

## **PART III**

### **STUDIES OF PLANNING SYSTEMS IMPROVEMENTS**



# 7

SUGGESTIONS  
FOR STRENGTHENING  
DTCP



## 7 SUGGESTIONS FOR STRENGTHENING DTCP

### 7.1 New Directions for City Planning in Thailand

Based on a review of the existing Thai city planning system, we recommend that DTCP direct its efforts toward the improvement of city planning and urban development techniques. In particular, three pivotal elements should be considered:

- advancement of city planning techniques;
- expansion of areas covered by city planning; and
- promotion of implementation-oriented city planning and urban development techniques.

These three elements are shown in Figure 7-1 and described below.

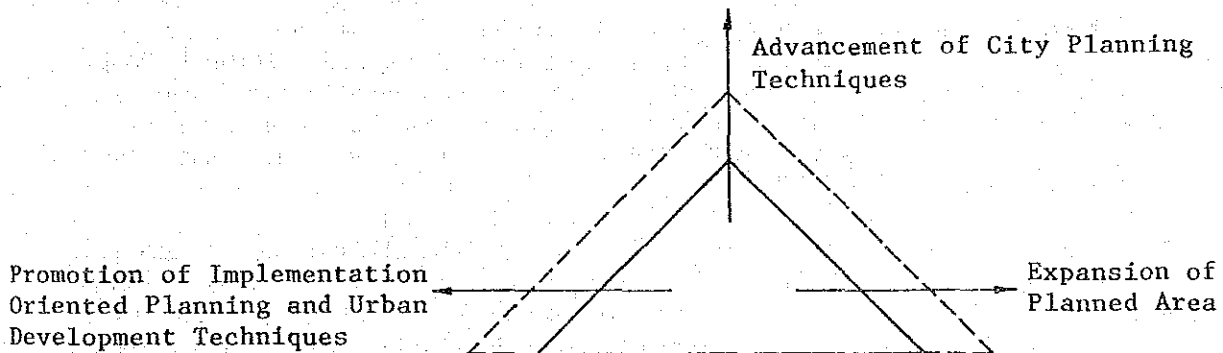


Fig. 7-1 ADVANCEMENT OF CITY PLANNING TECHNIQUES

#### Advancement of City Planning Techniques

The ever-increasing complexity of the urban problems brought about by rapid urbanization in Thailand, coupled with the necessity of more efficient and effective urban services (especially in more urbanized areas such as Bangkok and regional cities), has led to a need for more advanced city planning techniques. For example, traffic simulation methods and other techniques for more efficient traffic management are required. In response to this need, this study considered the possibility of employing certain advanced planning techniques (e.g., potential surface analysis, quantitative traffic forecasting techniques) in the preparation of general plans.

The need to develop more advanced planning techniques has been well recognized by city planning experts, such as Mr. Manop Bongsasadt, who has stated that "Thailand has reached the third stage now. That means

that priorities have to be shifted from production of plans to methodological development, improvement of the planning system to get more quality by using more advanced techniques like potential surface analysis, threshold analysis, etc. Also more attention needs to be given to data collection; more and better data are necessary as a condition for adequate urban and regional planning." [1]

#### Expansion of Areas Covered by City Planning

Although the policy of the Ministry of Interior is to complete general and development plans for municipalities, sanitary districts, and tambons within the Sixth Plan period (1987-1991), DTCP currently has the capacity to reach only 15% of the target. In addition to the general advancement of city planning methodology, it is necessary to expand the coverage of areas by city planning, particularly to small- to medium-sized cities, where advanced analytical techniques are not needed, but an earlier introduction of statutory planning is essential.

#### Implementation-Oriented City Planning and Urban Development Techniques

In order to implement general plans to guide the urbanization process, measures including taxes (e.g., property and capital gains taxes), land management, zoning, building controls, and subdivision controls, should be applied to complement the direct capital investment in infrastructure and site development (e.g., housing, and industrial estate development).

At present, however, such implementation measures have not been well institutionalized or put into practice. Moreover, the limited measures that have been employed have not been effectively utilized to control or manage urban development. Consequently, the general plans that have been formulated have not effectively guided urban development, including infrastructure and urban facilities development projects.

The Thai Town Planning Act (1975) specifies that urban development activities must comply with the general plan. However, compliance checking between the general plan and infrastructure projects, for instance, seems to be arbitrary and unsystematic. To some extent, this problem can be attributed to the elusive nature of a general plan, which only provides general guidelines. In addition, the central city planning agency has no institutional basis to consider the impacts of project implementation plans prior to their execution.

On the other hand, the general plan may hinder the flexibility of implementation, which is particularly important for certain kinds of projects. Consider, for example, the case of a road construction project. A feasibility study must be conducted before the construction of highway sections proposed in the General Plan. The results of the feasibility study may require some changes (e.g., in

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[1] Bagsasadt, M., "Planning System of Thailand," Chulalongkorn University Department of Urban and Regional Planning.

road alignment, in the width of the right-of-way) to the road plan specified in the general plan. This implies that such a road project could not be immediately implemented since road plan changes must be approved in the process of plan revision, which occurs every five years.

As has been stated, general plans are not typically formulated with a view toward to their implementation. For instance, practical measures enforcing the land use plan have not been institutionalized. In addition, the only institutionalized implementation methods for urban development have been outright acquisition and land expropriation, measures that increasingly have become more difficult for financial and social reasons. Indeed, a general plan may not be consistent with the financial constraints facing a municipality.

Consequently, efforts to improve city planning in Thailand must emphasize implementation. The importance of institutionalizing and coordinating measures for urban development must be recognized.

## 7.2 System Improvement and the New Role of DTCP

### Administrative Structure

In order to improve the Thai city planning system in the directions stated above, the administrative structure of DTCP must be strengthened, as shown in Figure 7-2 and described below.

- Local agencies (municipalities) must be held responsible for implementation and enforcement because of the local nature of city planning and development.
- The central office functions of DTCP should concentrate on supervising, guiding, and assisting local agencies involved with city planning and development.
- DTCP should establish local offices to assure close contact with local agencies and to facilitate achievement of its central agency function.

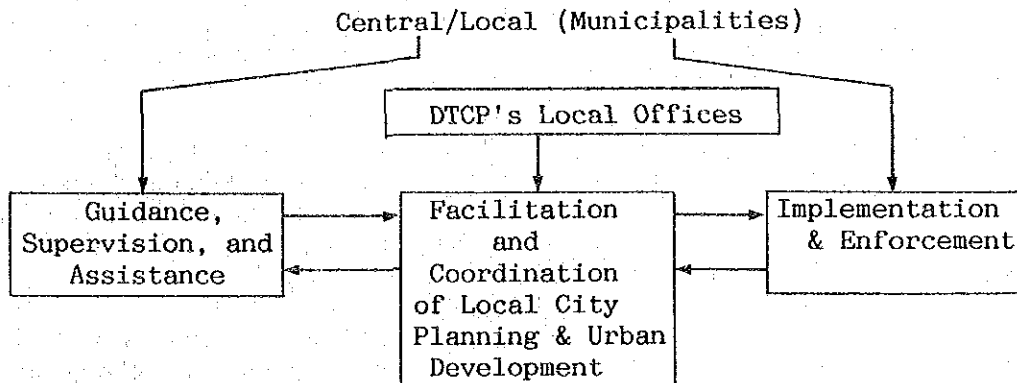


Fig. 7-2 STRENGTHENING OF THE ADMINISTRATIVE STRUCTURE OF DTCP

## DTCP's New Role

DTCP's Central Planning Office should fulfill its functions of guidance, supervision, and assistance with regard to such tasks as the formulation and legalization of plans and the monitoring and control of development.

With its new administrative structure, DTCP, as the sole central agency with technical expertise in city planning and development, should perform the following functions:

- examination and approval of plans formulated by local agencies (based on national standards for urban environmental quality, and on financial and economic viability);
- examination and approval of implementation programs and alterations in plans and programs (based on compliance with the general plan and technical appropriateness);
- examination of and permission for urban development projects;
- guidance for plan formulation and implementation/enforcement;
- assistance for plan formulation and implementation; and
- implementation of projects of national importance and/or projects beyond the capacity of local agencies.

Since DTCP will be moving from the preparation of general plans to a technical assistance function, it is imperative that DTCP develop the expertise required for managing and coordinating city development. Thus, not only must DTCP improve its technical capacity for plan preparation, it must also become a storehouse of the knowledge and information required to effectively formulate the policies necessary to alleviate urban problems. It is essential that these improvements be pursued on a long-term basis.

## 7.3 Suggested Improvement Program (Action Plan)

### 7.3.1 Introduction

In the preceding section, it was stressed that DTCP must strengthen its technical capabilities to perform the new role recommended for it in the proposed administrative structure. The technical improvement goals of this study were to establish a standardized city planning process, to establish a database management system with analytical tools, and to develop and institutionalize implementation techniques.

The studies of technical improvements were conducted in Part II, enabling DTCP to acquire appropriate techniques and knowledge along with the practical experience, all embodied in the standardized planning manuals. An action plan is proposed to further pursue the recommended technical improvements.

In parallel with the proposed organizational structure for the planning system, DTCP should seek to strengthen its organization, upgrade its personnel, and improve its facilities (including both the hardware and software for a new database management system). Elaboration follows in the discussion of an action plan.

## Action Plan

The proposed action plan is composed of the following programs:

### Measures to Strengthen DTCP's Organization

- (1) Organizational reform
- (2) Personnel improvements
- (3) Implementation of a Database Management System

### Functional improvements

- (1) Improvements in the quality of general plans
- (2) Implementation of urban improvement projects
- (3) Research

As indicated, the further development of Thai city planning requires a combination of institutional strengthening measures and functional improvements. Measures to strengthen DTCP's organization include the organizational reform of establishing a national administrative network for city planning and development; personnel improvements implemented by the reformed organization; and the establishment of appropriate information networks, a "database management system." In parallel with these organizational programs, each agency in the reinforced organizational structure must be able to efficiently fulfill its functions. Accordingly, the proposed action plan includes the improvement of the planning activities of the relevant agencies, specifically of DTCP, which must improve the quality of city plans (especially general and specific plans), implement urban improvement projects, and perform research in response to impending urban problems.

### 7.3.2 Strengthening DTCP's Organization

#### **Organizational Reform**

In the proposed national administrative network for city planning and development, local governments must be prepared to take charge of plan formulation, enforcement, and implementation in response to the decentralization of city planning that may be necessary to expand the areas covered by city planning. At the same time, the central agency for city planning (DTCP) must be reshaped in order to guide, supervise, and assist the local governments and also to spearhead the advancement of city planning techniques in response to the increasing complexity and seriousness of urban problems in Thailand.

Ultimately, the DTCP organization may include the following divisions (in addition to the existing ones) with the responsibilities listed below:

#### City Planning Division

- Examination, technical approval, and legalization of general and specific plans.
- Responsibility for all concerns related to the Town Planning Act.
- Issuance of guidelines, standards, legal measures, and other notifications to local governments and other agencies.

#### Urban Policies Division

- Study and formulation of urban improvement policies and measures (e.g., urban land management, taxation measures, housing problems, land specialization problems).

#### Urban Development

- Project identification, project formation (preparation), and project feasibility studies.
- Project programming.
- Study and development of innovative urban development techniques and methods.
- Implementation of pioneer or pilot projects, and projects of national importance.

#### Information Systems Division

- Database management.
- Operation of computer system.
- Production of applications.
- Data processing (including data encoding).
- Scheduling of computer.
- Interface with outside computer systems.
- Training of systems engineers.

#### Personnel Improvements

The success of the effort to establish a national administrative network for city planning and development will depend principally on the technical training given to the staff of both DTCP and local agencies. The technical training of provincial and municipal officials is particularly important, considering that DTCP has been overworked preparing and formulating general plans due to the lack of technical skills at the local government level.

The purpose of personnel training depends on the particular agency and level involved. The purpose of personnel training for staff at DTCP's central offices should be to provide the advanced knowledge and techniques (in specialized areas) necessary to lead national urban planning development activities in Thailand. At the level of DTCP's local planning offices, the purpose should be to provide the standardized (base-line) knowledge and techniques necessary to improve city planning and development in the provinces. And, at the local government level, the purpose should be to provide the basic and

practical knowledge and techniques necessary to meet administrative requirements in the provinces and municipalities.

In order to effect personnel improvements, various preparatory tasks must be performed. For example, the education/training programs must be formulated, with consideration of goals and objectives, targeted trainees, duration, and place of instruction. In addition, lecturers must be trained and teaching materials provided.

#### **Database Management System**

In response to the expansion of the national administrative network for city planning and development, a national information network covering the entire nation must be established in order to facilitate cooperation between local and central agencies. To achieve this objective, the development of a database management system was programmed in three stages (initial, intermediate, and full-scale) as indicated in Chapter 6.

#### **7.3.3 Functional Improvements**

As has been mentioned, the recommended functional improvements include improvement in the quality of general plans, implementation of urban redevelopment projects, and research.

##### **Improvements in the Quality of General Plans**

This JICA study has identified many problems that must be solved to upgrade the quality of general plans, and various technical manuals have been prepared to help achieve this goal. Indeed, before transferring its planning functions to other agencies, DTCP must improve the quality of general plans, which will ultimately be replicated by the agencies. This effort can continue concurrently with the program to provide technical training for local officials, which will be implemented over a period of time.

##### **Implementation of Urban Improvement Projects**

We recommend that DTCP launch a pilot or pioneer land readjustment project based on the practical and technical knowledge acquired by DTCP during this study. Such a project would demonstrate visibly the usefulness and effectiveness of land readjustment in Thai society, thereby promoting adoption. Also, it would allow Thai planners to gain the practical knowledge necessary to establish a system of land readjustment that is suitable for Thailand.

A recommended procedure for implementing the pilot project is outlined below:

- establishing organizations inside and outside DTCP (e.g., land readjustment subcommittees under the local town planning boards);
- submitting proposals on pilot land readjustment for local committee approval, with the proposals considering such issues as scenarios for possible application, legal systems,

- implementing body, and pilot project areas;
- making necessary arrangements for implementing the pilot project;
- establishing implementation bodies;
- conducting a feasibility study and formulating an action plan or implementation program;
- considering financial and other arrangements; and, finally,
- implementing the project.

## Research

DTCP will receive an increasing number of requests to provide technical guidance and standards, and to help formulate regulations to control, facilitate, and coordinate city planning and development activities. The technical manuals that the JICA Study Team has prepared in cooperation with DTCP will be useful in conducting planning research since they contain a variety of tools to analyze urban problems. Research efforts should be focused on the following four subjects:

### *1) Research for Providing Official Technical Guidance on City Planning and Development*

Technical guidance and standards to assist city planners have not officially been provided by the Thai government. The manuals prepared in this study should function as technical reference materials for DTCP to formulate official Thai government guidelines and standards for city planning. In this task, they should work closely with local and other implementation agencies.

In conducting the research necessary for formulation of these policies, the most important work element is the setting of official standards for the improvement of public facilities and other urban public services (e.g., the level of water services, parks, road services, and land provision to be provided over a given period of time). This will involve the accumulation of statistically-reliable data as well as close coordination with the agencies responsible for implementing and maintaining public facilities and formulating the Thai government's capital investment programs.

The principal items to be investigated are enumerated below:

- official planning guidelines and standards;
- official planning standards for public facilities improvements (e.g., transport and communications, water supply, sewerage, flood control, electricity, and park facilities); and
- official planning standards for urban space (specifically, appropriate building densities in urban areas, taking into consideration such factors as efficiency of public facilities investment, [1] subdivision conditions, the scale and size of affordable housing, public open space, and environmental living conditions).

[1] If densities are too low, the capital investment in public facilities becomes correspondingly high on a per capita basis.

## 2) *Research on Policies and Guidelines of DTCP to Respond to Urban Problems*

DTCP's policies and guidelines for addressing Thailand's urban problems are to be incorporated in general plans, and will help shape the government's urban policy. Therefore, these policies and guidelines require additional research in areas such as:

- urban land management;
- policies and measures to control land prices (especially anti-speculation measures);
- urban housing measures to be incorporated in the general plans; and
- appropriate taxation policies for urban development or land management (e.g., policies to open up "pocket land" for housing in Bangkok).

## 3) *Research on the Proposed Database Management System*

With the technical advancement of city planning and the expansion of areas covered by city planning, DTCP must set up a computerized database management system to manage city planning and developments all over the country. More specifically, data on changwats, municipalities, sanitary districts, and tambons should be accumulated since they are indispensable for DTCP to formulate and update national urban improvement policies and guidelines/standards, and to assist local agencies in formulating their general and other plans.

This computerized system should develop from the initial stage, for which the JICA Study Team proposed a system based on the existing capability of DTCP, toward an intermediate stage, and ultimately to a full-scale stage. To achieve this progress, studies to develop a computerized database management system should be intensified.

## 4) *Research on Measures for Implementing and Managing Urban Development*

Through experimental applications of land readjustment and district planning techniques in this study, DTCP has learned more about the implications of these implementation measures. Further study should be conducted to identify the most appropriate measures for urban development and management. For instance, land readjustment should be supported by taxation measures, investment incentive measures, land registration measures, and land use measures, which all are effective in facilitating and managing urbanization.

Since DTCP is responsible for assisting local and other implementing agencies in developing and managing cities and towns, DTCP must actively pursue the most effective and practical implementation measures. In particular, innovative methods require extensive social and political persuasion before they can be applied and institutionalized. Therefore, DTCP must conduct the research necessary to support its attempts to persuade others of the efficacy of innovative urban development methods.



**8**

**PROPOSED  
ACTION CENTER**



## 8 PROPOSED ACTION CENTER

### 8.1 Action Center for Improving City Planning and Urban Development Techniques

Taking into consideration the magnitude of the improvement programs proposed in the action plan for DTCP (ranging from the involvement of all local governments to the undertaking of innovative urban planning activities and the improvement of database management to rationalize Thai city planning and development), it is proposed that DTCP create an "Action Center" designed to provide the driving force for DTCP's improvement thrust. Such a center would serve as a core for reinforcement of the organization and improvement of city planning activities.

#### Strengthening of DTCP's Organization

As described in the Action Plan, major components for strengthening DTCP's organization include technical training and database management.

#### *Technical Training*

Within DTCP, there used to be a training course for planners, with professors from Thai universities and other professionals lecturing on theoretical and practical city planning issues. This ad hoc training program must be developed into a permanent one designed to accommodate a greater number of local officials in response to the decentralization of city planning in Thailand. Taking into consideration the scale of the undertaking involved, it was recommended they establish an institute exclusively for providing training services within the agency.

#### *Database Management*

It is a problem that all relevant data and information are scattered among DTCP's divisions, and within divisions, among individuals. Sometimes valuable data is lost. Another problem is the inconsistent use of computers by the different divisions. Consequently, one of DTCP's most urgent concerns for improving the quality of general plans must be to consistently manage and control its database as well as its computer software. To address these problems, it is vitally important to organize the database and computer utilization through a centralized database management unit (see the discussion of the initial stage in Chapter 6).

#### Functional Improvements

To organize and expedite the extensive improvement programs, it is advisable to establish a "core unit" (or task force) to undertake such tasks as follows:

- To facilitate and support DTCP's efforts at improving the quality of general plans by means of the planning manuals developed during the JICA Study. It is worth noting that this improvement drive should be synchronized with the technical training program and the program to implement a database management system.
- To lay the groundwork for the implementation of land readjustment by implementing a pilot project.
- To spearhead research seeking solutions to impending urban problems and to incorporate the research results into DTCP's policymaking and city plan formulation activities.

Completion of these tasks will pave the way for the establishment of new divisions within DTCP, covering such areas as city planning, urban policies, urban development, and information systems.

The proposed action center is an integration of a permanent training institute, a centralized data management unit, and a core unit engaged in research for improving the quality of general plans, for realizing land readjustment, and for solving urban problems.

## 8.2 Organization of the Center

### An Institute Attached to DTCP

The proposed Action Center is designed to be an implementing arm of DTCP for technical improvement and innovation in city planning and development in Thailand. As illustrated in Figure 8-1, it should be placed under the direct supervision of DTCP's General Director as an institute attached to the department.

### Internal Organization of the Center

The center will have one administrative division and three principal divisions to fulfill its expected functions, which are (as indicated above) an integration of training, database management, and technical development (see Figure 8-2).

### Inter-Agency Network

Cooperative interagency linkages must be strengthened. For example, regarding the dispatching of trainees from local governments, linkages should be strengthened with the Department of Local Administration. Regarding database management, linkages must be strengthened with the Ministry of Interior and other national statistics agencies. And, with regard to technical collaboration, linkages should be strengthened with the National Institute of Development Administration and other research institutes such as Chulalongkorn University and the Asian Institute of Technology.

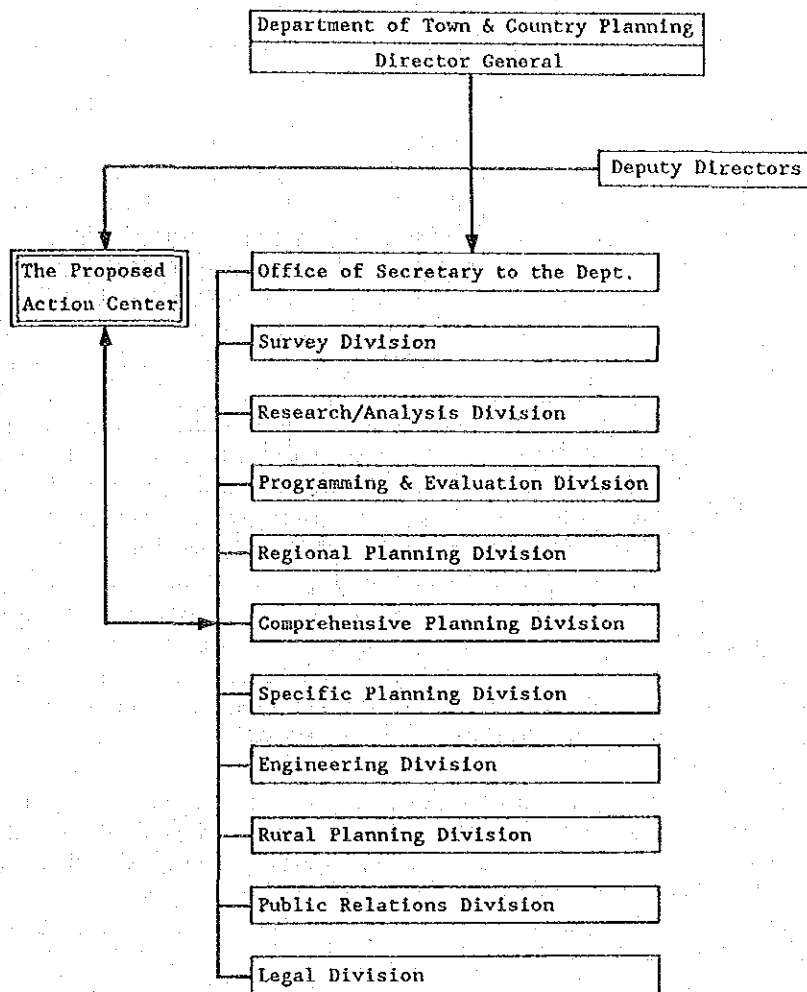


Fig. 8-1 PROPOSED ACTION CENTER WITHIN DTCP

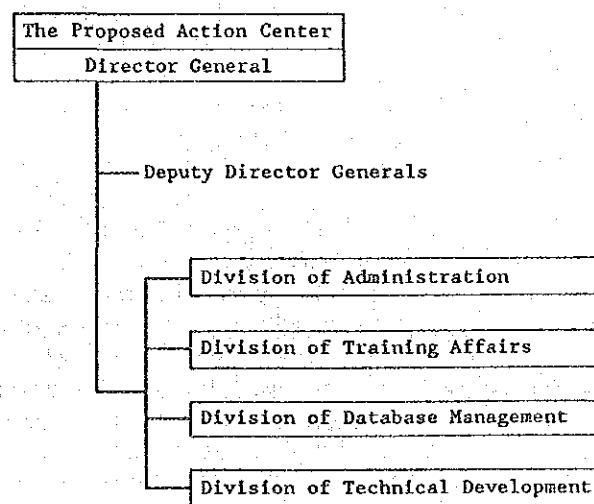


Fig. 8-2 INTERNAL ORGANIZATION OF THE CENTER

### 8.3 Function of the Center

#### 8.3.1 Training Function

The proposed technical training program should serve all existing and newly-hired planners working for the central and local governments. Central government planners, principally those working for DTCP, should play a leading role in city planning and urban development in Thailand. They should have the technical capability required to prepare general and specific plans, to develop and manage national urban development projects, and to guide local officials in the preparation of high-quality city plans. Planners working in DTCP's local branch offices should be capable of providing local government planners with sound technical assistance in the development of standardized city plans and in the preparation of local urban development projects. The administrative control of construction or development based on the general or specific plan is the responsibility of the local governments. In the future, the local governments will be expected to prepare by themselves both their general and specific plans, and to make revisions to their general plan every five years. A basic city planning survey should be conducted by the local governments and the collected data should be reported in a standardized format.

Considering the above-mentioned needs, the purpose and goals of the training program should be to develop administrators, project managers, and other experts technically equipped with the ability to formulate and implement city plans and urban development projects. Further, these human resources must be developed at both the national and local levels.

#### Training Courses

In light of the various specialties of the trainees, the training courses that the action center will provide will include one executive course and six specialist courses:

- Executive Course;
- Land Use Planning Course;
- Urban Development Project Course;
- Transport Facility Planning Course;
- Urban Utility Planning Course;
- Mapping Course; and
- DBMS Course.

The executive course is intended to provide managers with general knowledge of city planning, especially knowledge of planning legislation and administration as well as strategic techniques of project finance and management. The specialist courses will provide the various specialists with a standardized set of techniques in their respective fields.

Population and employment forecasting will be covered in each course since they are basic socioeconomic tools for planning. Also, every course will include a lecture titled "General City Planning," an

introduction to the nature, scope, and objectives of integrated city planning and the planning process in general (based on the first planning manual).

Other main topics discussed in each course are listed below:

Executive Course

- Planning legislation and administration
- Implementation measures
- Project finance and management

Land Use Planning Course

- Land use intensity study
- Land use demand projection
- Land use control measures
- Urban development projects
- Improvement of the residential environment

Urban Development Project Course

- Implementation measures for urban development projects
- Land readjustment system
- Formulation of investment programs
- Project evaluation

Transport Planning Course

- Transport demand analysis
- Transport systems design
- Planning standards for roads and streets
- Planning standards for other road traffic facilities
- Evaluation of transport plans and projects

Urban Facilities Planning Course

- Demand projection for urban utilities
- Planning standards for urban utilities
- Sewerage/drainage system design

Mapping Course

- Photogrammetry
- Computer use in area measurement
- Ground survey techniques

DBMS Course

- Concept of DBMS
- Development of system
- Utilization of system

**Training Program**

The training program will have two phases. The first phase will be the training of those who will serve as lecturers and advisors in the training courses. The second phase will involve the actual training of central and local government officials. The first phase of the training program will be carried out during the two years prior to the completion of building facilities for the center. The second phase, the training of all professional staff members, will utilize the

newly-provided facilities and equipment.

#### *Training of Instructors*

Twenty individuals from DTCP and other agencies will be selected to be trained as instructors. After their training is completed, they will either join a newly-established Division of Training Affairs or they will serve as part-time instructors but remain in their prior position.

Fifteen individuals will serve as instructors for the training of new instructors. These fifteen will include DTCP officials, officials from other agencies, professors and researchers from universities and research institutes, and other technical experts.

The course for training new instructors will consist of two one-year terms, with 10 trainees attending per term. The number by specialty is shown in Table 8-1.

Table 8-1 NUMBER TRAINED BY AREA OF SPECIALTY

Specialty	Number Trained
City planners	3
Urban development engineers	2
Land use planners	2
Transport planners	2
Sanitary engineers	2
Economists	2
Photogrammetrists	2
Statistical analysts	2
Systems analysts	3
Total	20

The course will utilize a variety of educational techniques, including one-student tutorials, lectures, workshops, field trips, and audio-visual presentations. The training materials used will include city planning manuals, general and specific plans, research reports, statute books, and other technical reference documents.

#### *Training of Government Officials*

Once the 20 instructors are trained, the training of government officials can commence. A total of 2,820 trainees will participate as shown in Table 8-2.

Table 8-2 NUMBER OF TRAINEES BY GOVERNMENT AGENCY OR LEVEL

Agency/Level	Number
DTCP officials	350
Officials of other central government agencies	200
BMA officials	150
Provincial officials (10 x 72)	720
Municipality and sanitary district officials (10 x 140)	1,400
Total	2,820

The number of trainees from a typical local government will be 10, divided among the seven courses as shown in Table 8-3. It is anticipated that two persons per year from a typical local government will be trained. Of course, the training program should be flexibly implemented considering local priorities and the relative urgency of plan making in different localities. In addition, the planning manuals prepared in this study should be available to all local government planners at all times.

Table 8-3 NUMBER OF TRAINEES FROM A LOCAL GOVERNMENT BY COURSE

Course	Number
Executive Course	1
Land Use Planning Course	2
Urban Development Project Course	2
Transport Facility Planning Course	2
Urban Utility Planning Course	1
Mapping Course	1
DBMS Course	1
Total	10

The training term will be three months, with three-month terms per year. In one term, 188 planners will receive training. Thus after five years (15 terms) all 2,820 will be trained.

The course will utilize various formats, including lectures, workshops, and audio-visual presentations. The training materials will include city planning manuals, statute books, and other related

documents.

### 8.3.2 Database Management Function

#### Organization of Database Management

The Division of Database Management should establish a Database Management System for city planning, an essential task for the improvement of the rationality and efficiency of DTCP's planning process. This division would function as DTCP's information center, meeting the needs of DTCP's planners, as shown in Figure 8-3.

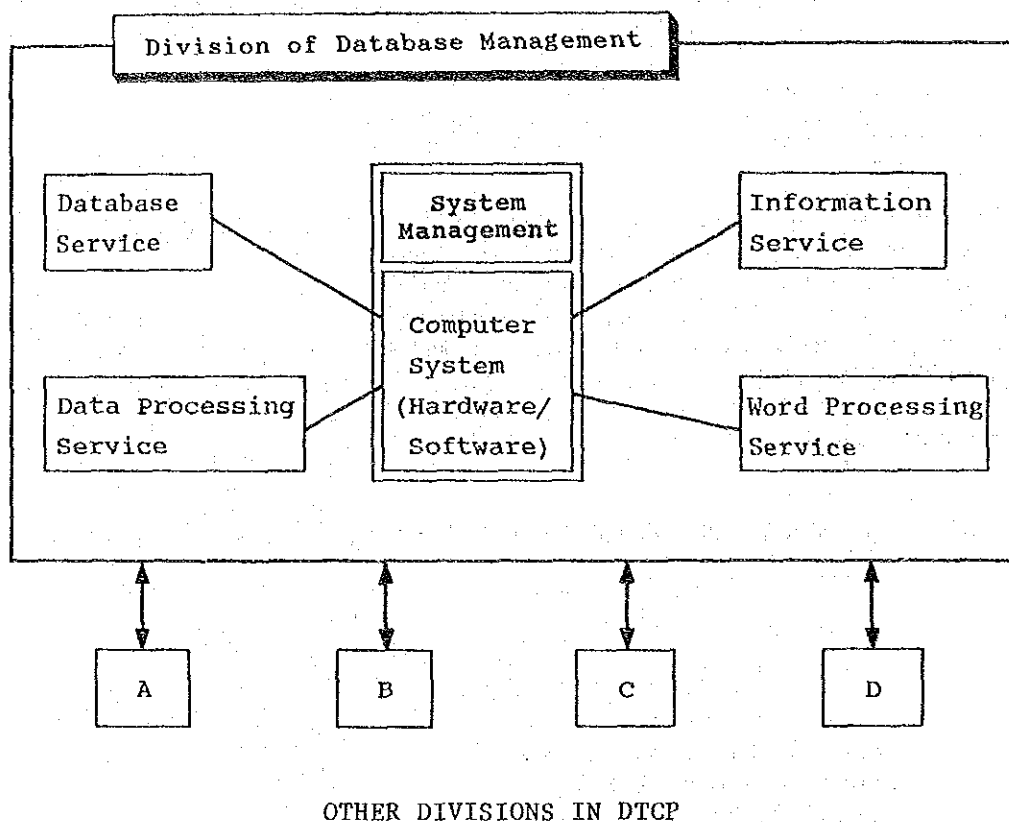


Fig. 8-3 CONCEPT OF DATABASE MANAGEMENT SYSTEM

The Division of Database Management would provide the following services:

#### Database Services

- Data Production  
Replying to the requests of city planners, will provide data input, inspection, retrieval, registration, and conservation services.

- Data Distribution  
Responding to the inquiries of city planners, will refer to the database for the requested data (including secondary data in MOI's computer center).

#### *Data Processing Services*

- Data Processing  
Replying to requests for the processing of data in the computer, will use arithmetic or logical operations to produce various kinds of informational output (e.g., basic tabulations, statistical analysis simulation).
- Lending Software or Hardware Systems

#### *Information Services*

- Introduction to the Computer System (including an explanation of applications software)
- Introduction to Statistics Used in City Planning

#### *Word Processing Services*

- Report Production
- Library of City Planning Reports

In order to perform these services, the Division of Database Management will require 15 staff members. Table 8-4 provides a breakdown of the personnel requirements for each service provided.

#### **Establishment of Division of Database Management**

Figure 8-4 provides an implementation plan for establishing a Division of Database Management. The following tasks must be conducted:

Preparatory Work: The core task force should implement various improvements in the software system by synthesizing and standardizing city planning procedures. At this stage, DTCP should manage the Data Processing System and formulate a Division of Database Management.

Design of a New System: Based on the preparatory work, DTCP should design a new system and formulate the programming details.

Implementation of Intermediate Stage by DTCP. With the design of a new system, DTCP should install a new hardware system and also produce new software. After installation of the new computer system, the Division of Database Management should provide computer services for DTCP as stated in Chapter 6.

#### **Required Computer Equipment**

As indicated in Figure 8-5, a minicomputer with a remote batch system controlled by and utilizing a local area network system within DTCP is required.

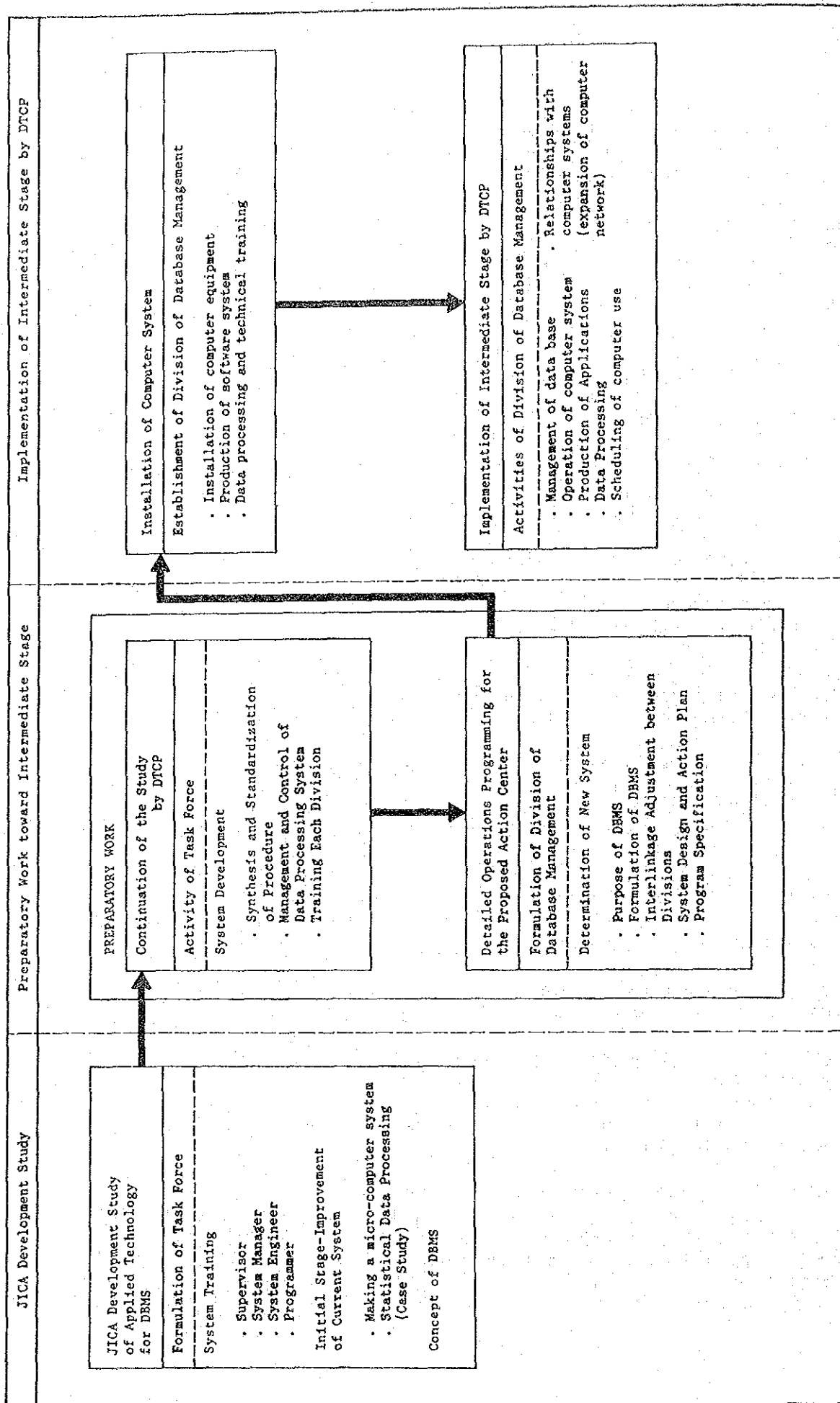


Fig. 8-4 IMPLEMENTATION PLAN FOR THE ESTABLISHMENT OF DATABASE  
MANAGEMENT DIVISION

Table 8-4 PERSONNEL REQUIRED FOR EACH SERVICE OF THE DATABASE MANAGEMENT DIVISION

Service \ Qualification	Supervisor	Systems Manager	Systems Engineer	Programmer	Operator	TOTAL
Database Service		1	1	1	-	3
Data Processing Service		1	1	3	-	5
Information Service		1	1	-	-	2
Word Processor Service		1	-	-	3	4
TOTAL	(1)	4	3	3	3	14(+1)

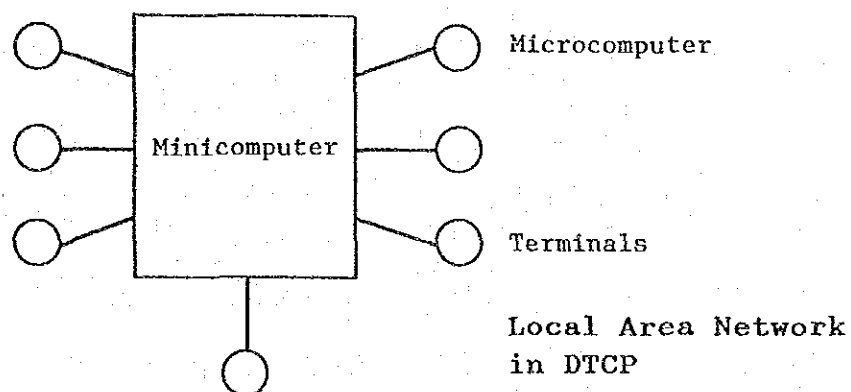


Fig. 8-5 REMOTE BATCH SYSTEM

## Required Computer Software

In the intermediate stage, the software system should have the following functions:

### Systems Software

- . Operating System
- . On-line Database System
- . Telecommunications System

### Applications Software

- . Basic Tabulation System
- . Statistical Applications Package
- . Statistical Data Processing System
- . Simulator System in Each Sector (e.g., Transportation)

### Specific Software

- . UMS (Urban Management System)
- . PSA (Potential Surface Analysis)
- . OR (Operations Research Program)
- . CAD (Computer Aided Design)

## 8.3.3 Technical Development Functions

### Subjects of Research

Research must be an ongoing activity to continuously pursue innovation in city planning and development in order to contribute to the social and economic development of Thailand. This continuing research should focus on the formulation of the following guidelines, standards, or measures:

- official planning guidelines and standards (especially for urban facility services and land use densities);
- countermeasures in response to impending urban problems (especially in response to housing, traffic, and land problems); and
- innovative measures for managing and implementing urban development (especially land use controls and an integrated urban area development system).

At the outset, DTCP should conduct research on land use intensity and building controls, urban facilities, and urban development projects.

### 1. Research on Land Use Intensity and Building Controls

Thailand has not instituted measures to control high land use densities, which lead to an imbalance between the demand for and supply of public facilities, leading either to urban problems such as traffic congestion or water shortages on the one hand, or the utilization of infrastructure and overinvestment in capital facilities on the other. Thus, the research on land use intensity and building controls is of great importance to address urban problems and rationalize government capital investment.

## 2. Research on Urban Facilities

Efficient ways to develop urban facilities within existing constraints (e.g., financial and land limitations) must be identified. Thus, innovative systems for providing urban services, to be developed in parallel with land use intensity regulations, must be investigated.

## 3. Research on Urban Development Projects

This study has revealed that Thailand is in need of an integrated urban area development system to overcome its urban problems (e.g., sprawl). In this regard, a land readjustment system was proposed and should be further examined in DTCP's research program, including an analysis of financial, administrative, legal, and technical factors.

### **Scope of Work**

#### *Research on Land Use Intensity and Building Controls*

The goals of the research on land use intensity and building controls are:

- to produce and analyse land use data;
- to develop criteria for coverage and floor area ratios; and
- to evaluate the use of the above criteria in case study areas in order to help develop implementation methods for land use controls.

The various study tasks involve:

- collection of existing materials and a review of methodology;
- analysis of the Thai urban planning system;
- examination of methods to collect land use data;
- development of criteria for coverage and floor area ratios;
- collection of land use data;
- analysis of land use data;
- case study evaluations;
- formulation of implementation methods for land use control; and
- statement of conclusions and recommendations.

#### *Research on Urban Facilities*

The goals of the research on urban facilities are to elaborate policies and strategies for urban facilities improvements and to establish guidelines and standards for urban facilities. The first task is to collect and analyze data on the existing condition of urban facilities, especially on the level of urban services being provided. Next, the goals of urban service improvements should be developed. Then, guidelines and standards should be formulated and improvement programs developed.

## *Research on Urban Development Projects*

The ultimate goal of the research on urban development projects is to design and establish a land readjustment system for Thailand. Several projects are to be implemented, including an urban development project in Laem Chabang, a "government compound integrated development project," and a joint public/private public utility project. One of these three projects will be selected for a land readjustment feasibility study, on which basis an implementation system will be developed.

To achieve the goals defined above, the research on urban development projects will include the following tasks:

- analysis of the existing urban development and implementation system of Thailand;
- selection of the first land readjustment project in Thailand;
- preparation and formulation of a land readjustment development and implementation program for the selected project;
- evaluation of the system and project;
- development of implementation plan;
- preparation of public relations strategy to promote the popularization and acceptance of land readjustment; and
- development of a program to improve land readjustment management skills.

## **8.4 Facility Requirements**

### **Facilities and Equipment**

The action center will be composed of two buildings. One will be a seminar house including rooms for seminars and workshops, a computer center, and office space for instructors and other experts. The second building will be a dormitory to accommodate trainees from the provinces.

#### *Seminar House*

Seminar Floor. As stated above, 188 persons will attend each three-month training period. Six seminar rooms will be necessary, assuming an average room seating capacity of 30. Of course, the size of a seminar room will vary not only with the number of trainees per class but also with the content of the instruction. For example, the mapping seminar and the planning workshop use maps and therefore require more space than an ordinary lecture room. With seven courses planned, the number of seminar rooms should be made variable with movable partitions. In addition to the seminar rooms, two conference rooms and an area for storing equipment will be located on the seminar floor.

Study Floor. Three study rooms (one for each principal area of study) and library will be located on a separate study floor.

Computer Floor. This floor will be completely occupied by the computer center. A minicomputer will serve as the central control unit. The rooms will be partitioned, based on the services provided and managerial discretion.

Instructor Floor. The instructors and other experts will have their own floor. Conference rooms will be located here, too.

Administration Floor. Administrators and clerical workers will occupy this floor.

Dormitory. Although the number of local governments located outside the Bangkok metropolitan region is more than 80% of the country's total, only half of the total trainees are expected to come from these governments since small municipalities in remote provinces might have only a small number of planning and development officials and severe budgetary limitations. Also, some persons will choose to stay at the houses of relatives or friends. Therefore, it is assumed that 40% of the trainees attending at any one time, or 70 persons, will use the dormitory. The dormitory will provide a dining room, meeting rooms, and a recreational area.

#### *Equipment*

Equipment used in the action center will include training equipment, surveying equipment, equipment for the computer center, and office equipment. Each type is considered briefly below.

Training Equipment. The equipment required for training includes a television monitor, a video cassette recorder, a video camera, overhead and slide projectors, a motion picture projector, and a portable screen. In addition, a relatively large number of drawing instruments will be required for the planning workshops.

Surveying Equipment. For field surveys, electronic distance measurement (EDM) equipment, analytic stereo plotters, theodolites, vehicles, and supplemental units will be required.

Equipment for the Computer Center. The Computer Center for establishment of a database management system will include a minicomputer, which will serve as the central control unit, and microcomputers.

Office Equipment. The office equipment will include electrical typewriters, a multi-color photocopying machine, black-and-white photocopying machines, and desk calculators.

#### *Layout of the Buildings*

Figures 8-6 and 8-7 show conceptual layouts of the seminar house and dormitory, respectively. The buildings will be constructed next to the DTCP office. The seminar house and the main office building will be connected by a corridor on the second floor. The dormitory and the seminar house will also be connected with each other by a corridor.

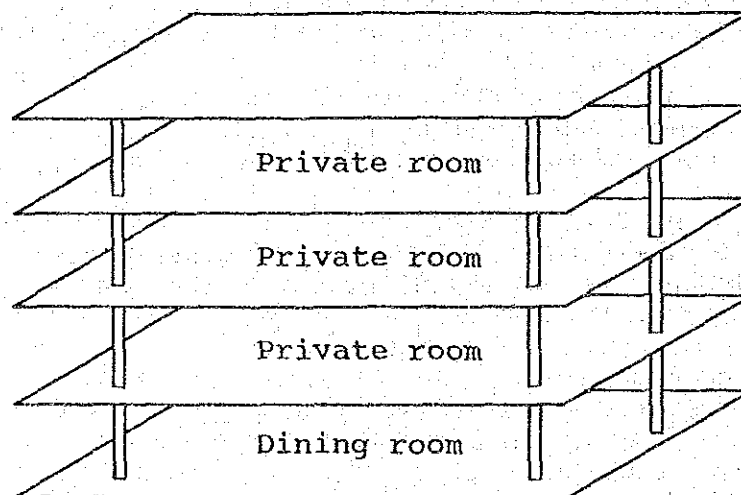
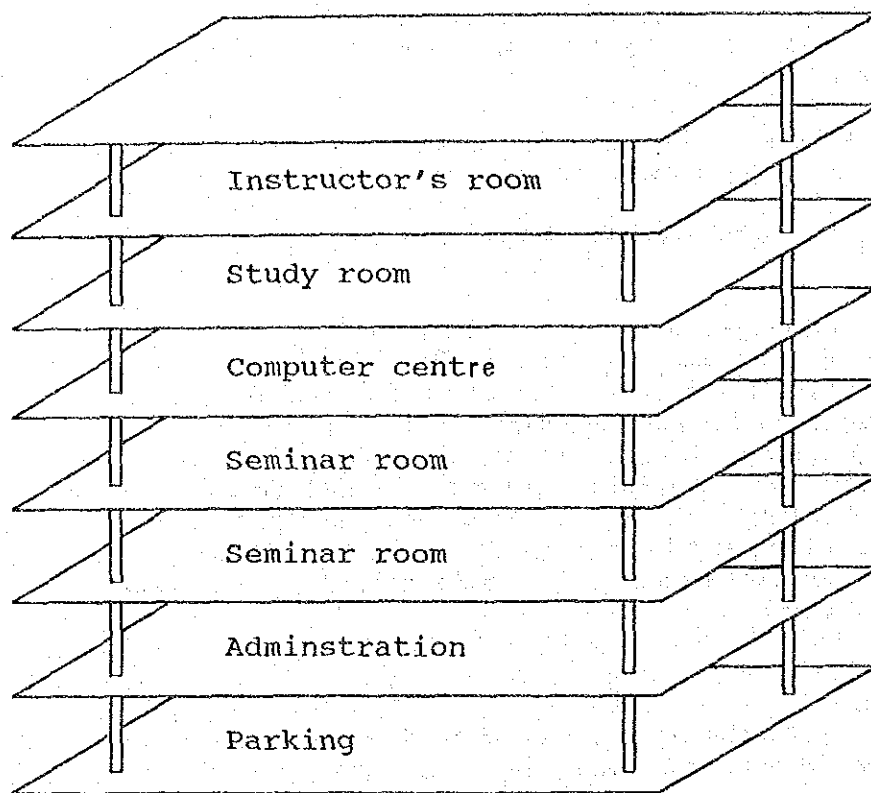


Fig. 8-6 BUILDING LAYOUT

Seminar House. The seminar house will have seven floors, the first of which will be for parking. The second floor will be used for administration, the third and fourth for seminars, the fifth for the computer center, the sixth for study rooms, and the seventh for offices for the instructors. Each floor will have an area of about 800 m<sup>2</sup>. The total floor area, excluding the parking space, will be about 5,000 m<sup>2</sup>.

Dormitory. The dormitory will be a four-story building with 35 rooms, each of which will be capable of accommodating two persons. The first floor will be used for a dining room and administrative offices. Each floor will have an area of about 350 m<sup>2</sup>, totaling to 1,400 m<sup>2</sup>.

## 8.5 Preliminary Cost Estimation

### *Capital Expenditure*

The cost of constructing the seminar house and dormitory are estimated at about US\$6,400,000. The equipment required will cost about US\$2,150,000. The construction site of 3,200 m<sup>2</sup> is valued at 6,400,000 baht, but the land has already been acquired by DTCP. Therefore, a total incremental capital investment of US\$8,550,000 will be required.

### *Operating Expenditures*

The number of staff members of the proposed center is assumed to be 57, ranking from class 3 to class 9. Most of the personnel will be transferred to the center from existing posts within DTCP. However, new staff members will be required for the Division of Database Management. Also, a few extra typists and drivers will be needed. The total annual salary of all these persons is estimated at 160,000 baht. In addition, the cost of expendable office materials, office furniture, maintenance services, and utilities will amount to approximately 260,000 baht annually.

### *Technical Experts Required for Training*

For the tutorial training of instructors, a certain number of well-qualified experts should be secured before commencement of the training activities. However, the number of such experts is quite limited at present in Thailand. In order to help solve this problem, in the early stages of the action program, a team of "superexperts" should lecture to the future instructors. In addition, the detailed instruction manuals and training curricula should be prepared with the cooperation of the "superexperts" and future instructors.

The proposed expert team should include 13 members, with the specialties listed in Table 8-5.

Table 8-5 NUMBER OF EXPERTS BY AREA OF SPECIALTY

Specialty	Number
Team Leader	1
<u>Planners</u>	
City Planner	1
Land Use Planners	2
Transport Planners	2
Civil Engineer	1
Housing Planner	1
Economist	1
Photogrammetrist	1
Computer Sciences	
Statistical Analyst	1
Systems Analyst	1
Coordinator	1
Total	13

## **PART IV**

### **CONCLUDING REMARKS**







## 9 CONCLUDING REMARKS

The transfer of technology to improve Thai city planning and urban development has been the principal purpose of this study, which was conducted jointly by the JICA Study Team and their DTCP counterparts. This cooperative venture first identified problems and then prepared technical improvement plans, which were developed into a set of planning manuals.

Several case studies were carried out to examine the usability of the proposed manuals, and a series of seminars were held to stimulate discussion among the DTCP Counterpart Team, other DTCP staff members, and other Thai city planners. The seminars covered Thai urban problems and measures to address them. The initial goal of this study has been achieved to the extent that the DTCP study team can be developed into a task force for implementing the proposed action plan aimed at promoting technical innovation in Thai city planning and urban development.

During the course of this study, the establishment of an Action Center was recommended, taking into consideration the magnitude of DTCP's technical innovation programs. These wide-ranging programs include urban development projects, research studies, assistance to local governments, and establishment of a database management system for rationalizing Thai city planning. The center will be a DTCP agency and will be responsible for training services, database management, and technical development (research) activities. The Action Center is designed to promote the achievement of the long term goal of improving the technical aspects of Thai city planning. Full-scale operation of the Action Center is considered to be an intermediate-term goal. The long-term goal of DTCP's Action Plan, however, should be to establish a new DTCP administrative structure, including the deployment of local offices of DTCP throughout the country. The plan should aim to improve the efficiency and quality of plan making, the effectiveness of city planning in terms of implementation, and the general capability to deal with urban problems.

With the intermediate- and long- term goals of DTCP as stated above, immediate actions recommended to be taken by DTCP are shown in Figure 9-1.

### *1) Increasing the Efficiency and Quality of the Plan Making Process*

Improving the efficiency and quality of DTCP's plan making process is an urgent concern. Indeed, the reason why the Thai government requested Japanese technical assistance to concentrate on such technical improvements.

DTCP should use the planning manuals prepared in this study to act immediately to implement the recommended technical improvements. Since the DTCP study team could play a significant role in this process, they should be organized into task forces to spearhead DTCP's technical improvement drive. Upon the establishment of the proposed action center, the improvement drive will be further intensified with

the implementation of regular training services for central and local government officials.

## 2) Initial Implementation of Technical Improvements

DTCP should promote the functions of the proposed center even before the center's completion. When the center is finally completed, its function can then be enhanced.

DTCP has already established organizations with 11 persons each corresponding to each of the major functions of the proposed center (training, database management, and technical development). The Division of Public Relations and Training is now in charge of training.

In fact, DTCP already had some of the existing organizations that are proposed. For example, they formerly had an urban development division, which was concerned with technical development. And, in line with the DTCP's move toward increasing its capability in plan implementation, a task force had already been formed to investigate and implement land readjustment.

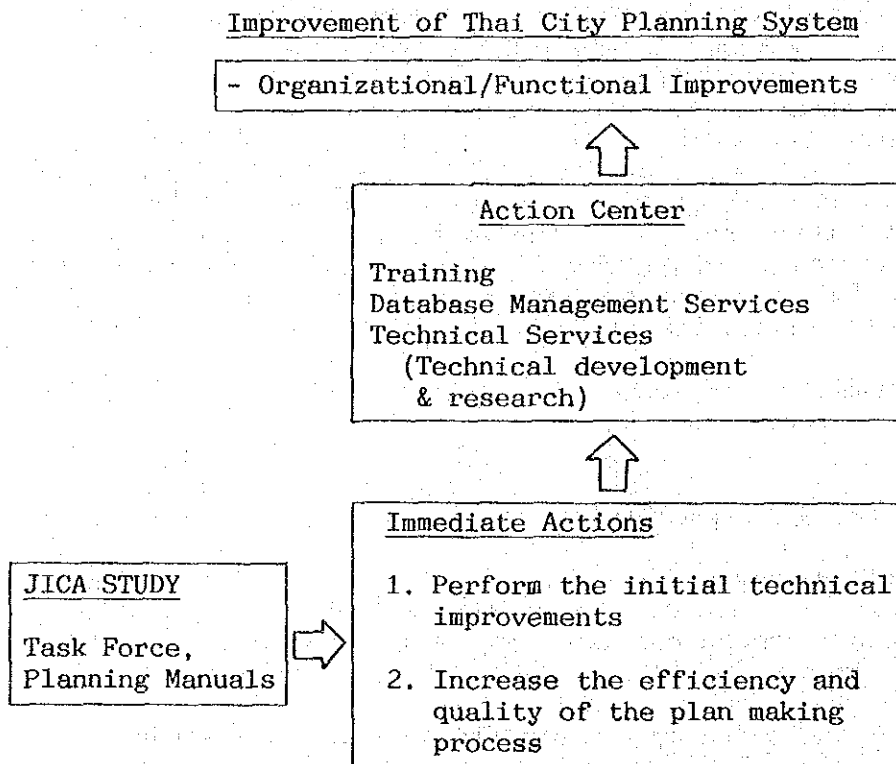


Fig. 9-1 IMPLEMENTATION PROCEDURE AND IMMEDIATE ACTIONS OF DTCP

Based on DTCP's current organizational structure, the agency should proceed with technical improvements. With the opening of the Action Center in two years, they will be closer to the ultimate goal of upgrading city planning systems in Thailand.

Immediate actions corresponding to the three principal functions of the action center are proposed.

Technical Development. DTCP should immediately pursue technical development, especially with regard to implementation measures. In particular, DTCP should begin studies of land use intensity and building controls, land readjustment, and other urban development land projects.

Database Initial improvements in database management should be begun, based on DTCP's existing microcomputers, which are connected to form "a quasi-minicomputer system." In this system, data can be shared among computers, facilitating database integration.

Training. Acting as the lead agency in the promotion of advanced of city planning techniques, DTCP should continue to hold open seminars on city planning and urban development administration.



## APPENDICES



APPENDIX A  
FUNCTIONAL RESPONSIBILITIES AND THE STRUCTURE OF DTCP'S DIVISIONS



## APPENDIX A

### FUNCTIONAL RESPONSIBILITIES AND THE STRUCTURE OF DTCP'S DIVISIONS

The functional responsibilities of each of DTCP's divisions are the following:

#### *Office of the Secretary*

- Handling of the Department's correspondence.
- Budget and financial administration.
- Personnel administration.
- Procurement of supplies for the Department.

#### *Mapping Division*

- Mapping surveys for regional, provincial, comprehensive, and specific plans; special projects; community development plans; and rural plans.
- Surveys and maps for consideration of the establishment or expansion of sanitary districts and municipalities.
- Surveys for and preparation of land use maps, maps of government land, and maps showing place names.
- Collection of data to be used in preparing maps; techniques used include photogrammetry and ground surveying.
- Collection and provision of maps used by the Department.

#### *Research and Analysis Division*

- Collection and analysis of socioeconomic, demographic, and other data for comprehensive planning.
- Collection and analysis of socioeconomic, demographic, and other data for specific planning.
- Analysis of planning data for establishing local governments and extending local (i.e., municipality and sanitary district) boundaries; setting of boundaries, preparation of maps, and explanation.

#### *Engineering Division*

- Collection and analysis of engineering data for the planning of communications and transportation facilities.
- Preparation of communications and transportation plans that are consistent with comprehensive and specific plans.
- Establishment of engineering standards for comprehensive and specific plans.
- Provision of assistance in solving the engineering problems of other government agencies.

#### *Programming and Evaluation Division*

- Setting of goals and policies for the Town and Country Planning Department.

- Monitoring and evaluation of the annual work plans of the Department.
- Detailing of the development programs (e.g., specifying work schedule, finances, and time) in accordance with the comprehensive and specific plans.
- Evaluation of all plans which have been implemented.
- Implementation of technical assistance projects.

#### *Regional Planning Division*

- Collection and analysis of basic provincial, subregional, and regional data concerning physical and socioeconomic conditions.
- Preparation of regional, subregional, and provincial structural plans for the entire country.

#### *Comprehensive Planning Division*

- Provide assistance to local authorities in preparing comprehensive plans pursuant to the Town Planning Act.
- Provide assistance to central government agencies in matters relating to town planning.
- Consideration of community land use problems.
- Consideration of the comments of interested persons concerning comprehensive plans and submission of such comments together with the Department's view to the Board of Town Planning.
- Preparation of specific plans or provision of assistance to local governments in the preparation of specific plans pursuant to the Town Planning Act.
- Data collection and preparation of plans for sanitary districts all over Thailand.
- Preparation of special project plans for government centers, public works, and environmental control.
- Analysis of city planning problems at the local government level and provision of technical assistance in relation to these problems.

#### *Legal Division*

- Conduct of legal duties in accordance with the Town Planning Act.
- Expropriation of immovable properties under the authority of the Town and Country Planning Department.
- Evaluation of legal problems related to planning work.

#### *Public Relations and Training Division*

- Public advertising and holding of public hearings on comprehensive and specific plans prepared pursuant to the Town Planning Act.
- Making public the planning approach and activities of the Department including the content, purpose, and importance of city planning.
- Holding of seminars and meetings for the public and other agencies on the execution of the ministerial regulations

- enforcing comprehensive and specific plans.
- Provision of training courses for central and local government officials on city planning and related fields.
  - Holding seminars, discussions, and special lectures on city planning.
  - Publication of technical documents, articles, and other material related to city planning.
  - Hosting of overseas and domestic authorities and educational institutions.

*Rural Development Planning Division*

- Collection and analysis of physical and socioeconomic data for the rural development plans of tambons and villages.
- Preparation of rural development plans for tambons.
- Preparation of rural development plans for villages.

The organizational structure of DTCP's five general-plan related divisions are shown in Figures A-1 to A-5.

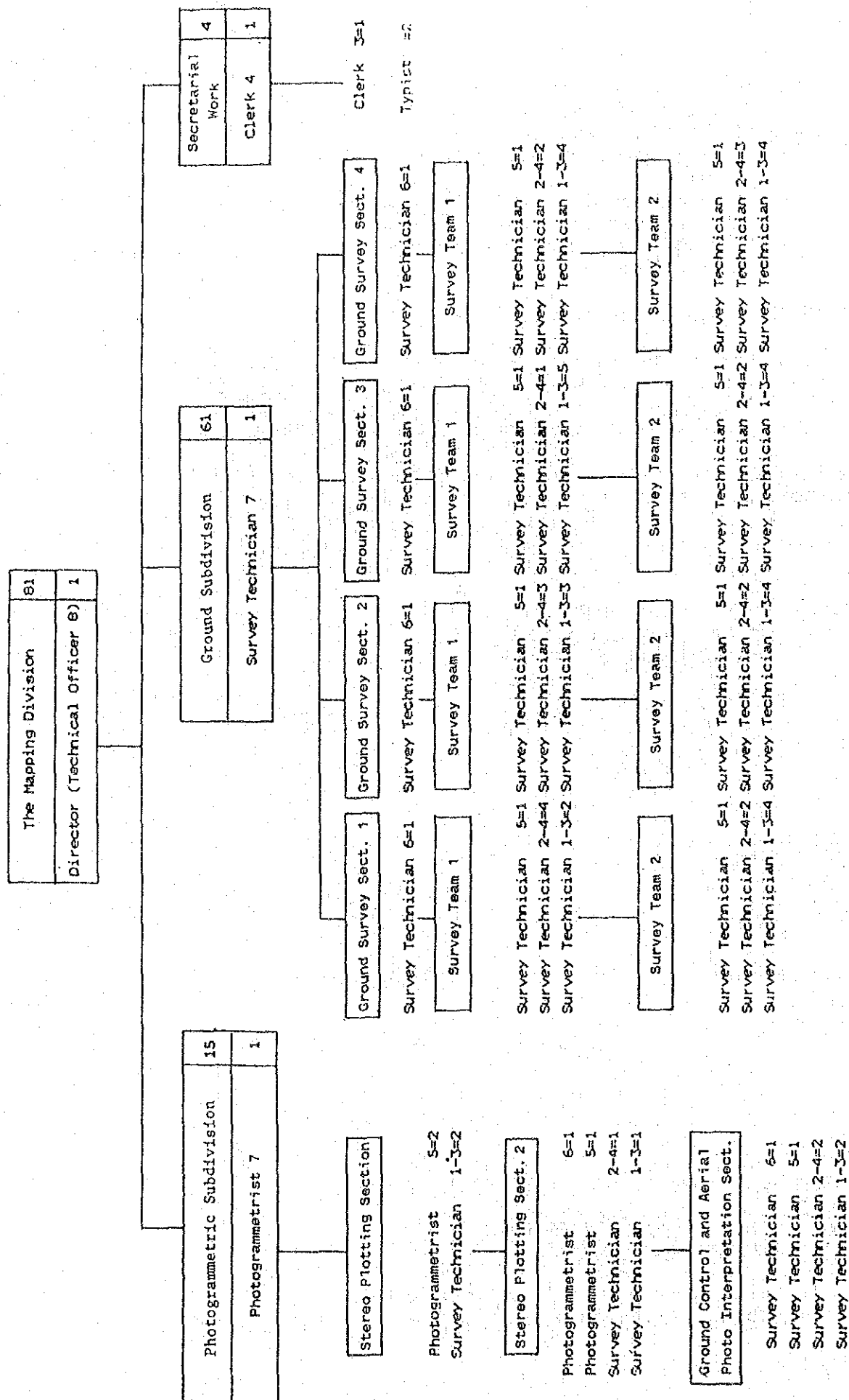


Fig. A-1 ORGANIZATION OF MAPPING DIVISION

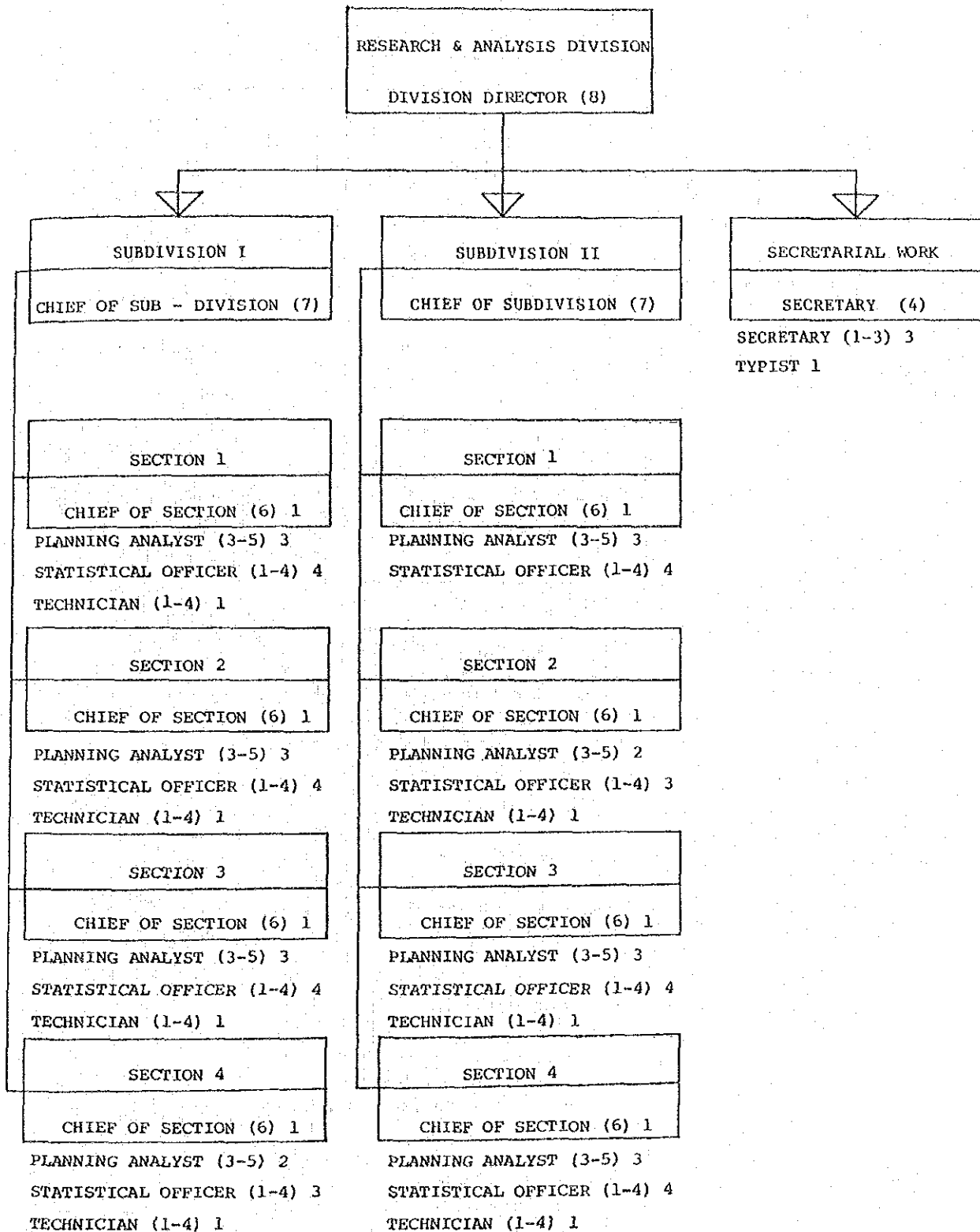
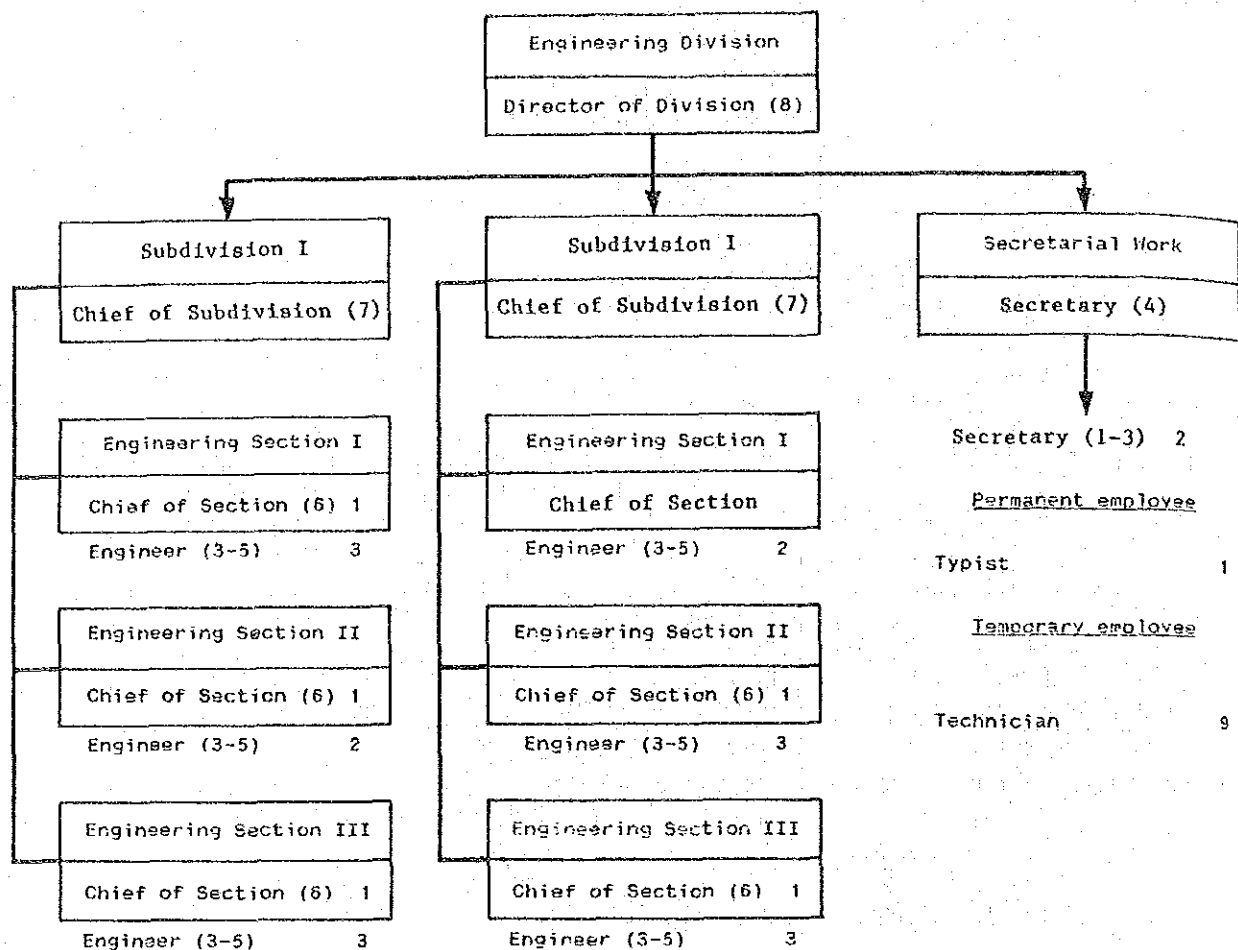


Fig. A-2 ORGANIZATION OF RESEARCH AND ANALYSIS DIVISION



Therefore, the staff members in the Division are:

Engineer (C3)	=	1 (Director of Division)
Engineer (C7)	=	2 (Chief of Subdivision)
Engineer (C6)	=	6 (Chief of Engineering Section)
Engineer (C3-C5)	=	16 (Engineer)
Technical (C6)	=	2 (Chief of Technical Section)
Technical (C5)	=	6 (Technical)
Technical (C2-C4)	=	13 (Technical)
Technical (C1-C3)	=	13 (Technical)
Secretarial Worker (C1-C4)	=	3 (Secretary)
Typist	=	1 (Permanent employee)
Technical	=	9 (Temporary employees)
Total	=	72

Fig. A-3 ORGANIZATION OF ENGINEERING DIVISION

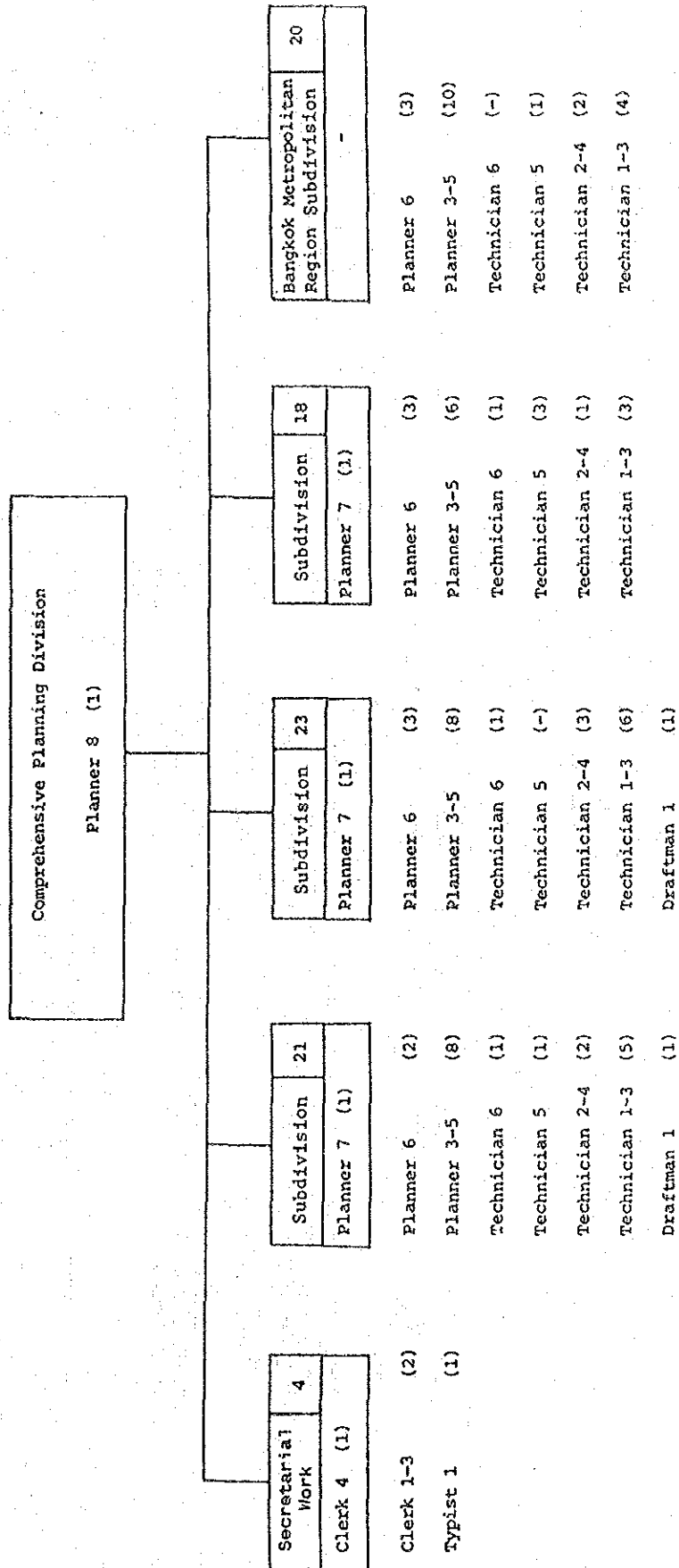
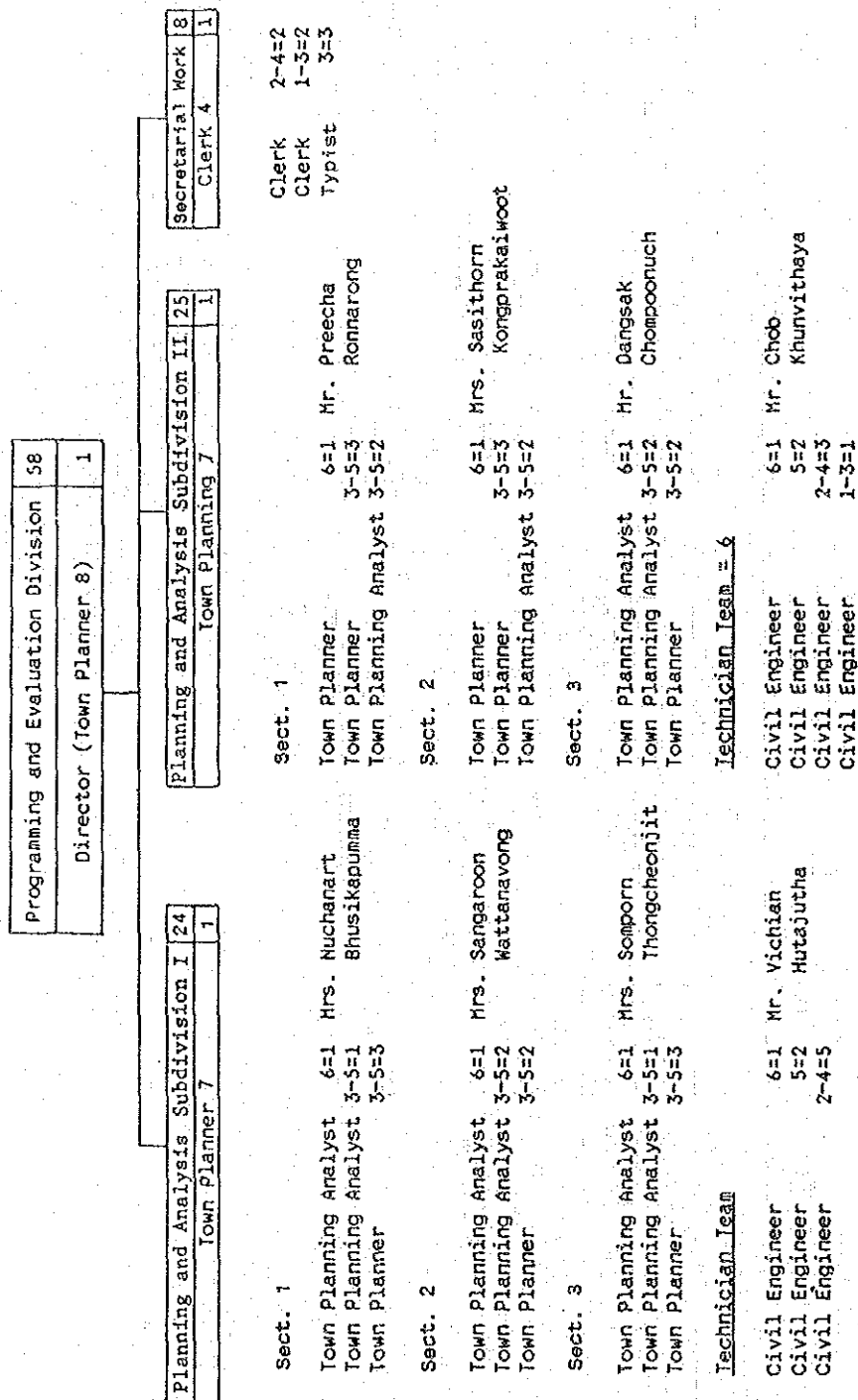


Fig. A-4 ORGANIZATION OF COMPREHENSIVE PLANNING DIVISION



Note: The Planning and Analysis Sections (I and II) contribute equally to the work plans.

Fig. A-5 ORGANIZATION OF PROGRAMMING AND EVALUATION DIVISION