

Japan International Cooperation Agency


Follow-up Study of Development Studies

No. 3

FOLLOW-UP STUDY OF DEVELOPMENT STUDIES

MARCH 2000

JICA LIBRARY



J 1160048 (3)

JAPAN INTERNATIONAL COOPERATION AGENCY

S S P
J R
00-065

March 2



000
36
SSP
LIBRARY

FOLLOW-UP STUDY
OF
DEVELOPMENT STUDIES

MARCH 2000

JAPAN INTERNATIONAL COOPERATION AGENCY



1160048 [3]

PREFACE

The Japan International Cooperation Agency (JICA) has conducted a large number of Development Studies as part of its technical cooperation program designed to assist in the nation-building of developing countries.

A Development Study is basically completed when a final report is submitted to the recipient government. However, since the Development Study is conducted at the preparatory stage of a project, it can greatly contribute to development of the developing country when the findings of the study are utilized in the project, this enables effective technology transfer.

The findings and recommendations of the Development Studies are utilized according to the initiatives of the recipient governments, and they are employed in a wide variety of ways. In view of the importance of securing traceability on the impact of completed Studies, JICA has been conducting follow-up studies annually since fiscal 1984 to gather and compile relevant information regarding the Development Studies.

As in previous years, we prepared this year's report by collecting information from implementing agencies of recipient governments and from consultants in charge of specific projects.

The procedures for conducting follow-up studies as well as their findings leave room for improvement due to difficulties in understanding and analyzing the progress of projects. We welcome your comments and suggestions for improving future follow-up studies.

This study was contracted to the Japan International Cooperation Center and the International Development Center of Japan.

March 2000

Yukihisa Sakurada
Managing Director
Social Development Study Department

Ryuzo Nishimaki
Managing Director
Agriculture, Forestry and Fisheries
Development Study Department

Keisuke Mihira
Managing Director, Mining and Industrial
Development Study Department

Japan International Cooperation Agency

SUMMARY

SUMMARY

1. Background and Purpose of the Follow-up Study

1-1. Background of the Follow-up Study

It has been difficult to follow progress made on Development Studies once they were completed, and on the utilization of their findings. This was due to the fact that 1) it usually takes considerable time before the implementation of the proposed projects, 2) the findings have been utilized in many different ways, and 3) there have been limitations to obtain information from the recipient country.

Follow-up Studies of Development Studies were started in fiscal 1984 in order to cope with such problems. We are committed to gathering a wide range of information from the project implementation sites: we have implemented on-site follow-up studies since fiscal 1987; questionnaire surveys of domestic consultants in charge of projects since fiscal 1988; JICA overseas office questionnaire surveys since fiscal 1991; studies utilizing local consultants from developed countries since fiscal 1994; and studies utilizing local in-country consultants since fiscal 1995. In recent years, there has been increased interest in evaluating development studies. This has led to the implementation, since fiscal 1999, of on-site studies to evaluate the impact of development studies.

1-2. Purpose of the Follow-up Study

The Follow-up Study has two goals as follows:

- (1) To ascertain the current status, utilization and implementation situation of each completed Development Study; and
- (2) To analyze systematically these findings to pinpoint problems and areas for improvement concerning the implementation of future Development Studies.

1-3. Methods Used in the Follow-up Study

The following four methods are used in the Follow-up Study.

- (1) Domestic studies through research and analysis by the consulting firms which undertook the respective Development Studies, and relevant government agencies of the recipient countries.
- (2) Overseas-office questionnaire surveys to relevant government agencies of the recipient countries, conducted through overseas diplomatic missions and JICA overseas offices.
- (3) On-site follow-up studies to get a detailed grasp of the situation in selected sectors and countries, through direct interview surveys at relevant government agencies and other locations.
- (4) Overseas follow-up studies to obtain supplementary information utilizing local consultants and others.

Prior experience from Follow-up Studies has shown that it can be expected to take about 5 – 10 years after its completion for some types of action to be taken on a Development Study implemented under the jurisdiction of the Social Development Study Department, or the Agriculture, Forestry and Fisheries Development Study Department. For this reason, this fiscal year's Follow-up Study focuses on grasping the status of studies under the jurisdiction of these two departments, particularly those studies which have been completed within the last 10 years (from fiscal 1989 – 1998), in order to more fully grasp the possibility of a given study being implemented in the future. In connection with this, questionnaire surveys have been implemented with the cooperation of JICA overseas offices, overseas diplomatic missions, and domestic consultants. In addition, all Development Studies completed under the jurisdiction of the Mining and Industrial Development Study Department since their inception (517) were subject to analysis.

1-4. Methods Used for Compiling Study Findings

- (1) The Follow-up Study compares and considers the differences in the current situation and states of utilization of survey findings by type of study (seven types: M/P, Basic Study, Chinese Factories Study, Others*, M/P + F/S, F/S, and D/D), target region, and target sector (Social Development, Agriculture, Forestry and Fisheries Development, and Mining and Industrial Development).
- (2) In order to form indicators for determining the state of utilization of the studies, Master Plan Studies (M/P), Basic Studies (B/S), Studies on the Factory Modernization Program in China (Chinese Factory Studies), and Other studies were combined into the category "M/P Studies Group." The evaluation metric for the state of utilization of these studies is utilization rate (%). Another category, the "F/S Studies Group" (Master Plan/Feasibility Studies (M/P + F/S), Feasibility Studies (F/S), and Detailed Design Studies (D/D)), is evaluated in terms of realization rate (%) (the number of proposed projects which have been or are being implemented \div total proposals \times 100). Note that all percentages in a table may not add up to 100.0%, as figures are rounded.

* The "Others" sector is a combination of the "Other Studies" category in the Social Development and Agricultural Development studies, and the "Other (M/P-type) Studies" and "Other (F/S-type) Studies" categories in the Mining and Industrial Development studies.

2. Overview of Survey Findings

2-1. M/P Studies Group

(1) State of Utilization

Of the 1,636 total studies, 627, or 38.3%, fell within the M/P Studies Group. Of these, 373, or 59.5%, were M/P Studies; 91, or 14.5%, were Basic Studies; 109, or 17.4%, were Chinese Factory Studies; and 54, or 8.6%, were Other Studies (including M/P-type). The studies in the group are well-utilized in their recipient countries: 556 of the completed studies (88.7%) had been effectively utilized, for instance through the implementation of a project or use in formulating a national development plan.

(2) State of Utilization by Region, Type of Study, and Sector

A great deal of difference was not found among the utilization rates of different regions. The utilization rate was 90.0% in the Asian region, 87.5% in the Middle Eastern region, 78.3% in the African region, and 89.1% in the Central and South American region. There was a great deal of variation in the utilization rates for studies conducted in Oceania, Europe and multiple countries, due to the small number of studies.

M/P Studies were the most effectively used type of study, with a utilization rate of 90.1% for completed studies. Utilization rates were also very good for Chinese Factory, Basic, and Other studies, with rates of 86.2%, 89.0%, and 83.3%, respectively.

A great deal of difference was not found among the utilization rates of different sectors. The utilization rate for Social Development was 92.1%; that for Agriculture, Forestry and Fisheries Development was 93.3%; and that for Mining and Industrial Development was 83.2%.

(3) Actual State of Studies in Progress or in Use

Some ways in which the studies are classified into the "In Progress or in Use" category are being incorporated into the national policy or plan of the recipient country, implementation of subsequent studies geared toward implementation, or securing funding and thereby completing or planning the implementation of the project. The majority of proposed projects that have been completed or are being

implemented are ones in which the main study has ended within five years, subsequent studies have been implemented, and the project is moving into the implementation phase. Study findings are deemed to be effectively utilized if they are consistent with a national plan, or are given high priority.

(4) Actual State of Delayed, Discontinued or Cancelled Studies

Of the 33 delayed studies, the full study was completed less than 5 years ago in 11 cases; 5 or more but less than 10 in 12 cases; and 10 or more years ago in 10 cases. Conversely, nearly all discontinued or cancelled items were completed at least 10 years ago: of the 28 studies that were discontinued or cancelled, 2 were completed less than 5 years ago; 2 were completed five or more but less than 10 years ago; and 24 were completed 10 or more years ago.

Some factors causing the delay, discontinuation or cancellation of studies were low priority, political factors such as changes in development policy, factors arising from the details and/or scale of the proposed project, difficulty in obtaining funding from abroad, natural disasters, and social and/or political unrest.

(5) Possibility of Improving Utilization Rate

It goes without saying that in order to improve the utilization rate of study findings, the projects proposed by Development Studies must be consistent with the recipient government's national plan, and have high priority. Nevertheless, if it is deemed possible to revive a Development Study that has not yet been implemented or that has been put on hold for a long time, then implementing supplementary studies and other more specific and detailed studies is another way of improving the utilization rate.

2-2. F/S Studies Group

(1) State of Utilization

Of the 1,636 total studies, 1,009, or 61.7%, fell within the F/S Studies Group. Of these, 734, or 72.7%, were F/S Studies (including other (F/S-type) studies); 252, or 25.0%, were M/P + F/S; and 23, or 2.3%, were D/D. A total of 591 of these were completed or in progress, for a realization rate of 58.6%.

(2) State of Utilization by Region, Type of Study, and Sector

The region with the highest realization rate was Asia, with a rate of 63.5%. This was followed by the Middle Eastern region, with a rate of 61.1%. Note that a substantial difference was found between the realization rates of ASEAN and other countries in the Asian region. The next highest realization rates after the Middle Eastern region were the Central and South American region, with a rate of 50.7%, and the African region, with a rate of 44.9%.

It comes as no surprise that the type of study with the highest realization rate is the D/D Study, with a realization rate of 78.3%. The D/D study is conducted at the final stage leading up to the implementation of a project; it is believed that the remaining 21.7%, which could not be implemented after this study was completed, must have been due to lack of ability to secure project funding for some reasons. Meanwhile, the implementation of MP + F/S studies was 65.5%, and that of F/S studies (including other F/S-type studies) was 55.6%.

The sector of the study was found to affect realization rates. The sector with the highest realization rate was social development, with a rate of 69.1%, followed by agriculture, forestry and fisheries development, with a rate of 58.9%, then mining and industrial development, with a realization rate of 37.2%.

(3) Actual State of Studies Completed or in Progress

Of the 591 items completed or in progress, 264 were completed, 154 were partially completed, 127 were being implemented, and 46 were being processed. Most of the studies categorized as Completed/Partially Completed/Implementing already had secured funding, and had implemented or were currently implementing one or more proposed projects. Most of the projects being implemented had subsequent studies such as D/D and E/S studies completed, and funding secured,

within five years of the completion of the main study. The greatest source of funding was aid from Japan, in such forms as yen loans and grant aid. Other sources of funding were domestic funding, international institutions, other aid-giving countries, and private funding. Studies in the processing stage have either secured or identified financing. The state of implementation of subsequent studies and securing/identification of financing after the completion of the main study is nearly the same for studies that have been completed, partially completed, or are being implemented. Some factors to promote proposed project implementation after the completion of the main study are priority of the proposed project, revenue effect, consistency with national plan, and implementation system.

(4) State of Studies in Promoting Stage

Studies in the promoting stage range from those that have just recently been completed, to those that have been completed over 10 years ago. Of these, 51.9% were completed less than five years ago, 29.3% were completed five years or more, but less than 10 years ago, and 18.8% were completed 10 years ago or more. Studies in the preparatory stages are categorized into those for which concrete plans have been requested or identified, those for which concrete plans are being studied, and those for which a concrete plan is unidentified or unknown. A considerable number of these studies have concrete plans identified for subsequent studies and financing. There are some studies, however, for which requests were submitted at an early stage, but which still have not been realized after five or ten years. These studies would be reclassified as "delayed" unless some measures are taken in the future.

(5) Actual State of Delayed or Suspended and Discontinued or Cancelled Studies

A total of 114 studies are classified as delayed or suspended, and 123 were classified as discontinued or cancelled. 12 studies classified as delayed or suspended were completed less than five years ago; 24 were completed 5 or more, but less than 10 years ago; and 78, or 68.4% of the total, were completed 10 or more years ago.

One of the discontinued or cancelled studies was completed less than five years ago; 10 were completed 5 or more, but less than 10 years ago; and 112, or 91.1% of the total, were completed 10 or more years ago. More studies completed 10 or more years ago were discontinued or cancelled than were delayed or suspended.

Some of the factors behind proposed projects not being implemented, and thus not realized, were political factors such as lowering of priorities or changes to development policy, difficulties in obtaining financing from abroad; tight finances on the part of the recipient government; and worsening of economic conditions in the recipient country. Other inhibiting factors were natural disasters, civil war and insurgency, and political and social unrest.

(6) Possibility of Improving Realization rate

One of methods to improve the realization rates of study findings from the F/S Study Group are to revitalize studies which have been delayed or suspended. Many of the studies classified as being in the promoting stage in 5 - 10 years after their completion, will be reclassified as delayed or suspended if no effective action is done.

It is thought that for many of the studies completed considerable years ago, and which were classified as delayed or suspended, as long as no financing prospects appear, the possibility that they will be implemented is very low. It follows that one of methods to improve the realization rate is to identify studies in the promoting stage for which the main study was completed at least five years ago, and for which no prospects for implementation have materialized, then studying inhibiting factors in implementation and measures for alleviating them and promoting study implementation. Furthermore, to come up with concrete measures for studies with a possibility of implementation, including supplemental studies and other actions to promote implementation would be another way.

CONTENTS

SUMMARY

CHAPTER 1. OUTLINE OF THE STUDY	1
1. Background and Purpose of Follow-up Study.....	1
2. Methodology of Follow-up Study.....	3
3. Criteria to Classify Utilization Status of Development Study	12
4. Collection of Related Information	16
5. Consolidation of Study Findings	16
CHAPTER 2. AN OVERVIEW OF COMPLETED DEVELOPMENT STUDIES	
(Studies Completed in FY 1974 – FY 1998)	17
1. Trends in Numbers of Completed Development Studies	17
2. Overview of M/P Studies Group	35
3. Overview of F/S Studies Group	41
CHAPTER 3. AN OVERVIEW OF DEVELOPMENT STUDY	
(Social Development & Agriculture, Forestry and Fishery Development Area: Studies Completed in FY 1989 – FY 1998)	48
1. Status of Completed Studies in M/P Studies Group.....	48
2. Status of Completed Studies in F/S Studies Group.....	61
CHAPTER 4. AN OVERVIEW OF DEVELOPMENT STUDY	
(Mining and Industrial Development Area: Studies Completed in FY 1974 – FY 1998)	93
1. Premise of Analysis	93
2. Status of Completed Studies in M/P Studies Group.....	94
3. Status of Completed Studies in F/S Studies Group.....	100
CHAPTER 5. CONCLUSIONS	111
1. Conclusions.....	111
2. Further Direction of Follow-up Study.....	117

Figures & Tables

<Figures>

Fig. 2-1	Time Trend of Numbers of Development Study	17
Fig. 2-2	Classification by Region	18
Fig. 2-3	Time Trend of the Numbers of Development Studies by Type of Study	24
Fig. 2-4	Classification by Sector and Type of Study.....	27
Fig. 2-5	Transportation (%)	28
Fig. 2-6	Social Infrastructure (%).....	29
Fig. 2-7	Public Utilities (%).....	30
Fig. 2-8	Agriculture and Animal Husbandry (%).....	31
Fig. 2-9	Forestry and Fishery (%).....	32
Fig. 2-10	Mining and Industry (%)	33
Fig. 2-11	Energy (%)	34
Fig. 4-1	Present Status of M/P Studies Group by Study Completion Year	94
Fig. 4-2	Present Status of F/S Studies Group by Study Completion Year	101
Fig. 4-3	Present Status of F/S Studies Group by Region	103

<Tables>

Table 1-1	Type of Development Study	4
Table 1-2	Category of Development Studies.....	5
Table 1-3	Sector of Studies.....	10
Table 1-4	Status for M/P Studies Group.....	12
Table 1-5	Status for F/S Studies Group.....	14
Table 2-1	Time Trend of Number of Development Study	17
Table 2-2	Classification by Region.....	18
Table 2-3	Classification by Region and Study Type.....	19
Table 2-4	Classification by Region and Sector	20
Table 2-5	Classification by Country	21
Table 2-6	Time Trend of the Number of Development Studies by Type of Study.....	23
Table 2-7	Classification by Sectors and Type of Study	26
Table 2-8	Transportation	28
Table 2-9	Social Infrastructure.....	29
Table 2-10	Public Utilities.....	30
Table 2-11	Agriculture and Animal Husbandry	31
Table 2-12	Forestry and Fishery	32
Table 2-13	Mining and Industry.....	33
Table 2-14	Energy.....	34
Table 2-15	Utilization Rate by Category of Development Study.....	35
Table 2-16	Utilization Rate by Region	36
Table 2-17	Utilization Rate by Country	37

Table 2-18 Utilization Rate by Study Type.....	39
Table 2-19 Utilization Rate by Sector	40
Table 2-20 Realization Rate by Sector	41
Table 2-21 Realization Rate by Region	42
Table 2-22 Realization Rate by Country	43
Table 2-23 Realization Rate by Type of Study	45
Table 2-24 Realization Rate by Sector	47
Table 3-1 Present Status of M/P Studies Group by Study Completion Year...	48
Table 3-2 Utilization Status of M/P Studies Group by Region.....	49
Table 3-3 Utilization Status of M/P Studies Group by Type of Study	50
Table 3-4 Utilization Status of M/P Studies Group by Area.....	50
Table 3-5 Utilization Status of M/P Studies Group by Sub-Sector	51
Table 3-6 Details of "In Progress or In Use" Studies of M/P Group.....	52
Table 3-7 Type of Subsequent Study Conducted in "In Progress or In Use" Studies	53
Table 3-8 Elapsed Years from Completion of Development Studies to Implementation of Subsequent Study	54
Table 3-9 Details of Fund Procurement.....	55
Table 3-10 Elapsed Years from Completion of Development Studies to Fund Procurement	56
Table 3-11 Perspective of "In Progress or In Use" Studies of M/P Group	57
Table 3-12 Details of Request of "Delayed" and "Discontinued or Cancelled" Studies of M/P Group	58
Table 3-13 State of Realization of F/S Studies Group.....	61
Table 3-14 Trend of Realization Rate of F/S Studies Group.....	62
Table 3-15 Present Status of F/S Studies Group by Region	63
Table 3-16 Trend in Realization Rate in Asia.....	64
Table 3-17 Present Status of F/S Studies Group by Type of Study	65
Table 3-18 Present Status by Sector and Type of Study.....	66
Table 3-19 Present Status by Sub-Sector.....	67
Table 3-20 Time Trend of the Realization Rate of Transportation Sector	68
Table 3-21 Details of "Completed or In Progress" Studies of F/S Group.....	69
Table 3-22 Type of Subsequent Study	70
Table 3-23 Elapsed Years from Completion of Development Studies to Implementation of Subsequent Study	71
Table 3-24 Details of Fund Procurement	72
Table 3-25 Details of Fund Source	73
Table 3-26 Elapsed Years from the Completion of Development Studies to the Realization of Fund Procurement.....	74
Table 3-27 Perspectives of "Partially Completed" or "Implementing" Studies of F/S Group	75
Table 3-28 Elapsed Years after the Completion of Development Studies.....	76
Table 3-29 Details of Subsequent Studies Conducted ("Promoting" Studies)....	77
Table 3-30 Details of "Promoting" Studies	78
Table 3-31 Details of Materialization.....	79
Table 3-32 Elapsed Years from Completion of Development Studies to Determination of the Formal Request/Concrete Actions	79
Table 3-33 Details of Formal Request/Subsequent Actions which are under Preparation	80

Table 3-34 Impeding Factors.....	81
Table 3-35 Elapsed Years after Completion of Development Studies.....	82
Table 3-36 Details of Subsequent Studies Conducted ("Delayed or Suspended" Studies).....	83
Table 3-37 Details of Request of "Delayed or Suspended" and "Discontinued or Cancelled" Studies	84
Table 3-38 Elapsed Years from Completion of Development Studies to Realization of Formal Request.....	85
Table 3-39 Factors Cause "Delayed or Suspended" and "Discontinued or Cancelled".....	86
Table 3-40 Perspective of "Delayed or Suspended" Studies of F/S Studies.....	87
Table 3-41 Details of Fund Procurement of F/S Group (Social and Agricultural Development Sectors).....	88
Table 4-1 Status of M/P Studies Group by Study Completion Year	94
Table 4-2 Present Status of M/P Studies Group by Region.....	95
Table 4-3 Present Status of M/P Studies Group by Type of Study	96
Table 4-4 Present Status of M/P Studies Group by Sector.....	98
Table 4-5 Delayed Reasons of M/P Studies Group	99
Table 4-6 Present Status of F/S Studies Group by Study Completion Year...100	
Table 4-7 Present Status of F/S Studies Group by Region.....102	
Table 4-8 Present Status of F/S Studies Group by Type of Study	106
Table 4-9 Present Status of F/S Studies Group by Sector.....107	
Table 4-10 Delayed Reasons of F/S Studies Group.....109	

Appendix A

(Social Development Sector & Agriculture, Forestry and Fisheries Development Area)

Table 1. Trend of the Number of Development Studies by Type of Study	119
Table 2. Trend of the Number of Development Studies by Region.....	121
Table 3. Trend of the Number of Development Studies in Asia	123
Table 4. Trend of the Number of Development Studies in Middle East and Africa.....	126
Table 5. Trend of the Number of Development Studies in Central & South America and Oceania.....	127
Table 6. Trend of the Number of Development Studies in Europe and Plural Countries	128
Table 7. Utilization Rate of the M/P Studies Group by Type of Study.....	129
Table 8. Utilization Rate of the M/P Studies Group by Region	129
Table 9. Realization Rate of the F/S Studies Group by Type of Study	130
Table 10. Realization Rate of the F/S Studies Group by Region	131

Appendix B

Project List.....	132
Project Summary Table	184
Utilization Rate of the M/P Studies Group by Sector	339
Realization Rate of the F/S Studies Group by Sector	353

CHAPTER 1

OUTLINE OF THE STUDY

CHAPTER 1. OUTLINE OF THE STUDY

1. Background and Purpose of Follow-up Study

1-1. Background of Follow-up Study

The Social Development Study Department of JICA conducts follow-up studies on Social Development and Agriculture, Forestry and Fisheries Development area, and also Mining and Industrial Development Study Department of JICA conducts Mining and Industry Project follow-up studies on Mining and Industrial Development area.

After the completion of development study, it had been difficult to follow the progress of the proposed project and the utilization of the Study findings. The reasons of the difficulty are as follows; a considerable amount of time is often needed to realize projects after the completion of studies, there are a large number of ways in which study findings are used, and there have been limitations on the amount of information available from recipient countries.

In order to overcome the above-mentioned difficulties, follow-up studies on development studies were started in FY 1984. On-site Follow-up Studies were added in FY 1987 to collect a wide range of information from the project implementation sites. Domestic Follow-up Studies, questionnaire surveys for domestic consultants in charge of projects, were also started in FY 1988. The scope of follow-up studies has been extended to Agriculture, Forestry and Fisheries area since FY 1989. In addition, studies of counterpart agencies (JICA Overseas Office Studies) have been conducted through the study teams of JICA overseas offices and cooperation volunteer coordinators since FY 1991. Studies by local consultants from developed countries since FY 1994 and studies by local in-country consultants since FY 1995 (Overseas Follow-up Studies) have been conducted. Since there has been increased interest in evaluating development studies recently, on-site trial studies have been implemented to evaluate the impact of development studies since FY 1998.

In FY 1999, a follow-up study using the traditional questionnaire survey and an evaluation study were conducted and reported separately. This report shows a summary of the findings of follow-up study.

1-2. Purpose of Follow-up Study

The follow-up study has two goals as follows:

- (1) To grasp the current status, utilization and implementation situation of completed development studies; and
- (2) To analyze systematically these findings to improve future development studies.

2. Methodology of Follow-up Study

2-1. Coverage

The follow-up study covers studies implemented under the development study budget under the jurisdiction of the Social Development Study and Agriculture, Forestry and Fisheries Development Study Departments, and those implemented under the overseas development plan study budget, under the jurisdiction of the Mining and Industrial Development Study Department (excluding follow-up studies of special project studies conducted as part of the Grant Aid Program). The follow-up study covers main studies completed between August 1, 1974 (the date on which JICA was established) to the end of FY 1998 (March 31, 1999). The total number of studies conforming to these standards is 1,636 (791 in Social Development area, 328 in Agricultural Development area, and 517 the Mining and Industrial Development area).

As the results of previous follow-up studies, it is expected that some actions on development study implemented under the jurisdiction of the Social Development Study Department or the Agriculture, Forestry and Fisheries Development Study Department would be taken in 5 – 10 years after its completion. Hence, this follow-up study focuses on development studies completed for the last 10 years (from FY 1989 to FY 1998) to grasp the status of studies under the jurisdiction of these two Departments. On the other hand, all the development studies under the jurisdiction of the Mining and Industrial Development Study Department since their inception was subjects to analysis. Questionnaire surveys in the Follow-up Study have been implemented in cooperation with JICA overseas offices, overseas diplomatic missions, and domestic consultants.

2-2. Classification by Year of Completion

The fiscal year of completion is defined as the fiscal year in which the final report of the development study was submitted to JICA. In order to determine the fiscal year of completion, financial statements, their attached specifications, the annual report of JICA, and the replies by consulting firms in charge of studies and JICA overseas offices to questionnaire surveys are referred.

2-3. Classification of Development Studies by Country and Region

The country and region classifications in development studies are defined by JICA. Studies which cover several countries or regions are classified "plural countries."

(1) ASEAN

(Brunei, Indonesia, Cambodia, Laos, Myanmar, Malaysia, Philippines, Singapore, Thailand, and Viet Nam)

(2) Other Asia (Asian countries other than the ten countries listed below)

(3) Middle East

(Including Northern Africa: Algeria, Egypt, Libya, Morocco, Sudan, and Tunisia)

(4) Africa (Excluding Northern Africa)

(5) Central and South America

(6) Oceania (countries classified as "Pacific" for Mining and Industry sector)

(7) Europe

(8) Plural Countries

2-4. Classification of Development Study by Study Type

Development Studies are classified by study type as shown in Table 1-1.

Table 1-1 Type of Development Study

1. M/P (Studies for formulating master plans)
2. M/P+F/S (Studies which include both M/P and Feasibility Studies (F/S))
3. F/S (Feasibility studies)
4. D/D (Studies for detailed designs)
5. Basic Studies (Studies to provide basic data, such as maps of various types, nautical charts and groundwater surveys, forestry and fishery resources studies, and agricultural verification studies)
6. Chinese Factories (Studies on the Factories Modernization Program in China)
7. ASEAN Plant Renovation Studies (Studied on the Plant Renovation in ASEAN Countries)
8. Others (Studies for Aftercare Services, etc.)

Note: Resource Studies in the Mining and Industry sector are classified as Basic Studies.

The categories of follow-up studies of Social Development area and Agriculture, Forestry and Fisheries Development area do not match those of Mining and Industrial Development area, due to a difference of the characteristics. In order to conduct an overall analysis in Chapter 2, type of development study are classified as shown in Table 1-2. Detailed analyses in Chapters 3 and 4 are conducted based on respective study categories.

Table 1-2 Category of Development Studies

M/P Studies Group	Social Development, Agriculture, forestry and fisheries Development	M/P, Basic Studies, Others
	Mining and Industrial Development	M/P, Chinese Factories, Resources Studies, Other (M/P)
F/S Studies Group	Social Development, Agriculture, forestry and fisheries Development	M/P+F/S, F/S, D/D
	Mining and Industrial Development	F/S, ASEAN Plant Renovation Studies, Other (F/S)

2-5. Definition of Development Studies by Type of Study

Each type of Development Study is defined as follows:

1) Master Plan Studies (M/P)

A master plan study is carried out to determine a basic development strategy by formulating a comprehensive sectional or regional plan. The formulation of a master plan is the first stage in the development project cycle. It serves to coordinate and facilitate efficient implementation of various individual projects. The project proposed by a master plan study may be implemented in line with the recommendation of the study immediately after the completion of the study or may be carried out within several years after its implementation. For a project prioritized by a master plan, feasibility studies are sometimes implemented.

2) Master Plan/Feasibility Studies (M/P + F/S)

These are studies in which both the master plan and feasibility studies (described below) are undertaken in one step.

3) Feasibility Studies (F/S)

A feasibility study is the one to examine the rationale, appropriateness, investment effects, etc. of a particular development project. In general, it is to determine systematically and objectively whether the proposed project is viable and feasible socially, technically, economically and financially as well as from other important consideration, e.g. operation and maintenance, organization and institution, and preservation of social and natural environment. A feasibility study report serves as important reference for the concerning government agencies and officials to make a policy decision whether the country should proceed to the implementation of the given proposed project(s). It also provides the bilateral and multilateral aid agencies to which a request for financial assistance is addressed with necessary information to examine whether the proposed project is appropriate to be given such assistance.

4) Detailed Design Studies (D/D)

A detailed design study is used to develop the design documents (including draft drawings, work specifications, and bidding documentation) needed to begin project construction work as planned. Considerable cost and time is generally required for the study during this phase, since all detailed investigations related to a project's detailed design must be covered. This type of studies is followed by the selection of the contractor through competitive bidding, then the actual construction. Detailed design studies are indispensable to implement the project orderly and to facilitate the effectiveness of financial assistance.

5) Basic Studies (Long-term Studies, Topographical Studies, Groundwater Development Studies, Forestry and Fishery Resources Studies, Agricultural Verification Studies, etc.)

a) Long-term Studies

Formulation of region-wide plans such as river water management or irrigation plan and of integrated regional resources development plan and examination of alternative policy measures for environmental protection often require long-term and continuous accumulation of relevant basic data. The lack of such data or of abilities to collect and compile such data may become a major impeding factor against the implementation of development plans. In this type of studies, a team of experts are sent to stay in the recipient country for a long period, and collect,

record, compile and analyze relevant basic data through long-term observation.

b) Topographical Studies

The presence of basic maps of national land and its cities is often a necessary condition for planning and implementation of development projects. In many regions of developing countries, however, topographical drawings of national territories and cities have been virtually non-existent, or not appropriate for practical use if ever exist, due to the lack of standardized method to draw and information to fill in. present. This situation leads to difficulty in formulating and implementing development projects as well as in coping with urban problems that are becoming increasingly serious. The results of these studies greatly serve to overcome such difficulties in developing countries by providing basic data and information.

c) Groundwater Development Studies

These studies survey prospect for ground water and investigate the feasibility of its utilization for irrigation, the supply of drinking water and the supply of water for industry. It is an urgent task to secure the drinking water in such places as the dry land where serve drought hits frequently or as the regions where the quality of water is not suitable for drinking. Also, some regions face such problems that drinking water is being deteriorated or dried up due to over-consumption. Thus, the groundwater development is urgently needed in order to improve the lives of the residents in those regions.

d) Forestry and Fishery Resources Studies

These studies aim to collect the basic data on the distribution of forestry and fishery resources, and contribute to various development planning based on appropriate control of resources through the studies.

e) Agricultural Verification Studies

These studies aim to collect basic data on meteorology, hydrology, pedology and other natural conditions, and to conduct such verification experiments as introduction of new varieties, new cultivation methods and methods of transplants.

Although this type of study was abandoned in FY 1998, participatory verification studies by local residents and counterpart officials, and pilot studies of agricultural verification have carried out in the process of development studies since FY 2000.

f) Resource Studies

This is a type of Pre-Feasibility Studies that are usually conducted to assess mineral and other natural resource deposits in the expected project areas to review the development probability.

6) Studies on the Plant Renovation in ASEAN Countries

This is a series of studies concerning the plant renovation begun as a result of Prime Minister Nakasone's announcement of cooperation during his tour to the ASEAN countries in May 1983.

7) Studies on the Factories Modernization Program in China

These studies have been conducted since May 1981 with the aim at researches on modernization procedures in the existing Chinese factories. The studies resulted from the proposal addressed by the Chinese National Economic Commission (currently the Chinese National Economic and Trade Commission) to the Ministry of International Trade and Industry during the Japan-China High Level Administrative Meeting.

8) Other Studies

One type of other studies is the review study requested by the recipient country due to changes in social or natural conditions after the completion of the Development Study. Another is the one to investigate independently institutional matters and to encourage project implementation

2-6. Classification by Sector

Completed studies are classified into sectors, subsectors, and sub-subsectors according to the JICA System Code Table (May 1999), as shown in Table 1-3 on the following page.

Table 1-3 Sector of Studies

Sector	Subsector	Sub-subsector
1. Planning & Administration	(1) Development Plan	1) (Development Plan in) General 2) Integrated Regional Development Plan
	(2) Administration	1) (Administration in) General 2) Public Finance & Banking 3) Environmental Problems 4) Statistics 5) Information & Public Relations
2. Public Works & Utilities	(1) Public Utilities	1) (Public Utilities in) General 2) Water Supply 3) Sewerage 4) Urban Sanitation
	(2) Transportation	1) (Transportation in) General 2) Road 3) Land Transportation 4) Railway 5) Marine Transportation & Ships 6) Port 7) Air Transportation & Airport 8) Urban Transportation 9) Meteorology & Seismology
	(3) Social Infrastructure	1) (Social Infrastructure in) General 2) River & Erosion Control 3) Water Resources Development 4) Urban Planning & Land Development 5) Architecture & Housing 6) Survey & Mapping
	(4) Communications & Broadcasting	1) (Comms. & Broad. in) General 2) Post 3) Telecommunication 4) Broadcasting
3. Agriculture, Forestry & Fishery	(1) Agriculture	1) (Agriculture in) General 2) Sericulture 3) Irrigation, Drainage & Reclamation 4) Agricultural Machinery 5) Agricultural Processing 6) Increase of Food Production
	(2) Animal Husbandry	1) Animal Husbandry 2) Animal Health 3) Livestock Processing
	(3) Forestry	1) Forestry & Forest Conservation 2) Timber Processing
	(4) Fishery	1) Fishery 2) Fish Processing

Sector	Subsector	Sub-subsector
4. Mining & Industry	(1) Mining	1) Mining
	(2) Industry	1) (Industry in) General 2) Chemicals 3) Steel & Nonferrous Metals 4) Machine Industry 5) Textile Industry 6) Pulpwood Products 7) Food Industry 8) Other Industries
5. Energy	(1) Energy	1) (Energy in) General 2) Electric Power 3) Gas & Oil 4) New & Recycled Energy 5) Other Energies
6. Commerce & Tourism	(1) Commerce & Trade	1) Business Management 2) Trade
	(2) Tourism	1) (Tourism in) General 2) Tourism Infrastructure
7. Human Resources Development	(1) Human Resources Development	1) (Human Resources in) General 2) Physical Education 3) Education 4) Vocational Training
	(2) Science & Culture	1) Science 2) Culture
8. Public Health and Medicine	(1) Public Health and Medicine	1) Public Health and Medicine 2) Population & Family Planning
9. Social Welfare	(1) Social Welfare	1) Social Welfare 2) Labor 3) Disaster Relief 4) Food Assistance 5) Other Welfare
10. Others	(1) Others	1) Others

3. Criteria to Classify Utilization Status of Development Study

Studies are classified into 2 groups by their own clearly defined evaluation criteria in order to ascertain the progress of projects and utilization of study findings accurately.

3-1. M/P Studies Group

Master plan studies (M/P), basic studies (B/S), studies on factory modernization program in China and other studies (other M/P-type studies) are classified into M/P Studies Group. Information is sought on whether or not study findings have been adopted or utilized. The present status is classified into 3 categories: 1) In Progress or In Use, 2) Delayed, and 3) Discontinued or Cancelled.

The criteria for determining the present status of studies in the M/P Studies Group are as shown in Table 1-4.

Table 1-4 Status for M/P Studies Group

Present Status	Criteria
a. In Progress or In Use	<p>A Study is classified into this category when its findings or proposals are sufficiently utilized in the following manner.</p> <ol style="list-style-type: none">1) Based on the proposals, subsequent studies are, or have been, undertaken. Alternatively, the Study findings are utilized to undertake some development study or planning.2) Further Japanese technical cooperation is started on the basis of the proposals or Study findings.3) Proposals are incorporated into the development policy or plan of the recipient country. Alternatively, Study findings are utilized to formulate the development policy or plan.4) The government of the recipient country is taking some preparatory step to utilize the proposals.
b. Delayed	<p>A Study is classified as "delayed", when its findings or proposals are in one of the following conditions.</p> <ol style="list-style-type: none">1) No significant action has been taken by the government of the recipient country to utilize the proposals or findings.2) The government of the recipient country began to act on the proposals, or utilize the findings, but the effort was halted for some reasons.

c. Discontinued or Cancelled	<p>A Study is classified into this category when its findings or proposals are in one of the following conditions.</p> <ol style="list-style-type: none"> 1) The government of the recipient country made an explicit decision not to act on the proposals. 2) The government decided to act on, or utilize, different proposals or findings from other sources. 3) No actions have been or will be taken "for the considerable period of time".
------------------------------	---

* As there is no category in the Social and Agricultural Sector that corresponds to the classification "unknown" in the Mining and Industry sector, the sector collapsing social, agricultural, and mining and industry categorizes these as "discontinued or cancelled."

3-2. F/S Studies Group

F/S Studies Group consists of feasibility studies (F/S), master plan/feasibility studies (M/P + F/S), detailed design studies (D/D) and other studies (other F/S-type studies). Information is sought on whether or not the projects or programs they appraised or proposed have been implemented. The present status is classified into four categories: a) Completed or in Progress, b) Promoting, c) Delayed or Suspended, and d) Discontinued or Cancelled. The category of "Completed or in Progress" is further divided into four sub-categories: a1) Completed, a2) Partially Completed, a3) Implementing, and a4) Processing.

The criteria for classification of the F/S Studies Group are shown in Table 1-5.

Table 1-5 Status for F/S Studies Group

Present Status	Criteria
a. Completed or In Progress a1. Completed a2. Partially Completed a3. Implementing a4. Processing	The proposed development project has been already completed and is in use. The proposed development project is partially completed and is in use. The implementation of the project is underway. The project concerned is at one of the following stages. 1) Tenders have been invited. 2) Financing of the project has been secured.* 3) Following the completion of the JICA feasibility study, the basic design study or some other specific stop is being undertaken with bilateral or multilateral financial assistance. 4) For some other reasons the project concerned is considered highly likely to be implemented in the future.
b. Promoting	The project concerned is at one of the following stages. 1) The government of the recipient country is requesting financial support from international organizations and/or foreign governments including Japan. 2) The government of the recipient country has been undertaking the detailed design study or other additional studies subsequent to the JICA feasibility study. 3) The recipient country is actively promoting the implementation of the project in some other way.

c. Delayed or Suspended	<p>The project concerned is at one of the following stages.</p> <ol style="list-style-type: none"> 1) The government of the recipient country has not taken any specific action after the completion of the JICA Study. 2) The government of the recipient country has at one point promoted the proposed project but suspended the effort for some reason.
d. Discontinued or Cancelled	<p>The project concerned is at one of the following stages.</p> <ol style="list-style-type: none"> 1) The government of the recipient country officially cancelled the proposed project. 2) The government of the recipient country implemented an alternative which was substantially different from the proposal of the JICA Study. 3) No actions have been or will be taken "for the considerable period of time".

* Here the term "secured" is used to mean that either a loan agreement is signed, or a government commitment is confirmed in the form of an official pledge or exchange of notes has been executed.

4. Collection of Related Information

Related basic information is collected from the documents and the reports from JICA headquarters and Institute for International Cooperation.

In JICA Overseas Office Survey, related information is collected through JICA overseas offices conducting questionnaire to the counterparts in developing countries.

In Domestic Questionnaire Survey, related information is collected conducting questionnaire to the consulting firms in charge of development studies.

Information concerning the studies completed recently and information that is unclear in the above-mentioned surveys are complemented by referring to documents from JICA headquarters and the Institute for International Cooperation, and interviewing relevant JICA officers.

5. Consolidation of Study Findings

The study findings are reported in the report 'Follow-up Study of Development Studies' in both Japanese and English.

The report is compiled based on information of JICA Overseas Office Studies, Domestic Questionnaire Studies, On-site Studies, and interviews. In this report, completed information is consolidated and analyzed based on survey type, survey sector, survey region, country, and sector, ascertaining trends by study type, sector, and region, in order to grasp the current utilization of completed development studies. In addition, it is grasped whether M/P studies were used in subsequent feasibility studies, as well as technical cooperation, and national plans.

Studies covered by the present Follow-up Study (studies completed between FY 1989 - 1998) and approved by counterparts in the recipient countries list in an appendix to this report.

CHAPTER 2

AN OVERVIEW OF COMPLETED DEVELOPMENT STUDIES

(Studies Completed in FY1974 – FY1998)

CHAPTER 2. AN OVERVIEW OF COMPLETED DEVELOPMENT STUDIES
(Studies Completed in FY 1974 – FY 1998)

1. Trends in Numbers of Completed Studies

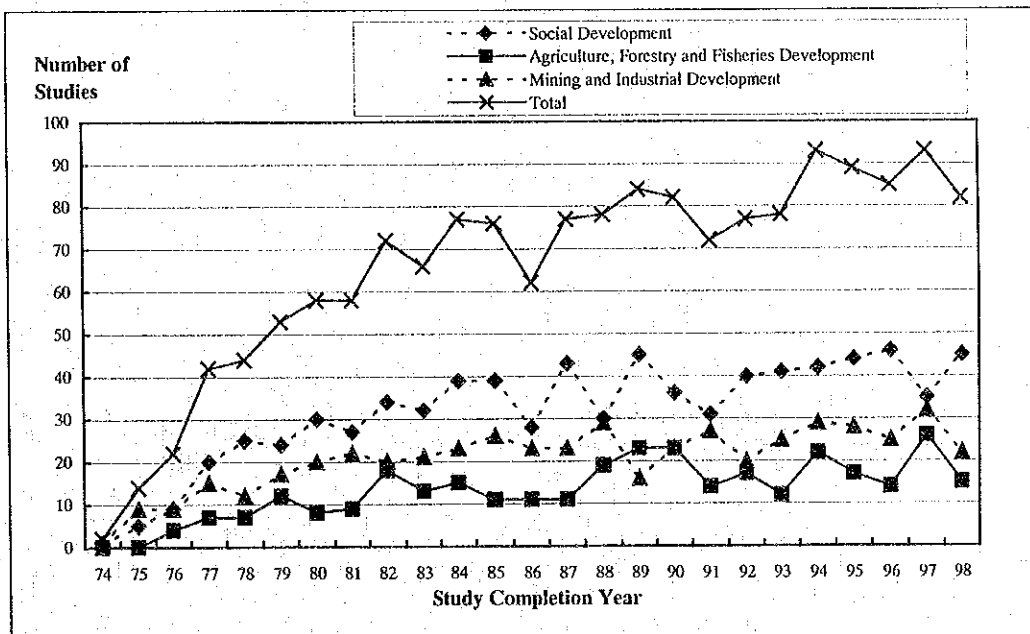
As shown in Table 2-1, the number of completed studies had been risen until 1990 and has been settled around 80 for the last 10 years.

Table 2-1 Time Trend of Numbers of Development Study

Study Completion Year	Social Development	Agriculture, Forestry and Fisheries Development	Mining and Industrial Development	Total	Study Completion Year	Social Development	Agriculture, Forestry and Fisheries Development	Mining and Industrial Development	Total
1974	1	0	1	2	1987	43	11	23	77
1975	5	0	9	14	1988	30	19	29	78
1976	9	4	9	22	1989	45	23	16	84
1977	20	7	15	42	1990	36	23	23	82
1978	25	7	12	44	1991	31	14	27	72
1979	24	12	17	53	1992	40	17	20	77
1980	30	8	20	58	1993	41	12	25	78
1981	27	9	22	58	1994	42	22	29	93
1982	34	18	20	72	1995	44	17	28	89
1983	32	13	21	66	1996	46	14	25	85
1984	39	15	23	77	1997	35	26	32	93
1985	39	11	26	76	1998	45	15	22	82
1986	28	11	23	62	Total	791	328	517	1636
						(48.3%)	(20.0%)	(31.6%)	(100.0%)

* Due to the fact that studies subject to the current follow-up study began on August 1, 1974, few studies were completed between fiscal 1974 and 1976.

Figure 2-1 Time Trend of Numbers of Development Study



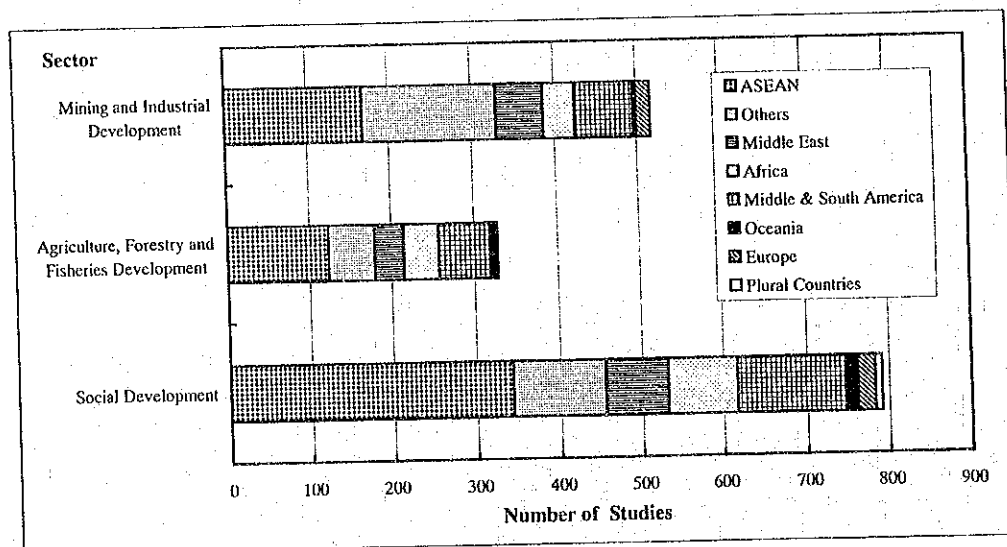
1-1. Numbers of Development Study by Region

964 Development Studies (58.9% of the total) were conducted in Asia. This shows Japanese government has put emphasis on conducting studies in Asia. Particularly in the ASEAN countries, 635 studies (38.8% of the total) are conducted. This follows 262 studies (16.0%) in Central and South America, 169 studies (10.3%) in Middle East, and 167 studies (10.2%) in Africa.

Table 2-2 Classification by Region

Region	Social Development	Agriculture, Forestry and Fisheries Development	Mining and Industrial Development	Total
Asia	455 (57.5%)	179 (54.6%)	330 (63.8%)	964 (58.9%)
ASEAN	343 (43.4%)	124 (37.8%)	168 (32.5%)	635 (38.8%)
Others	112 (14.2%)	55 (16.8%)	162 (31.3%)	329 (20.1%)
Middle East	76 (9.6%)	36 (11.0%)	57 (11.0%)	169 (10.3%)
Africa	86 (10.9%)	43 (13.1%)	38 (7.4%)	167 (10.2%)
Middle & South America	130 (16.4%)	61 (18.6%)	71 (13.7%)	262 (16.0%)
Oceania	15 (1.9%)	6 (1.8%)	4 (0.8%)	25 (1.5%)
Europe	21 (2.7%)	3 (0.9%)	17 (3.3%)	41 (2.5%)
Plural Countries	8 (1.0%)	0 (0.0%)	0 (0.0%)	8 (0.5%)
Total	791 (100.0%)	328 (100.0%)	517 (100.0%)	1636 (100.0%)

Figure 2-2 Classification by Region



Nearly the same proportions of study types are conducted in each region except for Oceania and Europe, where few studies were conducted. The most common type of study is Feasibility Study (F/S), followed by Master Plan (M/P) Study, and M/P + F/S Study.

Table 2-3 Classification by Region and Study Type

Region	M/P	M/P+F/S	F/S	D/D	Basic Studies	Chinese Factories	Other * Studies	Total
Asia	204 (21.2%)	155 (16.1%)	425 (44.1%)	11 (1.1%)	24 (2.5%)	109 (11.3%)	36 (3.7%)	964 (100.0%)
ASEAN	155 (24.4%)	116 (18.3%)	314 (49.4%)	9 (1.4%)	17 (2.7%)	0 (0.0%)	24 (3.8%)	635 (100.0%)
Others	49 (14.9%)	39 (11.9%)	111 (33.7%)	2 (0.6%)	7 (2.1%)	109 (33.1%)	12 (3.6%)	329 (100.0%)
Middle East	42 (24.9%)	25 (14.8%)	82 (48.5%)	6 (3.6%)	9 (5.3%)	0 (0.0%)	5 (3.0%)	169 (100.0%)
Africa	35 (21.0%)	17 (10.2%)	87 (52.1%)	3 (1.8%)	18 (10.8%)	0 (0.0%)	7 (4.2%)	167 (100.0%)
Middle & South America	73 (27.9%)	36 (13.7%)	113 (43.1%)	2 (0.8%)	30 (11.5%)	0 (0.0%)	8 (3.1%)	262 (100.0%)
Oceania	1 (4.0%)	10 (40.0%)	7 (28.0%)	1 (4.0%)	5 (20.0%)	0 (0.0%)	1 (4.0%)	25 (100.0%)
Europe	17 (41.5%)	9 (22.0%)	13 (31.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (4.9%)	41 (100.0%)
Plural Countries	1 (12.5%)	0 (0.0%)	2 (25.0%)	0 (0.0%)	5 (62.5%)	0 (0.0%)	0 (0.0%)	8 (100.0%)
Total	373 (22.8%)	252 (15.4%)	729 (44.6%)	23 (1.4%)	91 (5.6%)	109 (6.7%)	59 (3.6%)	1636 (100.0%)

* The "Others" category is a combination of "Other Studies" from Social Development and Agriculture, Forestry and Fisheries Development studies, and Other (M/P-type) and Other (F/S-type) studies from Mining and Industrial Development studies.

Transportation subsector shares the largest number of studies in all regions, except other Asia, where Chinese Factory Studies (Industrial Sector) is the largest, and Africa, where Agricultural sector shares the largest.

In Transportation subsector, Road sub-subsector is the largest in ASEAN countries and Africa and Port sub-subsector is the largest in other Asian countries and Central and South America. On the other hand, Social Infrastructure and Communications and Broadcasting sectors are relatively larger in ASEAN countries than in other regions.

Table 2-4 Classification by Region and Sector

Region	Planning & Administration	Public Works & Utilities	Transportation					Social Infrastructure	Communications & Broadcasting	Tourism	Public Health and Medicine	Agriculture	Animal Husbandry	Forestry	Fishery	Mining	Industry	Energy	Others *	Total
			Road	Railway	Port	Others	Sub-Total													
Asia	33	41	73	32	49	62	216	112	44	8		152	1	16	10	6	189	117	19	964
ASEAN	24	33	62	19	31	45	157	87	33	8		101		14	9	3	59	92	15	635
Others	9	8	11	13	18	17	59	25	11			51	1	2	1	3	130	25	4	329
Middle East	7	13	11	3	10	9	33	16	5	2		30	1	2	3		29	24	4	169
Africa	3	13	17	3	4	10	34	27	6	2	1	37		4	2	3	13	22		167
Middle & South America	12	10	15	10	19	23	67	31	7	2		38		14	9	5	23	39	5	262
Oceania	1	2	1		4	2	7	3	2					2	4	1		2	1	25
Europe	5	7	1	3		3	7		1	1		3					9	5	3	41
Plural Countries			1			2	3	3	2											8
Total	61	86	119	51	86	111	367	192	67	15	1	260	2	38	28	15	263	209	32	1636

* The Others category consists of Social Development (1 in Indonesia and 1 in Honduras) and Mining and Industrial Development (30) studies.

1-2. Numbers of Studies by Country

The largest number of studies is carried out in Asia. 220 studies are conducted in Indonesia, followed by 176 in China (109 of which are Chinese Factory Studies), 139 in Thailand, 138 in the Philippines, and 69 in Myanmar. At least 15 development studies are conducted in 19 other countries: Bangladesh, India, Sri Lanka, Nepal, Pakistan, Viet Nam (Asian countries), Egypt, Oman, Turkey (Middle Eastern countries), Kenya, Tanzania (African countries), Argentina, Bolivia, Brazil, Colombia, Honduras, Mexico, Peru, Paraguay (Central and South American countries).

Table 2-5 Classification by Country

(*) ASEAN ten countries

	Planning and Administration	Public Works and Utilities	Transportation				Social Infrastructure	Communications and Broadcasting	Tourism	Public Health and Medicine	Agriculture	Animal Husbandry	Forestry	Fishery	Mining	Industry	Energy	Others	Total
			Road	Railway	Port	Others													
Bangladesh		1	1	1	2	2	5	1		6					5	2		26	
Brunei *						1	1					1			1			4	
Bhutan			1				1			1								3	
China	9	1	4	5	5	5	8	2		13	1			2	111	6	4	176	
Indonesia *	8	11	14	7	12	13	35	19	3	26		6	1	1	21	37	6	220	
India			1	3	3	1				2					4	2		16	
Cambodia *		1	1		1		1	1		2						1		8	
Korea		1		1			2			1					1	1		7	
Laos *		1	2				3			4		1				2		13	
Sri Lanka		3	2		5	1		4		9			1		3	3		31	
Maldives							1											1	
Mongolia		1		2			1	1		2		1		1	1	1		11	
Myanmar *				2		3				4					3	2		14	
Malaysia *	2	4	9	3	4	3	13	4	1	5		3	2		7	8	1	69	
Nepal			2			3	6	2		5		1			3	6		28	
Pakistan		1		1	3	5	1	1		12					2	4		30	
Philippines *	5	5	16	1	6	9	22	3	1	29		2	4	1	9	23	2	138	
Singapore *			1		1	1		1										6	
Thailand *	7	10	16	5	5	11	10	5	3	29		1	1	1	15	17	3	139	
Viet Nam *	2	1	3	1	2	4	2			2			1		3	2	1	24	
United Arab Emirates							2			1			1		1	1		6	
Algeria						1				1					2			4	
Egypt	3	5	2	2	3	5	1	3		9	1				7	1		42	
Iran	1				1					2					2	2		8	
Iraq						1	1			1					1			4	
Jordan	2	1	1		1		3		1	2					2	1		14	
Morocco		1		1		1	3			2		1	1			1		11	
Oman			2		1		1			5					5	3	1	18	
Palestine		1																1	
Qatar		1																1	
Saudi Arabia							2								3		1	6	
Sudan			2							2					1			5	
Syria		1			1			1	1						2	1		7	
Tunisia			1				3			1		1			1	3	2	12	
Turkey	1	1	3		2					3			1		1	11		23	
Yemen		2			1	1		1		1					1			7	
Burkina Faso										1								1	
Democratic Republic of the Congo			1	1		2												4	
Cote d'Ivoire										2								2	
Cameroon										1						1		2	
Djibouti					1													1	
Eritrea							1											1	
Ethiopia							3			1		1				1		6	
Gabon													1					1	
Ghana										2								2	
Guinea						1	1			1								3	
Kenya	1	6	5			1	4		1	1	4				3	3		29	
Liberia				1												1		2	
Madagascar		1	1		1		1	1								1		6	
Mali							1			4						1		6	
Mozambique					1													1	
Mauritania							1			1								2	
Mauritius		2	2				1									1		6	
Malawi				1						1		1				2		5	
Namibia																1		1	
Niger						1	1			4					1			7	
Nigeria					1		2			1					1			5	

	Planning and Administration	Public Works and Utilities	Transportation				Social Infrastructure	Communications and Broadcasting	Tourism	Public Health and Medicine	Agriculture	Animal Husbandry	Forestry	Fishery	Mining	Industry	Energy	** Others	Total
			Road	Railway	Port	Others													
Rwanda		1				1												2	
Senegal				1		1	2			2			1				1	8	
Sierra Leone			1							1								2	
Saotome and Principe																	1	1	
Swaziland						1										2		3	
Tanzania	1	2	3			2	4	1		5	1	1		1	2	5		27	
Uganda			1				2	1		1			1					6	
Zambia			1			1	2	2		2	1		1		3			13	
Zimbabwe	1	1		1				2		3					3	1		12	
Argentina	2			1	1		1	1		1	1				3	4	1	16	
Bolivia	1	1	4	3		2	4	1		4	1	1	1	1	1	1		24	
Brazil	3			1	2	1	5			1		1		1	1	3	1	19	
Chile		1	3	1	1		1			2	1				2	2		14	
Colombia	1		2			2	2			5	1	1			2	5		21	
Costa Rica	1				2	1	1			1			1			4		11	
Dominican Republic					1		1	1		4						2		9	
Ecuador					1	1	2			2	1	1			2	3		13	
Grenada			1															1	
Guatemala		2			1	3	3			2	1				1	1		14	
Guyana																1		1	
Honduras					1	2	2	1		5	2	2				1	1	17	
Jamaica										2								2	
Mexico	2	1		4	3	1		1		1	1	1	3	2	2	2		23	
Nicaragua		2	2				1											5	
Panama			1		2	3	1	1	1			1	1			1		12	
Peru		1			1	1	3			1		2	1		1	5		16	
Paraguay	1	1	2			5	1	2		6	2				3	1		24	
El Salvador						1	1			1								4	
Trinidad and Tobago		1														1		2	
Uruguay					1	1						2			3			7	
Venezuela	1					1	2								1	2		7	
Cook Islands	1				1													2	
Republic of the Fiji Islands							3					2	1					6	
Kiribati					1								1			1		3	
Papua New Guinea		2	1			1		1					1			1		7	
Solomon Islands						1		1					1	1				4	
Samoa					2													2	
Tonga																	1	1	
Albania		1																1	
Bulgaria	1	1		1						1					1	2		7	
Bosnia-Herzegovina															1			1	
Czechoslovakia																1		1	
Greece								1										1	
Hungary	1	1													1	1	1	5	
Poland	1	1		1		1									2		1	7	
Portugal															1			1	
Romania	1	1								1					1			4	
Slovakia																1		1	
Kyrgyz	1							1										3	
Kazakhstan			1			1				1					1			4	
Lithuania		1																1	
Slovenia																	1	1	
Uzbekistan		1		1		1												3	
Plural countries			1			2	3	2										8	
Total	61	86	119	51	86	111	192	67	15	1	260	2	38	28	15	263	209	32	1636

** The Others category consists of Social Development (1 in Indonesia and 1 in Honduras) and Mining and Industrial Development (30) studies.

1-3. Numbers of Studies by Type

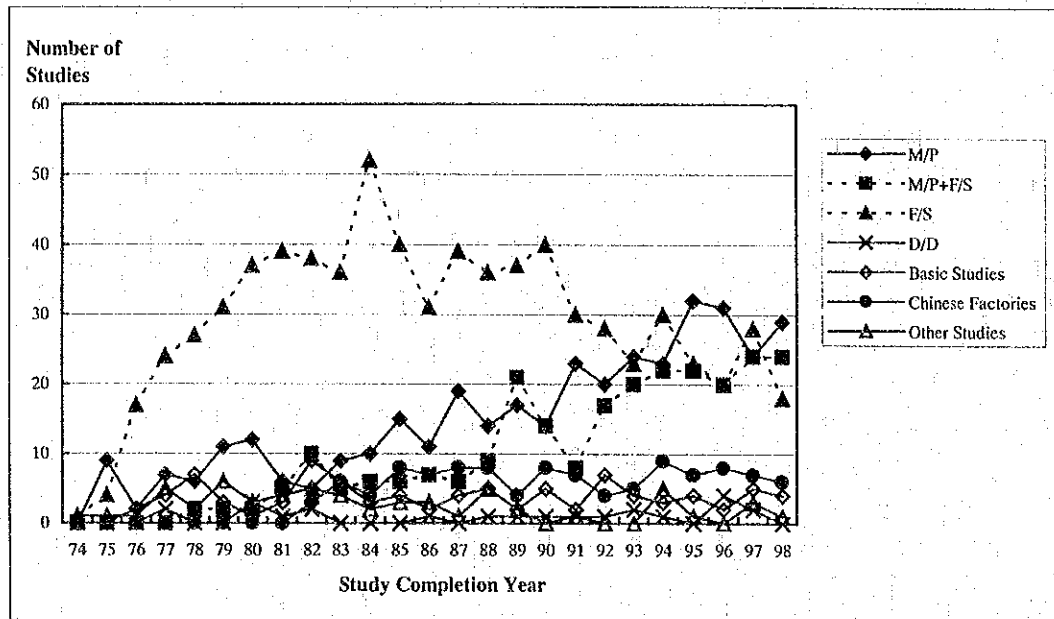
Total 1,636 studies are classified into 729 F/S studies (44.6%), 373 M/P (22.8%), 252 M/P + F/S (15.4%), and 109 Studies on the Factories Modernization Program in China (Chinese Factories Studies) (6.7%). As for the number of studies, M/P decreased to 24 in FY 1997, but increased to 29 in FY 1998, and were in the low 30's in FY 1995 and 1996. Although F/S showed a temporary increase in FY 1997, it has been decreasing in recent years. A distinguishing feature for the last few years is a growth of number of M/P + F/S. This is due to the trend to utilize master-plan study findings for the subsequent feasibility studies. The number of Chinese Factories Studies has been decreasing since fiscal 1994.

Table 2-6 Time Trend of the Number of Development Studies by Type of Study

Study Completion Year	M/P	M/P+F/S	F/S	D/D	Basic Studies	Chinese Factories	Other *	Total
1974	0	0	1	0	0	0	1	2
1975	9	0	4	0	0	0	1	14
1976	2	0	17	0	2	0	1	22
1977	7	0	24	2	4	0	5	42
1978	6	2	27	0	7	0	2	44
Sub-Total	24	2	73	2	13	0	10	124
1979	11	2	31	0	3	0	6	53
1980	12	2	37	3	1	0	3	58
1981	6	5	39	1	3	0	4	58
1982	5	10	38	2	9	3	5	72
1983	9	5	36	0	6	6	4	66
Sub-Total	43	24	181	6	22	9	22	307
1984	10	6	52	0	3	4	2	77
1985	15	6	40	0	4	8	3	76
1986	11	7	31	1	2	7	3	62
1987	19	6	39	0	4	8	1	77
1988	14	9	36	1	5	8	5	78
Sub-Total	69	34	198	2	18	35	14	370
1989	17	21	37	1	2	4	2	84
1990	14	14	40	1	5	8	0	82
1991	23	8	30	1	2	7	1	72
1992	20	17	28	1	7	4	0	77
1993	24	20	23	2	4	5	0	78
Sub-Total	98	80	158	6	20	28	3	393
1994	23	22	30	1	3	9	5	93
1995	32	22	23	0	4	7	1	89
1996	31	20	20	4	2	8	0	85
1997	24	24	28	2	5	7	3	93
1998	29	24	18	0	4	6	1	82
Sub-Total	139	112	119	7	18	37	10	442
Total	373 (22.8%)	252 (15.4%)	729 (44.6%)	23 (1.4%)	91 (5.6%)	109 (6.7%)	59 (3.6%)	1636 (100.0%)

* The "Others" category is a combination of "Other Studies" from Social Development and Agriculture, Forestry and Fisheries Development studies, and Other (M/P-type and F/S-type) studies from Mining and Industrial Development studies.

Figure 2-3 Time Trend of the Number of Development Studies by Type of Study



1-4. Numbers of Studies by Sector

There are 61 studies in Planning and Administration sector, accounting for 3.7% of the total, 712 in Public Works and Utilities sector (43.5%), 328 in Agriculture, Forestry and Fishery sector (20.0%), 15 in Commerce & Tourism sector (0.9%), 1 in Health and Medical Care sector (0.1%), 278 in Mining and Industry sector (17.0%), and 209 in Energy sector (12.8%). The most common subsector in Public Works and Utilities sector is Transportation, which has 367 studies accounting for 22.4% of the total. This is followed by Social Infrastructure (192 studies, 11.7%). The most common subsector in Agriculture, Forestry and Fishery sector is Agriculture subsector, which has 260 studies (15.9% of the total). In Mining and Industry sector, there are 263 studies (16.1% of the total) in Industry and 15 studies (0.9% of the total) in Mining subsector. There are 209 studies (12.8%) in Energy subsector. Since 1974, the beginning of development study, the sectors related to hardware such as infrastructures have been put emphasis on conducting developments studies in Social Development and Agriculture, Forestry and Fishery Development area.

1-4-1. Numbers of Studies by Main Sectors

In M/P studies, there are 184 Social Development studies, which account for 49.3% of the total, 71 Agriculture, Forestry and Fishery Development studies (19.0%), and 118 Mining and Industrial Development studies (31.7%). In F/S studies, there are 297 Social Development studies, accounting for 40.7% of the total, 176 Agriculture, Forestry and Fishery Development studies (24.1%), and 256 Mining and Industrial Development studies (31.1%). In Mining and Industrial Development studies, there are 109 studies on the Factories Modernization Program in China, which do not exist in Social Development or Agriculture, Forestry and Fisheries Development.

Transportation is the largest subsector in all types of study except Basic Studies and Studies on the Factories Modernization Program in China. Due to the characteristic that Basic Studies are usually topographic and groundwater surveys, a largest number of Basic Studies is conducted in Social Infrastructure subsector. There are also many Basic Studies in Forestry, Fishery and Energy subsector, since baseline data is important to develop resources of forestry, fishery and energy.

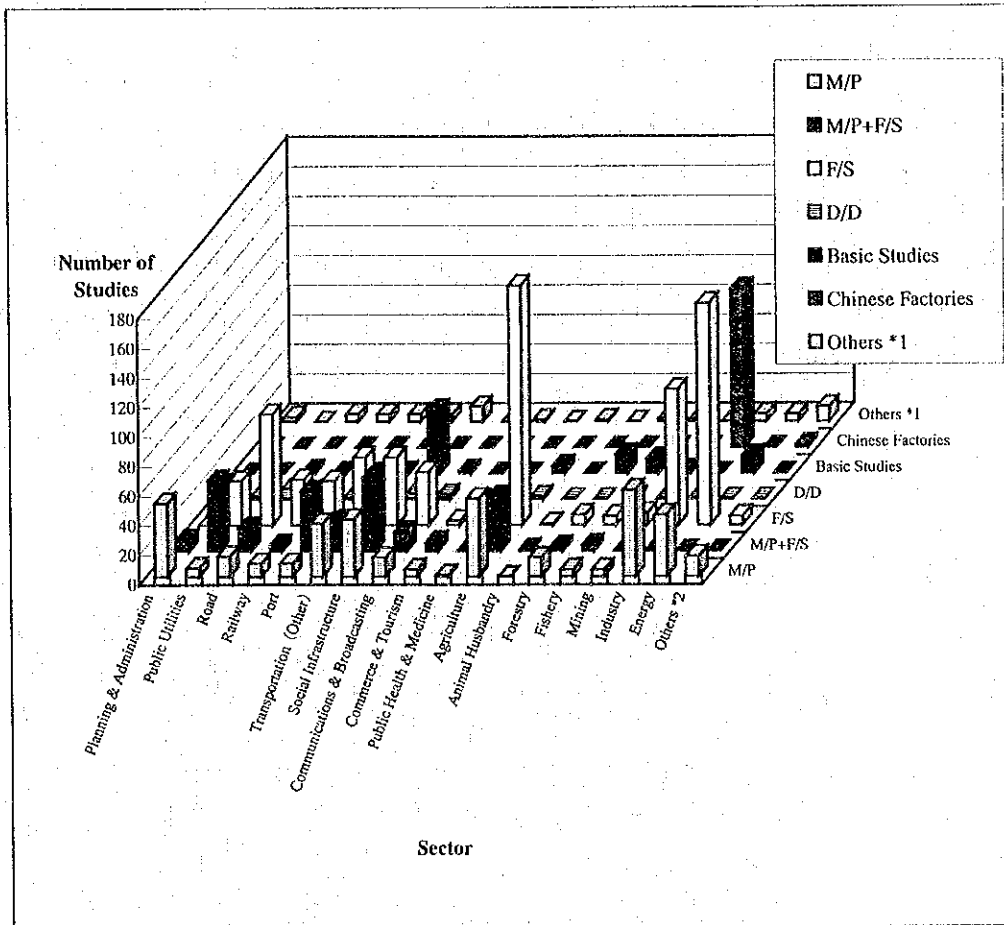
Table 2-7 Classification by Sector and Type of Study

Sector		M/P	M/P+F/S	F/S	D/D	Basic Studies	Chinese Factories	Others *1	Total		
Social Development	Planning & Administration	50 (13.4%)	8 (3.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (5.1%)	61 (3.7%)		
	Public Works & Utilities	Public Utilities	6 (1.6%)	48 (19.0%)	30 (4.1%)	2 (8.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	86 (5.3%)	
		Transportation	Road	14 (3.8%)	16 (6.3%)	75 (10.3%)	7 (30.4%)	2 (2.2%)	0 (0.0%)	5 (8.5%)	119 (7.3%)
			Railway	9 (2.4%)	4 (1.6%)	31 (4.3%)	1 (4.3%)	1 (1.1%)	0 (0.0%)	5 (8.5%)	51 (3.1%)
			Port	9 (2.4%)	41 (16.3%)	30 (4.1%)	1 (4.3%)	0 (0.0%)	0 (0.0%)	5 (8.5%)	86 (5.3%)
			Others	36 (9.7%)	21 (8.3%)	46 (6.3%)	2 (8.7%)	1 (1.1%)	0 (0.0%)	5 (8.5%)	111 (6.8%)
		Sub-Total	68 (18.2%)	82 (32.5%)	182 (25.0%)	11 (47.8%)	4 (4.4%)	0 (0.0%)	20 (33.9%)	367 (22.4%)	
	Social Infrastructure	39 (10.3%)	50 (19.8%)	46 (6.3%)	4 (17.4%)	43 (47.3%)	0 (0.0%)	10 (16.9%)	192 (11.7%)		
	Communications & Broadcasting	13 (3.5%)	13 (5.2%)	36 (4.9%)	3 (13.0%)	2 (2.2%)	0 (0.0%)	0 (0.0%)	67 (4.1%)		
	Sub-Total	126 (33.8%)	193 (76.6%)	294 (40.3%)	20 (87.0%)	49 (53.8%)	0 (0.0%)	30 (50.8%)	712 (43.5%)		
	Commerce & Tourism	5 (1.3%)	6 (2.4%)	3 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.7%)	15 (0.9%)		
	Public Health & Medicine	1 (0.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.1%)		
	Agriculture, Forestry, and Fisheries Development	Agriculture, Forestry & Fishery	53 (14.2%)	37 (14.7%)	162 (22.2%)	2 (8.7%)	5 (5.5%)	0 (0.0%)	1 (1.7%)	260 (15.9%)	
Animal Husbandry		0 (0.0%)	1 (0.4%)	1 (0.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (0.1%)		
Forestry		13 (3.5%)	3 (1.2%)	7 (1.0%)	0 (0.0%)	13 (14.3%)	0 (0.0%)	2 (3.4%)	38 (2.3%)		
Fishery		5 (1.3%)	4 (1.6%)	6 (0.8%)	1 (4.3%)	10 (11.0%)	0 (0.0%)	2 (3.4%)	28 (1.7%)		
Sub-Total		71 (19.0%)	45 (17.9%)	176 (24.1%)	3 (13.0%)	28 (30.8%)	0 (0.0%)	5 (8.5%)	328 (20.0%)		
Mining and Industrial Development		Mining & Industry	5 (1.3%)	0 (0.0%)	8 (1.1%)	0 (0.0%)	2 (2.2%)	0 (0.0%)	0 (0.0%)	15 (0.9%)	
	Mining	59 (15.8%)	0 (0.0%)	92 (12.6%)	0 (0.0%)	0 (0.0%)	107 (98.2%)	5 (8.5%)	263 (16.1%)		
	Sub-Total	64 (17.2%)	0 (0.0%)	100 (13.7%)	0 (0.0%)	2 (2.2%)	107 (98.2%)	5 (8.5%)	278 (17.0%)		
	Energy	42 (11.3%)	0 (0.0%)	150 (20.6%)	0 (0.0%)	12 (13.2%)	0 (0.0%)	5 (8.5%)	209 (12.8%)		
Others *2	14 (3.8%)	0 (0.0%)	6 (0.8%)	0 (0.0%)	0 (0.0%)	2 (1.8%)	10 (16.9%)	32 (2.0%)			
Total		373 (100.0%)	252 (100.0%)	729 (100.0%)	23 (100.0%)	91 (100.0%)	109 (100.0%)	59 (100.0%)	1636 (100.0%)		

*1 The "Others" category is a combination of "Other Studies" from Social Development and Agriculture, Forestry and Fisheries Development studies, and Other (M/P-type and F/S-type) studies from Mining and Industrial Development studies.

*2 The Others category consists of 2 Social Development (M/P) and 30 Mining and Industrial Development studies.

Figure 2-4 Classification by Sector and Type of Study



*1 The "Others" category is a combination of "Other Studies" from Social Development and Agriculture, Forestry and Fisheries Development studies, and Other (M/P-type and F/S-type) studies from Mining and Industrial Development studies.

*2 The Others category consists of 2 Social Development (M/P) and 30 Mining and Industrial Development studies.

1-4-2. Trends in Major Subsectors

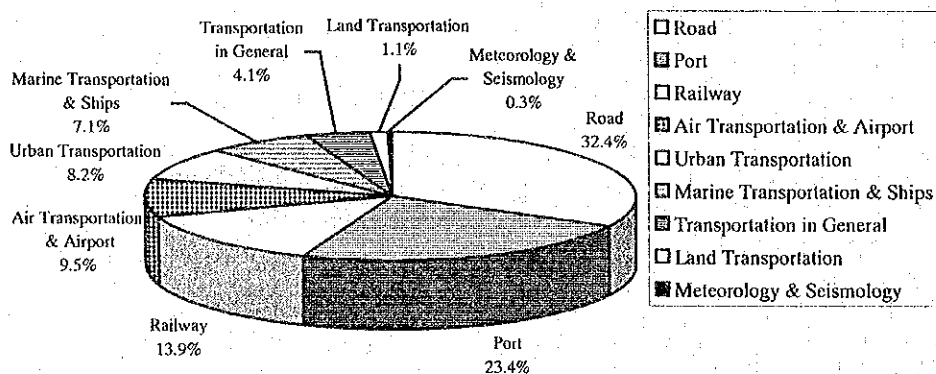
(1) Transportation

Transportation subsector is further classified into 9 sub-subsectors. There have been 367 studies conducted for the last 25 years. There are particularly many studies in 3 sub-sectors: 119 studies in Road (32.4%); 86 in Port (23.4%); and 51 in Railway (13.9%). These 3 sub-subsectors account for nearly 70% of the total studies in this subsector. Air Transportation & Airport and Urban Transportation sub-subsectors come next.

Table 2-8 Transportation

	Number of Studies	
Road	119	(32.4%)
Port	86	(23.4%)
Railway	51	(13.9%)
Air Transportation & Airport	35	(9.5%)
Urban Transportation	30	(8.2%)
Marine Transportation & Ships	26	(7.1%)
Transportation in General	15	(4.1%)
Land Transportation	4	(1.1%)
Meteorology & Seismology	1	(0.3%)
Total	367	(100.0%)

Figure 2-5 Transportation(%)



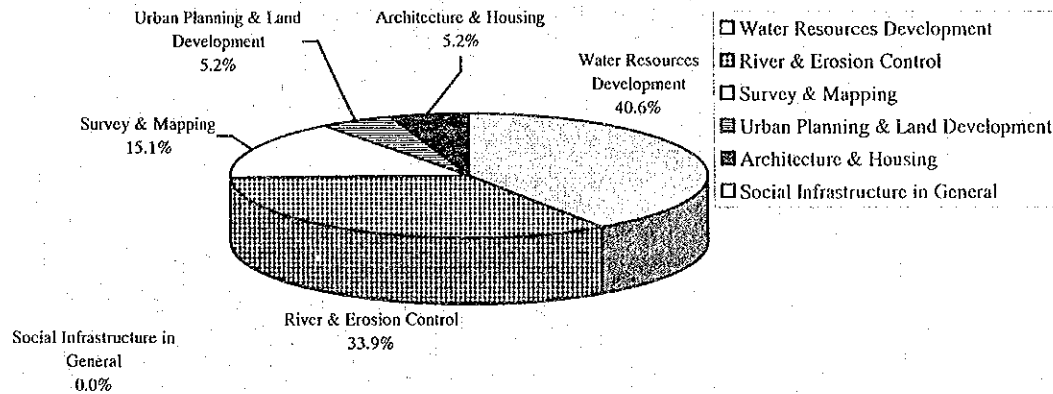
(2) Social Infrastructure

Social Infrastructure subsector comprises 6 sub-subsectors. There have been 192 studies conducted for the last 25 years. Among these subsectors, the studies are concentrated in 2 sub-subsectors: 78 in Water Resources Development (40.6%) and 65 in River & Erosion Control (33.9%). These two sub-subsectors account for more than 70% of the total studies in this subsector.

Table 2-9 Social Infrastructure

	Number of Studies	
Water Resources Development	78	(40.6%)
River & Erosion Control	65	(33.9%)
Survey & Mapping	29	(15.1%)
Urban Planning & Land Development	10	(5.2%)
Architecture & Housing	10	(5.2%)
Social Infrastructure in General	0	(0.0%)
Total	192	(100.0%)

Figure 2-6 Social Infrastructure(%)



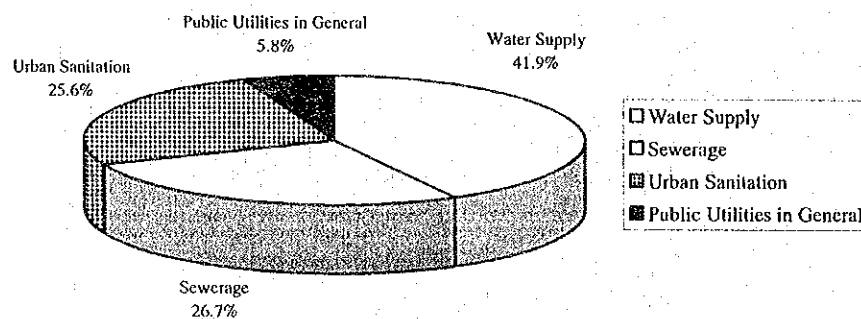
(3) Public Utilities

Public Utilities subsector is divided into 4 sub-subsectors. There have been 86 studies carried out for the last 25 years. There are 36 studies (41.9%) in Water Supply, 23 studies (26.7%) in Sewerage and 22 studies in Urban Sanitation.

Table 2-10 Public Utilities

	Number of Studies	
Water Supply	36	(41.9%)
Sewerage	23	(26.7%)
Urban Sanitation	22	(25.6%)
Public Utilities in General	5	(5.8%)
Total	86	(100.0%)

Figure 2-7 Public Utilities(%)



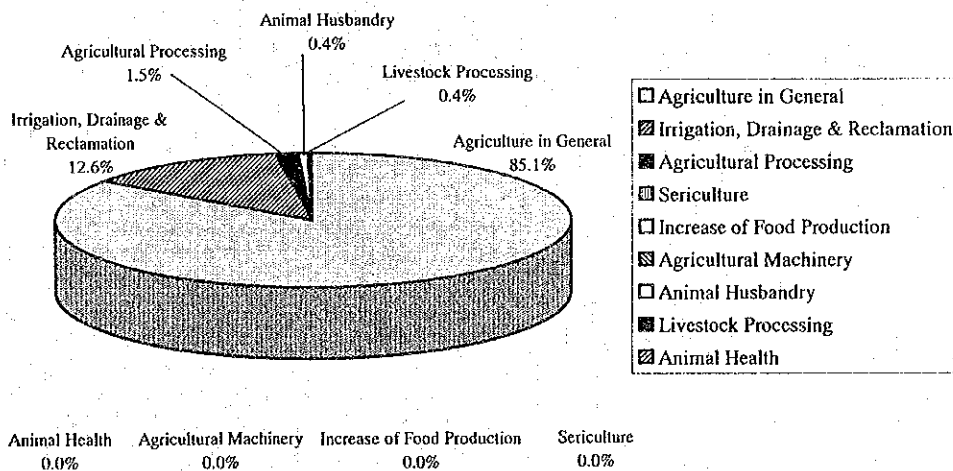
(4) Agriculture and Animal Husbandry

Agriculture subsector classified into 6 sub-subsectors. For the last 25 years, 262 studies have been conducted, of which 223 (85.1% of the total) are in Agriculture in General. Though there are 3 subsectors related to animal husbandry, no study in Animal Health has been carried out.

Table 2-11 Agriculture and Animal Husbandry

	Number of Studies	
Agriculture in General	223	(85.1%)
Irrigation, Drainage & Reclamation	33	(12.6%)
Agricultural Processing	4	(1.5%)
Sericulture	0	(0.0%)
Increase of Food Production	0	(0.0%)
Agricultural Machinery	0	(0.0%)
Animal Husbandry	1	(0.4%)
Livestock Processing	1	(0.4%)
Animal Health	0	(0.0%)
Total	262	(100.0%)

Figure 2-8 Agriculture and Animal Husbandry(%)



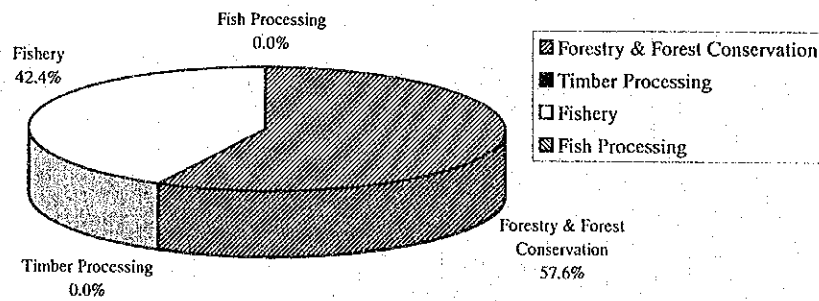
(5) Forestry and Fishery

Forestry subsector is divided into 2 sub-subsectors. All of 38 studies conducted in Forestry subsector for the last 25 years are exclusively in Forestry & Forestry Conservation. Fishery subsector is also composed of two sub-subsectors. All of 28 studies carried out in Fishery and no study has been conducted in Fish Processing.

Table 2-12 Forestry and Fishery

	Number of Studies	
Forestry & Forest Conservation	38	(57.6%)
Timber Processing	0	(0.0%)
Fishery	28	(42.4%)
Fish Processing	0	(0.0%)
Total	66	(100.0%)

Figure 2-9 Forestry and Fishery(%)



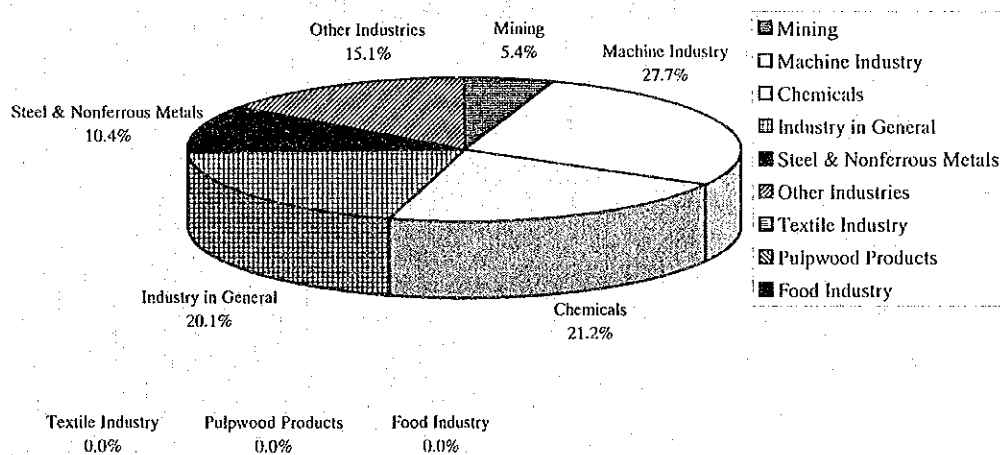
(6) Mining and Industry

For the last 25 years, 15 studies have been carried out in Mining subsector and 263 in the Industry subsector. In Industry subsector, there are particularly many studies in 3 sub-subsectors: 77 studies in Machine Industry, 59 in Chemicals and 56 in Industry in General. These 3 sub-subsectors account for 69% of the total studies in this subsector.

Table 2-13 Mining and Industry

	Number of Studies	
Mining	15	(5.4%)
Machine Industry	77	(27.7%)
Chemicals	59	(21.2%)
Industry in General	56	(20.1%)
Steel & Nonferrous Metals	29	(10.4%)
Other Industries	42	(15.1%)
Textile Industry	0	(0.0%)
Pulpwood Products	0	(0.0%)
Food Industry	0	(0.0%)
Total	278	(100.0%)

Figure 2-10 Mining and Industry(%)



(7) Energy

The Energy subsector comprises 5 sub-subsectors. For the last 25 years, 209 studies have been conducted. Electric power sub-subsector accounts for 65.6% of the total studies in this subsector.

Table 2-14 Energy

	Number of Studies	
Electric Power	137	(65.6%)
Energy in General	28	(13.4%)
Gas & Oil	27	(12.9%)
New & Recycled Energy	17	(8.1%)
Other Energies	0	(0.0%)
Total	209	(100.0%)

Figure 2-11 Energy(%)

