials for industrial location/development and it will happen that many factories spontaneously locate along the highway.

In the medium- to long-term, Batangas will be inter-connected with the industrial area in Central Quezon. A development axis will be formed connecting Batangas/Bauan through San Juan to Lucena City, and may be further extended to the east to Atimonan and to the west to Balayan.

However, there is no plan of IE development by the private sector in the inland of Batangas and Central Quezon, nevertheless the Government promotes IE development by the private sector. This situation seems to partly reflect that the private sector hesitates to develop IE and regards the time for the development not matured. If profitable at present, the private sector invests in IE development.

Therefore, the public sector should take the initiative to develop industrial estate. This is, so to speak, a leading/pilot project in less developed area with potentials. Such an IE would better be equipped with the full range of infrastructure concerned, namely not only with "the industrial minimum" but also with additional amenities to make a precedent for subsequent IEs. This is also effective in avoiding spontaneous factory location and realizing planned development/rational land use.

Provision of the space and facilities for SMEs

Promotion of small and medium scale enterprises (SMEs) is a focal point of the national industrial policy because of their contribution to employment generation and economic growth.

The demand for the IE site by SMEs will increase according to the expansion of production and to the conversion of livelihood industries into factory industry from household industry. It is, however, not easy for SMEs to locate in any IE developed by the private sector since the land price is too high for them. SMEs are also not easy to qualify for land conversion by CARP because their required size of factory site is too small.

Therefore, the public sector is expected to make efforts to promote SMEs through providing for low cost land and facilities by developing SMEs-IE. In other words, this is also a kind of absorption and return of development profits by the public sector.

3. Objectives

1) Selection of candidate sites to be developed as the PIE,
2) Formulation of the PIE's development and management program including establishment of measures for promoting SMEs,
3) Development of the PIE,
4) Integration program for inducing the location of industries in and around the PIE.

4. Scope of Work

The objectives of the project will be achieved through the implementation of the following works.

1) Selection of the candidate sites to be developed as the PIE

This work comprises the following components.

a) Forecast of site demand for industrial estate in the inland area of Batangas and Central Quezon up to 2000,
b) Selection of the sites suitable for industrial use, taking into account such factors as natural/physical and socioeconomic conditions including water supply and transport conditions,
c) Selection of the sites to be developed as the IEs among the above selected suitable sites, taking into account land lot size and number of land owners, land acquisition cost, provision cost of infrastructure, relation to urbanization, and regional balance of the sites distribution,
d) Selection of the candidate sites to be developed as the PIE among the suitable sites as the IEs, considering 1) their strategic position to attract concomitant IE development by the private sector, 2) existing agglomeration of SMEs including livelihood industry, and 3) low provision cost of infrastructure.

It is desirable that the above outputs will become an authorized guideline for the IE development including that by the private sector.

2) Formulation of the PIE's development and management program including establishment of measures for promoting SMEs

These will consist of the following works.

a) To fix the size of area developed by phase,
b) To make land use plan for factory sites and public facilities such as roads, utilities, administration, parking/open spaces and others,
c) To make construction plan for facilities including standard factory and common use facilities for SMEs,
d) To examine and assess alternatives of development and management, broadly categorized into the following three types; solely by the public sector of government (national and local) including government-sponsored agencies; likewise by the private sector; and by the third sector (partnership between the government and the private sector),
e) To analyze cost-profit balance and determine price/lease charge fee the land provided to investors including SMEs.

3) Development of the PIE

An actual IE site to be developed and the system of development and management will be determined based on the above works and through the discussion by the committee organized for the project.

The Department of Trade and Industry should organize a committee in cooperation with the NEDA-NIEP (National Industrial Estate Program) and the provincial government of Batangas/Quezon to discuss the matter.

The criteria should be established for selective inducement of investors/SMEs. The development may be implemented by phase and a reserve system for land sale is considered depending on the situations.

4) Integration program for inducing factories into the PIE.

For this purpose, a new organization for promotion activities will be established by the public sector, and government-private sector partnership will be strengthened. If necessary, special incentives for PIE shall be considered.

In addition, it is worthy to consider that a public institution for testing and R & D or research laboratory will be established within/around the PIE in order not only to support the private sector's technology upgrading/development and the value added making, but also to enhance potentials for induing the private investments into/around the PIE and inter-industry linkage between the newcomers and the existing industries.
The possibility of all above-mentioned will be examined by the committee organized by the local government specifically for the project.

5. Work Schedule

The project as a whole shall be undertaken into two (2) phases and over a five (5) year period:

Phase 1: Study Projects--First one (1) year

1) Selection of the candidate sites to be developed as the PIE
2) Formulation of the PIE's development and management program including establishment of measures for promoting SMEs

Phase 2: Implementation of the Project--Four (4) years

3) Development of the PIE
4) Integration program for inducing the location of industries in and around the PIE

6. Inputs Requirement

The project is expected to be implemented with participation of foreign experts working in close collaboration with staff of the provincial government of Batangas/Quezon and the DTI. Foreign experts to be required during the project implementation are as follows.

1) Project manager
2) Regional planner
3) Land use planner
4) Industrial location/policy expert
5) SMEs expert
6) Industrial estate management expert
7) Industrial estate sales promotion expert
8) Cost analyst
9) Civil engineers
10) Unidentified experts

The total of around 120 man-mouths and the project office in Batangas province will be required.

1.	Project Title	Industrial Finance and Technology Development
2.	Location	Provinces of Cavite, Laguna, Batangas, Rizal and Quezon
3.	Implementing Agencies	DOF, DBP, DTI, DOST, LTRC and Private Financial Institutions
4.	Objectives	To provide term financing to industrial enterprises in all sectors for new investments, modernization projects and operating capital for existing firms. The financing program will be integrated with parallel efforts to improve technology and marketing practices of SME's.
5.	Project Costs	U.S. $70 million/annum for a period of 5 years at an estimated total cost of $350 million.
6.	Implementation Schedule	1991 - 1995
7.	Project Description	As per attached

Industrial Finance and Technology Development

1. Project Rationale

The rapid growth of industrial output during the period 1986 - 1989 has resulted in fairly high levels of capacity utilization (over 70%) in many sub-sectors of manufacturing in the Philippines. Continued growth of manufacturing output is dependent on undertaking new investments.

The drastic decline in manufacturing output in 1983 - 1986 and the successive growth based on utilization of existing capacity implies that there has been little new investment in manufacturing in the 1980's. New investment is severely hampered by nominal interest rates of around 30% (real rates by around 12%). The fiscal deficit, and government's increasing reliance on domestic borrowing to cover the deficit has crowded out all but the most profitable projects for loan financing.

2. Project Design

The project will provide a foreign currency loan to the government of the Philippines. The government will make available the peso equivalent of the loan to augment the financial resources available for lending to the private sector manufacturing enterprises.

Most of the resources will be channelled through DBP as a wholesale bank and will be lent by the accredited financial intermediaries in CALABARZON. A small component will be channelled through specialized government agencies (TLRC and DTI) for lending to small manufacturing enterprises at concessionary terms. This proportion of the loan will be increased as the delivery capacity of the intermediaries increases.

The interest on loans channelled through DBP will be calculated with reference to the weighted average cost of the banking system's demand, savings and time deposits. At present, the cost to the borrowers is estimated to be around 18% compared with the credit cost of around 30% for commercial loans.

The SME's receiving funding through the program will be supported to upgrade production technologies, process design, quality control and marketing. The technology support will be provided by universities, professional associations and the specialized government institutions such as the Metal Industry Research and Development Center , and the Industrial Technology Development Institute of DOST. The research and development institutions will generate their own resources, but will be

initially supported through the CALABARZON development program to develop their research and technical support capabilities.

Product development, technology and finance components of the program will be coordinated at provincial and regional levels as a part of the CALABARZON Master Plan coordination and monitoring activities.

Initially, the credit, marketing and technology components of this project will be coordinated by DTI. This function will be undertaken by the CALABARZON regional development agency to be set up as a part of the Regional Development Council for Region IV.

3. Project Components

The credit demand by the manufacturing enterprises is estimated by DBP to be around $620 million/annum in the Philippines. The present volume of industrial lending by development banks and special credit programs in the country is around $100 million annually. Of the total credit demand between $150 - 200 million is generated by enterprises in CALABARZON. The financing prepared for CALABARZON will augment the resources available for lending in the region. The DBP will strengthen the network of intermediary private financial institutions in the region and will coordinate its lending activities with the CALABARZON regional development agency to support locational development objectives of the Master Plan.

The lending through DTI's Bureau of Small and Medium Business Development is directed towards cottage industries. The program will support the "Tulong sa Tao" facility. The upper limit is ₱25,000 per beneficiary at present, and carries and interest rate of 7%. The project component delivered through DTI will vary from 5 to 10% of total lending.

The lending to the relatively large segment of small enterprises will be channelled through Export Industry Modernization Program of TLRC. This program is presently supported by an OECF loan (EIMP-II) of ¥ 6 billion.

The project management/coordination costs, and allocation to DOST agencies for technology support would be around $2 million/annum. This will cover the formulation of long-term sub-sectoral development programs, support for technical training in the research institutes and participating universities, and the cost of manpower training and incubator programs.

1.	Project Title	Laguna West Urban Region Development Project
2.	Location	Laguna lake west shore area covering the municipalities of San Pedro, Binan, Santa Rosa, Cabuyao, and Calamba
3.	Implementing Agencies	National Economic Development Authority, Department of Public Works and Highways, Region IV Office
4.	Objectives	1) To combine urban center development with upgrading of public mass transportation between Metro Manila and Calamba in order to make urban center development and public mass transportation development stimulate each other; and 2) To strengthen urban center functions in order to secure stronger linkages between industrial and urban sectors; and 3) To promote orderly and compact urban and industrial development in order to minimize land conversion from agriculture to urban/industrial uses, as well as in order to efficiently provide sewage and waste water/solid waste treatment facilities.
5.	Implementation Schedule	5 Years (1991-1995)
6.	Expected Effects	Creation of high grade urban area combining industrial sites, housing and other facilities and coexistence with surrounding agricultural areas. Formation of the Greater Capital Region as an integrated industrial/urban core area.
7.	Project Description	As per attached

Laguna West Urban Region Development Project

1. Background

Project Area

Laguna Lake West Shore Area is adjacent to Metro Manila and located in the west part of Laguna province. The area, to the north, is bounded by Laguna Lake. South Super Highway and Manila South Road, both of which are inter-regional roads, run through the area. The area has a long and slender form along the roads and lake shore, covering five municipalities: San Pedro, Binan, Santa Rosa, Cabuyao, and Calamba.

At present, the dominant land uses are paddy and sugarcane fields. Along Manila South Road, five urban centers have developed since the Spanish Era, but their substantial areas are relatively small. Recently housing subdivisions changed the landscape drastically. The recently formed urban land uses are of ribbon pattern along roads or of island type connected to the major roads by single roads . In this way, suburbanization from Manila has involved the area since the 1970s. At the same time, because of its vicinity to Metro Manila and its relatively well provided infrastructure, manufacturing industry also began locating their factories along Manila South Road and South Super Highway, and moreover, three industrial estates are existing and are to be expanded. In this manner, the area is expected to accommodate manufacturing factories and to lead industrial development in the country.

Development Problems and Regional Approach

In this situation, among development issues and problems concerning Laguna Lake West Shore Area are as follows:

- Promotion of industrial development in order to contribute to the national economy
- Making linkages between the urban sector and industrial development in order to multiply development effects, especially by generation of urban employment.
- Prevention of unordered land conversion from agriculture to other uses in order to avoid unnecessary losses of agricultural land and to establish orderly patterns of land use.
- Prevention of deterioration of Lake water quality for efficient lake water utilization for drinking, irrigation and industry.
- Efficient provision of urban infrastructure and services for increasing urban population and economic activities

To solve these problems together with other regional development problems, the Master Plan Study on the Project CALABARZON recommends a regional approach baed on the formation of Greater Manila Region as well as on the formation of Southern Tagalog Region. The formation of Greater Manila Region is promoted by strong physical and economic integration within the Region in order to exploit Metro Manila's agglomerated urban economies and to utilize existing major transportation axes in order to accelerate industrial and urban development. In the formation of Greater Manila Region, urban development is central together with industrial development because the urban sector is able to absorb and multiply effects of industrial development, and to distribute the effects geographically and socially.

2. Urban Development Strategy

For the formation of Greater Manila Region, a multi-center-development pattern is desirable to geographically distribute job opportunities and business chances, and to accommodate spreading industry and housing from Metro Manila. The urban centers to be encouraged to develop should be multi-functional, containing a variety of functions, such as local administration centers, housing, industry, commercial centers, and other higher urban functions within compact areas of urban centers. The multi-functional centers are desirable because only multi-functional urban centers have chances to grow and agglomerate urban economies large enough to have external effects which facilitate further growth of economic activities and urban population. The compact development is preferred because the cost-effectiveness of infrastructure provision is relatively high, and it can reduce unnecessary losses of agricultural lands. Moreover, in Laguna Lake west shore area, the compact development can increase the possibilities to effectively monitor and treat waste water from the industrial and domestic sectors.

However, under the high pressure of suburbanization like in Laguna Lake west shore area, it is difficult to encourage urban centers to grow their urban economies because spontaneous development along major roads is so fast that the public sector cannot provide provide sufficient infrastructure and urban services to induce compact and orderly urban development and to expand urban economies . Therefore, more strategical measures are required for promoting urban center development in suburbanization areas. Although the basics of urban center development is to provide proper urban infrastructure in advance, the point is how to strategically provide urban infrastructure in order to acquire land plots for higher-urban functions as well as to induce private investments in higher-ordered urban functions to the acquire land plots.

Among the measures to improve physical and economic environments to attract higher-ordered functions and other economic activities are to utilize the upgrading of the commuter rail system, and to take advantages of improvement and provision of intra-regional roads, in order to promote center development and housing development.

3. Project Description

The first Stage: Planning and Feasibility Study

In order to achieve the objectives above, at the first stage, it is necessary to conduct a planning study covering the following aspects:

- To make an urban structure plan including general land uses, roads, urban streets, and new business and commercial districts
- To make action plans of drainage, sewage, waste water/solid waste treatment facilities, water supply to serve the planned urban structure
- To make a plan of housing provision for the low-income class of people
- To study possibilities to combine urban center development and upgrading of the existing commuter rail system
- To study institutional measures to implement the plans, especially to secure land for center development
- To study incentives for private sector to invest in higher-ordered urban functions, such as shopping centers, amusement centers, and office building complexes
- To conduct a feasibility study of investment packages of urban infrastructure

The Second Stage: Detailed Engineering and Institutional Design

For timely implementation of the project, it is necessary to form a project management office, which has the following functions:

- Technical management: advise for a detailed engineering and institutional design
- Financial management: arrangement of funds, bidding/contracting, and disbursement
- Construction management: monitoring and scheduling
- Business management: promotion of private investments in higher-urban functions
- Coordination with other departments' programs and projects

Based on the plans established at the first stage, a detailed engineering and institutional design will be conducted with assistance of private consultants. The engineering design should be conducted for the package of infrastructure which are recommended at the previous stage. And the institutional design should deal with the incentives for the private sector to invest in high-ordered urban services, which are also recommended in the previous planning study.

The Third Stage: Construction and Promotion

Construction of urban infrastructure is to be done by private contractors under the construction management by the the project management office with assistance of supervising consultants. Construction management includes land acquisition not only for infrastructure but also for new business and commercial districts, of which projects are to be implemented by the private sector. Promotion of private investments in high-ordered urban functions on prepared land plots within urban centers is also to be conducted by the management office with assistance of business consultants.

1.	Project Title	Batangas-Bauan Urban Development Project
2.	Location	Batangas City, San Pascual, and Bauan
3.	Implementing Agency	Department of Public Works and Highways, Region IV Office
4.	Objectives	1) To strengthen urban center functions in order to secure stronger linkages between industrial and urban sectors 2) To physically expand urban areas and to provide urban infrastructure to accommodate high-ordered urban functions, industrial areas, and more urban population 3) To enhance urban amenity with high-ordered urban services such as high-standard shopping center, hospitals, high schools and colleges in order to attract urban population and investments.
5.	Implementation Schedule	5 years (1992 - 97)
6.	Expected Effects	Formation of a self-sufficient regional system of Southern Tagalog
7.	Project Descriptions	As per attached

Batangas-Bauan Urban Development Project

1. Background

Batangas City and surrounding areas are expected to play an important role to lead industrial development in CALABARZON because its port is to be rehabilitated and South Super Highway is to be extended to Batangas City. However, even after completion of these infrastructure projects, the prospect for Batangas is not so bright. It is because the Project CALABARZON will promote provision of infrastructure for industrial development in Cavite and Laguna. In addition, the distance from Batangas City to Metro Manila is still a barrier to effective utilization of the agglomerated economy and concentrated high-order service functions in Metro Manila. That is, most of Batangas province is left out from the potential areas which can utilize Metro Manila's economy for their own development. Consequently, the development potential in Batangas would fade out without steady improvement of investments environments in Batangas.

The National Dispersal Policy pursues the decentralization of manufacturing facilities from Metro Manila to other regions in order to distribute development effects to other part of the country, as well as to avoid further congestion in Metro Manila. Moreover, land prices are high, cheap labor is short in Metro Manila, and many problems are mounting due to insufficient provision of infrastructure and social services. Therefore, in order to take a variety of Metro Manila's advantages such as availability of business information, relatively good infrastructure, the national financial center and accessibility to the largest domestic market, manufacturing industry started to locate factories in surrounding areas of Metro Manila (within 50 km radius from Manila). In the respect of dispersion of manufacturing industry, the dispersion from Metro Manila within 50 km radius from Manila lessens the immediate increase of burden to Metro Manila, but does not contribute to long-term solutions of the problems. The trend pattern of concentration and dispersion within 50 km radius has also limitation on accumulation of urban population and economic activities. And it does not work for dispersion of development efforts in the country.

2. Development Issues and Regional Approach

Development issues concerning Batangas province are as follows:

- How to disperse concentrated urban population and economic activities in Greater Manila to other regions;
- How to diffuse development effects to Batangas and other provinces in Region IV;
- How to promote agro-modernization and diversification of rural economic activities

To tackle these problems, the Master Plan Study on the Project CALABARZON recommends a regional approach, which is based on the formation of two self-sufficient regional systems -- namely Southern Tagalog Regional System and Greater Manila Regional System.

For self-sufficient development of Southern Tagalog Regional System, agglomerated urban economies are essential. The increased urban economies will be able not only to support industrial operation but also to expand chances for agro-modernization and diversification of rural economic activities by farmers' spontaneous initiatives rather than those by government's programs.

3. Urban Development Strategy

For the formation of Southern Tagalog Regional System, a multi-center-development pattern is desirable to geographically distribute job opportunities and business chances. The urban centers to be encouraged to develop should be multi-functional, containing a variety of functions, such as local administration centers, housing, industry, commercial centers, and other higher urban functions within urban centers. The multi-functional centers are desirable because only multi-functional urban centers have chances to grow and agglomerate urban economies large enough to have external effects which facilitate further growth of economic activities and urban population.

Although the promotion of a multi-center pattern of development is desirable in Southern Tagalog Region, it is not, in practice, feasible economically and institutionally to simultaneously to promote the development of all the potential centers. Among the potential urban centers, the highest priority is given to Batangas Center because there are port-oriented industries, a provincial administrative center, a provincial commercial center based on a domestic port. Batangas Center has higher development potentials than Lucena in that Batangas Center is nearer to Metro Manila, Batangas port is of better potential than Lucena's, Batangas has more incremental effects of development, and based on the good domestic port, Batangas Center has wider hinterlands in

southern island provinces including Visayas. Therefore, Batangas/Bauan Urban Center Development is recommended as a priority project for the formation of Southern Tagalog Regional System.

The issues of urban development in Batangas Center are as follows:

- How to expand and agglomerate urban economies in Batangas/Bauan;
- How to induce industrial investments in Batangas/Bauan;
- How to strengthen urban center functions in order to secure stronger linkages between industrial and urban sectors;
- How to physically expand urban areas and to provide urban infrastructure to accommodate high-ordered urban functions, industrial areas, and more urban population; and
- How to enhance urban amenity with high-ordered urban services such as high-standard shopping center, hospitals, high schools and colleges in order to attract urban population and investments.

Among the most fundamental and strategical measures to start up the expected urban development in Batangas Center are to provide infrastructure for urban center and industrial development, and to physically expand urban areas to accommodate more urban population and economic activities. Based on this physical preparation, other incentive measures such as supply of credits and cheaper land plots become more effective to induce private investments in higher-urban functions, such as regional commercial centers, regional medical centers, recreational centers and business office complexes.

4. Project Description

The first Stage: Planning and Feasibility Study

In order to achieve the objectives above, at the first stage, it is necessary to conduct a planning study covering the following aspects:

- To make an urban structure plan including general land uses, roads, urban streets, and new business and commercial districts
- To make action plans of drainage, sewage, waste water/solid waste treatment facilities, water supply to serve the planned urban structure
- To make a plan of housing provision for the low-income class of people

- To study institutional measures to implement the plans, especially to secure land for center development
- To study incentives for private sector to invest in higher-ordered urban functions, such as shopping centers, amusement centers, and office building complexes
- To conduct a feasibility study of investment packages of urban infrastructure

The Second Stage: Detailed Engineering and Institutional Design

For timely implementation of the project, it is necessary to form a project management office, which has the following functions:

- Technical management: advise for a detailed engineering and institutional design
- Financial management: arrangement of funds, bidding/contracting, and disbursement
- Construction management: monitoring and scheduling
- Business management: promotion of private investments in higher-urban functions
- Coordination with other departments' programs and projects

Based on the plans established at the first stage, a detailed engineering and institutional design will be conducted with assistance of private consultants. The engineering design should be conducted for the package of infrastructure which are recommended at the previous stage. And the institutional design should deal with the incentives for the private sector to invest in high-ordered urban services, which are also recommended in the previous planning study.

The Third Stage: Construction and Promotion

Construction of urban infrastructure is to be done by private contractors under the construction management by the the project management office with assistance of supervising consultants. Construction management includes land acquisition not only for infrastructure but also for new business and commercial districts, of which projects are to be implemented by the private sector. Promotion of private investments in high-ordered urban functions on prepared land plots within urban centers is also to be conducted by the management office with assistance of business consultants.

1.	Project Title	Taal Lake Multi-purpose Water Resources Development Study
2.	Location	Batangas province
3.	Implementation Agencies	DPWH in cooperation with provincial government of Batangas
4.	Objectives	(1) To study alternative water supply sources (2) To formulate a master plan for multi-purpose water resource development
5.	Estimated Project Costs	2.5 million US dollars
6.	Implementation Schedule	1.5 years (1992 - 1993)
7.	Expected Effects	Provision of a basic guideline for effective and well balanced water resource development
8.	Project Description	As per attached

Taal Lake Multi-purpose Water Resources Development Study

1. Background

Necessity of surface water development

The eastern area from Taal lake to the provincial boundary area in Batangas Province is identified as a hopeful potential area of development including industry, urban and agriculture. In the Master Plan Study for the Project CALABARZON, some development projects with respect to the above sectors are proposed and at the same time, infrastructure projects such as Batangas Port Development and Expressway Extension to Batangas City are also proposed. Urbanization, industrialization and further socio-economic activities of this area would be promoted through these projects and in response to that, increase of population and household, and further improvement of the living standard would be expected.

From the aspect of water resources and supply, a remarkable increase of water requirement would be predicted according to the growth mentioned above. On the other hand, the most of the present supply sources in the province for potable, agricultural and industrial water demand depend on the groundwater and future ground water development would be further required in order to tap good quality and cheap water.

However, continuous groundwater development for the increasing water demand would cause the drawdown of water table and make it harder and more costly to develop the water. Furthermore, over-yielding of groundwater may cause some serious problems such as exhaustion of source, deterioration of water quality and land subsidence.

Therefore, for the purpose of stable water supply from the aspect of long term water utilization, surface water development should be considered. In this area the Taal lake and the adjacent river basin, the Kalumpong river basin, are promising potential areas for surface water development.

Taal Lake

Taal lake covering an area of about 240 km^2 and with an average depth of 40 m holds 8 billion m^3 of water. The lake's outflow through the Pansipit river at an average of 13.9 m^3/sec. could be expected for water supply. There are no serious problems in the water quality, but from the view point of the long term water use, the volcanic activity may become a constraint of the development.

Kalumpong river basin

This river basin has a relatively large catchment area among sub-basins in the CALABARZON region ,that is, about 400 km^2 at the river mouth in Batangas City and about 230 km^2 at the potential dam site. Total annual runoff volume at the potential site is estimated at about 300 million m^3 and the water resource potential is large compared with the other sub-basins.

At present, one potential dam site (the Rosario dam with a height of 40 m) is identified in the middle reach of Kalumpong river in the province of Batangas and the functions of hydro-power generation and flood control are expected. In addition, the functions as an alternative water supply source for Taal lake water may be expected with the dam construction.

Necessity of overall study

As mentioned above, to develop surface water source substituting the ground water is a major objective of this project. However, a large amount of capital cost would be required for the development. In addition, it should be noted that the natural and social environment in and around the river and the lake area would be changed together with the construction of river structures and other facilities. In planning a project, much consideration to natural and social environment and the necessary study should be made.

For the purpose of the effective and economical water use and the conservation of water source and the environment, it would be necessary to carry out an overall study and to formulate a master plan integrating some sectors such as water supply, power supply, flood control and watershed conservation.

2. Study Area

At present, a plan on Taal Lake Waterworks Development is prepared by the Provincial Government of Batangas and the water supply utilizing Taal lake water is intended for the following 15 municipalities and 2 cities in the eastern part of Batangas Province:

Alitagtag, Bauan, Batangas city, Cuenca, Ibaan, Lipa city,
Mabini, Mataas na Kahoy, Malvar, Rosario, San Jose, San Luis,
San Pascual, Sta.Teresita, Taal, Taysan, Tanauan

According to the estimation as of 1990, these municipalities have 148,930 households with a total population of 832,716. The total land area is 139,504 ha. of which

105,330 ha. are crop lands. Irrigation water supply to 30% of the total crop lands is required in order to maximize the production.

The study area in this study might cover the entire eastern part of Batangas Province involving the above municipalities and cities for the purpose of alternative study for water source.

3. Objectives

This project is conceived for the purpose of dealing with the future water requirement. The objectives of this project are (1) to develop the alternative water supply source for groundwater, and (2) to construct water supply system for the project area.

4. Scope of Study

Prior to the implementation of the project, several steps of the study would be carried out. In this study, water resource development master plan will be fomulated through the following works:

(1) Review of previous studies and field reconnaissance

This task includes a review of reports of the previous studies related to water supply, electric power supply, flood control and irrigation and drainage plans. And further, field reconnaissance is carried out to identify the major areas to require further investigation.

(2) Collection of Relevant Data/Information

At the beginning of study, the following data/information will be collected:

Lake and River Basin
aerophotos and topographic maps
river longitudinal profiles and cross sections
additional survey and mapping, if necessary

Meteorology and Hydrology
Rainfall - its seasonal and locational variations and the influence due to monsoon and typhoon
Flood runoff; flood discharge and hydrograph

Flood and Damage

record of the past floods, flood areas and the damages
flood characteristics in the project area
existing flood control projects

Water Supply

present data of river and lake water utilization by the purpose
capacity of the intake structure for municipal and irrigation water supply
water supply record
existing water supply projects

Electric Power Supply

present power supply data
supply capacity of existing power plants
existing power supply projects

Facilities and Management

river and reparian structures
irrigation and drainage facilities
dams and reservoirs
operation records of the above structures/facilities
hydrological observation facilities and the operation/maintenance

Environment/Land use

data of ecological condition data of existing water quality test
land use map
existing land use plan

Socio-Economic Condition

population and land use; population distribution and growth, and urban and agricultural development
large scale development plan

(3) Study and Analysis

To formulate the master plan, the following studies and analyses will be carried out.

Hydrology and Flood Simulation

runoff modeling and flood discharge calculation

Municipal Water Supply

analysis for water resource potential
preparation of inventory for the existing project
demand forecast
water balance study

Flood Damage Analysis

classification of assets and economic activities to be damaged by flood in the basin
flood damage estimation
evaluation on economic and social impacts from flood damage

Electric Power Supply

study for the operation condition of existing power plant
preparation of inventory for the existing projects
demand forecast
power balance study

Environment/Land Use

ecology survey during dry and wet season
water sampling and quality test during dry and wet season
impact survey of project for natural environment
review of land use plan
estimation of land value
social impact survey
preparation of resettlement plan

(4) Plan Formulation

Formulation of Master Plan

preparation of alternative master plan including water source and supply
evaluation and selection of the proposed plan
list up of projects

(5) Selection of Priority Project

Preliminary evaluation of project
Selection of priority project

5. Reporting

The output from the study will consist of the following reports:

(1) An "Inception Report" within 2 months after commencement of the study, describing the summary of the objectives of the study, initial findings and a detail plan of operation and methodology of the study

(2) A "Progress Report" within 6 months after commencement of the study, giving a summary of the study team's activities, technical problems encountered, deviation from the original work schedule and the program of the works in the next study period

(3) An "Interim Report" within 12 months after commencement of the study, giving all possible alternatives to the Master Plan and their socio-economic evaluations, listing up of each projects

(4) A "Draft Final Report" within 16 months after commencement of the study, describing the results of the Master Plan Study and the profile of selected priority project for discussion and comment by concerned agencies

(5) A "Final Report" within 18 months after commencement of the study, reflecting the comments provided by concerned agencies on the Draft Final Report

6. Experts

The study will be completed with about 18 months and the total of 80 man-months will be required for the study. Experts required for this study are listed below.

No.	Designation
1.	Team Leader
2.	Hydrologist
3.	Hydraulic Structure Engineer
4.	Water Resource Specialist
5.	Water Supply Engineer
6.	Engineering geologist
7.	Energy Specialist
8.	Environment/Land Specialist
9.	Ecologist
10.	Sociologist
11.	Socio-economist

7. Costs

The 80 man-months of foreign experts will cost about US$ 2.2 million, including remuneration, overhead costs, mobilization costs, out-of pocket expenses and other direct cost.

Additional costs will be incurred for the procurement necessary for data compilation, measurement and analyses such as the followings :

Topographic survey
Meteoro-hydrologic measurement and analysis
Water quality test and analysis
Soil test and analysis

8. Government Input

The execution agency for the study is organized by Philippine Government. Technical assistance is expected to be provided by overseas aid. Counterpart personnel and logistic support to the extent necessary shall be provided by the execution agency, and coordination and cooperation with the agencies related to the study shall be arranged through the counterpart staff.

1.	Project Title	Integrated Industrial/Urban Development Program
2.	Location	Batangas City, Bauan, Lipa City, Tanauan, Nasugbu, Lemery, Taal, Calamba, San Pablo, Tanay, Trece Martirez and Silang (candidates)
3.	Implementing Agencies	Provincial Governments of Cavite, Laguna and Batangas, DPWH
4.	Objectives	(1) To provide concessional loans and technical assistance in the selected industrial growth areas for the implementation and management of infrastructure, utilities, housing and social service projects, and (2) To develop these selected centers into communities having the full range of urban services and amenities.
5.	Project Costs	U.S. $20 million/annum
6.	Implementation Schedule	1992 - 1996
7.	Expected Effects	Promotion of a more decentralized pattern of development in CALABARZON. Integration of local economies into the industrialization.
8.	Project Description	As per attached

Integrated Industrial/Urban Development Program

1. Background

CALABARZON spatial development strategy

The Project CALABARZON Master Plan has adopted a more decentralized development pattern as its spatial development strategy, represented by the term "leap-frog development". Under this strategy, the growth momentum centering on Metro Manila will be effectively utilized, but the development will be directed also to selected urban centers not in the immediate vicinity of Metro Manila. This strategy will minimize social and environmental problems which may result from excessive suburbanization around Metro Manila. These possible problems include generation of the urban poor, insufficient social services, imbalance between the suburbanized area and the rest of CALABARZON, and stress on the Laguna Lake environment. To implement this strategy, several urban centers have been identified as alternative locations for the spillover from Metro Manila, based on the analysis of urban hierarchy and growth potentials.

On-going programs

Two on-going urban development programs have particular relevance to the program presently proposed. The Second Metro Manila - Fringe Infrastructure, Utilities and Engineering Program (MMINUTE II-Fringe Program) is a World Bank assisted program administered by DPWH under the Second Municipal Development Project (MDP II). It aims at alleviating urban poverty and improving quality of life through the provision of infrastructure and utilities with associated technical assistance to more depressed communities in Metro Manila and its fringe areas in Bulacan, Rizal, Laguna and Cavite.

The Program for Essential Municipal Infrastructure, Utilities, Maintenance and Engineering Development (PREMIUMED) is another program supported by the World Bank and administered by DPWH. It is to assist local governments to provide infrastructure and municipal services to a growing urban population. In its initial implementation, 16 cities/municipalities were covered and additional 29 cities/municipalities will be dealt with by mid-1991. Its continuation (PREMIUMED II) has been progressing.

2. Project Rationale

The leap-frog development, envisioned by the Project CALABARZON Master Plan, calls for more deliberate efforts in the public sector to lead the development in more

desirable locations. They include selective and strategic improvement in the provision of infrastructure and utilities according to careful development planning and locational policies. Also, strengthening of project planning and implementing capabilities at local level is a prerequisite.

Integrated development of the industrial growth centers identified in the Master Plan depends on the ability of local governments to lead the location of new enterprises. Long term development plans will guide the location of new enterprises in relation to housing areas and infrastructure networks, and specify the urban structures to be created in the long run. The local governments need to be supported to increase their technical and financial capability so that they can lead the development by providing basic urban services to support the long-term development pattern envisioned.

3. Objectives

The objectives of the proposed program are the following:

(1) to provide concessional loans and technical assistance in the selected industrial growth centers for the implementation and management of infrastructure, utilities, housing and social service projects, and

(2) to develop these selected centers into communities having the full range of urban services and amenities.

4. Scope of Work

The primary function of the industrial growth centers identified for this program is to provide alternative locations for the spillover from Metro Manila. Program components, therefore, will be slightly different from those of the existing programs, although the basic idea and implementing mechanism will be common.

First, long-term development plans with land use designation will be reviewed. Necessary modifications will be made with the technical assistance, which will be provided as part of the program.

Second, specific projects to be supported would be those which will have a direct influence on locational decisions by industry. Projects supporting SME's will be given priority. Another major component will be low cost housing in areas easily accessible to the planned work places. Project components of the program will consist of the following:

(1) Industrial estate for SME's,
(2) Low cost housing,
(3) Infrastructure and utilities serving primarily (1) and (2) above, and other support facilities such as testing, R & D and training centers,
(4) Other facilities to support the planned urban structures and services such as roads, water supply and sewerage, solid waste management, public markets and city/municipal slaughterhouses.

Another important component is training for local government officials/personnel in the following fields:

(a) Project planning and development,
(b) Engineering and contract management,
(c) Infrastructure maintenance and equipment control,
(d) Municipal finance and administration, and
(e) Municipal enterprise management.

5. Implementing Arrangements

The program will provide additional resources through existing channels, but exclusively for selected CALABARZON cities/municipalities. The loan proceeds made available through this program would be relent by the Government through the Municipal Development Fund (MDF) to the project cities/municipalities. The program portion of the MDF would be administered by the five agencies, vis. NEDA, DPWH, DOF, DBM and DLG, just as under the MMINUTES and the PREMIUMED programs.

Alternatively, a separate fund may be created and administered by the proposed CALABARZON Regional Development Agency (RDA). The CALABARZON Committee (CALACOM), to be newly established within RDC-Region IV as a decision making organ of RDA, would approve the sub-loan applications by cities/municipalities.

Cities/municipalities applying to the fund will be required to prepare comprehensive long term development plans in line with the functional roles assigned respectively to them by the CALABARZON Master Plan. The preparation could be aided by the consultant of the program and/or the CALABARZON RDA as the case may be.

Those cities/municipalities identified by the Master Plan as alternative locations of spillover population and industries from Metro Manila will be given priority, although other cities/municipalities will not be precluded from consideration. The basic criterion

will be the preparation of the long-term development plans in line with the Master Plan.

Priority cities/municipalities include Trece Martirez and Silang in Cavite, Calamba and San Pablo in Laguna, and Batangas City, Lipa City, Bauan, Tanauan, Nasugbu, Taal and Lemery in Batangas. An initial estimate of the total program costs for these cities/municipalities is at US $100 million. This amount may be allocated over the five year implementation period, making the annual allocation US$ 20 million on an average. The precise costs depend on particular project needs of cities/municipalities to be selected based on their applications.

1.	Project Title	Rizal West Urban Region Development
2.	Location	Municipalities of Cainta, Taytay, Antipolo and Angono, Rizal province
3.	Implementing Agencies	NEDA, DPWH, Provincial Government of Rizal
4.	Objectives	(1) To create a trading center within the province to include shopping, commercial and service centers, to provide for the needs of a rapidly growing populace, not only for the four municipalities but also for the towns on the southeastern part of Rizal. This will provide an identified provincial market (outlet), where all the products of Rizal can be displayed and sold and where Rizaleneous can buy their needs, instead of going to Metro Manila. (2) To provide job opportunities, (3) To encourage housing or settlements, and (4) To help in the decongestion of Metro Manila.
5.	Expected Effects	(1) Upgraded urban trading centers, (2) Increased economic activities, (3) More job opportunities, and (4) Decongestion of Metro Manila and to relieve traffic along Ortigas Road.
6.	Project Components	(1) Preparation of an urban structure plan (2) Improvement, construction of primary road Bangiad, to Manggahan Floodway Bridge This road is parallel to Manila East Road. This will help relieve traffic along Kay Tikling to Cainta corner Imelda Avenue. (3) Postal Office Building-tertiary, schools, hospitals, and other urban infrastructure

1.	Project Title	Batangas East Agricultural Development Project (Study)
2.	Location	Batangas province (municipalities of Taysan, Ibaan, Rosario, Padre Garcia and San Juan) and a part of Quezon Province
3.	Implementing Agency	DA, provincial government of Batangas
4.	Objectives	To prepare an integrated master plan for rural development to increase the rural income in the eastern municipalities of Batangas by enhancing production activity. The study covers the following fields: (1) regional economy (2) socio-economy (3) soil and land use (4) hydrology (5) agriculture and livestock (6) rural industry (7) irrigation and drainage (8) rural roads (9) energy (10) water supply (11) environment
5.	Estimated Costs	US$1.5 million
6.	Implementation Schedule	14 months
7.	Expected Effects	(1) Provision of orderly rural development ideas (2) Provision of implementation schedule of specific projects with required costs to be implemented subsequently
8.	Project Description	As per attached

Batangas East Agricultural Development Project

1. Background

Batangas province and its east lowland

The province of Batangas consists mainly of upland centering on Taal Lake, formed by the eruption of Taal volcano. It has the biggest land area, 316,000 ha,among CALABARZON consisting of five provinces.

Urbanization or industrialization has been limited to the cities along the national road between Sto.Tomas and Batangas city and along the Batangas Bay. Other areas are largely devoted to agricultural production.

The agricultural sector is still a mainstay in the province economy. It absorbs 32 % of the total labor force as of 1988. However, rural poverty is still widespread over the province.

Main products have been coconut and sugarcane. These crops have been recently discouraged because of the decline in international market prices in these ten years. Corn production has increased recently by replacing sugarcane, to support the increasing livestock sector. Coffee, blackpepper and other fruit trees are planted under the coconut trees. Vegetables are planted in the upland area centering around Lipa city. Paddy, the staple food in the country, is planted under irrigation in the limited lowland of Nasugbu.

Eastern lowland, having big potential of water resources including groundwater, however, has not been developed its potential. In this area, Rosario is a cattle production center of the province.

Existing plans

There are various projects proposed by several implementing agencies, including irrigation, roads and potable water. Most projects are expected to contribute to the enhancement of livelihood of local people. However, those projects have not always been planned in an integrated form. Other projects will be identified to complement the existing one. The implementation of those projects should be well coordinated so that the maximum effects can be realized sooner.

2. Project Rationale

Rural economy

Enhancement of rural economy is one of the four objectives for CALABARZON regional development. Attainment of this objective will contribute not only to the livelihood of rural people but also to reducing rural-origin in-migration pressure on Metro Manila. Increased income of rural people will contribute in turn to further industrialization by expanding markets for consumer goods and other manufacture commodities.

Project area

The project area is defined as the jurisdiction of five municipalities in the eastern part of the Batangas province: vis. San Juan, Rosario, Padre Garcia, Taysan and Ibaan. The area belongs to two river basins; Malaguing and Kumpong river basins.

The topography of the area is generally flat, ranging from 50 m to 200 m in altitudes with dissected river valleys. Soil conditions are generally good with second and third classes in soil suitability. High water availability especially of groundwater resource is expected in Ibaan, eastern Rosario and San Juan.

Urbanization has not been advanced in any of the municipalities. Urban population is only 8% of the total population in the area of 178,433 as of 1980.

Major economic activity is agriculture. Main cultivated crops are sugarcane, corn, paddy and coconut. However, the yields of those crops in the area are low. Insufficient supply of input including certified seeds and fertilizer is a major constraint.

Irrigation facilities have been provided for only 756 hectares. Another 3,600 hectares of land are planned to be irrigated; 2,000 hectares for national irrigation and another 1,600 hectares for communal irrigation, of which 1,200 hectares are under CARP support services.

Access roads are not developed well although San Juan - Rosario road is being cemented under the Japanese financial assistance. Farm to market roads constitute a major constraint not only to increasing the crop production, but also to enhancing other economic activity in the area.

Potable water supply systems have not been established well yet. Most people dug shallow well individually for their domestic uses. Water shortage often occurs in dry season especially in Rosario. Energy sources in the area are electricity and firewood.

In spite of being a livestock center of the province, the number of livestock has been decreasing recently. Lack of feeder cattle is the most serious issue.

Integrated approach

All of the projects planned by each implementing agency should be combined to enhance the overall effects and the implementability. Those projects, in fact, are complementary with one another. An example is irrigation development combined with rural access road to improve delivery of inputs and extension services and marketing of outputs.

3. Objectives

The prime objective of the study is to formulate a master plan on rural development of the eastern municipalities of the Batangas province so that various projects can be implemented in an orderly manner and that the effects of the project can be realized earlier. The target year of the study will be the year 2010. The fields to be covered by the study are:

(1) regional development plan
(2) socio-economy
(3) soil and land use
(4) hydrology
(5) agriculture and livestock
(6) irrigation and drainage
(7) rural road
(8) energy
(9) water supply
(10) environment

4. Scope of Work

The study will be conducted in two stages; Phase I and Phase II. The scope of work of each stage is :

Phase I: To grasp the present conditions of the area

Data collection and field surveys will be made to find out the present situation of the area and identify constraints to future development. Data and information will be collected in the following fields:

- Regional economy
- Socio-economy
- Meteorology
- Hydrology
- Geology
- Soil
- Land use
- Agriculture
- Irrigation and drainage
- Livestock
- Agro-Industry
- Industry
- Road
- Energy
- Water supply
- Environment

Field surveys will be conducted to supplement the collected data and information.

Through the analysis of the collected data and information, constraints to future development of the area will be identified.

Phase II: To formulate a master plan to the target year 2010

Based on the results of the Phase I study, a master plan will be formulated for the target year of 2010. The Phase II study will include the following:

- Objectives and strategy for the development
- Development alternatives
- Socio-economic framework of the area for the year of 2010
- Development phasing
- Development projects
- Institutional measures by sector
- Institution for project planning and implementation

5. Work Schedule

The study will be undertaken over fourteen months period in net. Phase I study will need six months and another eight months will be for Phase II study.

6. Input Requirements

Experts

The study will be conducted with the participation of foreign experts to work in close collaboration with the provincial government of Batangas, Department of Agriculture, Department of Public Works and Highways, National Irrigation Administration, Department of Agrarian Reform, Local Waterworks and Utilities Administration, and other related agencies. Foreign experts to be required during the study period are the following:

(1) Team leader
(2) Deputy team leader/regional development planner
(3) Regional economist
(4) Land use planner
(5) Soil expert
(6) Agronomist
(7) Livestock expert
(8) Hydrologist/geologist
(9) Irrigation and drainage engineer
(10) Sociologist
(11) Transportation planner
(12) Energy expert
(13) Water supply engineer
(14) Environmentalist
(15) Cost estimator
(16) Financial expert/project evaluator

The total of approximately 80 man-months will be required.

Study costs

Study costs will involve in total about US$ 1.5 million.

Government inputs

The Philippine government will provide all the available data and information related to the project, a counterpart team to the foreign team of experts, logistic support, clearance

for administrative or legal matters and other support necessary for the execution of the study.

7. Reports

In the course of the study, following reports will be prepared.

(1)	Inception Report	No later than 1 months after the commencement of the study.
(2)	Progress Report	No later than 4 months after the commencement of the study.
(3)	Interim Report	No later than 8 months after the commencement of the study
(4)	Draft Final Report	No later than 12 months after the commencement of the study
(5)	Final Report	No later than 2 months after receiving the comment on the draft final report

1.	Project Title	Research and Extension Program on Inter-Cropping and Mixed Farming for Small Coconut Farmers
2.	Location	Coconut planted area in the CALABAR region
3.	Implementing Agency	Department of Agriculture (DA), Region IV office
4.	Objectives	To increase farm income of small coconut farmers by intensifying extension services through upgrading research works and training of extension workers. More specifically, (1) to establish and start research program on inter-cropping and integrated farming, (2) to establish and execute training program to extension workers, (3) to establish extension program to the small coconut farmers, and (4) to provide credit.
5.	Estimated Project Costs	
6.	Implementation Schedule	Five years (1991 - 1995)
7.	Expected Effects	(1) Contribution to increase in income levels and enhancement of rural economy (2) Demonstration of effective research and extension models
8.	Project Description	As per attached

Research and Extension Program on Inter-Cropping and Mixed Farming for Small Coconut Farmers

1. Background

Coconut planted area in the CALABARZON region

Coconut is one of the most important industrial crops in the Philippines. The coconut oil, the products of coconut, is one of the first export commodities in terms of foreign exchange earnings.

Coconut has the largest share of agricultural land in CALABARZON and four of the five provinces except Rizal. Especially, Quezon has the second largest coconut area of all the provinces in the Philippines.

Coconut is planted usually on upland and hilly areas and sometimes on mountainous areas, that is, upstream areas of river basins. They contribute to preventing soils from strong rain which causes erosion hazard. Those trees in CALABARZON, however, are generally old and their productivity is low. The rural poor are normally seen in these areas.

Inter-cropping is becoming a common practice to supplement farmers' income. Crops under the coconut trees are; coffee, blackpepper, cacao, banana, pineapple, lanzones, citrus, etc.

Existing plan

The World Bank assisted small coconut farms development project has just started to reactivate coconut industry. Establishment of seedgardens, replant coconut trees with new varieties, rehabilitation of the planted trees, support of copra quality improvement program and institutional strengthening of the organization are the project components. Although the project has a program to support intercropping during replanting stage, this activity must be continued to help small coconut farmers since the expected income will not be sufficient for the two hectare-scale farmers to go over the poverty level which has been set by NEDA.

2. Project Rationale

Rural economy

Enhancement of rural economy is one of four objectives for CALABARZON regional development. Attainment of this objective will contribute not only to the livelihood of rural people but also to reducing rural-origin in-migration pressure on Metro Manila. Increased income of rural people will contribute in turn to further industrialization by expanding markets for consumer goods and other manufacture commodities.

Sustainable development

Conservation of coconut trees will help to make lands safe from erosion hazard caused by strong rainfall during rainy season. This, then will assure sustainable agriculture. Inter-cropping or multi-story cropping will be to diversify crops which will result in stabilizing income. The concept of integrated farming originates from sustainable and environmentally sound development. It will use locally available materials, recycle the resources as much as possible in their ordinary life. For example, livestock will be raised by use of the leavings of human meals and plant residues; the excretion of livestock will be used as an energy source by generating methane gas and at the same time be used as organic fertilizer to the crops. The expense of livelihood can be saved, and wastes and pollutants will be minimal.

Project area

The project area is defined as the coconut planting area that extends over the higher upland area of Cavite province, both upland and lowland of Laguna and Batangas provinces. The area covers about 100,000 ha. Altitude of the coconut planted area varies from almost 0 m up to more than 500 m. Annual rainfall in the area varies from 1,500mm in the higher upland of Cavite to over 3,000mm in the southern part of Laguna. Soil conditions are generally suitable for coconut growth since most soils are of well drained.

Inter-cropping species are coffee, blackpepper, cocoa, lanzones, banana, papaya, pineapple, other citrus, etc. While higher upland of Cavite has successfully practiced coconut based inter-cropping with banana, coffee, papaya, pineapple and blackpepper, other areas, especially in Laguna, have not yet been developed well for inter-cropping or multi-story cropping. Only lanzones and citrus trees are planted in a limited area. Coffee and blackpepper has been started in Batangas.

The World Bank has initiated small coconut farms development projects to reactivate overall coconut sector by replanting, rehabilitation, quality improvement and institutional enforcement. Although the project is expected to contribute much to the enhancement of rural economy, supplemental income will still be necessary to go over the poverty line.

3. Objectives

The prime objective of the project is to increase the rural income, especially small coconut farmers in the CALABARZON region by promoting inter-cropping or multi-story cropping and integrated farming. More specific objectives are:

(1) to establish and conduct research program on inter-cropping and integrated farming,
(2) to prepare and carry out training programs to extension workers,
(3) to prepare and effect extension program to the farmers,
(4) to extend credit, and
(5) to establish market outlet.

4. Scope of Work

The objectives of the project will be achieved through the following works.

(1) Research

Research works will be conducted on inter-cropping and integrated farming. The research works will be made as a part of extension training. Objective crops will be selected and planted. Livestock, maybe cattle, will also be raised to experiment integrated farming.

(2) Training

Extension workers will receive training periodically on inter-cropping farming practice and integrated farming.

(3) Extension services

Research results will be transmitted to farmers by extension workers who received training.

(4) Agricultural credit

The project will provide credit to the Land Bank of the Philippines (LBP), which will become the on-lending agencies to farmers through rural banks and cooperatives. Credit will be used for the procurement of inputs such as improved seed, fertilizer, and also for investment in livestock, and farm building and structures.

(5) Infrastructure

Two research stations will be established in existing coconut planting area where climatic conditions are different. The stations will have an experimental area of 10 ha each. The research station will also function as a training center of extension workers.

Training facilities will be established at the same sites of research stations so that extension workers can also experience research work.

(6) Consulting services

For all the works described above, the following consultancy services will be required.

Overall

- Coordination between the Government and aid organization
- Coordination among the executing agencies and other related agencies
- Preparation of progress report to the aid organization
- Assistance in overall management of the project, including financial management

Research

- Preparation of research program
- Supervision and advice on research works
- Technical assistance related to research coordination and management such as review of research programs

Training

- Preparation of training program to extension officers
- Provision of training to extension officers

Extension services

- Preparation of extension manual

- Supervision and advice on field extension services

Agricultural credit

- Advice on on-lending terms and eligibility conditions
- Assistance in the management of the designated LBP account and rural banks and/or cooperatives

Infrastructure

- Assistance in selection of sites for research stations
- Assistance in designing of the research stations and training center
- Assistance in the construction supervision for the facilities

5. Work Schedule

The project will be implemented over a five-year period. The project office will be established at the beginning of the project implementation, and subsequent works will be undertaken by the initiative of this office supported by the consultant. Detailed design and construction of research stations and a training center will be sub-contracted by DA through the project office. Research works and training to extension workers will start in the first year of the implementation. Agricultural services and credit will be extended to beneficiary farmers in the second half of the implementation period.

6. Input Requirement

Experts

The project is expected to be implemented with the participation of foreign experts to work in close collaboration with staff of the DA project office and related Philippine agencies. Foreign experts to be required during the project execution are the following:

(1) Project manager
(2) Resident engineer
(3) Agricultural extension expert I
(4) Agricultural extension expert II
(5) Agricultural research expert
(6) Agronomist/Pedologist
(7) Plant physiologist
(8) Financial analyst
(9) Unidentified experts

The total of approximately 120 man-months will be required.

Project costs

Implementation of the project will involve in total about US$_____million over the five-year period. The total cost are broken down as follows.

Cost Item	Costs (US$ million)	Notes
Research stations		
Training facilities		
Agricultural services		
Agricultural credit		
Consulting services		
Total basic costs		
Contingencies		
Total project costs		

Government inputs

1.	Project Title	Small Water Impoundment Project
2.	Location	Rizal upland and the Bandoc penninsula, Quezon
3.	Implementing Agencies	DA, provincial governments of Rizal and Quezon
4.	Objectives	The general objective is to develop awareness among farmers, technicians, forest commissionaries, ranchers and land owners of the importance of soil and water conservation. Specific objectives are: 1) to demonstrate effective utilization of excess runoffs for irrigation, 2) to prevent flush flood during heavy rains by impounding runoffs in the upper catchment are, 3) to increase efficiency of land utilization with the introduction of multiple cropping, and 4) to collect data for evaluating effects of measures for flood prevention and soil conservation.
5.	Estimated Project Costs	₱ 70 million
6.	Implementation Schedule	1992 - 1996
7.	Expected Effects	1) Enhancement of standard of living of farmers etc. 2) Protection/improvement of water and land environment

1.	Project Title	Cooperative-Based Post-Harvest Development Project
2.	Location	CALABARZON provinces
3.	Implementing Agency	Department of Agriculture and Cooperative Development Authority
4.	Objectives	The project primarily aims to improve the rural economic condition of the CALABARZON provinces and the rice-farmers in particular, with the following specific objectives: 1) to minimize agricultural crop production losses 2) to establish model cooperative-based post-harvest facilities system
5.	Estimated Project Cost	
6.	Implementation Schedule	
7.	Expected Effects	1) contribution to increase in farmers' income and enhancement of rural economy 2) demonstration of effective cooperative-based post-harvest facilities sytem
8.	Project Description	Attached in a separate sheet

Cooperative-Based Post-Harvest Development Project

1. Background

Research and development programs on maximizing farm productivity brought about an increase in farm yield. However, the increase in production and cropping intensity highlighted the lack of post harvest processing and trading systems at the village level which prevented the development of an effective farmer-directed trading.

Inspite of the increased yields, farmers are still poor, the great majority living below the poverty line. The limited scope of their job, traditionally confined to production activities, has not yet helped this situation. Farmers have to sell the paddy wet or dry, right after harvest in order to settle cash costs and pay-off debts collectible at harvest time. In so doing, they miss the potential profit from paddy processing (drying-threshing-storage-milling) and milled rice trading, a lucrative business as evidenced by the relatively well-off miller-traders. The value-added role of post harvest processing and trading holds the key to improving farmers' income. As individuals, farmers do not stand a chance to compete with traders. But as organized groups, the post harvest system approach would be feasible.

Existing Plan

At present, post harvest facilities are privately owned. A ___capacity threshers are common. These are privately owned by farmers and are actually another source of income by renting out to other farmers. In some cases, the farmers pay for the use of solar dryers of private individuals or use cemented pavements and plazas. The CARP includes provision of post harvest facilities as one of the support services under the program in its areas of operation. These post harvest facilities, usually ____ capacity threshers are given to an organization of farmers. Small farmers do not own storehouses. They usually use portion of their houses for storing the harvest. Most commonly, the traders own big storehouses in the locality. The Quedan Guarantee Fund Board has a special scheme of helping small farmers store their produce in the agency's accredited private warehouses and NFA. No integrated post harvest system exists within the area.

2. Project Rationale

Rural Economy

Rural areas which are predominantly rice producing areas can greatly improve rural economy through saving the post-harvest losses which account to almost ___% of the total harvest. Along with the enhancement of the rural economy, the proposed project will elevate the economic status of the farmers-producers since profits that accrue to product processing which originally go to the trader-millers will now go to the farmers.

Project Area

The project shall cover all the rice producing areas of the CALABARZON. Each module that will be created shall cover about 500 hectares of rice land. Roughly, there will be about 113 modules considering irrigated paddy areas of CALABARZON.

3. Objectives

The prime objective of the project is to increase farmers' income through illimination of intermediaries between them, the producers and the consumers. More specifically, this project expects:

(1) to establish a system of operating modules on rice post harvest processing and trading which are viable for farmers' cooperatives

(2) to provide marketing assistance which links farmers directly with retailers or end-users so that profits that previously go to the middlemen

4. Scope of Work

(1) Research

Research works shall be conducted on the following aspects:

- preliminary assessment of the present existing post-harvest system in the area. A proposed integrated system shall be formulated which shall present a relative advantage.

- characteristics of the Farmers' Associations. Among others, criteria of selection of associations who shall adopt the proposed system shall be established.

- collection and analysis of data. Since the proposed module is not intended for a single specified farmers' association but for the whole CALABARZON situation, the data on agriculture production and farmers' organization profile from the Bureau of Agricultural Statistics and Cooperative Development Authority shall be utilized as inputs for the study. Likewise, data on facility costs, capacities and efficiencies from the private operators shall be equally important inputs.

(2) Training

The proposed integrated system of post-harvest facilities shall also be accompanied by a training program for the extension workers who shall assist the farmers' cooperatives in the operation of the system and for the latter's members to enable them to operate independently and efficiently. Training programs shall also be developed for the members of the farmers' cooperatives.

(3) Extension services

Extension services on farming practices shall be continuously provided for the farmer-members from DA. Operation assistance shall also be provided such as management, technical and financial aspects.

(4) Agricultural Credit

Agricultural credit shall be a very important component of the project since capital investments of the farmers' associations shall be taken from loans. The Land Bank of the Philippines shall be the on-lending agency to the farmers' associations. Credit shall finance for the procurement and establishment of facilities for paddy processing (threshing-drying-storage-milling) and trading.

(5) Consulting Services

For all the works described above, the following consultancy services will be required:

Overall

- Coordination between the Government and the organization from whom aid emanated
- Coordination among the executing agencies and other related agencies
- Preparation of progress report to the aid organization
- Assistance in overall management of the project, including financial management

Research

- Preparation of the research program
- Supervision and advice on research works
- Technical assistance related to research coordination and management such as review of research program

Training

- Preparation of training program to extension officers
- Provision of training to extension officers

Extension Services

- Preparation of Extension Manual
- Supervision and advice on field extension services

Agricultural Credit

- Advice on on-lending terms and eligibility conditions

- Assistance in the management of the designated LBP account and rural banks and/or cooperatives

5. Work Schedule

The project will be implemented for a ___ year period. The project office shall be established at the Department of Agriculture at the beginning of the project implementation. Subsequent works shall be initially undertaken by this office. Consultants' support shall be required only for the first five years. Research works shall be undertaken during the first two years of implementation. Agriculture services and credit shall be extended on the following year. Monitoring and evaluation of the cooperatives that were loan recepients will be undertaken by the project office until the project duration. This will be continued by the CDA after the project.

6. Input Requirement

Experts

The project is expected to be implemented with the participation of foreign experts to work in close collaboration with the staff of DA project office and related agencies of the Philippine government. Foreign experts to be required during the project execution are the following:

(1) Project Manager
(2) Agricultural Engineer
(3) Cooperative Expert
(4) Agricultural Extension Expert
(5) Agronomist/Pedologist
(6) Financial Analyst
(7) Credit Management Specialist

A total of ___ man-months will be required for the study.

Project Cost

The implementation of this project will involve a total amount of US/S____ million over the____year period. The total cost are broken down as follows:

Items	Costs (US/S million)	Notes
Agriculture Credit		
Training facilities		
Research Facilities		
Consulting Services		
Agricultural Services		
Total Basic Cost		
Contingencies		
Total Project Costs		
Government Inputs		

1.	Project Title	Cattle Auction Market Project
2.	Location	CALABARZON Region
3.	Implementing Agency	Department of Agriculture
4.	Objectives	The project aims to improve the income of livestock producers in the CALABARZON provinces with the following specific objectives: 1) establishment of a modern auction market for livestock which would provide the farmers a center for trading (buying and selling), 2) to complement the present program on livestock multi-dispersal program of the Department of Agriculture, and 3) to increase farmers' income from livestock by providing a good price information system and a facile way of trading their cattle.
5.	Estimated Project Cost	
6.	Implementation Schedule	
7.	Expected Effects	1) increase in farmers' income and enhancement of rural economy 2) existence of a modern auction market for each province of CALABARZON
8.	Project Description	Attached in a separate sheet

Livestock Auction Market Development Project

1. Background

The livestock sector of the Philippines is characterized by uneven growth over the past ten (10) years. While commercial swine and poultry sub-sectors have expanded due to growing market demand, backyard swine, poultry, cattle and carabao has stagnated. Moreover, cattle ranching has drastically declined. This national phenomena true to CALABARZON. Overall assessment of the livestock industry in the area revealed that large animals such as cattle and carabao are declining due primarily to the decline of commercial scale raising. On the other hand, poultry and the smaller animals like swine are still increasing in number because backyard scale production is counter acted by increase in commercial scale production.

The relative ranking of nominal meat prices at retail level indicated that beef is consistently the most expensive product and chicken is the least expensive. While both beef and pork have increased at a much faster rate over the past eight (8) years, chicken increased at a slightly lower rate. Measured in terms of real prices, meats at retail level have also moved at varying rates. Real pork prices declined from 1985 through 1988 before turning up sharply in 1989. Real beef prices have risen faster than the general inflation index since 1986, reponding to lower supplies. These price changes indicate continued substitution of pork and chicken for higher priced beef.

Marketing of livestock is almost totally in the hands of the private sector. However, this varies by species and by type of production organization. Some producers of livestocks and poultry (e.g. hogs and chicken) may be found to be under integrated or contract arrangements with the feed mills and meat processors. This tend to be better coordinated with minimum loss. Marketing from farms not linked to marketing firms tends to be of higher cost and guided by weaker price signals. This marketing system is characterized by a large number of intermediaries, an assembly of small farm holders (the backyard raisers) who are often without easy access to markets.

Marketing system has not been established in CALABARZON even with its proximity to Metro Manila. Trading of livestocks has always put the small farmers who are also the backyard cattle raisers in the lossing side. Despite the fact that there is a huge demand for meats in markets, the benefits of the situation (i.e. supply low and demand high) has not been apparent in the countryside. Farmers' raised livestocks are always priced too low

because of the lack of price information system. In most cases, traders go to the farms and buy live cattles direct from the farmers who have no knowledge about prevailing prices.

Existing Plan

Realizing the differences in trends of livestock production, the Philippine government through the Department of Agriculture launched a program called the Livestock Multi-Dispersal Program which is now joined by other agencies. This government program concerning livestock production consists of the regular program of the Department of Agriculture on cattle dispersal. Under this program, the DA purchase livestock breeders from the stockfarms and distributes these breeders to the farmers through the established farmers' cooperatives as loans. The government has also entered into importation of these breeders to get an adequate supply. The farmers who received breeders are paying the government by returning to the government one offspring which are again given to another farmers. The Land Bank of the Philippines has also recently started with its own program of similar scheme. Because of the seeming success of the dispersal program, DA is very hopeful to expand the program through the assistance of the Asian Development Bank. Study report on this subject has already been finalized.

2. Project Rationale

Rural Economy

Enhancement of rural economy is one of the four objectives for the CALABARZON regional development. Atainment of this objective will contribute not only to the livelihood of rural people but also to reducing rural-origin-in-migration pressure on Metro Manila. Increased income of rural people will contribute in turn to further industrialization by expanding markets for consumer goods and other manufacture commodities.

Complementary Approach

The present dispersal programs implemented both by Land Bank of the Philippines and the Department of Agriculture are meant directly to reverse the declining trend of the number of cattle and other diminishing livestock species in CALABARZON. This project shall complement the existing program by providing the trading center for the backyard raisers. Two important activities can take place in the auction market: the farmers can buy and sell their breeder/feeder livestocks. While the dispersal program shall involve directly in production enhancement, the auction market shall efficiently link production to market more in favor of the farmers.

Project Area

The five provinces in the CALABARZON have a considerable production performance that will merit the establishment of an auction market. This auction market project shall be piloted in San Alfonso in Cavite, Padre Garcia in Batangas and Sariaya in Quezon. One auction market shall be established in each province, however, this number can increase depending on necessity. Each auction market compound shall hold an office space for the management and staff and the computerized price information system that will be set-up. It shall also include a shed and pasture for cattle, pasture for carabaos and other facilities for accommodation big and small livestock and poultry for trading.

3. Objectives

The prime objective of the project is to give justice to the backyard raisers of livestock who are usually at the lossing end in trading of live animals. Along this line, the project specifically aims to:

(1) provide a trading place for livestock farmers
(2) provide the livestock farmers with an efficient price information system

4. Scope of Work

(1) Research Work

Research work shall include studies on the appropriate versions of auction market suitable for each locality where the auction market will be established. It shall also include assessment of the local government and the primary cooperatives' capability to undertake the activities of the auction market. A price information system for this type of trading shall also be developed which is anchored on an efficient monitoring of prices as well as volumes of trade. This will be operated at the same time the auction market is operated.

(2) Infrastructure

Infrastructure shall include an office building for the management and staff of the auction market and the price information center. A shed for the animals which may not be sold in a day's auction. The grazing area for each type of animals in the auction market shall be provided with a perimeter fence to keep the livestocks left by farmers safe.

(3) Information Drive

Not many stock raisers go to the auction market to sell their livestocks because of lack of information. Many stockraisers especially the backyard know only trading through middlemen that go to their farms. Hence, it is very important that an information drive be conducted for the establishment the auction markets. Information dessimination should include the benefits that can be offered by trading through the auction market.

(4) Consulting Services

For the works described above, the following consultancy services shall be required.

Overall

- coordination between the government and the aid organization
- preparation of progress reports to the aid organization
- assistance in overall management of the project, including financial management

Research

- assessment of capabilities of the local government, cooperatives and private sector to handle the activities of an auction market
- development of a price information system for livestock and all livestock products
- development of an information campaign and public acceptance strategies

Operation of the auction market

- review of the existing procedure of auction selling
- development of a more efficient and workable systems of procedure in the locality

- assessment of the performance of the auction market upon implementation of developed new procedures.

5. Work Schedule

The project shall be implemented within a five year period. The project office will be established at the beginning of the project implementation, and subsequent works will be undertaken by the initiative of this office supported by the consultant. The infrastructure component shall start at the first year of project implementation which will be pursued by contract through the project office. Information drive shall also start right at the beginning of the project. Operation shall start right after the completion of the infrastructure facilities.

6. Input Requirements

Experts

The project is expected to be implemented with the participation of the local experts especially from the universities and foreign experts to work closely in collaboration with the staff of the DA project office. Foreign experts to be required during the project execution are the following:

(1) Team Leader (resident)
(2) Marketing Specialist II
(3) Marketing Specialist I
(4) Financial Analyst
(5) Veterinarian
(6) Agro-Socio-Economist
(7) Information Systems Specialist
(8) Animal Science Expert
(9) Cooperative Expert
(10) Unidentified experts

A total of approximately __ man-months will be required.

Project Costs

Implementation of the project will involve a total of about US/S_____ million for the five year period. The total costs are broken down as follows.

Cost Item	Costs (US$ million)	Notes
Research Work		
Infrastructure		
Consulting Services		
Total basic costs		
Contingencies		
Total project costs		
Governemnt inputs		

1.	Project Title	Feed Crops Expansion Project
2.	Location	CALABARZON region
3.	Implementing Agencies	Department of Agriculture
4.	Objectives	To reduce production cost of forage in order to maximaze profit of livestock production and to make livestock industry competitive in international market. More specifically, 1) to establish effective links between research and extension, 2) to improve input and output delivery, and 3) to provide credit.
5.	Estimated Project Costs	
6.	Implementation Schedule	5 years (1992 - 96)
7.	Expected Effects	Contribution to increase in income levels and enhancement of rural economy
8.	Project Description	As per attached

Feed Crops Expansion Project

1. Background

Feed crops planted area in the CALABARZON region

The total annual requirement for corn is now estimated at 2 million metric tons. From 1982 - 1985, an average of 300,000 MT of corn was imported. It is projected that a current growth rates of production and use of corn as feed, the corn deficit will continue to about 370,000 MT in 1992. Other sources of energy available in the country are: cassava, sweet potato, sorghum, coconut oil and rough rice. By-products like rice bran and copra meal are readily available and have been used to partly replace corn.

The growth of the livestock and poultry industry in the past has been made possible through the importation of feedstuffs, mostly corn and soybean oil meal. Corn and soybean oil meal comprise the bulk of the imported feed ingredients.

The Philippines has an unusual potential for production of large quantities of high quality forage. Climate, soil and topography combine to provide exceptionally favorable growing conditions for forage grasses and legumes.

Grassland/shrubland shares about 17% of the total area of the Region. Especially Batangas and Quezon have large scale of grassland/shrubland, which are more than 74,000 ha.

Land capability of the grassland is almost assessed as fair to not suitable in the Region except Cavite, where the suitability contains moderate.

Most of the grasslands are the result of clearing of the original forest together with burning and shifting cultivation. The vegetation consists mainly of coarse grasses and brush of limited forage value. However, in most areas, there are some palatable and nutritious grasses and legumes, and even the coarse grasses provide good grazing when young.

2. Project Rationale

Rural economy

Enhancement of rural economy is one of four objectives for CALABARZON regional development. Attainment of this objective will contribute not only to the livelihood of rural people but also to reducing rural-origin in-migration pressure on Metro Manila and its suburbanization areas. Increased income of rural people will contribute in turn to further industrialization by expanding markets for consumer goods and other manufacture commodities.

Project area

The project area will be set in the followings (refer to Figure A.1 in Appendix A); Cavite lower upland agricultural area (Area No. 8) in Cavite; Canlubang upland agricultural area (Area No. 14) in Laguna; Batangas eastern lowland agricultural area (Area No. 5), Lipa-Tanauan upland agricultural area (Area No. 15), Batangas sub-urban agricultural area (Area No. 16), and Tuy-Balayan upland agricultural area (Area No. 17) in Batangas; Marikina watershed agro-forestry area (Area No. 19) in Rizal; upland agricultural area in Bondoc peninsula and around Tagukawayan in Quezon (these are additional).

3. Objectives

The prime objective of the project is to reduce production cost of forage in order to maximize profit of livestock production and to make livestock industry competitive in international market. More specific objectives are:

(1) to establish effective links between research and extension,
(2) to improve input and output delivery, and
(3) to provide credit.

4. Scope of Work

The objectives of the project will be achieved through the implementation of the following works.

(1) Research

Research works will be conducted on farming technology of respective crops and on farm mechanization for large scale development. The research works will be made as a part of extension training. Objective forage crops will be selected and planted.

(2) Demonstration of production

Research works also demonstrate the production of crops to farmers.

(3) Training

Extension workers will receive training periodically on farming technology of respective crops and on farming mechanization.

(4) Extension services

Research results will be transmitted to farmers by extension workers who received training.

(5) Agricultural credit

The project will provide credit to the Land Bank of the Philippines (LBP), which will become the on-lending agencies to farmers through rural banks and cooperatives. Credit will be used for the procurement of inputs such as improved seed, fertilizer and agro-chemicals and also for investment in agricultural machinery and equipment, and farm buildings and structures. On-lending terms and eligibility conditions will be worked out by related agencies.

(6) Infrastructure

One research station will be established in Rosario, Batangas. The research station will also function as a training center of extension workers.

Training facilities will be established at the same site of research station in order facilitate on-the-job training.

(7) Consulting services

For all the works described above, the following consultancy services will be required.

Overall

- Coordination between the Government and aid organization
- Preparation of progress reports to the aid organization
- Assistance in overall management of the project, including financial management

Research

- Preparation of research program
- Supervision and advice on research works
- Technical assistance related to research coordination and management such as review of research programs

Training

- Preparation of training program to extension officers
- Provision of training to extension officers

Extension services

- Preparation of extension manual
- Supervision and advice on field extension services

Agricultural credit

- Advice on on-lending terms and eligibility conditions
- Assistance in the management of the designated LBP account and rural banks and/or cooperatives

Infrastructure

- Assistance in selection of sites for research station
- Assistance in designing of the research station and training center
- Assistance in the construction supervision for the facilities

5. Work Schedule

The project will be implemented over a five year period. The project office will be established at the beginning of the project implementation, and subsequent works will be undertaken by the initiative of this office supported by the consultant. Detailed design and construction of research stations and a training center will be sub-contracted by DA through the project office. Research works and training to extension workers will start in the first year of the implementation. Agricultural services and credit will be extended to beneficiary farmers in the second half of the implementation period.

6. Input Requirements

Experts

The project is expected to be implemented with the participation of foreign experts as well as specialists at local universities and those from the private sector (NGO's) to work in close collaboration with staff of the DA project office and related Philippine agencies. Foreign experts to be required during the project execution are the following.

(1) Project manager
(2) Resident engineer
(3) Agricultural extension expert
(4) Agricultural research expert
(5) Agronomist/pedologist
(6) Plant physiologist
(7) Financial analyst
(8) Unidentified experts

The total of approximately _____ man-months will be required.

Project costs

Implementation of the project will involve in total about US$_____million over the four year period. The total costs are broken down as follows.

Cost item	Costs (US$ million)	Notes
Research station		
Training facilities		
Agricultural services		
Agricultural credit		
Consulting services		
Total basic costs		
Contingencies		
Total project costs		
Government inputs		