



Ministry of Public Works
Republic of Indonesia

The Study on the Integrated Regional Development Plan for the Northern Part of Sumatra

Final Report

Vol. IV
Priority Projects and Project Information

March 1990

Japan International Cooperation Agency



| |
|--------------|
| SSF |
| CR(5) |
| 90-032 (4/5) |

Ministry of Public Works
Republic of Indonesia

The Study on the
Integrated Regional
Development Plan
for the Northern Part
of Sumatra

Final Report

JICA LIBRARY



1083138161

21289

Vol. IV

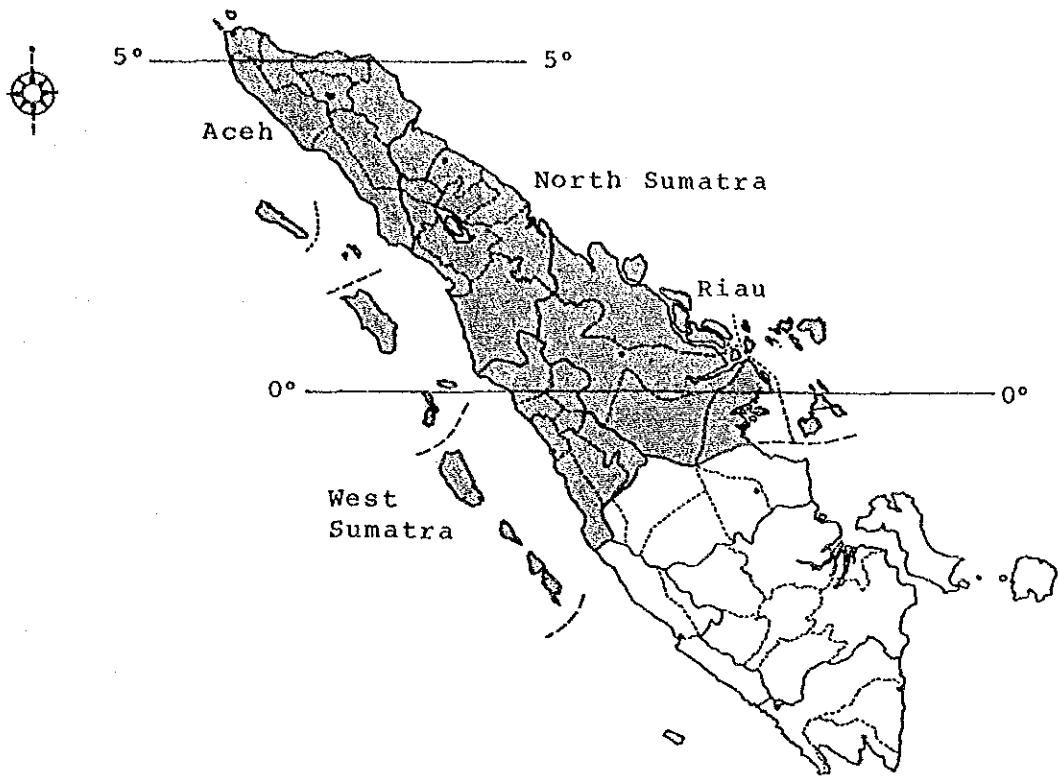
Priority Projects and Project Information

March 1990

Japan International Cooperation Agency

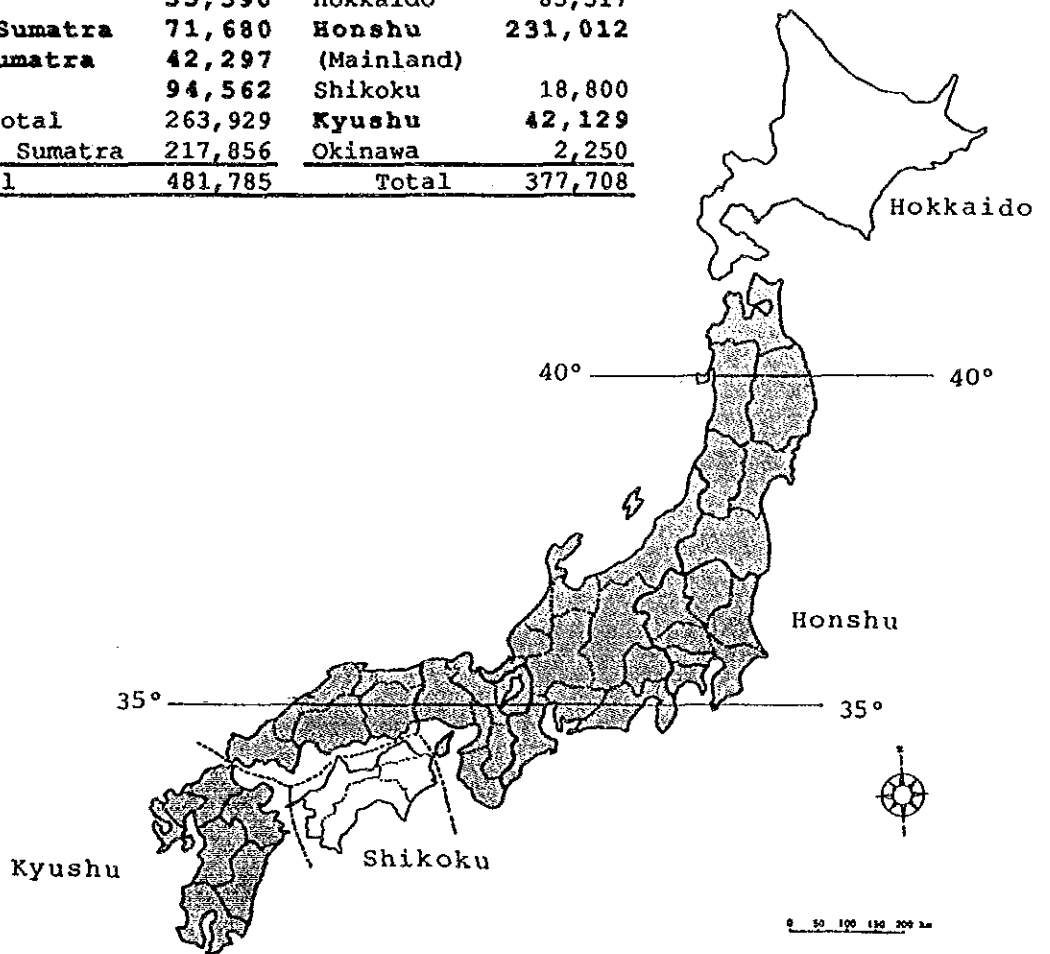


マイクロ
フィルム作成



Comparison of Land Area: Sumatra and Japan

| Sumatra (km ²) | | Japan (km ²) | |
|----------------------------|----------------|--------------------------|----------------|
| Aceh | 55,390 | Hokkaido | 83,517 |
| North Sumatra | 71,680 | Honshu | 231,012 |
| West Sumatra | 42,297 | (Mainland) | |
| Riau | 94,562 | Shikoku | 18,800 |
| Subtotal | 263,929 | Kyushu | 42,129 |
| Southern Sumatra | 217,856 | Okinawa | 2,250 |
| Total | 481,785 | Total | 377,708 |



VOL. I EXECUTIVE SUMMARY

Preface

| | | |
|------|---------------------------------------|----|
| I. | Introduction | 1 |
| II. | Integrated Development Concept | 5 |
| III. | Sectoral Development Strategy | 21 |
| IV. | Selection of Priority Projects | 45 |
| V. | Finance and Institution | 69 |
| VI. | Conclusions and Recommendations | 75 |

VOL. II MAIN REPORT

| | | |
|-------|---|-----|
| I. | Introduction | 1 |
| II. | The Region | 6 |
| III. | Water Resources | 14 |
| IV. | Development Concept | 18 |
| V. | Spatial Development Strategy | 39 |
| VI. | Spectral Development Strategy | 66 |
| VII. | Selection of Priority Projects | 124 |
| VIII. | Integrated Development Program (IDEP) | 130 |
| IX. | Finance and Institutions | 255 |
| X. | Conclusions and Recommendations | 270 |

VOL. III SECTORAL ANALYSES

| | | |
|-------|-------------------------------------|-----|
| I. | Agriculture | 1 |
| II. | Fishery | 33 |
| III. | Water Resources | 60 |
| IV. | Mining | 103 |
| V. | Industry | 116 |
| VI. | Energy/Power | 136 |
| VII. | Transportation | 158 |
| VIII. | Telecommunication | 220 |
| IX. | Forestry/Environment/Land Use | 233 |
| X. | Tourism | 262 |
| XI. | Urban and Rural Development | 284 |

VOL. IV PRIORITY PROJECTS AND PROJECT INFORMATION

| | | |
|------|---------------------------|-----|
| I. | Long List | 1 |
| II. | Project Profiles | 31 |
| III. | Guideline for Study | 199 |

VOL. V LAND USE MAPS

(16 pieces)

FINAL REPORT
VOL. IV
PRIORITY PROJECTS AND PROJECT INFORMATION

TABLE OF CONTENTS

I. LONG LIST

(I) Intersectoral Projects

(II) Sectoral Projects

| | |
|--------------------------------------|----|
| A. Agriculture and Fishery | 4 |
| B. Water Resources | 8 |
| C. Mining. | 11 |
| D. Industry. | 12 |
| E. Energy/Power. | 16 |
| F. Transportation. | 18 |
| G. Telecommunication | 22 |
| H. Forestry/Environment. | 26 |
| I. Tourism | 27 |
| J. Water Supply. | 28 |
| K. Urban Development | 29 |
| L. Rural Development | 30 |

II. PROJECT PROFILES

| | |
|--------------------------------------|-----|
| A. Agriculture and Fishery | 32 |
| B. Water Resources | 49 |
| C. Mining. | 79 |
| D. Industry. | 85 |
| E. Energy/Power. | 94 |
| F. Transportation. | 116 |
| G. Telecommunication. | 156 |
| H. Forestry/Environment. | 175 |
| I. Tourism | 184 |
| J. Water Supply. | 190 |
| K. Urban Development | 191 |
| L. Rural Development | 195 |

III. GUIDELINE FOR STUDY (GFS)

A. IDEP Projects

1. Northern Aceh IDEP

| | | |
|-----|--|-----|
| A-9 | Animal Nutrition and Marketing Improvement | 205 |
|-----|--|-----|

2. West Aceh IDEP

| | | |
|-------------|---|-----|
| A-6 | Wetland Food Crop Intensification and Diversification. | 211 |
| A-16 | Small-Scale Fishery Development. | 213 |
| B-8, 27, 28 | Irrigated Agriculture Development. | 218 |
| E-12 | Hydropower Development (expanded to include other related projects). | 225 |
| F-5 | Banda Aceh-Meulaboh Road Betterment. | 230 |
| F-15 | Aceh West Coast Port Development | 233 |

| | | |
|-----------------------------|--|------|
| 3. Metropolitan Medan IDEP | | |
| E-25 | Natural Gas Utilization. | .241 |
| F-22 | Medan-Binjai Toll Road Development | .243 |
| F-24 | Lake Toba Tourism Road Development | .247 |
| F-30 | Railway Track Rehabilitation | .250 |
| I-6 | Lake Toba and the Vicinity Tourism Development. | .254 |
| 4. West Coast Tapanuli IDEP | | |
| A-19 | Wetland Food Crop Intensification and Diversification | 259 |
| A-20 | Dryland Farming Development | .261 |
| A-24 | Livestock Development. | .263 |
| A-26 | Smallholder Coconut Development. | .265 |
| A-28 | Smallholder Coffee Development | .267 |
| A-32 | Marine Fishery Development Sub-Center. | .269 |
| A-34 | Small-Scale Fishery Development. | .274 |
| C-4 | South Natal Coal Resources Development | .279 |
| F-27 | West Coast Tapanuli Road Development | .282 |
| 5. Nias Island IDEP | | |
| A-19 | Wetland Food Crop Intensification and Diversification. | .287 |
| A-21 | Paddy Post-Harvest Technology Development. | .289 |
| A-26 | Smallholder Coconut Development. | .291 |
| A-34 | Small-Scale Fishery Development. | .293 |
| F-28 | Nias Island Ring Road. | .298 |
| H-8 | Re/Afforestation Development | .300 |
| 6. Minang Highlands IDEP | | |
| (none) | | |
| 7. South Sijunjung IDEP | | |
| A-39 | Dryland Farming Development. | .305 |
| A-43 | Livestock Development. | .307 |
| 8. Mentawai Islands IDEP | | |
| G-38 | Introduction of Rural Telecommunications | .311 |
| 9. Rokan Basin IDEP | | |
| (none) | | |
| 10. Indragiri River IDEP | | |
| A-53 | Dryland Farming Development. | .317 |
| A-54 | Paddy Post-Harvest Technology Development. | .319 |
| A-55 | Livestock Development. | .321 |
| B-66 | Water Resources Development in Indragiri River (also 62, 71, 72) Basin. | .323 |
| B-67 | Integrated Swamp Development | .329 |
| C-6 | Cerenti Coal Resources Development | .337 |
| F-57 | Integrated Transportation System Development | .342 |
| G-49 | South Riau Digital Microwave System. | .347 |
| H-14 | Re/Afforestation Development | .351 |

| | | |
|----------------------------|---|-----|
| 11. Riau Islands IDEP | | |
| F-58 | Riau Islands Sea Transportation Service | 357 |
| L-13 | Area Development Program for Riau Islands | 360 |
| B. Inter-IDEP Projects | | |
| 1. Agriculture and Fishery | | |
| A-62 | Mariculture Development (Indragiri River/Riau Islands) | 369 |
| 2. Industry | | |
| D-4 | Development of Marketable Handicraft Products (All IDEPs except South Sijunjung/Rokan Basin) | 377 |
| D-7 | Development of Industrial Estates/Areas (Northern Aceh/Metropolitan Medan/Minang Highlands) | 380 |
| D-26, 39, 52, 65 | Development of Agro-Industries (All IDEPs except Mentawai Islands) | 382 |
| 3. Energy/Power | | |
| E-1 | Fuel Efficient Stove Dissemination (All IDEPs except Northern Aceh/Metropolitan Medan/Mentawai Islands) | 391 |
| E-2 | Accelerating Rural Electrification Program (All IDEPs) | 395 |
| 4. Transportation | | |
| F-1 | Arterial Road Upgrading (Northern Aceh/Metropolitan Medan/West Coast Tapanuli/Minang Highlands/South Sijunjung) | 405 |
| F-2 | Road Disaster Prevention (Northern Aceh/West Coast Tapanuli/South Sijunjung) | 408 |
| F-3 | Sumatra East Coast Road Development (Metropolitan Medan/Indragiri River) | 411 |
| F-4 | Bridge Replacement Program in Aceh and Riau (Northern Aceh/West Aceh/Indragiri River) | 414 |
| F-32, 47 | Remote Islands Sea Transportation Service (Nias Island/Mentawai Islands) | 417 |
| 5. Telecommunication | | |
| G-4 | Introduction of Rural Telecommunications (West Aceh/West Coast Tapanuli/Nias Island/South Sijunjung/Rokan Basin/Indragiri River/Riau Islands) | 423 |
| G-25, 35 | Telephone Outside Plant Maintenance Center (Metropolitan Medan/Minang Highlands) | 427 |
| G-28, 37 | Long-Term Plan for Local Telecommunication Network (Metropolitan Medan/Minang Highlands) | 431 |
| 6. Forestry/Environment | | |
| H-3 | Conservation and Management of Protected Wildlife (Rokan Basin/Indragiri River) | 437 |
| 7. Other | | |
| P-12 | Production and Marketing Study (All IDEPs except Mentawai Islands/Riau Islands) | 443 |

C. Outside IDEP Projects

| | | |
|------|---|------|
| B-39 | Water Export from Aceh | .449 |
| C-1 | Non-Metallic Mineral Resources Research Center . . | .451 |
| F-12 | Medan-Besitang-Langsa Railway Reconstruction | 456 |
| H-7 | Watershed Management Technology Center/Forestry Education and Training Center. | .458 |
| I-1 | Tourism Management Training Program. | .463 |
| D. | Guideline for Study Index | 467 |

ABBREVIATIONS

| | |
|------------|---|
| AAC | Annual Allowable Cut |
| AARD | Agency for Agricultural Research and Development |
| AATE | Agency for Agricultural Training and Education |
| ADB | Asian Development Bank |
| ADP | Area Development Program |
| AGRARIA | Badan Pertanahan Nasional |
| APBD | Anggaran Pendapatan dan Belanja Daerah |
| APBN | Anggaran Pendapatan dan Belana Negara |
| ASEAN | Association of Southeast Asian Nations |
| BANGDA | Pembangunan Daerah |
| BANGDES | Pembangunan Desa |
| BAPPEDA | Badan Perencanaan Pembangunan Daerah |
| BAPPENAS | Badan Perencanauan Pembangunan Nasional |
| BBN | Bea Balik Nama |
| BHN | Basic human needs |
| BIPIK | Small-scale Industry Development Guidance |
| BKPM | Badan Koordinasi Penanaman Modal |
| BKPMD | Badan Koordinasi Penanaman Modal Daerah |
| BMG | Institute of Meteorology and Geophysics |
| BNA | Basic Needs Approach |
| BOE | Barreles of Oil Equivalent |
| BPAM | Water supply management unit |
| BPLPs | Tourism Development and Training Schools |
| BPPI | Marine Fishery Development Center |
| BPPT | Agency for the Assessment and Application of Technology |
| BPS | Biro Pusat Statistik |
| BUTSI | Badan Urusan Tenaga Sukarela Indonesia |
| CAD/CAM | Computer Aided Design/Computer Aided Manufacturing |
| CIDA | Canadian International Development Agency |
| CNG | Compressed Natural Gas |
| CPUE | Catch per Unit Effort |
| CRIFC | Central Research Institute for Food Crops |
| CV | Central Valley Area |
| DAS | Daerhd Aliran Sungai |
| DB | Directorate of Coal |
| DBM | Dinas Bina Marga |
| DDC | District Development Center |
| DEG | Directorate of Environmental Geology |
| DGCK | Directorate General of Cipta Karya |
| DGENE | Directorate General of Electric Power and New Energy |
| DGF | Directorate General of Fisheries |
| DGH | Directorate General of Highways |
| DGLC | Directorate General of Land Communication |
| DGSC | Directorate Genral of Sea Communications |
| DGT | Directorate General of Tourism |
| DGWRD | Directorate General for Water Resources Development |
| DJA | Direktorat Jendral Agraria |
| DJPU | Direktorat Jenderal Perhubungan Udara |
| DPEB | Direktorat Pengembangan Energi Baru |
| DPMA | Institute of Hydraulic Engineering |
| DPP | Dewan Pimpinan Pusat |
| DPU | Departemen Pekerjaan Umum |
| EC | The European Community |
| EEZ | Exclusive Economic Zone |
| EP | Eastern Plateu Area |
| ESCAP | Economic and Social Commission for Asia and the Pacific |
| Ex-Im Bank | Export-Import Bank |
| F/S | Feasibility Study |
| FAD | Fish Aggregating Device |
| FAO | Food and Agriculture Organization |
| FETC | Forestry Education and Training Center |

| | |
|--------|---|
| FRDC | Forest Research and Development Center |
| GBHN | Garis-garis Besan Haluan Negara |
| GDP | Gross domestic product |
| GOI | Government of Indonesia |
| GRDP | Gross Regional Domestic Product |
| GTZ | Gesellschaft fur Technische Zusammenarbeit |
| HPH | Hak Pengusahaan Hutan (forest concession) |
| HPHH | Forest concession of short term and small scale |
| HPPS | Hydro Power Potentials Study |
| HRD | Human Resources Development |
| HTI | Hutan Tanaman Industri |
| IBRD | International Bank for Reconstruction and Development |
| ICOR | Incremental Capital Output Ratio |
| IDC | Interprovincial Development Center |
| IDCJ | International Development Center of Japan |
| IDEP | Integrated Development Program |
| IFPRI | International Food Policy Research Institute |
| IGGI | Inter-Governmental Group on Indonesia |
| IIMI | International Irrigation Management Institute |
| IKK | Ibu Kota Kecamatan |
| ILOR | Incremental labor-output ratio |
| ILS | Instrument Landing System |
| IMCE | Inter-ministerial Committee on Electrification |
| IMF | International Monetary Fund |
| IMTCE | Inter-ministerial Technical Committee on Energy |
| INPRES | Instruksi Presiden |
| INTAM | Tambak intensification |
| IPEDA | Iuran Pembangunan Daerah |
| IRR | Internal Rate of Return |
| ITU | International Telecommunication Union |
| IUIDP | Integrated Urban Infrastructure Development Program |
| JAIDO | Japan International Development Organization |
| JICA | Japan International Cooperation Agency |
| KADIN | Indonesian Chamber of Commerce and Industry |
| KBOE | Thousand Barrels of Oil Equivalent |
| KIK | Small investment credit |
| KIP | Kampung Improvement Programme |
| KLH | Kependudukan dan Lingkungan Hidup |
| KMKP | Permanent working capital credit |
| KPD | Rural development extension worker |
| LNG | Liquefied Natural Gas |
| LPG | Liquefied Petroleum Gas |
| LSC | Local Service Center |
| MIGA | Multilateral Investment Guarantee Agency |
| MITI | Ministry of International Trade and Industry |
| MMBOE | Million Barrels of Oil Equivalent |
| MME | Ministry of Mines and Energy |
| MMSCFD | Million Standard Cubic Feet Per Day |
| MOA | Ministry of Agriculture |
| MSY | Maximum Sustainable Yield |
| MUDP | Medan Urban Development Project |
| NAIEs | Newly Agro-industrializing Economies |
| NDC | National Development Center |
| NEDO | New Energy and Industrial Technology Development Organization |
| NES | Nucleus Estate Scheme |
| NG | Natural Gas |
| NGO | Non-governmental Organization |
| NIEs | Newly Industrializing Economies |
| NREr | New and Renewable Energy Resources |
| NUDS | The National Urban Development Strategy Project |
| NWC | North Western Coast Area |
| O&M | Operation and maintenance |
| ODA | Official Development Assistance |

| | |
|----------|--|
| OECF | Overseas Economic Cooperation Fund |
| OMR | Operation, Maintenance and Repair |
| OPMC | Outside Plant Maintenance Center |
| P3KT | Program Peningkatan Perbaikan Kampung Terpadu |
| PDAM | Perusahaan Daerah Air Minum |
| PDC | Provincial Development Center |
| PDP | Provincial Development Program |
| PELNI | Pelayaran Nasional Indonesia |
| PEMDA | Pemerintah Daerah |
| PERUMTEL | Perusahaan Umum Telekomunikasi |
| PHPA | Pelesterian Hutan dan Perlindungan Alam |
| PIR | Perkebunan Inti Rakyat |
| PJKA | Perusahaan Jawatan Kereta Api |
| PKB | Pajak Kendaraan Bermotor |
| PLN | Perusahaan Listrik Negara |
| PMUs | Project Management Units |
| POSTEL | Ministry of Tourism, Post and Telecommunication |
| PPI | Provincial fish landing center |
| PPW | Proyek Pengembangan Wilayah |
| PSB | P.T. Perikanan Samudra Besar |
| PUSDATA | Pusat Pengolahan Data |
| PUSIDO | Pusat Informasi dan Dokumentasi |
| RDC | Regional Development Center |
| RE | Rural Electrification |
| RSE | Remote Sensing Engineering Project |
| SATUGAS | Satuan Tugas |
| SBK | Small satellite station |
| SDM | Directorate of Mineral Resources |
| SKDP | Sambungan Komunikasi Data Packet (Packet Data Communication Systems) |
| SLDD | Subscriber long distance dialing |
| STDP | Smallholder Tree Crops Development Project |
| SUA | Strategic Urban Areas |
| SWC | South Western Coast Area |
| TDMA | Time Division Multiple Access |
| TEU | Twenty-foot Equivalent Unit |
| TGHK | Tata guna hutan kesepakatan (<i>concensus on Forest Land Use</i>) |
| TK.I. | Tingkat I (level I) |
| TPI | Forest management system |
| U.K. | United Kingdom |
| U.S.A. | United States of America |
| UNCHS | United Nations Centre for Human Settlements |
| UNDP | United Nations Development Programme |
| UPPI | Provincial level marine fisheries development unit |
| US | United States |
| USAID | United States Agency for International Development |
| USSR | Union of Soviet Socialist Republics |
| VROM | Direktorat Perumahan Negeri (Pemerintahan) Belanda |
| WMTC | Watershed Management Technology Center |

I. LONG LIST


- Notes: 1) This Long List is a comprehensive list of the projects identified in the JICA Study. The List, however, is not intended to be exhaustive or final. Subsequent reviews are necessary to adapt to new developments.
- 2) Projects whose number is circled () are components of an Integrated Development Program (IDEP).
- 3) Categories S, I and T indicate the following:
S: Study/survey (e.g., master plan, feasibility study, resource survey).
I: Investment (public/private, loan/grant, including engineering design).
T: Technical cooperation other than study/survey (e.g., expert services, fellowship, equipment).
- 4) Projects marked with * in the "Environment Considerations" column need a study (or study component) on environmental aspects.
- 5) Priority is indicated as follows:
S: Short range, to be initiated in 1989-93
M: Middle range, to be initiated in 1994-98
L: Long range, to be initiated in 1999-2008

Table 1. Classification of the Projects (1)

| | Project Total (A) | S* | | M* | L* | IDEP Related (C) | B/A (%) | C/A (%) |
|---------------------------------------|-------------------------|------------|-------------------------|------------|-----------|------------------------|------------|------------|
| | | Total | High Priority (B) | | | | | |
| (I) Intersectoral (excluding IDEP) | 1 | 1 | 1 | 0 | 0 | 1 | 100 | 100 |
| (II) Sectoral | 429 | 249 | 131 | 149 | 31 | 290 | 30 | 68 |
| A. Agriculture and Fishery | 63 | 41 | 25 | 20 | 2 | 57 | 40 | 90 |
| B. Water Resources | 72 | 35 | 20 | 37 | 0 | 33 | 28 | 46 |
| C. Mining | 8 | 6 | 5 | 2 | 0 | 7 | 63 | 88 |
| D. Industry | 79 | 57 | 14 | 22 | 0 | 41 | 18 | 52 |
| E. Energy/Power | 34 | 26 | 15 | 8 | 0 | 25 | 45 | 82 |
| F. Transportation | 68 | 40 | 25 | 19 | 9 | 48 | 37 | 71 |
| G. Telecommunication | 49 | 19 | 12 | 17 | 13 | 41 | 24 | 84 |
| H. Forestry/Environment | 14 | 9 | 7 | 2 | 3 | 11 | 50 | 79 |
| I. Tourism | 12 | 6 | 4 | 5 | 1 | 7 | 33 | 58 |
| J. Water Supply | 4 | 2 | 1 | 2 | 0 | 2 | 25 | 50 |
| K. Urban Development | 13 | 4 | 2 | 7 | 2 | 9 | 15 | 69 |
| L. Rural Development | 13 | 4 | 1 | 8 | 1 | 9 | 8 | 69 |
| (I)+(II) GRAND TOTAL | 430 | 250 | 132 | 149 | 31 | 291 | 30 | 68 |

Note: * "S" stands for "short range"; "M" for "middle range"; and "L" for "long range."

Table 2. Classification of the Projects (2)

| | Project Total | S | Project Profile* | Guideline for Study** | | | |
|---------------------------------------|------------------|------------|---------------------|-----------------------|-----------|----------------|-----------------|
| | | | | Total | IDEP | Inter- IDEP | Outside IDEP |
| (I) Intersectoral (excluding IDEP) | 1 | 1 | - | 1 | - | 1 | - |
| (II) Sectoral | 429 | 249 | 165 | 61 | 41 | 15 | 5 |
| A. Agriculture and Fishery | 63 | 41 | 17 | 20 | 19 | 1 | - |
| B. Water Resources | 72 | 35 | 30 | 4 | 3 | - | - |
| C. Mining | 8 | 6 | 6 | 3 | 2 | - | 1 |
| D. Industry | 79 | 57 | 8 | 3 | - | 3 | - |
| E. Energy/Power | 34 | 26 | 22 | 4 | 2 | 2 | - |
| F. Transportation | 68 | 40 | 40 | 15 | 9 | 5 | 1 |
| G. Telecommunication | 49 | 19 | 19 | 5 | 2 | 3 | - |
| H. Forestry/Environment | 14 | 9 | 9 | 4 | 2 | 1 | 1 |
| I. Tourism | 12 | 6 | 6 | 2 | 1 | - | 1 |
| J. Water Supply | 4 | 2 | 1 | - | - | - | - |
| K. Urban Development | 13 | 4 | 4 | - | - | - | - |
| L. Rural Development | 13 | 4 | 4 | 1 | 1 | - | - |
| (I)+(II) GRAND TOTAL | 430 | 250 | 165 | 62 | 41 | 16 | 5 |

Notes: * A project profile is basically prepared for every S-ranked project. The actual number of the profiles, however, is smaller than that of the S-ranked projects because some profiles describe more than one project per sheet.

** A GFS (Guideline for Study) has been drafted for those high priority projects which require some guideline for study as the next action.

I. Intersectoral Projects

| No. | Project | Dev. Area | Category S I T | Remarks | Envi. Pri-Cons. ority |
|------------------|--------------------------------|--------------|-------------------|---|-----------------------|
| (IDEP) | | | | | |
| 1. ACEH | | | | | |
| P- 1 | Northern Aceh IDEP | 2 | * * * | Complementary development of agriculture and manufacturing | * S |
| P- 2 | West Aceh IDEP | 5 | * * * | Base for west coast development | * S |
| 2. NORTH SUMATRA | | | | | |
| P- 3 | Metropolitan Medan IDEP | 8, 9, 10, 11 | * * * | Medan as the industrial and service center | * S |
| P- 4 | West Coast Tapanuli IDEP | 12 | * * * | Base for west coast development | * S |
| P- 5 | Nias Island IDEP | 13 | * * * | Model for island development | * S |
| 3. WEST SUMATRA | | | | | |
| P- 6 | Minang Highlands IDEP | 14, 16, 17 | * * * | Center of advanced agriculture | * S |
| P- 7 | South Sijunjung IDEP | 17 | * * * | Commercially-oriented agricultural development | * S |
| P- 8 | Mentawai Islands IDEP | 19 | * * * | Development with conservation | * S |
| 4. RIAU | | | | | |
| P- 9 | Rokan Basin IDEP | 20 | * * * | Coupling NES and rice production | * S |
| P-10 | Indragiri River IDEP | 22, 23 | * * * | Model for river basin development | * S |
| P-11 | Riau Islands IDEP | 24 | * * * | Export-oriented development | * S |
| (Others) | | | | | |
| (P-12) | Production and Marketing Study | Each IDEP | * | To assess production and marketing possibilities of major commodities | S |

Notes: (1) Category S denotes "study"; I "investment"; T "technical cooperation."

(2) Envi. Cons. stands for "Environment Considerations."

II. Sectoral Projects

A. Agriculture and Fishery

| No. | Project | Dev. Area | Category S I T | Remarks | Envi. Pri- Cons. ority |
|---------------------------|---|-----------|-------------------|---|---------------------------|
| 1. INTERPROVINCIAL | | | | | |
| (Agriculture) | | | | | |
| (A-1) | Development of Appropriate Agricultural Mechanization | 0 | * * | Support for agricultural intensification and diversification | S/M |
| (A-2) | Tropical Fruit Development | 0 | * * | Nurseries for multiplication and distribution of better seedlings and extension | M |
| A-3 | Animal Health and Nutrition Improvement | 0 | * | Upgrading of veterinary and extension services | S/M |
| A-4 | Minor Smallholder Estate Crop Development | 0 | * * | Nurseries for multiplication and distribution of better seedlings and extension (clove, cinnamon, nutmeg, pepper, and other spices and aromatic plants) | M |
| (Fishery) | | | | | |
| (A-5) | Study of Brackish Water Aquaculture Sites | 0 | * | Identification of suitable sites and formulation of implementation plans | * S |
| 2. ACEH | | | | | |
| (Agriculture) | | | | | |
| (A-6) | Wetland Food Crop Intensification and Diversification | 1, 2, 5 | * | Wetland development for increased and diversified multiple cropping | S |
| (A-7) | Paddy Post-Harvest Technology Development | 5, 4 | * | Quality improvement for increased marketability | M |
| (A-8) | Higher-Altitude Horticulture Development | 2 | * * | Increased seed supply, improved production and post-harvest technologies, and marketing system development | S |
| (A-9) | Animal Nutrition and Marketing Improvement | 1, 2 | * * | Support to increased beef production (fattening, slaughtering, cold storage) | S |
| (A-10) | Smallholder Coconut Development | 3, 5 | * * | Replanting/planting with hybrid coconut | S/M |
| (A-11) | Smallholder Rubber Development | 3, 5, 6 | * * | Rehabilitation of aged trees | S/M |
| (A-12) | Smallholder Coffee Development | 2 | * * | Rehabilitation of arabica coffee, improved processing and marketing | * S/M |
| (A-13) | Nucleus Estate and Smallholder Development (rubber, oil palm) | 5, 6 | * * | Private investment and transmigration | M |
| (Fishery) | | | | | |
| (A-14) | Brackish Water Aquaculture Development (I) (II) | 3, 5 | * * | Development of 5,000 ha (I), 10,000 ha (II) with hatchery (total with A-30) | * S/M |
| (A-15) | Brackish Water Aquaculture Intensification (I) (II) | 1, 2, 3 | * * | Intensification of existing culture ponds | * M/L |

Notes: (1) Category S denotes "study"; I "investment"; T "technical cooperation."

(2) Envi. Cons. stands for "Environment Considerations."

| No. | Project | Dev. Area | Category S I T | Remarks | Envi. Pri- Cons. ority |
|------------------|---|------------|-------------------|--|---------------------------|
| (A-16) | Small-Scale Fishery Development | 1, 5, 6, 7 | * * | Purse seine fishing, tuna fishing, fish landing and marketing facilities, cooperative strengthening of artificial reefs, motorization of small boats, etc. | S |
| (A-17) | Lake Fishery Development | 2 | * * * | Limnological and ecological study, planning and implementation | * M |
| A-18 | Pilot-Scale Fish Processing | 7 | * * | Development of new local industries, e.g., smoked tuna, ornamental shells, etc | S |
| 2. NORTH SUMATRA | | | | | |
| (Agriculture) | | | | | |
| (A-19) | Wetland Food Crop Intensification and Diversification | 11, 12, 13 | * | Wetland development for increased and diversified multiple cropping | S |
| (A-20) | Dryland Farming Development | 12 | * * | Increased production of palawija and horticultural crops | * S |
| (A-21) | Paddy Post-Harvest Technology Development | 12, 13 | * | Improvement for increased marketability or for increased local supply | S |
| (A-22) | Higher-Altitude Horticulture Development | 10 | * * | Increased seed supply, improved production and post-harvest technologies, and marketing system development | S |
| (A-23) | Market Infrastructure Development for Horticultural Crops | 8 | * * * | Terminal for collection, grading, packing, and shipping | M |
| (A-24) | Livestock Development (beef cattle) | 12 | * * | Model ranch for training/extension on animal nutrition and disease control, grassland improvement, etc. | S |
| (A-25) | Smallholder Pig Development | 9, 11, 13 | * | Multiplication and distribution of better breeds | M |
| (A-26) | Smallholder Coconut Development | 9, 12, 13 | * * | Rehabilitation of aged trees | S/M |
| (A-27) | Smallholder Rubber Development | 13 | * * | Rehabilitation of aged trees | S/M |
| (A-28) | Smallholder Coffee Development | 12 | * * | Rehabilitation of arabica coffee, improved processing and marketing | S/M |
| (A-29) | Nucleus Estate and Smallholder Development (oil palm, rubber) | 12 | * * | Private investment and transmigration | * M |
| (Fishery) | | | | | |
| (A-30) | Brackish Water Aquaculture Development (I) (II) | 9, 12 | * * | Development of 5,000 ha (I), 10,000 ha (II) with hatchery (total with A-14) | * S/M |
| (A-31) | Brackish Water Aquaculture Intensification | 9 | * * | Intensification of existing culture ponds | * L |
| (A-32) | Marine Fishery Development Sub-Center | 12 | * * | Applied research on fishing boats and fishing gear | S |
| (A-33) | Fishery Education | 8, 12 | * | Secondary school education on marine fishery, fish culture and processing | M |

| No. | Project | Dev. Area | Category S I T | Remarks | Envi. Pri- Cons. ority |
|-----------------|--|----------------|-------------------|--|---------------------------|
| (A-34) | Small-Scale Fishery Development | 12, 13 | * * | Purse seine fishing, tuna fishing, fish landing and marketing facilities, cooperative strengthening of artificial reefs, motorization of small boats, etc. | S |
| (A-35) | Mariculture Development | 9 | * * * | Seaweed culture, marine fish cage culture, shellfish culture | S |
| A-36 | Lake Fishery Development | 11 | * * * | Limnological and ecological study, planning and implementation | * M |
| (A-37) | Pilot-Scale Fish Processing | 13 | * * | Development of new local industries, e.g., smoked tuna, ornamental shells, etc | S |
| 3. WEST SUMATRA | | | | | |
| (Agriculture) | | | | | |
| (A-38) | Wetland Food Crop Intensification and Diversification | 14, 16, 18 | * | Wetland development for increased and diversified multiple cropping | S/M |
| (A-39) | Dryland Farming Development | 15, 17 | * * | Increased production of palawija and horticultural crops | * S |
| (A-40) | Paddy Post-Harvest Technology Development | 14, 15, 17, 18 | * | Improvement for increased marketability or for increased local supply | M |
| (A-41) | Higher-Altitude Horticulture Development | 14, 17 | * | Increased seed supply, improved production and post-harvest technologies, and marketing system development | S/M |
| (A-42) | Market Infrastructure Development for Horticultural Crops | 14 | * * * | Terminal for collection, grading, packing, and shipping | M |
| (A-43) | Livestock Development (beef cattle) | 15, 17 | * * | Model ranch for training/extension on animal nutrition and disease control, grassland improvement, etc. | S |
| (A-44) | Smallholder Coconut Development | 14, 15, 18 | * * | Rehabilitation of aged trees | S/M |
| (A-45) | Smallholder Rubber Development | 15, 17 | * * | Rehabilitation of aged trees | M |
| A-46 | Nucleus Estate and Smallholder Development (oil palm, tea, rubber) | 15, 17, 18 | * * | Public and private investment and local farmers including transmigrants | * S/M |
| (A-47) | Cash Crop Development | 19 | * | Area development approach introducing mainly tree/estate crops for smallholders | S |
| (Fishery) | | | | | |
| A-48 | Brackish Water Aquaculture Development | 15 | * * | Development of culture ponds with hatchery | * M |
| (A-49) | Small-Scale Fishery Development | 19 | * * | Purse seine fishing, tuna fishing, fish landing and marketing facilities, cooperative strengthening of artificial reefs, motorization of small boats, etc. | S |

| No. | Project | Dev. Area | Category | | | Remarks | Envi. Cons. | Priority |
|---------------|---|----------------------|----------|---|---|---|-------------|----------|
| | | | S | I | T | | | |
| (A-50) | Lake Fishery Development | 14 | * | * | * | Limnological and ecological study, planning and implementation | * | M |
| (A-51) | Freshwater Fish Culture Rehabilitation | 14, 15, 16 17, 18 | * | * | | Improvement of productivity by pond rehabilitation | | M |
| (A-52) | Pilot-Scale Fish Processing | 19 | * | * | | Development of new local industries, e.g., smoked tuna, ornamental shells, etc | | S |
| 4. RIAU | | | | | | | | |
| (Agriculture) | | | | | | | | |
| (A-53) | Dryland Farming Development | 20, 22 | | | * | Increased production of palawija and horticultural crops | * | S/M |
| (A-54) | Paddy Post-Harvest Technology Development | 20, 23 | | | * | Improvement for increased marketability and increased local supply | | S |
| (A-55) | Livestock Development (beef cattle) | 20, 22 | | | * | Training/extension on animal nutrition and disease control, grassland improvement, etc. | | S |
| (A-56) | Smallholder Coconut Development | 23 | | | * | Rehabilitation of aged trees | | S/M |
| (A-57) | Smallholder Rubber Development | 20, 22 | | | * | Rehabilitation of aged trees | | S/M |
| (A-58) | Nucleus Estate and Smallholder Development (oil palm, rubber) | 20, 21, 22 | | | * | Private investment and transmigration | * | S/M |
| (Fishery) | | | | | | | | |
| (A-59) | Brackish Water Aquaculture Development | 21, 23 | | | * | Development of fishing ponds with hatchery | * | M |
| (A-60) | Brackish Water Aquaculture Intensification | 21, 23 | | | * | Intensification of existing culture ponds | * | L |
| (A-61) | Fishery Education | 24 | | | * | Secondary school education on marine fishery, fish culture and processing | | M |
| (A-62) | Mariculture Development | 21, 23, 24 | * | * | * | Seaweed culture, marine fish cage culture, shellfish culture | | S |
| (A-63) | Freshwater Prawn Culture Development | 22, 23 | * | * | | Pilot-scale farm with a hatchery and a feed plant | | M |

B. Water Resources

| No. | Project | Dev. Area | Category | | | Remarks | Envi. Cons. | Pri- ority |
|--------------------|---|-----------|----------|---|---|--|-------------|------------|
| | | | S | I | T | | | |
| 1. INTERPROVINCIAL | | | | | | | | |
| B-1 | Water Management Center | 0 | * | * | | Establishment of overall water management center | * | M |
| B-2 | Rivermouth Improvement and Protection of Coastal Line | 0 | * | * | * | Sediment control and protection against wave actions | * | S |
| (B-3) | Irrigation OMR | 0 | * | * | * | Special maintenance, efficient O & M | * | S |
| 2. ACEH | | | | | | | | |
| (B-4) | Urban Water Supply and Improvement | 1, 2 | * | * | | B. Aceh, Lhokseumawe, Langsa, other cities | * | S |
| (B-5) | Peusangan Basin Overall Development | 2 | * | * | | Master plan for FC, WS, Irr, HP, AC, WM | * | S |
| (B-6) | Kr. Pase Urgent Flood Control | 2 | * | * | | Sub-project under the master plan (B-5). Irr. 7,400 ha | * | S |
| (B-7) | Pante Long II Irrigation (Rehabilitation) | 2 | * | * | | Sub-project under the master plan (B-5). 9,000 ha | * | S |
| (B-8) | Seunagan Basin Overall Development | 5 | * | | | Master plan for FC, WS, Irr, HP, AC, WM | * | S |
| (B-9) | Jeuram Irrigation (Rehabilitation) | 5 | * | * | | Sub-project under the master plan (B-8) 12,400 ha | * | S |
| B-10 | Kr. Aceh Right Bank Irrigation | 1 | | * | | FC component under implementation, 7,500 ha. D/D 1987 | * | S |
| B-11 | Jambu - Aye Multipurpose Dam Project | 2, 3 | | * | | F/S completed in 1984. Irr. 10,200 ha, 160 MW | * | M |
| B-12 | Small Reservoirs Projects | 1, 2 | * | * | | For irrigation and livestock | * | M |
| B-13 | Bunggong Talo Irrigation | 5 | * | * | | 371 ha | * | M |
| B-14 | Panton Teungku Irrigation | 6 | * | * | | 400 ha | * | M |
| B-15 | Panton Cut I Irrigation | 6 | * | * | | 200 ha | * | M |
| B-16 | Panton Cut II Irrigation | 6 | * | * | | 400 ha | * | M |
| B-17 | Ie Mirah Irrigation | 6 | * | * | | 1,250 ha | * | M |
| B-18 | Geunteut Irrigation | 1 | * | * | | 214 ha | * | M |
| B-19 | Geupu Irrigation | 1 | * | * | | 250 ha | * | M |
| B-20 | Kr. Tangan Irrigation | 6 | * | * | | 600 ha | * | M |
| B-21 | Banda Gadang Irrigation | 6 | * | * | | 275 ha | * | M |
| B-22 | Tanah Merah Irrigation | 5 | * | * | | 1,700 ha | * | M |
| B-23 | Tangse Alue Badeuk Irrigation | 2 | * | * | | 462 ha | * | M |
| B-24 | Jambo Reuhat Irrigation | 3 | * | * | | 420 ha | * | M |

Notes: (1) Category S denotes "study"; I "investment"; T "technical cooperation."

(2) Envi. Cons. stands for "Environment Considerations."

(3) FC flood control, WS water supply, Irr irrigation, HP hydropower, AC aquaculture, WM watershed management.

| No. | Project | Dev. Area | Category | | | Remarks | Envi. Cons. | Pri- ority |
|------------------|--|-----------|----------|---|--|---------|-------------|------------|
| | | | S | I | T | | | |
| B-25 | Lho Baro Irrigation | 2 | * | * | 456 ha | | * | M |
| B-26 | Samalanga Irrigation | 2 | * | * | 1,881 ha | | * | M |
| (B-27) | Lho Guci Irrigation | 5 | * | * | 21,300 ha | | * | S |
| (B-28) | Kr. Tripa Irrigation | 5 | * | * | 23,000 ha | | * | S |
| B-29 | Lambesoi Irrigation | 5 | * | * | 2,200 ha | | * | M |
| B-30 | Kr. Susoh Irrigation | 6 | * | * | 4,000 ha | | * | M |
| B-31 | Kr. Bakongan Irrigation | 6 | * | * | 2,100 ha | | * | M |
| B-32 | Lawe Bulan Irrigation | 4 | * | * | 5,900 ha | | * | M |
| B-33 | Kr. Teunom Irrigation | 5 | * | * | 4,000 ha | | * | M |
| B-34 | Padang Tiji Irrigation | 2 | * | * | 3,500 ha, storage type | | * | M |
| (B-35) | Kr. Tuan Irrigation (Mane) | 2 | * | * | 2,200 ha | | * | S |
| (B-36) | Kr. Pandrah Irrigation | 2 | * | * | 1,020 ha | | * | S |
| (B-37) | Kr. Peudada Irrigation | 2 | * | * | 1,100 ha | | * | S |
| B-38 | Kr. Nalan Irrigation | 2 | * | * | 2,100 ha | | * | M |
| B-39 | Water Export | 1, 2, 5 | * | * | Export of water to Middle East in bottle or using tanker | | * | S |
| 3. NORTH SUMATRA | | | | | | | | |
| (B-40) | Medan Water Supply | 8 | * | * | Coordinated with MUDP | | * | S |
| (B-41) | Belawan - Padang Basin Overall Development (Incl. Deli and Ular) | 8, 9 | * | * | Master plan for FC, WS, Irr, AC, WM | | * | S |
| (B-42) | Nias Island Irrigation and Agricultural Diversification | 13 | * | * | Irr. 14,000 ha, tree crop, livestock, fishery under the Nias Island IDEP | | * | S |
| B-43 | Lower Asahan Basin Overall Development | 9 | * | * | D/D for FC component underway, FC, Irr, navigation | | * | S |
| B-44 | Bilah - Barumon Basin Overall Development | 9 | * | * | FC, Irr. 22,000 ha | | * | S |
| (B-45) | Tarutung - Sarulla Flood Control and Irrigation | 11 | * | * | Irr. 3,200 ha, sediment control | | * | S |
| (B-46) | Rawa Kolang Irrigation (North of Sibolga) | 12 | * | * | Irr. 6,000 ha, transmigration | | * | S |
| (B-47) | Batang Angkola Irrigation (South of P. Sidempuan) | 12 | * | * | Irr. 6,000 ha | | * | S |
| (B-48) | Hutaraja / Sangkunur Irrigation in B. Toru | 12 | * | * | Irr. 14,000 ha, transmigration | | * | S |

| No. | Project | Dev. Area | Category | | | Remarks | Envi. Cons. | Pri- ority |
|-----------------|---|------------|----------|---|---|---|-------------|------------|
| | | | S | I | T | | | |
| B-49 | Siondop Irrigation (Near Natal) | 12 | * | * | | 20,000 ha, transmigration | * | M |
| B-50 | Sei Lapan Irrigation (Near P. Brandan) | 9 | * | * | | 12,000 ha | * | M |
| B-51 | Lau Gunung Irrigation | 10 | * | * | | 4,000 ha | * | M |
| B-52 | Bandar Khalifah Irrigation in Deli Serdang | 9 | * | * | | 11,000 ha | * | M |
| B-53 | Sei Belutu Irrigation in Deli Serdang | 9 | * | * | | 5,000 ha | * | M |
| B-54 | Sei Wampu Irrigation | 9 | * | * | | 5,000 ha | * | M |
| 4. WEST SUMATRA | | | | | | | | |
| (B-55) | Natural Disaster Prevention | 14, 16, 17 | * | * | * | For landsliding, etc. | * | S |
| (B-56) | Padang Flood Control | 14 | | * | | D/D completed in 1988 | * | S |
| (B-57) | Anai Basin Overall Development | 14 | | * | | Irr. 6,300 ha, F/S completed in 1986 | * | S |
| B-58 | Indrapura Swamp Reclamation | 18 | * | * | | Irr. 6,000 ha under the Pesisir Selatan area development program | * | M |
| B-59 | Panti - Rao Irrigation | 15 | * | * | | Irr. 13,000 ha | * | M |
| B-60 | Tongar Irrigation | 15 | * | * | | Irr. 7,000 ha | * | M |
| (B-61) | Sungaidareh Irrigation | 17 | * | * | | South Sijunjung IDEP, on-going | * | S |
| 5. RIAU | | | | | | | | |
| (B-62) | Water Supply in Coastal Swampy Zone | 21, 23 | * | * | * | For Dumai and other cities on the coast | * | S |
| B-63 | Batam Water Supply | 24 | * | * | | Durian Kang dam, 2 m ³ /s | * | S |
| (B-64) | Rokan Basin Overall Development | 20, 21 | * | * | | Irr, FC, WS, HP, WM, transmigration | * | S |
| (B-65) | Batang Kumu Irrigation | 20 | | * | | Irr. 8,000 ha, F/S underway | * | S |
| (B-66) | Kuantan / Indragiri Basin Overall Development | 17, 22, 23 | * | * | | FC, Irr, WS, HP, WM, sediment control, navigation, transmigration | * | S |
| (B-67) | Integrated Swamp Development | 20, 21, 23 | * | * | * | A long - term plan for the best utilization of coastal swamp for agriculture, settlement, energy source, navigation, etc. | * | S |
| (B-68) | B. Lubuk Irrigation | 20 | * | * | | 34,000 ha | * | M |
| (B-69) | B. Rokan Kiri Irrigation | 20 | * | * | | 36,000 ha | * | M |
| (B-70) | B. Sosa Irrigation | 20 | * | * | | 3,000 ha | * | S |
| (B-71) | Rengat Left Bank Irrigation | 22 | * | * | | 6,000 ha | * | M |
| (B-72) | S. Cenako Irrigation | 22 | * | * | | 20,000 ha | * | M |

C. Mining

| No. | Project | Dev. Area | Category S I T | Remarks | Envi. Pri-Cons. ority |
|---------------------------|--|------------|-------------------|---|-----------------------|
| 1. INTERPROVINCIAL | | | | | |
| C- 1 | Non-Metallic Mineral Resources Research Center | 0 | * * * | Ls, Gr, Ms, Qs, Mg, Be, Ka, Do, Fel, etc. | * S |
| (C- 2) | Geothermal Energy Development | 0 | * * * | Local energy source | * M |
| 2. ACEH | | | | | |
| (C- 3) | Meulaboh Coal Resources Development | 5 | * * * | For power generation, local use, etc. | * S |
| 3. NORTH SUMATRA | | | | | |
| (C- 4) | South Natal Coal Resources Development (Reconnaissance Survey) | 12 | * * * | For power generation, local use, etc. | * S |
| 4. WEST SUMATRA | | | | | |
| (C- 5) | Sinamar Coal Resources Development (Pre-Feasibility Study) | 17 | * * * | For power generation, local use, etc. | * S |
| 5. RIAU | | | | | |
| (C- 6) | Cerenti Coal Resources Development (Feasibility Study) | 22 | * * * | A follow-up survey for the current exploration survey, ending in 1991 | * S |
| (C- 7) | Peat Energy Resources Development | 20, 21, 23 | * * * | To be integrated in swamp development project (B - 67) | * M |
| (C- 8) | Rare Metal Resources Development | 22, 23 | * * * | A follow-up study of JICA survey on Sn, Nb, Ta, etc. | * S |

Notes: (1) Category S denotes "study"; I "investment"; T "technical cooperation."

(2) Envi. Cons. stands for "Environment Considerations."

D. Industry

| No. | Project | Dev. Area | Category | | | Remarks | Envi. Pri-Cons. ority |
|-----------------------|--|----------------|----------|---|---|---|-----------------------|
| | | | S | I | T | | |
| (Government Projects) | | | | | | | |
| 1. INTERPROVINCIAL | | | | | | | |
| D-1 | Promotion of Industry -to- Industry Extension Services (Bapak-Angkat Projects) | 0 | * | * | | To be strengthened by Presidential Directives | S |
| D-2 | Small Industry Development Project (BIPIK) | 0 | * | * | * | To be decentralized to provinces | S |
| D-3 | Development of Agro-Industries | 0 | * | * | | Survey to be followed by technical/marketing guidance | S |
| D-4 | Development of Marketable Handicraft Products | 0 | * | * | | Survey to be followed by technical/marketing guidance | S |
| D-5 | Development of Educational Institutes for Industrial Technology | 0 | * | * | * | Improving/expanding existing ones and establishing new ones | S |
| D-6 | Development of Industrial Research Institutes | 0 | * | * | * | Improving/expanding existing ones and establishing new ones | M |
| D-7 | Development of Industrial Estates/ Areas | 2, 8, 14, etc. | * | * | | Improving/expanding existing ones and establishing new ones | * S |
| D-8 | Improvement of Export Testing Laboratories | 0 | * | * | * | Improving/expanding existing ones and establishing new ones | M |
| D-9 | Establishment of Bonded Warehouses | 0 | * | * | * | Subject to a trial in Medan | M |
| D-10 | Establishment of Inland Custom Facilities (Dry Ports) | 0 | * | * | | Subject to a trial in Tebingtinggi | M |
| D-11 | Utilization of Agricultural Wastes (saw dusts, wood off-cuts, husk, bran, rubber wood, etc.) | 0 | * | * | * | Research project to be followed by private investments | * M |
| D-12 | Development of Distributed Data Processing Systems | 0 | * | * | * | Subject to a trial in Batam | S |
| D-13 | Improvement of Agro-Processing Yield (palm oil extraction, etc.) | 0 | * | * | * | Research project to be followed by private investments | * M |
| D-14 | Research of Bio-Technology for Product and Process Development | 0 | * | * | * | Research project to be followed by private investments | * M |
| D-15 | Plastic Technology Service Center | 2, 8 | * | * | * | To provide testing and other services | M |
| D-16 | Development of Pollution Prevention Technology | 0 | * | * | * | Research project to be followed by private investments | * M |
| D-17 | Establishment of Pollution Monitoring System | 0 | * | * | * | | * M |
| D-18 | Design Development | 0 | * | * | * | To provide design guidance services | M |

Notes : (1) There are some national projects/program not listed here, which can be utilized by industries in the Region.
 (2) Category S denotes "study" ; I "investment" ; T "technical cooperation."
 (3) Envi. Cons. stands for "Environment Considerations."

| No. | Project | Dev. Area | Category S I T | Remarks | Envi. Pri-Cons. ority |
|--------------------|---|--------------------------------------|-------------------|--|-----------------------|
| D-19 | Packaging Development for Export Items | 0 | * * * | To provide guidance/research services | M |
| D-20 | Development of Energy Saving Technology | 0 | * * * | Research project to be followed by private investments | * M |
| D-21 | Export Marketing Information System | 0 | * * * | | M |
| D-22 | Technology Information Service Network | 0 | * * * | | M |
| D-23 | Investment Information Service | 1, 8, 14, 20, 24 | * | To strengthen BKPM | M |
| D-24 | Productivity Improvement | 0 | * | Campaign and guidance/training | M |
| D-25 | Improvement of Vocational Training Institutes | 0 | * * * | Improving/expanding existing ones and establishing new ones | M |
| 2. | ACEH | Included in Interprovincial Projects | | | |
| 3. | NORTH SUMATRA | Included in Interprovincial Projects | | | |
| 4. | WEST SUMATRA | Included in Interprovincial Projects | | | |
| 5. | RIAU | Included in Interprovincial Projects | | | |
| (Private Projects) | | | | | |
| 1. | INTERPROVINCIAL | None | | | |
| 2. | ACEH | | | | |
| (D-26) | Agro-Industries | 1=7 [1] | * * | Primary processing of crops, vegetable canning, etc. | * S |
| D-27 | Wood/Rattan Processing Industries | 1, 3, 7 | * * | Plywood, furniture, etc. | * S |
| (D-28) | Fishery/Aquaculture-Related Industries | 1, 2, 3, 5, 6, 7 | * * | Cold storage, canning, fishmeal, etc. | * S |
| (D-29) | Livestock-Related Industries | 1, 2 | * * | Animal feed, hide tanning, etc. | * S |
| (D-30) | Mineral Processing Industries | 1, 5 | * * | Cement, etc. | * M |
| (D-31) | Craft Industries | 1=7 | * * | Ceramics, embroidery, basketry, etc. | S |
| (D-32) | Plastic Products Industries | 2 | * * | Mainly for exports | M |
| (D-33) | Other Consumer Goods Industries | 1, 2 | * * | Foods, garments, etc. for nearby areas | S |
| (D-34) | Aromatic Center | 2 | * * | Benzen, toluene, p-xylene, etc. | * S |
| (D-35) | Polimer Production Industries | 2 | * * | Polystyene, ABS, etc. | * S |
| (D-36) | Other Intermediate Goods Industries | 2, 3 | * * | Plywood glue, ethanol, etc. | * S |
| (D-37) | Light Engineering Industries | 1=7 | * * | Agricultural tools/equipment, fishing gear, etc. | S |
| D-38 | Engineering Industries | 1 | * * | Ship building/repair, other machines, electric/electronics, etc. | S |

Note : [1] '1=7' refers to Development Areas 1 through 7 (same hereafter).

| No. | Project | Dev. Area | Category S I T | Remarks | Envi. Pri- Cons. ority |
|-------------------------|---|----------------|-------------------|--|---------------------------|
| 3. NORTH SUMATRA | | | | | |
| (D-39) | Agro-Industries | 8=13 [1] | * * | Primary processing of crops, vegetable canning, etc. | * S |
| (D-40) | Rubber Products Industries | 8, 9 | * * | Tires, engineering parts, gloves, etc. | * S |
| (D-41) | Wood/Rattan Processing Industries | 9=13 | * * | Plywood, furniture, etc. | * S |
| (D-42) | Fishery/Aquaculture-Related Industries | 9, 11=13 | * * | Cold storage, canning, fishmeal, etc. | * S |
| (D-43) | Livestock-Related Industries | 11=13 | * * | Animal feed, hide tanning, etc. | * S |
| (D-44) | Mineral Processing Industries | 8, 9 | * * | Glass and marble products, etc. | * S |
| (D-45) | Craft Industries | 9=13 | * * | Ceramics, embroidery, basketry, etc. | S |
| (D-46) | Plastic Products Industries | 8, 9 | * * | Mainly for exports | M |
| (D-47) | Finished Textile Products (table cover, garments, etc.) | 8 | * * | Mainly for exports | S |
| (D-48) | Other Consumer Goods Industries | 8, 9 | * * | Foods, garments, etc. for Region and exports | S |
| (D-49) | Other Intermediate Goods Industries | 8, 9 | * * | Steel rod/angle, oleochemicals, ethanol, yeast, etc. | * S |
| (D-50) | Light Engineering Industries | 8=13 | * * | Agricultural tool/equipment, fishing gear, etc. | S |
| (D-51) | Engineering Industries | 8, 9 | * * | Industrial machinery, electric/electronics, etc. | * S |
| 4. WEST SUMATRA | | | | | |
| (D-52) | Agro-Industries | 14=19 [2] | * * | Primary processing of crops, vegetable canning, etc. | * S |
| D-53 | Rubber Products Industries | 14 | * * | Tires, engineering parts, gloves, etc. | * S |
| (D-54) | Wood/Rattan Processing Industries | 14, 15, 17, 19 | * * | Plywood, furniture etc. | * S |
| (D-55) | Fishery/Aquaculture-Related Industries | 14, 15, 18 19 | * * | Cold storage, canning, fishmeal, etc. | * S |
| (D-56) | Livestock-Related Industries | 14=19 | * * | Animal feed, hide tanning, etc. | * S |
| D-57 | Mineral Processing Industries | 14 | * * | Cement | * M |
| (D-58) | Craft Industries | 14=19 | * * | Ceramics, embroidery, basketry, etc. | S |
| D-59 | Consumer Goods Industries | 14 | * * | Foods, garments, etc. for Region and exports | S |
| D-60 | Cement Products Industries | 14 | * * | Building material, pipe, etc. | S |
| D-61 | Essential Oil Industries | 14 | * * | Patchouli oil, etc. | S |
| D-62 | Other Intermediate Industries | 14 | * * | Plywood glue, oleochemicals, etc. | * S |
| (D-63) | Light Engineering Industries | 14=19 | * * | Agricultural tool/equipment, fishing gear, etc. | S |

Notes : [1] '8=13' refers to Development Areas 8 through 13 (same hereafter).

[2] '14=19' refers to Development Areas 14 through 19 (same hereafter).

| No. | Project | Dev. Area | Category | | | Remarks | Envi. Pri-Cons. ority | |
|---------|--|----------------|----------|---|---|---|-----------------------|---|
| | | | S | I | T | | * | S |
| D-64 | Engineering Industries | 14 | * | * | | Industrial machinery, electric/electronics, etc. | * | S |
| 5. RIAU | | | | | | | | |
| (D-65) | Agro-Industries | 20=24 [1] | * | * | | Primary processing of crops, vegetable canning, etc. | * | S |
| D-66 | Central Processing Units of Palm Oil, etc. | 24 | * | * | | Palm oil, cassava, timber, etc. | * | S |
| (D-67) | Rubber Products Industries | 20, 21, 24 | * | * | | Tires, engineering parts, gloves, etc. | * | S |
| (D-68) | Wood/Rattan Processing Industries | 20=24 | * | * | | Plywood furniture, etc. | * | S |
| (D-69) | Fishery/Aquaculture-Related Industries | 21, 23, 24 | * | * | | Cold storage, canning, fishmeal, etc. | * | S |
| (D-70) | Livestock-Related Industries | 20, 21, 23, 24 | * | * | | Animal feed, hide tanning, etc. | * | S |
| (D-71) | Mineral Processing Industries | 20, 24 | * | * | | Tin products, etc. | * | S |
| (D-72) | Craft Industries | 20=24 | * | * | | Ceramics, embroidery, basketry, etc. | | S |
| D-73 | Electronics Industries | 24 | * | * | | Apparatus, semi-conductors, etc. | | S |
| (D-74) | Garments and Other Tlxtile Industries | 24 | * | * | | Mainly for exports | | S |
| D-75 | Other Consumer Goods Industries | 20 | * | * | | Foods, garments, etc. for nearby areas | | S |
| D-76 | Pulp and Paper Industries | 21 | * | * | | Pulp, paper and products, rayon, etc. | * | S |
| D-77 | Other Intermediate Goods Industries | 20, 24 | * | * | | Plywood glue, oleochemicals, caustic soda, etc. | * | S |
| (D-78) | Light Engineering Industries | 20=24 | * | * | | Agricultural tool/equipment, fishing gear etc. | | S |
| D-79 | Engineering Industries | 24 | * | * | | Transport equipment, industrial machinery, electric/electronics, etc. | * | S |

Note : [1] '20=24' refers to Development Areas 20 through 24 (same hereafter).

E. Energy / Power

| No. | Project | Dev. Area | Category S I T | Remarks | Envi. Pri- Cons. ority |
|---------------------------|--|-----------|-------------------|---|---------------------------|
| 1. INTERPROVINCIAL | | | | | |
| (E-1) | Fuel Efficient Stove Dissemination (Household Energy Diversification and Saving Program) | 0 | * * | Production of briquet from coal, improvement of oven, introduction of natural gas | * S |
| (E-2) | Rural Electrification Program | 0 | * * | By extension of existing grid or development of local energy source | * S |
| E-3 | Improvement of Marketing System and Extension of Logistic System for Petroleum Products | 0 | * * | For more efficient use of energy | * M |
| 2. ACEH | | | | | |
| E-4 | Mini - Hydropower in Aceh | 4 | * * | For rural electrification | * S |
| (E-5) | Peusangan - 1 & 2 Hydropower | 2 | * | 64 MW, F/S completed in 1987 | * S |
| (E-6) | Peusangan - 4 Hydropower | 2 | * * | 31 MW, Pre-F/S completed in 1987 | * S |
| (E-7) | Tampur - 1 Hydropower | 2 | * | 428 MW, Energy supply to Aceh and North Sumatra, F/S completed in 1984 | * S |
| (E-8) | Jambu - Aye Hydropower schemes | 2, 3 | * * | Hydropower schemes in upper reaches | * S |
| (E-9) | Gas - Fired Thermal Plant | 2 | * * | Use of natural gas at Arun | * S |
| (E-10) | High Voltage Transmission Line | 1, 2, 3 | * * | Interconnection of power grid systems | * S |
| E-11 | Aceh - 2 Hydropower | 1 | * * | 7.3 MW, Pre-F/S in 1987 | * M |
| (E-12) | Teunom - 1 Hydropower | 5 | * * | 24.2 MW, Pre-F/S in 1987 | * S |
| E-13 | Lawe Alas - 4 Hydropower | 4, 6 | * * | 322 MW, Pre-F/S in 1987 | * M |
| (E-14) | Coal-Fired Thermal Plant | 5 | * * | At Meulaboh, based on C-3 | * M |
| 3. NORTH SUMATRA | | | | | |
| (E-15) | Mini - Hydropower in North Sumatra (Oyo, etc.) | 12, 13 | * * | For rural electrification | * S |
| (E-16) | Asahan No. 1 & No. 3 Hydropower | 11 | * | Purpose of the project subject to the Government's decision, 670 MW | * S |
| (E-17) | Renun - Toba Hydropower | 11 | * | Engineering design completed in 1988, 82 MW | * S |
| (E-18) | Sipang Sipaporas Hydropower | 12 | * | F/S underway and completed in 1989, 48 MW | * S |
| (E-19) | Wampu Hydropower | 10 | * * | Two schemes, 173 MW | * S |
| E-20 | Toru Hydropower | 12 | * * | To be planned under the Toru basin plan | * S |
| (E-21) | Medan Gas Turbine Plant II | 8 | * | 130 MW | * S |
| (E-22) | Gas - Fired Thermal Plant | 9 | * * | Use of natural gas from Pangkalan Brandan | * S |
| (E-23) | Coal - Fired Thermal Plant | 8 | * * | For base load operation | * S |

Notes: (1) Category S denotes "study"; I "investment"; T "technical cooperation."

(2) Envi. Cons. stands for "Environment Considerations."

| No. | Project | Dev. Area | Category S I T | Remarks | Envi. Pri-Cons. ority |
|-----------------|---|------------|-------------------|---|-----------------------|
| (E-24) | Power Grid Expansion | 10, 11, 12 | * * | 150 kV, 22 kV | * S |
| (E-25) | Natural Gas Utilization | 8, 9 | * * | To be initiated in Medan | * S |
| 4. WEST SUMATRA | | | | | |
| (E-26) | Mini - Hydropower in West Sumatra (Mayong Terugi, Sungai Putih, etc.) | 17, 18 | * * | For rural electrification | * S |
| (E-27) | Ombilin Coal - Fired Power Plant | 17 | * | 2 x 65 MW | * S |
| (E-28) | Singkarak Hydropower | 14 | * | 2 x 90 MW | * S |
| (E-29) | Batang Bayang Hydropower No. 1 & 2 | 18 | * * | 44 MW, Pre-F/S completed in 1987 | * M |
| 5. RIAU | | | | | |
| E-30 | Kota Panjang Hydropower | 20 | * | 114 MW, D/D completed in 1988 | * S |
| E-31 | Interconnection of Power Grid Systems between Riau and West Sumatra | 16, 20 | * | F/S completed in 1986 | * S |
| (E-32) | Rokan Kiri - 1 Hydropower | 20 | * * | 74.4 MW | * M |
| E-33 | Kuantan - 2 Hydropower | 22 | * * | 188.8 MW | * M |
| E-34 | Resource Option Study for Stream Flooding for Duri Oil Field | 22, 24 | * | Comparative analysis of Natuna gas and coal in Riau (a national project in character; should refer to the outcome of E-25) | * M |

F. Transportation

| No. | Project | Dev. Area | Category S I T | Remarks | Envi. Pri- Cons. ority |
|---------------------------|---|------------------------------|-------------------|--|---------------------------|
| 1. INTERPROVINCIAL | | | | | |
| (Road) | | | | | |
| (F-1) | Arterial Road Upgrading (Strategic Road Improvement) | 1-3, 8, 9, 11, 12, 14-16, 20 | * * | Preliminary study is on-going by Bina Marga | * S |
| (F-2) | Road Disaster Prevention | 2, 4, 12, 14, 17 | * * | Feasibility study will be done in Sumatra and Java | * S |
| (F-3) | Sumatra East Coast Road Development | 8-9-21-20-22 | * * | Betterment of some parts are completed/on-going | * S |
| (F-4) | Bridge Replacement Program in Aceh and Riau | 1 - 6, 21 - 23 | * * | For selected rural roads | * S |
| 2. ACEH | | | | | |
| (Road) | | | | | |
| (F-5) | Banda Aceh - Meulaboh Road Betterment | 1 - 5 | (*) * | Unpaved part is under construction by CIDA | * S |
| F-6 | Banda Aceh Road Network Development | 1 | * * | Banda Aceh - Tangse, etc. | * M |
| (F-7) | Tapaktuan - Sidikalang Road Betterment | 6 - 10 | * | Three major bridges are being constructed by 1993, financed by IBRD | S |
| (F-8) | Takengon - Sidikalang Road Betterment | 2 - 4 - 10 | * | Partially financed by IBRD | M |
| (F-9) | Lhokseumawe - Takengon - Meulaboh East-West Road | 2 - 5 | * | Takengon - Meulaboh to be constructed during Repelita VII | * M |
| F-10 | Peureulok - Blangkejeren - Blangpidi - East-West Road | 3 - 4 - 6 | * | | * L |
| (F-11) | Aceh Collector Road Betterment | 3, 5, 6 | * | 1) Peureulok - Lokop 2) Meulaboh - Tutut 3) Simp. Peut - L. Sumat 4) Penanggaijan - Singkil | S |
| (Railway) | | | | | |
| F-12 | Medan - Besitang - Langsa Railway Reconstruction | 9 - 3 | * (*) | Encouragement of regional industry | * S |
| (F-13) | Langsa - Lhokseumawe Railway Reconstruction | 3 - 2 | * (*) | Encouragement of regional industry | * M |
| (Waterway) | | | | | |
| F-14 | Malahayati Port Development | 1 | * | | L |
| (F-15) | Aceh West Coast Port Development | 1, 5, 6 | * * | Possible locations: Meulaboh, Tapaktuan, Calang, Lhok Jamin, Sabang E/S completed | * S |

Notes: (1) Category S denotes "study"; I "investment"; T "technical cooperation."

(2) Envi. Cons. stands for "Environment Considerations."

| No. | Project | Dev. Area | Category | | | Remarks | Envi. Cons. | Pri. ority |
|------------------|--|-------------|----------|-----|---|---------|-------------|------------|
| | | | S | I | T | | | |
| (F-16) | Lhokseumawe Port Expansion | 2 | * | | | | * | S |
| F-17 | Kuala Langsa Port Development | 3 | * | (*) | | | * | M |
| (F-18) | Simeulu Island Port Development | 7 | * | * | | | * | S |
| (F-19) | Inland Waterway Development on Woyla River. | 5 | * | (*) | | | * | M |
| (Airway) | | | | | | | | |
| F-20 | Banda Aceh Airport Development | 1 | * | * | - Expansion of runway - Airport facility | | * | S |
| (F-21) | Meulaboh Airport Development | 5 | * | (*) | - Flight safety - Airport facility - Flight safety | | * | M |
| 3. NORTH SUMATRA | | | | | | | | |
| (Road) | | | | | | | | |
| (F-22) | Medan - Binjai Toll Road Development | 8 - 9 | * | * | | | * | S |
| (F-23) | Medan - Sidikalang Road Network Development | 8 - 9 - 10 | * | | Upgrading existing highway and feeder road betterment | | * | S |
| (F-24) | Lake Toba Tourism Road Development | 9, 10, 11 | * | * | | | * | S |
| (F-25) | Rantauprapat - Padangsidempuan Road Network Development | 9 - 12 | * | | Upgrading existing highway and feeder road betterment | | * | S |
| (F-26) | Aceh - Sibolga - West Sumatra West Coast Road | 6 - 12 - 15 | * | | Need of road which plays incentive role in regional development | | * | L |
| (F-27) | West Coast Tapanuli Road Development | 12 | * | * | For acceleration of rural development | | * | S |
| (F-28) | Nias Island Ring Road | 13 | (*) | * | For tourism and acceleration of development | | * | S |
| (Railway) | | | | | | | | |
| (F-29) | Vitalization of North Sumatra Railway (Medan Metropolitan) | 8 | * | | Passenger service and Belawan access | | * | S |
| (F-30) | Medan - Rantauprapat and T.Tinggi - P.Siantar Track Rehabilitation | 9 | * | * | For container transport | | | S |
| (Waterway) | | | | | | | | |
| (F-31) | Belawan Port Expansion - II | 8 | * | | F/S completed | | * | S |
| (F-32) | Remote Island Sea Transportation Service (Nias) | 13 | * | * | | | * | S |
| (F-33) | Sibolga Port Expansion | 12 | * | * | | | * | S |

| No. | Project | Dev. Area | Category | | | Remarks | Envi. Pri-Cons. ority | |
|-----------------|--|--------------|----------|-----|--|---------|-----------------------|--|
| | | | S | I | T | | | |
| F-34 | Kuala Tanjung Port Development | 9 | * | (*) | | * | L | |
| F-35 | Tanjung Balai Port Dredging | 9 | * | | | * | L | |
| (Airway) | | | | | | | | |
| F-36 | Silangit Airporrt Construction | 11 | * | (*) | For tourism and industrial development | * | L | |
| (F-37) | Nias Island Airport Improvement | 13 | * | * | For tourism and industrial development | * | S | |
| (F-38) | Medan Airport Expansion | 8 | * | | - Airport facility - Flight safety | * | S | |
| 4. WEST SUMATRA | | | | | | | | |
| (Road) | | | | | | | | |
| (F-39) | Bukittinggi - Pekanbaru Road Betterment | 14 - 16 - 20 | * | | Upgrading existing highway | | S | |
| (F-40) | Bukittinggi Bypass Road | 14 | * | | | * | M | |
| F-41 | Padang Road Network Development | 14 | * | * | Including Padang Bypass Road | * | M | |
| (F-42) | Padang - Sawahlunto Road Betterment | 14 - 17 | * | | Considering railway | | M | |
| F-43 | Padang - Bengkulu West Coast Road | 14 - 18 - | * | | Need for road which plays incentive role in regional development | * | M | |
| (F-44) | Solok - Bangko Road Betterment | 17 - | * | | | | M | |
| (Railway) | | | | | | | | |
| (F-45) | Sawahlunto - Padang - Telukbayur Railway Improvement | 14 - 17 | * | | Efficient transportation for mining product | * | S | |
| F-46 | Simpangempat - Naras Railway Construction | 14 | * | | Encouragement of plantation development | * | L | |
| (Waterway) | | | | | | | | |
| (F-47) | Remote Island Sea Transportation Service around Mentawai Islands | 19 | * | * | Remote island service | * | S | |
| (F-48) | Inland Waterway Development in Mentawai | 19 | * | | | * | M | |
| (F-49) | Telukbayur Port Expansion | 14 | * | * | | * | S | |
| (Airway) | | | | | | | | |
| (F-50) | Padang Airport Improvement | 14 | * | | - Airport facility - Flight safety | * | S | |
| (F-51) | Mentawai Airport Construction and Maintenance | 19 | * | * | Remote island service and encouragement of tourism | * | M | |

| No. | Project | Dev. Area | Category S I T | Remarks | Envi. Pri-Cons. ority |
|-------------------|--|--------------|-------------------|---|-----------------------|
| 5. RIAU | | | | | |
| (Road) | | | | | |
| (F-52) | Dumai - Padangsidempuan Road Network Development | 21 - 20 - 12 | * | Upgrading existing highway and feeder road betterment | * M |
| (F-53) | Pekanbaru - Sawahlunto Road Betterment | 20 - 17 | * | | M |
| (Railway) | | | | | |
| F-54 | Dumai - Rantauprapat Railway Construction | 21 - 9 | * | Encouragement of plantation development | * L |
| (Waterway) | | | | | |
| F-55 | Dumai Port Expansion | 21 | * | E/S completed | * S |
| F-56 | Pekanbaru Port Improvement | 20 | * * | Improvement of inland waterway | S |
| (F-57) | Integrated Transport System Development | 22, 23 | * * | Kuala Enok, Cinako, Rengat, Kualaguang | * S |
| (F-58) | Riau Islands Sea Transportation Service | 24 | * | Singkep, Kerimun | * S |
| F-59 | Bengkalis - Mainland Ferry Connection | 21 | * | | S |
| (F-60) | Batam - Bintan Ferry Connection | 24 | * | | S |
| (F-61) | River Transportation Development | 20, 21 | * (*) | Rokan, Siak and Kampar rivers | * M |
| F-62 | Batam Port Expansion | 24 | * * | Related to Batam Island Development Project | * M |
| (Airway) | | | | | |
| (F-63) | Rengat Airport Improvement | 22 | * * | - Airport facility - Flight safety | * S |
| (F-64) | Tanjung Pinang Airport Improvement | 24 | * * | - Airport facility - Flight safety | * S |
| (F-65) | Singkep Airport Improvement | 24 | * * | - Airport facility - Flight safety | * S |
| F-66 | Pekanbaru Airport Improvement | 20 | * * | - Airport facility - Flight safety | * S |
| F-67 | Bengkalis Airport Improvement | 21 | * * | - Airport facility - Flight safety | * L |
| F-68 | Batam Airport Expansion | 24 | * * | As a part of Batam Island Development Project | * M |

G. Telecommunication

| No. | Project | Dev. Area | Category S I T | Remarks | Envi. Pri-Cons. ority |
|---------------------------|---|-------------------------------|-------------------|--|-----------------------|
| 1. INTERPROVINCIAL | | | | | |
| G-1 | Medan-Banda Aceh Digital Microwave System (Separate Project by Technical Field) | 1, 2, 3, 8, 9 | * | - Expansion of SLDD service area, improvement of the completion call rate - TV program transmission by terrestrial system | L |
| G-2 | Medan-Padang Digital Microwave System (Separate Project by Technical Field) | 8, 10, 11, 12, 14, 15 | * | - Expansion of SLDD service area, improvement of the completion call rate - TV program transmission by terrestrial system | L |
| G-3 | Medan-Pekanbaru Digital Microwave System (Separate Project by Technical Field) | 8, 9, 12, 20, 21 | * | - Expansion of SLDD service area, improvement of the completion call rate - TV program transmission by terrestrial system | L |
| G-4 | Introduction of Rural Telecommunications | 5, 12, 13, 17, 20, 22, 23, 24 | * | Construction of rural telecommunications network | S |
| 2. ACEH | | | | | |
| G-5 | Sumatra Kotamadya Local Telephone Network Expansion (I) (Package Project by Area) | 1 | * | Expansion of switching, cable, transmission, etc. (on-going) | S |
| G-6 | Sumatra Kabupaten Local Telephone Network Expansion (I) (Package Project Area) | 1, 2, 3 | * | Expansion of switching, cable, transmission, etc. | M |
| G-7 | Sumatra Kabupaten Local Telephone Network Expansion (I) (Package Project Area) | 4, 5, 6, 7 | * | Expansion of switching, cable, transmission, etc. | L |
| G-8 | Subscriber Radio System (Phase-II) (Separate Project by Technical Field) | 1, 2 | * | Provision of telephone service to principal kecamatan capitals | L |
| G-9 | TDMA Satellite Link Expansion (Separate Project by Technical Field) | 1, 2, 4, 5, 6 | * | Expansion of SLDD service areas, improvement of the call completion rate | M |
| G-10 | 100 Small Earth Stations Provision (Separate Project by Technical Field) | 1, 2 | * | Provision of telephone service grade to kabupaten capitals and principal kecamatans | M |
| G-11 | 100 Small Earth Stations Provision (Separate Project by Technical Field) | 4, 5, 6 | * | Provision of telephone service grade to kabupaten capitals and principal kecamatans | L |
| G-12 | Coin Telephone Sets Provision (Separate Project by Technical Field) | 1, 2, 3 | * | Improvement of accessibility to telephone service, promoting regional economic activities (on-going) | S |
| G-13 | Coin Telephone Sets Provision (Separate Project by Technical Field) | 4, 5, 6, 7 | * | Improvement of accessibility to telephone service, promoting regional economic activities | L |

Notes: (1) Category S denotes "study"; I "investment"; T "technical cooperation."
 (2) Envi. Cons. stands for "Environment Considerations."

| No. | Project | Dev. Area | Category S I T | Remarks | Envi. Pri-Cons. ority |
|-------------------------|---|-------------------|-------------------|--|-----------------------|
| (G-14) | Telephone Outside Plant Maintenance Center (Separate Project by Technical Field) | 1, 2 | * | Improvement of utilization efficiency of the existing telephone facilities, Improvement of repair capability for the local cable network | M |
| 3. NORTH SUMATRA | | | | | |
| (G-15) | Sumatra Kotamadya Local Telephone Network Expansion (I) (Package Project by Area) | 8, 9, 12 | * | Expansion of switching, cable, transmission, etc. | S |
| (G-16) | Sumatra Kabupaten Local Telephone Network Expansion (I) (Package Project by Area) | 9, 12 | * | Expansion of switching, cable, transmission, etc. | M |
| (G-17) | Sumatra Kabupaten Local Telephone Network Expansion (I) (Package Project by Area) | 9, 10, 11, 12, 13 | * | Expansion of switching, cable, transmission, etc. | L |
| (G-18) | Subscriber Radio System (Separate Project by Technical Field) | 8, 11, 13 | * | Provision of telephone service to principal kecamatan capitals | L |
| (G-19) | TDMA Satellite Link Expansion (Separate Project by Technical Field) | 8, 9 | * | Expansion of SLDD service areas, improvement of the call completion rate | M |
| (G-20) | 100 Small Earth Stations Provision (Separate Project by Technical Field) | 9, 11, 12 | * | Provision of telephone service grade to kabupaten capitals and principal kecamatans | L |
| (G-21) | Packet Data Communication System (SKDP) Expansion (Separate Project by Technical Field) | 8 | * | Reduction of waiting period, improvement of service grade, promoting regional economic activities (on-going) | S |
| (G-22) | Radio Paging System Expansion (Separate Project by Project Service Categories) | 8 | * | Reduction of waiting period, improvement of service grade, promoting regional economic activities | M |
| (G-23) | Coin Telephone Sets Provision (Separate Project by Technical Field) | 8, 9, 12, 13 | * | Improvement of accessibility to telephone service, promoting regional economic activities (on-going) | S |
| G-24 | Coin Telephone Sets Provision (Separate Project by Technical Field) | 9, 10, 11, 12 | * | Improvement of accessibility to telephone service, promoting regional economic activities | L |
| (G-25) | Telephone Outside Plant Maintenance Center (Separate Project by Technical Field) | 8 | * | Improvement of utilization efficiency of the existing telephone facilities, improvement of repair capability for the local cable network | S |
| (G-26) | Telephone Outside Plant Maintenance Center (Separate Project by Technical Field) | 9, 12 | * | Improvement of utilization efficiency of the existing telephone facilities, improvement of repair capability for the local cable network | M |
| (G-27) | Education and Training Center Expansion (Separate Project) | 8 | * | Development of man power | S |
| (G-28) | Long Term Plan for Local Telecommunication Network | 8 | * | Establishment of the long term plan for local telecommunication network | S |
| 4. WEST SUMATRA | | | | | |
| (G-29) | Sumatra Kotamadya Local Telephone Network Expansion (I) (Package Project by Area) | 14, 16, 17 | * | Expansion of switching, cable, transmission, etc. (on-going) | S |

| No. | Project | Dev. Area | Category | | | Remarks | Envi. Pri-Cons. ority |
|---------|---|--------------------|----------|---|---|--|-----------------------|
| | | | S | I | T | | |
| G-30 | Sumatra Kabupaten Local Telephone Network Expansion (I) (Package Project by Area) | 15, 18 | * | | | Expansion of switching, cable, transmission, etc. | M |
| G-31 | TDMA Satellite Link Expansion (Separate Project by Technical Field) | 14, 18, 19 | * | | | Expansion of SLDD service areas, improvement of the call completion rate | M |
| G-32 | 100 Small Earth Stations Provision (Separate Project by Technical Field) | 14, 15, 17 | * | | | Provision of telephone service grade to kabupaten capitals and principal kecamatans | L |
| G-33 | Coin Telephone Sets Provision (Separate Project by Technical Field) | 14, 16, 17 | * | | | Improvement of accessibility to telephone service, promoting regional economic activities (on-going) | S |
| G-34 | Coin Telephone Sets Provision (Separate Project by Technical Field) | 15, 18, 19 | * | | | Improvement of accessibility to telephone service, promoting regional economic activities | M |
| G-35 | Telephone Outside Plant Maintenance Center (Separate Project by Technical Field) | 14 | * | | | Improvement of utilization efficiency of the existing telephone facilities, Improvement of repair capability for the local cable network | S |
| G-36 | Education and Training Center Expansion (Separate Project) | 14 | * | | | Development of man power | S |
| G-37 | Long Term Plan for Local Telecommunication Network | 14 | * | | | Establishment of the long term plan for local telecommunication network | S |
| G-38 | Introduction of Rural Telecommunications | 19 | * | | | Construction of rural telecommunications network | S |
| 5. RIAU | | | | | | | |
| G-39 | Sumatra Kotamadya Local Telephone Network Expansion (I) (Package Project by Area) | 20, 24 | * | | | Expansion of swiching, cable, transmission, etc. (on-going) | S |
| G-40 | Sumatra Kabupaten Local Telephone Network Expansion (I) (Package Project by Area) | 21 | * | | | Expansion of switching, cable, transmission, etc. | M |
| G-41 | Sumatra Kabupaten Local Telephone Network Expansion (I) (Package Project by Area) | 22, 23 | * | | | Expansion of swiching, cable, transmission, etc. | M |
| G-42 | Subscriber Radio System (Phase-I) (Separate Project by Technical Field) | 24 | * | | | Provision of telephone service to principal kecamatan capitals | M |
| G-43 | TDMA Satellite Link Expansion (Separate Project by Technical Feild) | 20, 21, 22, 23, 24 | * | | | Expansion of SLDD service areas, improvement of the call completion rate | M |
| G-44 | 100 Small Earth Stations Provision (Separate Project by Technical Field) | 20, 22 | * | | | Provision of telephone service grade to kabupaten capitals and principal kecamatans | L |
| G-45 | Packet Data Communication System (SKDP) Expansion (Separate Project by Technical Field) | 24 | * | | | Reduction of waiting period, improvement of service grade, promoting regional economic activities (on-going) | S |
| G-46 | Coin Telephone Sets Provision (Separate Project by Technical Feild) | 20, 21, 24 | * | | | Improvement of accessibility to telephone service, promoting regional economic activities | S |

| No. | Project | Dev. Area | Category S I T | Remarks | Envi. Pri-Cons. ority |
|------|--|------------|-------------------|--|-----------------------|
| G-47 | Coin Telephone Sets Provision (Separate Project by Technical Feild) | 22, 23 | * | Improvement of accessibility to telephone service, promoting regional economic activities | M |
| G-48 | Telephone Outside Plant Maintenance Center (Separate Project by Technical Field) | 20 | * | Improvement of utilization efficiency of the existing telephone facilities, improvement of repair capability for the local cable network | M |
| G-49 | South Riau Digital Microwave System | 20, 22, 23 | * * | Construction of digital microwave system | S |

H. Forestry / Environment

| No. | Project/ | Dev. Area | Category | | | Remarks | Envi. Pri-Cons. ority | |
|---------------------------|--|------------|----------|---|---|---|-----------------------|---|
| | | | S | I | T | | | |
| 1. INTERPROVINCIAL | | | | | | | | |
| (H-1) | Natural Conservation Planning | 0 | * | * | | Identifying all the prospective wildlife conservation areas in the Region | * | L |
| (H-2) | Integrated Forestry Planning | 2-7, 9-13 | | * | | - Results of welfare of inhabitants and integrated effect of forestry - Re/afforestation, agroindustry, tourism, etc. | * | M |
| (H-3) | Conservation & Management of Protected Wildlife | 2-6, 20-23 | * | * | | Preparation and implementation of protected wildlife conservation and management plan | * | S |
| 2. ACEH | | | | | | | | |
| H-4 | Development of Lesser-known Tree Species | 2-7 | | * | | Increasing added value and earning foreign exchange | * | L |
| H-5 | Gunung Lensei National Park Development | 4, 6 | * | * | * | Management of the community and wildlife in and around the National Park | * | L |
| (H-6) | Re/Afforestation | 2 | * | * | | As a part of Northern Aceh IDEP | * | S |
| 3. NORTH SUMATRA | | | | | | | | |
| H-7 | Watershed Management Technology Center/Forestry Training Center (Forestry Complex) | 9 | | * | * | - Strengthening of watershed management capability and fire protection - Training of forestry engineers - Establishment of Watershed Management Technology Center/Forestry Training Center (Forestry Complex) | * | S |
| (H-8) | Re/Afforestation Development | 13 | * | * | * | As a part of Nias Island IDEP | * | S |
| (H-9) | Agro-forestry Development | 12 | * | * | | As a part of West Coast Tapanuli IDEP | * | S |
| (H-10) | Rehabilitation of Critical Areas | 11 | * | * | | As a part of Metropolitan Medan IDEP | * | S |
| (H-11) | River Cleaning Program (PROKASIH) | 8 - 11 | * | * | | Establishment of river cleaning system | * | S |
| 4. WEST SUMATRA | | | | | | | | |
| (H-12) | Reforestation and Agro-forestry System Development | 14 | * | * | | As a part of Minang Highlands IDEP | * | S |
| 5. RIAU | | | | | | | | |
| (H-13) | Natural Forest Management System | 20-23 | | * | | - Strengthening of production capacity of natural forest - Verification of TPI | * | M |
| (H-14) | Re/Afforestation Development | 22-23 | * | * | | As a part of Indragiri River IDEP | * | S |

Notes: (1) Category S denotes "study"; I "investment"; T "technical cooperation."

(2) Envi. Cons. stands for "Environment Considerations."

I. Tourism

| No. | Project | Dev. Area | Category S I T | Remarks | Envi. Pri-Cons. ority |
|---------------------------|---|-----------|-------------------|---|-----------------------|
| 1. INTERPROVINCIAL | | | | | |
| I-1 | Tourism Management Training Program | 0 | * * | Training programs and facilities in the government sector and the private sector | S |
| I-2 | Integrated Facilities Program for Nature and Wildlife Tourism Development | 0 | * * * | Based on ITA-6 | * M |
| 2. ACEH | | | | | |
| (I-3) | Lake Laut Tawar and the Vicinity Development | 2 | * * | | * S |
| I-4 | Lhok Nga and Lam Puuk Beach Development | 1 | * * | M/P is finished | * M |
| I-5 | Taman Laut Plau Rubia Development | 1 | * * | | * M |
| 3. NORTH SUMATRA | | | | | |
| (I-6) | Lake Toba and the Vicinity Tourism Development | 10, 11 | * * | Based on the JICA Master Plan review | * S |
| (I-7) | Forest Park Program | 9, 10 | * * | Environmental education, forest conservation and recreational use (about 51,000 ha covering Langkat, Karo, Deli Serdang and Simalungun) | * M |
| (I-8) | Nias Island Tourism Development | 13 | * * | Cultural heritage, beach resort and marine sports development | * S |
| 4. WEST SUMATRA | | | | | |
| (I-9) | Minang Highlands Tourism Development | 14, 16 | * * | Based on the JICA Master Plan review (Lakes Diatas & Dibawah are included) | * S |
| I-10 | Bungus Bay and the Vicinity Marine Tourism Development | 14, 18 | * * | | * M |
| (I-11) | Mentawai Island Tourism Development | 19 | * * | | * L |
| 5. RIAU | | | | | |
| (I-12) | Batam Island and Bintan Island Marine Tourism Development | 24 | * * | Tourism-related infrastructure and facilities development | * S |

Notes: (1) Category S denotes "study"; I "investment"; T "technical cooperation."
 (2) Envi. Cons. stands for "Environment Considerations."

J. Water Supply

| No. | Project | Dev. Area | Category S I T | Remarks | Envi. Cons. | Pri- ority |
|---------------------------|--|-----------|-------------------|--|-------------|------------|
| 1. INTERPROVINCIAL | | | | | | |
| J-1 | Urban and Rural Water Supply Program I | 0 | * * | For Aceh, North Sumatra and Riau | * | S |
| J-2 | Urban Water Supply Program I | 0 | * * | For improvement and extension of piped water supply under PDAM | * | S |
| J-3 | Drinking Water Supply Program for Tidal Transmigration Areas | 0 | * * | For West Sumatra and Riau. Based on STA-6 | * | M |
| 2. ACEH | | | | | | |
| None | | | | | | |
| 3. NORTH SUMATRA | | | | | | |
| None | | | | | | |
| 4. WEST SUMATRA | | | | | | |
| J-4 | Urban and Rural Water Supply Program II | Prov. | * * | | * | M |
| 5. RIAU | | | | | | |
| None | | | | | | |

Notes: (1) Category S denotes "study"; I "investment"; T "technical cooperation."
 (2) Envi. Cons. stands for "Environment Considerations."

K. Urban Development

| No. | Project | Dev. Area | Category S I T | Remarks | Envi. Pri-Cons. ority |
|---------------------------|---|------------|-------------------|--|-----------------------|
| I. INTERPROVINCIAL | | | | | |
| K-1 | Sumatra Integrated Urban Sector Program | 0 | * | Cities which completed IUIDP studies | * L |
| K-2 | Operation and Maintenance of Urban Infrastructure Program | 0 | * * | | M |
| (K-3) | Sumatra Secondary Cities Urban Development Program | 0 | * * * | Coordination with ADB is necessary | * S |
| 2. ACEH | | | | | |
| K-4 | Banda Aceh Drainage Project | 1 | * | IUIDP supporting project | * S |
| (K-5) | Kampung Improvement Support Program | 1, 2, 3 | * * | For Banda Aceh, Lhokseumawe, Langsa, etc. | * S |
| (K-6) | Aceh Urban Road Improvement Program | 1, 2, 3, 5 | * * | Coordination with IUIDP | * M |
| 3. NORTH SUMATRA | | | | | |
| (K-7) | Urban Drainage and Solid Waste Program | 9, 12 | * * | For Sibolga, Tanjung Balai and Kisaran | * S |
| (K-8) | North Sumatra Urban Road Improvement Program | Prov. | * * | Coordination with IUIDP | * M |
| 4. WEST SUMATRA | | | | | |
| (K-9) | Urban Drainage, Solid Waste and Sanitation Program | 14 | * * | For Bukittinggi and other secondary cities | * M |
| K-10 | Padang Urban Development | 14 | * * | Coordination with IUIDP | * L |
| (K-11) | West Sumatra Urban Road Improvement Program | Prov. | * * | Coordination with IUIDP | * M |
| 5. RIAU | | | | | |
| (K-12) | Urban Drainage and Solid Waste Program | 21, 23, 24 | * * | For Tanjung Pinang, Dumai and Tembilahan | * M |
| (K-13) | Riau Urban Road Improvement Program | Prov. | * * | Coordination with IUIDP | * M |

Notes: (1) Category S denotes "study"; I "investment"; T "technical cooperation."

(2) Envi. Cons. stands for "Environment Considerations."

L. Rural Development

| No. | Project | Dev. Area | Category S I T | Remarks | Envi. Pri-Cons. ority |
|---------------------------|--|-----------|-------------------|--|-----------------------|
| 1. INTERPROVINCIAL | | | | | |
| L-1 | Integrated Rural Settlement Infrastructure Development | 0 | * * | Based on LTA - 118 | * M |
| (L-2) | Rural Technology Extension Program | 0 | * * * | Training program and facilities for extension workers for rural community development (based on LTA - 119) | S |
| (L-3) | Home Technology Extension Program | 0 | * * * | Training program and facilities for extension workers (Program for women in rural areas) | M |
| 2. ACEH | | | | | |
| L-4 | Area Development Program for Pidie and Aceh Besar | 1, 2 | * * * | | * S |
| (L-5) | Area Development Program for Aceh Barat and Aceh Selatan | 5, 6 | * * * | West Aceh IDEP | * M |
| 3. NORTH SUMATRA | | | | | |
| (L-6) | Area Development Program for Tapanuli Selatan | 12 | * * * | West Coast Tapanuli IDEP | * S |
| (L-7) | Area Development Program for Nias | 13 | * * * | Nias Island IDEP | * M |
| L-8 | Area Development Program for Tapanuli Utara | 11 | * * * | | * M |
| 4. WEST SUMATRA | | | | | |
| L-9 | Area Development Program for Pesisir Selatan | 18 | * * * | | * L |
| (L-10) | Area Development Program for Mentawai Islands | 19 | * * * | Mentawai Islands IDEP | * M |
| 5. RIAU | | | | | |
| (L-11) | Area Development Program for Indragiri Hilir | 23 | * * * | Indragiri River IDEP | * M |
| (L-12) | Area Development Program for North Kampar and West Bengkalis | 20 | * * * | Rokan Basin IDEP | * M |
| (L-13) | Area Development Program for Riau Islands | 24 | * * * | Riau Islands IDEP | * S |

Notes: (1) Category S denotes "study"; I "investment"; T "technical cooperation."
 (2) Envi. Cons. stands for "Environment Considerations."

II. PROJECT PROFILES

Note: Those project profiles are prepared for all projects classified as S (short range) in the Long List.

Code Number: A-1

1. Project Title : DEVELOPMENT OF APPROPRIATE AGRICULTURAL MECHANIZATION
2. Location : Aceh, North Sumatra, West Sumatra and Riau
3. Executing Agency : Ministry of Agriculture
4. Objectives : - To improve productivity of food crops on dryland and wetland through mechanization
- To develop improved techniques of land preparation and utilization for better soil conservation
- To encourage rural industry of agricultural implements and machinery
5. Project Description : - To undertake pedological, agronomic, and socio-economic studies to indentify suitable agricultural engineering technologies
- To develop and test prototypes of selected equipment
- To establish or strengthen provincial workshops
- To identify and formulate training programs for rural farm operators and artisans
6. Project Duration : 60 months
7. Project Cost : Expert Services US\$ 1,000,000
Equipment/Construction US\$ 1,500,000
Fellowships and US\$ 300,000
in-country training
Total US\$ 2,800,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

Code Number: A-5

1. Project Title : STUDY OF BRACKISHWATER AQUACULTURESITERS
2. Location : Aceh, North Sumatra, West Sumatra and Riau
3. Executing Agency : Ministry of Agriculture
4. Objectives :
 - To identify potential areas for the development of brackishwater aquaculture and select priority areas
 - To identify suitable technologies for priority areas
5. Project Description :
 - To survey suitable areas for shrimp culture and prepare a detailed map of the existing as well as suitable sites
 - To select priority development areas with appropriate scale of development by levels of technology, through the examination of socio-economic, infrastructural and financial aspects
 - To undertake pre-feasibility studies on selected sites, including model designs
6. Project Duration : 15 months
7. Project Cost :

| | |
|-----------------|-----------------------|
| Expert services | US\$ 800,000 |
| Fellowship | US\$ 200,000 |
| Equipment | US\$ 100,000 |
| Total | <u>US\$ 1,100,000</u> |
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

Code Number: A-6, 19, 38

1. Project Title : WETLAND FOOD CROP INTENSIFICATION AND DIVERSIFICATION
2. Location : Pidie, Aceh Barat and Aceh Timur (Aceh), Tapanuli Selatan (North Sumatra), Pesisir Selatan (West Sumatra)
3. Executing Agency : Ministry of Agriculture
4. Objectives :
 - To stimulate market-oriented production of palawija crops
 - To develop and disseminate appropriate farming practices including better post-harvest handling
5. Project Description :
 - To undertake agronomic and socio-economic studies of the present cropping patterns mainly on wetland and identify major local constraints
 - To analyze farm budgets and labor use to recommend sustainable cropping models
 - To train field extension workers and key farmers on appropriate farming practices
 - To strengthen local rural extension centers
6. Project Duration : 60 months
7. Project Cost :

| | | |
|------------------------------------|------|---|
| Expert Services | US\$ | 960,000 |
| Equipment | US\$ | 320,000 |
| Fellowship and in-country training | US\$ | 300,000 |
| Total | | <hr style="width: 100%; border: 0.5px solid black; margin: 0;"/> US\$ 1,580,000 |
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

Code Number: A-8, 22, 41

1. Project Title : HIGHER-ALTITUDE HORTICULTURE DEVELOPMENT
2. Location : Aceh Tengah (Aceh), Karo (North Sumatra),
Agam, Tanah Datar, Solok,
Sawahlunto/Sijunjung (West Sumatra)
3. Executing Agency : Ministry of Agriculture
4. Objectives :
 - To stimulate increased production of horticultural crops for intra-regional and extra-regional urban markets and for exports
 - To improve knowledge and skills of field extension workers and key farmers
5. Project Description :
 - To undertake agronomic and socio-economic studies on existing farming systems to profile major local constraints and to develop suitable farming techniques
 - To establish and upgrade rural extension centers and demonstration farms
 - To set up training programs for extension workers and key farmers on suitable farming practices
 - To improve post-harvest handling and marketing through farmers' organizations
6. Project Duration : 60 months
7. Project Cost :

| | |
|-------------------------------------|----------------|
| Expert Services | US\$ 1,000,000 |
| Equipment/Construction | US\$ 1,000,000 |
| Fellowships and in-country training | US\$ 500,000 |
| Total | US\$ 2,500,000 |
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

Code Number: A-9

1. Project Title : ANIMAL NUTRITION AND MARKETING IMPROVEMENT
2. Location : Aceh Utara and Aceh Tengah (Aceh)
3. Executing Agency : Ministry of Agriculture
4. Objectives :
 - To improve the productivity of cattle and small ruminants raised by farmers to increase meat production
 - To improve animal health services
 - To develop and disseminate better animal nutrition technology
 - To strengthen local marketing and processing infrastructure
5. Project Description :
 - To develop appropriate techniques for grassland improvement and supplementary feedstuff
 - To upgrade veterinary and artificial insemination facilities
 - To establish a model slaughtering and meat processing facility for training extension officers and livestock farmers
 - To train extension officers and participating farmers
6. Project Duration : 50 months
7. Project Cost :

| | |
|------------------------|----------------|
| Expert Services | US\$ 900,000 |
| Equipment/Construction | US\$ 6,000,000 |
| In-country training | US\$ 600,000 |
| Total | US\$ 7,500,000 |
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

Code Number: A-10, 26, 44, 56

1. Project Title : SMALLHOLDER COCONUT DEVELOPMENT (PMUs)
2. Location : Aceh Barat (Aceh), Tapanuli Selatan and Nias (North Sumatra), Pesisir Selatan (West Sumatra), Indragiri Hilir (Riau)
3. Executing Agency : Ministry of Agriculture
4. Objectives :
 - To increase edible oil production for domestic consumption
 - To raise productivity and income of smallholders in major coconut growing areas or transmigration settlements
 - To strengthen or establish, Project Management Units
5. Project Description :
 - To plant or replant higher yielding varieties or approximately 10,000 ha
 - To upgrade PMUs-related facilities and improve extension services for participating smallholders
6. Project Duration : 48 months
7. Project Cost : US\$ 10,000,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Under preparation

Code Number: A-11. 27. 57

1. Project Title : SMALLHOLDER RUBBER REHABILITATION (PMUs)
2. Location : Aceh Barat and Aceh Selatan (Aceh), Nias (North Sumatra), Indragiri Hulu (Riau)
3. Executing Agency : Ministry of Agriculture
4. Objectives :
 - To raise productivity and income of small holders in major rubber growing areas or transmigration areas
 - To strengthen or establish Project Management Units
5. Project Description :
 - To replant or plant higher yielding varieties on about 8,000 ha
 - To upgrade PMUs-related facilities and improve extension services for participating farmers
 - To study possible alternatives of setting up new rubber processing facilities which would serve as incentives for improving post-harvest handling by smallholders
6. Project Duration : 48 months
7. Project Cost : US\$ 8,000,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Under preparation

Code Number: A-12, 28

1. Project Title : SMALLHOLDER COFFEE DEVELOPMENT (PMUs)
2. Location : Aceh Tengah (Aceh), Dairi and Tapanuli Selatan (North Sumatra)
3. Executing Agency : Ministry of Agriculture
4. Objectives :
 - To raise productivity and income of smallholders in major coffee growing areas
 - To improve the quality of beans to increase export prospects
 - To strengthen support services and facilities
5. Project Description :
 - To replant or plant higher yielding varieties (arabica and robusta) on about 4,000 ha
 - To expand and strengthen extension services and farmers' training programs
 - To setup a pilot plant to improve product quality
6. Project Duration : 48 months
7. Project Cost : US\$ 5,000,000
8. Related to Project Aid: None
9. Stage of Project Preparation : The PDP project assisted by the Netherlands is in operation in Aceh Tengah.

Code Number: A-14. 30

1. Project Title : BRACKISHWATER AQUACULTURE DEVELOPMENT (I)
2. Location : East Coast of North Sumatra and Aceh
3. Executing Agency : Ministry of Agriculture
4. Objectives : - To increase shrimp production and export
5. Project Description : - To undertake feasibility studies on selected sites and formulated detailed implementation schedule
- To develop necessary infrastructures and support facilities
- To provide credit schemes for the private sector and farmers/fishermen
6. Project Duration : 84 months
7. Project Cost : US\$ 30,000,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Under preparation

Code Number: A-16, 34, 49

1. Project Title : SMALL-SCALE FISHERY DEVELOPMENT
2. Location : Aceh, North Sumatra and West Sumatra
3. Executing Agency : Ministry of Agriculture
4. Objectives :
 - To increase income of small-scale coastal fishermen
 - To improve fish landing and marketing facilities
 - To strengthen the fisheries cooperations
5. Project Description :
 - To develop small-scale tuna long-line and purse seine fisheries
 - To install artificial reefs
 - To promote motorization of canoes
 - To train the cooperations' stuffs
 - To establish/rehabilitate fish landing facilities
6. Project Duration : 60 months
7. Project Cost : US\$ 14,300,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Under preparation

Code Number: A-18, 37, 52

1. Project Title : PILOT-SCALE FISH PROCESSING
2. Location : Aceh, North Sumatra and West Sumatra
3. Executing Agency : Ministry of Agriculture
4. Objectives :
 - To income of remote islanders
 - To activate island economy
 - To expand fish marketing capacity
5. Project Description :
 - To develop fish processing technology, e.g., smoked tuna, ornamental shell
 - To demonstrate technology as domestic household industry
6. Project Duration : 24 months
7. Project Cost : Plant & equipment: US\$ 500,000
Technical service: US\$ 200,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Under preparation

Code Number: A-20, 39, 53

1. Project Title : DRYLAND FARMING DEVELOPMENT
2. Location : Tapanuli Selatan (North Sumatra), Tanah Datar and Sawahlunto/Sijunjung (West Sumatra) and Kampar and Indragiri Hulu (Riau, transmigration areas)
3. Executing Agency : Ministry of Agriculture
4. Objectives : - To develop appropriate farming systems for dryland areas with adequate environmental management techniques
- To improve knowledge and skills of extension workers and key farmers in farming practices suitable for local conditions
- To feed back field findings to central research institutions for improving breeding programs for non-rice crops
5. Project Description : - To undertake agronomic and socio-economic studies on existing farming systems to profile major local constraints and to identify appropriate edaphic target areas
- To establish or upgrade rural extension centers and demonstration farms
- To train field extension workers and key farmers on appropriate farming practices and land management
- To set up a central coordinating unit in the regional research institution to monitor and evaluate the progress
6. Project Duration : 60 months
7. Project Cost : Expert Services US\$ 960,000
Construction US\$ 320,000
Equipment US\$ 230,000
Fellowships and US\$ 500,000
in-country training
Total US\$ 2,010,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

Code Number: A-21, 54

1. Project Title : PADDY POST-HARVEST TECHNOLOGY IMPROVEMENT
2. Location : Nias (North Sumatra), Indragiri Hilir (Riau)
3. Executing Agency : Ministry of Agriculture
4. Objectives :
 - To decrease wastage rates of paddy after harvest to reduce local deficit or to increase local surplus and improve the quality of rice for better marketability.
 - To disseminate better post-harvest technology
 - To feed back findings to central research institutions for improving breeding programs and mechanization
5. Project Description :
 - To study existing technologies applied after harvest such as threshing, drying, milling, on-farm and traders' storage etc.
 - To identify socio-economic constraints, and recommend appropriate technologies and suitable institutional supports for their dissemination
 - To initiate pilot projects in strategic locations based on the findings and recommendations
6. Project Duration : 24 months
7. Project Cost :

| | |
|------------------------|---------------------|
| Expert Services | US\$ 600,000 |
| Equipment/Construction | US\$ 100,000 |
| Fellowships | US\$ 120,000 |
| Total | <u>US\$ 820,000</u> |
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

Code Number: A-24, 43, 55

1. Project Title : LIVESTOCK DEVELOPMENT
2. Location : Tapanuli Selatan (North Sumatra),
Sawahlunto/Sijunjung, Pesisir Selatan (West
Sumatra), Indragiri Hulu, Kampar (Riau)
3. Executing Agency : Ministry of Agriculture
4. Objectives : - To increase the number and productivity of
cattle and small ruminants raised by
farmers to provide more draft animals and
meat product
- To improve animal health services
- To develop and disseminate better animal
nutrition technology
- To strengthen local support services
5. Project Description : - To establish three mini-ranch cattle
development centers and six goat
development centers to breed animals for
distribution
- To develop appropriate techniques for
grassland improvement and supplementary
feedstuff
- To upgrade vaterinary and artificial
insemination facilities
- To train extension officers and
participating farmers
6. Project Duration : 60 months
7. Project Cost :

| | |
|------------------------|-----------------------|
| Expert Services | US\$ 900,000 |
| Equipment/Construction | US\$ 8,000,000 |
| In-country training | US\$ 600,000 |
| Total | <u>US\$ 9,500,000</u> |
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

Code Number: A-32

1. Project Title : MARINE FISHERY DEVELOPMENT SUB-CENTER
2. Location : Sibolga, North Sumatra
3. Executing Agency : Ministry of Agriculture
4. Objectives :
 - To increase Western coastal fishery production
 - To improve coastal fishery technology
 - To develop offshore fishing
5. Project Description :
 - To establish a marine Fishery Development Sub-center with necessary equipment and vessel
 - To develop and/or modify, fishing gear for small-scale fisherman
 - To train regional fishery extension officials and fishermen
6. Project Duration : 60 months
7. Project Cost :
 - Building & Equipment: US\$ 3,000,000
 - Expert Services : US\$ 1,000,000
 - Fellowship & Operational Fund : US\$ 1,000,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Facilities will be shared by the secondary school to be established nearby (in the future)

Code Number: A-35, 62

1. Project Title : MARICULTURE DEVELOPMENT
2. Location : North Sumatra and Riau
3. Executing Agency : Ministry of Agriculture
4. Objectives :
 - To disseminate mariculture (fish, shellfish and seaweed) to small-scale fishermen to increase their income
 - To increase export-oriented fish production
 - To provide possible government support to aquaculture industry
5. Project Description :
 - To establish pilot-scale marine fish hatchery
 - To promote coastal water management
 - To develop marine fish seed and feed collecting and distribution
 - To organize fishermen ground for NES-based marine farming
6. Project Duration : 60 months
7. Project Cost : US\$ 6,000,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Under preparation

Code Number: A-47

1. Project Title : CASH CROP DEVELOPMENT
2. Location : Mentawai Islands, West Sumatra
3. Executing Agency : Ministry of Agriculture/BAPPEDA
4. Objectives :
 - To increase cash-earning opportunities for local farmers
 - To serve as important component of the area development program for Mentawai Islands
5. Project Description :
 - To select spices and essential crops suitable to the local conditions
 - To establish the multiplication and distribution programs of seedlings
 - To disseminate appropriate harvest and post-harvest technologies and develop effective marketing arrangements
6. Project Duration : 48 months
7. Project Cost :

| | |
|------------------------|---------------------|
| Expert Services | US\$ 400,000 |
| Construction/Equipment | US\$ 150,000 |
| In-country training | <u>US\$ 120,000</u> |
| Total | US\$ 670,000 |
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

Code Number: B-2

1. Project Title : RIVERMOUTH IMPROVEMENT AND PROTECTION OF COASTAL LINE
2. Location : Aceh, North Sumatra, West Sumatra
3. Executing Agency : Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives :
 - To maintain the river functions by improving the river mouths for mitigation of flood damage, supporting fishermen's activities and navigation service
 - To protect the coastal lines from being scoured by wave actions for enhancement of the land
5. Project Description :
 - To improve the river mouths by dredging, training, etc. against heavy sedimentation
 - To provide countermeasures of various types for preventing the coastal erosion
6. Project Duration : Subject to the monitoring of the performances of countermeasures
7. Project Cost : Implementation US\$7,500,000 for 3 provinces. Subject to the present study under the ADB's sector loan
8. Related to Project Aid: Financed by ADB
9. Stage of Project Preparation : Partly under study and implementation

Code Number: B-3

1. Project Title : **IRRIGATION**
2. Location : Aceh, North Sumatra, West Sumatra and Riau
3. Executing Agency : Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives : - To consolidate rice productivity gains, extend the agriculture base, and balance the regional development
5. Project Description : - The project components are:
 - (1) Rehabilitation and upgrading of existing small- and medium-scale irrigation systems including special maintenance
 - (2) Introduction of efficient O&M and provision of improved agriculture support
 - (3) Institution building to strengthen the management and coordination capabilities of concerned agencies
6. Project Duration : Repelita V and beyond
7. Project Cost : US\$ 150,000,000
(Cost tentative)
8. Related to Project Aid: On-going projects under the Third Irrigation Sector Project by the ADB's fund
9. Stage of Project Preparation : Implementation underway and further extension of the program will be required

Code Number: B-4

1. Project Title : URBAN WATER SUPPLY AND IMPROVEMENT
2. Location : Banda Aceh, Lhokseumawe, Langsa and other cities, Aceh
3. Executing Agency : Directorate General of Human Settlements, Ministry of Public Works
4. Objectives : - To provide the urban people with safe potable water to satisfy the basic human needs
5. Project Description : - To establish and improve the piped water supply systems in the urbanized area where access to safe and sufficient potable water service is difficult
6. Project Duration : Feasibility study: 12 months
7. Project Cost : Feasibility study: US\$ 1,000,000 to US\$ 2,500,000, subject to the packaging of projects
8. Related to Project Aid: Water supply in Lhokseumawe by Dutch assistance
9. Stage of Project Preparation : Partly under study and implementation

Code Number: B-5

1. Project Title : PEUSANGAN BASIN OVERALL DEVELOPMENT
2. Location : North and Central Aceh, Aceh
3. Executing Agency : Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives :
 - To formulate a master plan for development of the water resources of the Peusangan and adjoining river basins with the aim of effective and equitable utilization of water and to identify the priority projects with a view to early implementation.
5. Project Description :
 - The Peusangan river basin lies in the northern most part of Aceh and has a catchment area of 2,300 km². There are a number of small and medium scale rivers adjacent to the Peusangan river.
 - Water in the basin is used for a dual economy of agriculture and industry. Therefore, well-balanced and effective utilization of the basin's water resources will be strongly required.
 - In the overall basinwide approach, flood control aspects, hydropower potentials and watershed management will be duly incorporated.
6. Project Duration : Masterplan: 24 months
7. Project Cost : Masterplan: US\$ 2,600,000
8. Related to Project Aid:
 - Feasibility study on Peusangan-1 and 2 hydropower by the assistance from Belgium
 - Pre-feasibility study on Peusangan-4 hydropower under the World Bank loan
9. Stage of Project Preparation : Under promotion

Code Number: B-6

1. Project Title : KRUENG PASE URGENT FLOOD CONTROL
2. Location : North Aceh, Aceh
3. Executing Agency : Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives : - To mitigate the flood damage in the lower reaches of the Pase River in North Aceh
5. Project Description : (1) The Pase river pours into the Straits of Malacca just east of Lhokseumawe where the gas-based and other industries are growing.
(2) The lower reaches of the Pase river have suffered from frequent flooding (inundation area is approximately 7,000 ha) and therefore some countermeasures against the occurrence of floods are keenly required.
(3) The project will be also integrated with an irrigation development scheme of 7,400 ha.
6. Project Duration : 48 months
7. Project Cost : US\$ 40,000,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Master Plan study by P.T. Redecon

Code Number: B-7

1. Project Title : PANTELONG II IRRIGATION
2. Location : North Aceh, Aceh
3. Executing Agency : Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives : - To make a rehabilitation and extension work for the captioned irrigation scheme on the lower reaches of the Peusangan river
5. Project Description : - The project aims at irrigation for 8,000 ha by building a new diversion weir on the Peusangan river. Main and secondary canals were completed.
6. Project Duration : 48 months
7. Project Cost : US\$ 17,000,000
8. Related to Project Aid: - A part of the construction fund in 1988/89 was provided from the OECF's sector loan
9. Stage of Project Preparation : Construction is underway, but waiting for the fund

Code Number: R-8

1. Project Title : SEUNAGAN BASIN OVERALL DEVELOPMENT
2. Location : West Aceh
3. Executing Agency : Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives : - To establish a master plan for water resources development of the Seunagan river basin
5. Project Description : - The Seunagan river has a catchment of 964 km² and lies south of Meulaboh.
- Water of the river is used to irrigate an area of 10,000 ha (Jeuram scheme) where the rehabilitation works are now underway. The area is frequently flooded.
- It is keenly required to prepare a master plan for flood control and comprehensive water resources development.
6. Project Duration : 18 months
7. Project Cost : US\$ 2,000,000
8. Related to Project Aid: Jeuram irrigation under the OECF's sector loan
9. Stage of Project Preparation : Under promotion

Code Number: B-9

1. Project Title : JEURAM IRRIGATION
2. Location : West Aceh, Aceh
3. Executing Agency : Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives : - To make rehabilitation and extension for the captioned irrigation scheme of the Seunagan river, south of Meulaboh to increase rice production
5. Project Description : - The project consists of a rehabilitation of 10,000 ha and an extensification of 23,000 ha, and will be a key irrigation project in West Aceh which lags behind the east side of the province.
6. Project Duration : 60 months
7. Project Cost : US\$ 20,000,000
8. Related to Project Aid: - A part of the budget in 1988/89 was provided from the OECF's sector loan
9. Stage of Project Preparation : Implementation of the project is now underway but the fund is not sufficient

Code Number: B-10

1. Project Title : KRUENG ACEH RIGHT BANK IRRIGATION
2. Location : Aceh Besar, Aceh
3. Executing Agency : Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives : - To expand the technical irrigation scheme aiming at agricultural production of rice and palawija and raising the farmer's livelihood
5. Project Description : - Krueng Aceh which has a catchment area of 1,800 km² pours into the Straits of Malacca after draining an area around Banda Aceh. The lower reaches are cultivated for rice production but the production is limited due to shortage of water. The left bank is provided with water under the Kr. Jreue irrigation scheme but the right bank of 7,480 ha remains without irrigation.
6. Project Duration : 60 months
7. Project Cost : US\$ 35,000,000
8. Related to Project Aid: - Feasibility study by JICA
- The implementation of flood control component is underway
9. Stage of Project Preparation : - Engineering design completed in 1986 with the OECF loan

Code Number: B-27, B-28

1. Project Title : LHO'GUICI AND KR. TRIPA IRRIGATION
2. Location : West Aceh, Aceh
3. Executing Agency : Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives : - To increase agricultural production in Meulaboh and its surroundings through irrigation and drainage
5. Project Description : - The west coast of Aceh Province is designated as the agricultural zone in contrast with the industrial zone emerging on its northern part around Lhokseumawe. Production of rice and other crops should be promoted by utilizing rich water resources in the region.
- There are a number of potential irrigable areas (Lho'Guci 21,300 ha, Kr. Tripa 23,000 ha, etc.). Of these schemes, priority schemes should be selected for implementation.
6. Project Duration : Feasibility study: 18 months
7. Project Cost : Feasibility study: US\$ 1,600,000
Implementation : US\$ 100,000,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

Code Number: B-35, B-36, B-37

1. Project Title : KR. TUAN, KR. PANDRAH, KR. PEUDADA IRRIGATION
2. Location : North Aceh, Aceh
3. Executing Agency : Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives : - To increase irrigated agriculture production, with stress on crop diversification
5. Project Description : - The agricultural development in the northern coastal belt in Aceh is relatively advanced. Rehabilitation and upgrading of the irrigation schemes in the area are still required to increase the farmers' income.
- Kr. Tuan (2,200 ha) and Kr. Peudada (1,100 ha) schemes will be reviewed in the framework of the Peusangan river basin development.
6. Project Duration : Feasibility study: 18 months
7. Project Cost : Feasibility study: US\$ 1,600,000
Implementation : US\$ 20,000,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

Code Number: B-40

1. Project Title : MEDAN WATER SUPPLY
2. Location : Medan, North Sumatra
3. Executing Agency : Directorate General of Human Settlements,
Ministry of Public Works, and Medan City
4. Objectives : - To establish safe and sufficient pipe
water supply system in the Medan
metropolitan city
5. Project Description : - The population of the Medan metropolitan
city is projected to grow from 1.6 million
at present to 2.56 million in 2000.
- A long-term water development program
should be immediately prepared, including
a plan for source development and
distribution system.
6. Project Duration : Feasibility study: 18 months
7. Project Cost : Feasibility study: US\$ 1,300,000
Implementation : to be determined
8. Related to Project Aid: Medan Urban Development Program by ADB
9. Stage of Project
Preparation : Under promotion

Code Number: B-41

1. Project Title : BELAWAN-PADANG BASIN OVERALL DEVELOPMENT (BTA-191)
2. Location : Medan, Deli Serdang and Simalungun, North Sumatra
3. Executing Agency : Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives :
 - To establish a master plan on integrated water resources development for flood control, water supply including ground water, irrigation, aqua-culture, and flushing in the river systems stretching between Belawan and Padang rivers
 - To conduct a feasibility study on the priority projects with recommendation, if necessary, on action plans for land use control in the area
 - To execute the implementation for priority projects
5. Project Description :
 - (1) The study area is composed of the river basins such as the Belawan, Deli, Percut, Serdang, Ular, Belute and Padang. The total study area is approximately 5,700 km².
 - (2) Water demand is increasing rapidly in the Medan metropolitan area. More flood control measures and river improvement works are needed not only to mitigate the damages but also to enhance land use capability of the area.
 - (3) In this study full coordination with the Medan Urban Development Project (MUDP) is required on water supply, drainage and land use.
6. Project Duration : Study : 24 months
Implementation: 72 months
7. Project Cost : Study : US\$ 3,000,000
Implementation: US\$ 100,000,000
(Cost tentative)
8. Related to Project Aid: - Ular River Flood Control and Improvement Project under OECF loan
- Medan Urban Development Project under ADB loan
9. Stage of Project Preparation : Master plan study is needed

Code Number: B-42

1. Project Title : NIAS ISLAND IRRIGATION AND AGRICULTURAL DIVERSIFICATION (BTA-169)
2. Location : Nias Island, North Sumatra
3. Executing Agency : Directorate General for Water Resources Development, Ministry of Public Works (as the lead agency) in cooperation with Ministry of Agriculture under an apex coordination by BAPPEDA
4. Objectives :
 - To raise agricultural production and farmers' income by improving irrigation and drainage systems for rice, through potential diversified agricultural development of tree crops, aqua-culture and livestock and by providing necessary infrastructure
 - To provide a model case for rural development of isolated and remote areas in other regions
5. Project Description : - Nias island is located in the Indian Ocean about 150 km away from Sibolga. The scope of work for this project is:
 - (a) To conduct a preparatory study including preparation of topographic survey, socio-economic benchmark survey and related study on the diversified agricultural.
 - (b) To evaluate agricultural diversification potentials, marketing prospects and economic feasibility.
 - (c) To prepare preliminary design of the irrigation system and agricultural facilities with cost estimation.
6. Project Duration : Master plan and feasibility study: 24 months
Implementation : 84 months
7. Project Cost : Master plan and feasibility study: US\$ 2,175,000
Implementation : US\$ 70,000,000
(Cost tentative)
8. Related to Project Aid: - Irrigation project under the ADB's loan
9. Stage of Project Preparation : Under promotion

Note: This is a modified proposal of BTA-169 by broadening the scope of diversified agriculture.

Code Number: B-43

1. Project Title : LOWER ASAHAN BASIN OVERALL DEVELOPMENT
2. Location : Asahan, North Sumatra
3. Executing Agency : Directorate General of Water Resources Development
4. Objectives : - To execute the program proposed in the master plan study which aims at raising agricultural productivity, increasing employment opportunities, promoting transmigration and improving the living standard of people in the lower reaches of the Asahan river
5. Project Description : (1) The lower reaches of the Asahan river have suffered from frequent flooding and therefore it is urgently required to provide countermeasures against the occurrence of floods.
(2) The irrigable area in the area at present accounts for only 21% of the total irrigation scheme of 32,600 ha. Improvement and development of the irrigation scheme are also essential.
6. Project Duration : Urgent flood control works: 72 months
7. Project Cost : Master plan study: US\$ 40,000,000
8. Related to Project Aid: - Master plan study by JICA in 1985
9. Stage of Project Preparation : - Engineering design for the flood control component is underway, aiming at completion in 1989

Code Number: B-44

1. Project Title : BILAH-BARUMUN BASIN OVERALL DEVELOPMENT
2. Location : Labuhan Batu, North Sumatra
3. Executing Agency : Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives : - To establish a master plan for water resources development of the Bilah-Barumun river basin to stimulate the regional economic development through flood control and improvement of irrigated agricultural infrastructure
5. Project Description : - There is a potential irrigable area of 22,000 ha which extends downstream of Rantau Prapat. However, the area is frequently inundated by flood and flood control and drainage system under a basinwide development plan are keenly required.
6. Project Duration : 24 months
7. Project Cost : US\$ 2,000,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

Code Number: B-45

1. Project Title : TARUTUNG - SARULLA FLOOD CONTROL AND IRRIGATION
2. Location : North Tapanuli, North Sumatra
3. Executing Agency : Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives :
 - To mitigate flood damages in Tarutung and Sarulla where the river channel capacity of Batang Toru is inadequate due to the rise of the riverbed through severe erosion in the basin
 - To improve and upgrade the irrigation schemes
5. Project Description :
 - (1) The Toru river originates south of Lake Toba and finally discharges into the sea about 40 km south of Sibolga. The total catchment area of the river is 3,760 km².
 - (2) There are two irrigation schemes which take water from the main stream; 2,130 ha at Silindiung and 3,000 ha at Sarulla, both of which need improvement.
6. Project Duration : Feasibility study: 18 months
Implementation : 48 months
7. Project Cost : Feasibility study: US\$ 1,700,000
Implementation : US\$ 22,000,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

Code Number: B-46

1. Project Title : RAWA KOLANG IRRIGATION
2. Location : Central Tapanuli, North Sumatra
3. Executing Agency : Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives : - To increase rice production and other crops through irrigation and drainage, aiming at increase of the people's income, including transmigrants
5. Project Description : - The proposed scheme which will command an area of 6,000 ha is located about 30 km north of Sibolga.
- The proposed area will need drainage and flood protection works besides irrigation.
6. Project Duration : 4 years to complete
7. Project Cost : Implementation including review of the design: -US\$ 30,000,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Detailed design completed by the local consultant.

Code Number: B-47

1. Project Title : BATANG ANGKOLA IRRIGATION
2. Location : South Tapanuli, North Sumatra
3. Executing Agency : Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives : - To increase rice production and other crops through irrigation and drainage, aiming at increase of the people's income
5. Project Description : - Bt. Angkala is a tributary of Bt. Gadis where the ADB's financed irrigation project is being implemented.
- The proposed irrigable area is about 6,000 ha and is located 50 km south of Padang Sidempuan.
6. Project Duration : Feasibility study: 18 months
7. Project Cost : Feasibility study: US\$ 1,300,000
Implementation : US\$ 30,000,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

Code Number: B-48

1. Project Title : HUTARAJA/SANGKUNUR IRRIGATION
2. Location : South Tapanuli, North Sumatra
3. Executing Agency : Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives : - To increase rice production and other crops through irrigation and drainage for meeting food self-sufficiency for the increased population including transmigrants.
5. Project Description : - The proposed area is located on the downstream reaches of Batang Toru, about 30 km northwest of Padang Sidempuan.
- The total irrigable area would be 14,000 ha, though depending on the upstream water resources development schemes such as the Toru hydropower and the Sarulla irrigation schemes.
6. Project Duration : Feasibility study: 18 months
7. Project Cost : Feasibility study: US\$ 1,300,000
Implementation : US\$ 50,000,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Under preparation

Code Number: B-55

1. Project Title : NATURAL DISASTER PREVENTION
2. Location : West Sumatra
3. Executing Agency : Ministry of Public Works
4. Objectives : - To establish a disaster prevention program in the province to reduce social and economic losses due to natural disasters such as land sliding and flood
5. Project Description : - In West Sumatra, there are a number of sites which have suffered from landsliding or are endangered to possible disasters mainly due to intensive rainfall on its steep topography.
- It is essential to make an overall inventory of disaster-affected areas and to establish a disaster prevention system including monitoring and communication and disaster preparedness.
6. Project Duration : Feasibility study: 24 months
7. Project Cost : Feasibility study: US\$ 1,500,000
8. Related to Project Aid: Road Disaster Prevention Project under this study
9. Stage of Project Preparation : Under promotion

1. Project Title : PADANG FLOOD CONTROL
2. Location : Padang City, West Sumatra
3. Executing Agency : Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives : - To mitigate flood damages in the Padang area which are caused by inadequate channel capacities of the Arau, Kuranji and Air Dingin rivers
5. Project Description : (1) The annual rainfall in Padang is very high, reaching 4,200 mm and this causes floods in the rivers which flow on the Padang area (Total catchment 516 km²).
(2) The project is expected to relieve 21,300 houses and 2,600 ha of land from frequent flooding.
(3) The project will consist of dredging, diking, bank-protection and provision of pump facilities
6. Project Duration : 48 months
7. Project Cost : US\$ 77,200,000
8. Related to Project Aid: Feasibility Study completed by JICA in 1986
9. Stage of Project Preparation : Engineering design completed in 1988 and the project is ready for implementation

Code Number: B-57

1. Project Title : ANAI BASIN OVERALL DEVELOPMENT
2. Location : Padang Pariaman, West Sumatra
3. Executing Agency : Directorate General for Water Resources Development, Ministry of Public Works
4. Objectives : - To implement the programs for irrigation rehabilitation and extension works, river training works and land drainage in the Anai river basin
5. Project Description : - Water of the Anai river will be augmented by the diversion of water from the planned Singkarak power plant. The diverted water of 36 m³/s on average will be effectively utilized for irrigation and municipal and domestic use.
- River training works are urgently necessary on the river to prevent frequent inundation and improve land drainage.
6. Project Duration : 60 months
7. Project Cost : US\$ 70,000,000
(Cost tentative)
8. Related to Project Aid: Master plan and feasibility study completed under a technical assistance from the Italian Government
9. Stage of Project Preparation : Under promotion

Code Number: B-61

1. Project Title: SUNGAIDAREH IRRIGATION
2. Location: Sawahlunto/Sijunjung, West Sumatra
3. Executing Agency: Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives: - To extend irrigation area for increasing the people's income.
5. Project Description: - The Sungaidareh Sitiung irrigation project is now under implementation, which is divided into two phases; 5,524 ha for Sitiung I and 7,017 ha for Sitiung II. - There are potential extension areas of 2,270 ha and 1,664 ha, which could be realized by building a dam on Batang Hari, about 10 km upstream of Sungaidareh.
6. Project Duration: Feasibility study: 18 months
7. Project Cost: Feasibility study: US\$ 1,300,000
8. Related to Project Aid: Sitiung I and II by IBRD's financial assistance
9. Stage of Project Preparation: Under preparation

Code Number: B-62

1. Project Title : WATER SUPPLY IN COASTAL SWAMPY ZONE
2. Location : Riau
3. Executing Agency : Directorate General of Human Settlements,
Ministry of Public Works
4. Objectives : - To establish safe and sufficient pipe
water supply system in the major cities in
the swampy zone
5. Project Description : - People in the coastal swampy zone have a
great difficulty to access to safe water
supply because surface and ground water
are acid affected by peat soils.
- It is keenly required to seek source water
and to extend the pipe water supply
system.
6. Project Duration : Feasibility study: 18 months
7. Project Cost : Feasibility study: US\$ 1,300,000
Implementation : to be determined
8. Related to Project Aid: None
9. Stage of Project
Preparation : Under promotion

Code Number: B-64

1. Project Title : ROKAN BASIN OVERALL DEVELOPMENT (BTA-194)
2. Location : Kampar and Bengkalis, Riau
3. Executing Agency : Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives : - To establish an overall water resources development plan of the Rokan river with the emphasis on potential irrigated agricultural development for local people and transmigrants and to select the priority projects for implementation
5. Project Description : - To Rokan river is formed of two major tributaries, Rokan Kiri and Rokan Kanan and has a total catchment of 15,670 km².
- The basin involves a large potential of irrigation development of 174,000 ha in total for six prospective schemes to meet the demand for rice in Riau whose self-sufficiency rate is less than 60%.
6. Project Duration : Master plan : 24 months
Implementation: 72 months
7. Project Cost : Master plan : US\$ 1,800,000
Implementation: US\$ 100,000,000
(Cost tentative)
8. Related to Project Aid: Feasibility study of the Batang Kumu project will be completed in 1989
9. Stage of Project Preparation : Under promotion

Code Number: B-65

1. Project Title : BATANG KUMU IRRIGATION
2. Location : Kampar, Riau
3. Executing Agency : Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives : - To develop a new irrigation area of 8,000 ha to meet the regional demand for rice with a stress on the contribution to transmigrants and settlers to be relocated from the Kota Panjang dam site
5. Project Description : (1) The upper basin of the Rokan river is favoured with land and water resources for irrigated agricultural development
(2) The Riau province has not attained self-sufficiency in rice. The Upper Rokan basin will be a high potential area for rice production.
6. Project Duration : 72 months (6 years)
7. Project Cost : US\$ 40,000,000
8. Related to Project Aid: Feasibility Study on Batang Kumu Irrigation Project, JICA
9. Stage of Project Preparation : Feasibility Study of the Project will finish in 1989

Code Number: B-66

1. Project Title : Kuantan/Indragiri Basin Overall Development
2. Location : Sijunjung, West Sumatra and Indragiri Hulu and Hilir, Riau
3. Executing Agency : Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives : - To establish a master plan for development and conservation of the water resources of the Kuantan/Indragiri river which originates in West Sumatra and drains a vast low land in Riau
5. Project Description : - The river has a catchment area of 18,800 km².
- In the midstream reaches in and around Rengat, flood occurs very frequently. Some countermeasures under a long-term basin plan are strongly required.
- The basin has gained more importance not only for flood control but also for transmigration, navigation, hydropower development, tidal swamp irrigation and watershed management.
6. Project Duration : Master plan: 24 months
7. Project Cost : Master plan: US\$ 2,600,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

Code Number: B-67

1. Project Title : INTEGRATED SWAMP DEVELOPMENT
2. Location : Riau
3. Executing Agency : Ministry of Public Works in cooperation with Ministries of Agriculture, Mines and Energy, Transmigration, Transportation and Environment under the coordination by the Regional Development Planning Board (BAPPEDA)
4. Objectives :
 - To investigate long-term development possibility of and the best ways of utilization of the coastal swamp areas in Riau from the viewpoints of agriculture, energy, engineering and environment
 - To formulate an integrated swamp development plan for a period of 20 years as a model plan to be transferable to other swamp areas in Indonesia
5. Project Description :
 - (1) Swamp areas of Riau total 50,200 km², which account for about 53% of the provincial land. These areas are considered to have potential for such diverse uses as new agricultural land, aqua-culture sites, transmigration settlements, new energy source, low-cost transportation means, etc.
 - (2) This study is to be carried out in two phases; phase I study is to make an overall review of past experiences and existing studies on swamp development both in Indonesia and in other countries, aiming to prepare more definitive terms of reference for phase II feasibility study which will last about 2 years.
 - (3) Depending on the outcome of the study, engineering service for a few projects identified will start subsequently with major investments taking place thereafter during the Repelita VI period and beyond.
6. Project Duration : Phase I: 12 months
7. Project Cost : Phase I: US\$ 1,025,000
8. Related to Project Aid: Studies on swamp development in South Sumatra and Kalimantan with the aid from the Netherlands
9. Stage of Project Preparation : Under promotion

Code Number: B-70

1. Project Title : BATANG SOSA IRRIGATION
2. Location : Kampar, Riau
3. Executing Agency : Directorate General of Water Resources Development, Ministry of Public Works
4. Objectives : - To increase rice production for its self-sufficiency in the region with due consideration to the stabilization of livelihood of transmigrants
5. Project Description : - The proposed scheme which will command a total area of about 3,000 ha is located on the upstream reaches of the Batang Sosa, a tributary of the Rokau Kanan river.
- The project will be also studied under the framework of the Rokau basin overall development.
6. Project Duration : Feasibility study: 18 months
7. Project Cost : Feasibility study: US\$ 1,300,000
Implementation : US\$ 20,000,000
8. Related to Project Aid: Feasibility study of Batan Kumu Irrigation Project by JICA (1989)
9. Stage of Project Preparation : Under promotion

Code Number: C-1

1. Project Title : NON-METALLIC MINERAL RESOURCES RESEARCH CENTER
2. Location : Aceh, North Sumatra, West Sumatra and Riau
3. Executing Agency : Directorate General of Geology and Mineral Resources, Ministry of Mines and Energy, and Branch Offices of Aceh, North Sumatra, West Sumatra and Riau
4. Objectives : Exploration and analysis of non-metallic resources development for various uses and enhancement of the development of mining-based industry in the Region.
5. Project Description : The scope work is as follows:
 - To prepare an inventory for non-metallic mineral resources using existing data and documents supplemented by field reconnaissance
 - To conduct field exploration and laboratory investigation on quality and quantity
 - To search for possible uses of resources and necessary technology analyze their marketing prospects
 - To be followed feasibility study for warranted material
 - To transfer technology of the research to counterparts
6. Project Duration : 3 - 5 years
7. Project Cost :

| | |
|-------------------------|----------------|
| Expert Services 300 m/m | US\$ 5,000,000 |
| Equipment | US\$ 1,000,000 |
| Total | US\$ 6,000,000 |

(5 year's tentative estimation)
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

Code Number: C-3

1. Project Title : MEULABOH COAL RESOURCES DEVELOPMENT
(Pre-Feasibility Study)
2. Location : West Aceh, Aceh
3. Executing Agency : Directorate General of Mines, Ministry of
Mines and Energy
4. Objectives : Exploration and evaluation of coal reserves
on Meulaboh coal resources at pre-
feasibility level
5. Project Description : - Confirmation of probable reserve,
quality, and emplacement condition on the
coal
- Estimation of minable reserves prior to
feasibility study
- Research of marketing
- Assessment of environmental influence by
the mining operation
6. Project Duration : 24 months (Pre-feasibility only)
7. Project Cost :

| | |
|--|---------------------|
| Expert Services 48 m/m | US\$ 850,000 |
| Drilling cost 3,000 m (20 holes X 150 m/hole) | US\$ 1,200,000 |
| Follow up service 10 m/m | <u>US\$ 180,000</u> |
| Total (tentative) | US\$ 2,230,000 |
8. Related to Project Aid: Under promotion
9. Stage of Project Preparation : Some investigation including test drilling
12 holes was carried out by Directorate of
Mineral Resources, Ministry of Mines and
Energy.

Code Number: C-4

1. Project Title : SOUTH NATAL COAL RESOURCES DEVELOPMENT
(Reconnnaissance Survey)
2. Location : South Tapanuli, North Sumatra
3. Executing Agency : Directorate General of Geology and Mineral
Resources, Directorate General of Mines
Ministry of Mines and Energy
4. Objectives : Prospecting and explotation on coal
resources newly discovered in south Natal
area for development of local area
(reconnnaissance survey)
5. Project Description : - Unraveling the new coal resources around
south Natal resources (reconnnaissance
survey)
- Selection/identification of a promising
area
- Survey in detail to obtain necessary data
for feasibility study
- Execution of drilling to obtain quality
and quantity of the coal
- Preliminary assessment of environmental
influences
- The reconnnaissance survey contains photo
geological interpretation, geological
survey and prospecting drilling
- The survey aims at carrying over
feasibility study after execution of
those surveys if it is warranted
6. Project Duration : 24 months (reconnnaissance survey only)
7. Project Cost : Expert Services* 60 m/m US\$ 1,000,000
Topographic map 1/10,000,
100 km² US\$ 300,000
Drilling 3,000 m** US\$ 1,100,000
Total (tentative) US\$ 2,400,000

* photogeological interpretation, geological
survey, and supervision of drilling and data
processing
** 200 m x 15 holes
8. Related to Project Aid: None
9. Stage of Project
Preparation : None

Code Number: C-5

1. Project Title : SINAMAR COAL RESOURCES DEVELOPMENT PROJECT (Pre-Feasibility Study)
2. Location : Sawahlunto Sijunjung, West Sumatra
3. Executing Agency : Directorate General of Geology and Mineral Resources
Directorate General of Mines, Ministry of Mines and Energy
4. Objectives : Feasibility study for exploitation of Sinamar coal
5. Project Description : - The survey shall be executed through three phases as follows:
 - (1) Additional drilling survey to confirm probable coal reserves and quality, emplacement condition on the coal resources (pre-feasibility study)
 - (2) Market research
 - (3) Feasibility study
6. Project Duration : 24 month (pre-feasibility study only)
7. Project Cost :

| | | |
|--|-------------|------------------|
| Expert Services 48 m/m | US\$ | 850,000 |
| Additional drilling 2,250 m (150 m X 15 holes) | US\$ | 800,000 |
| Total (tentative) | US\$ | 1,650,000 |
8. Related to Project Aid: Under promotion
9. Stage of Project Preparation : P.T. Rio Tinto Bethlehem Indonesia executed 22 drilling holes (total depth 2,749 m) for detailed survey on the coal during period from 1973 to 1975.

Code Number: C-6

1. Project Title : CERENTI COAL RESOURCES DEVELOPMENT
(Feasibility Study)
2. Location : Indragiri Hulu, Riau
3. Executing Agency : Directorate General of Mines, Ministry of
Mines and Energy
4. Objectives : Feasibility study for exploitation of
Cerenti coal mine
5. Project Description : The main objectives of the proposed project
is as follows:
 - Conceptual mine planning and design,
study of transportation infrastructure,
financial, and economic feasibility, and
comparison of using other fuel such as
natural gas as well as coal from other
areas.
6. Project Duration : 24 month
7. Project Cost :

| | |
|-------------------------|---------------------|
| Expert Services 100 m/m | US\$ 2,000,000 |
| Fellowships 20 m/m | US\$ 100,000 |
| Equipment and Services | <u>US\$ 100,000</u> |
| Total (tentative) | US\$ 2,200,000 |
8. Related to Project : Coal exploration program in Central Sumatra
with Japanese Government (MITI) cooperation
during period from 1986 to March 1991.
9. Stage of Project Preparation : Geological structure survey on the coal is
being carried out with assistance of
Japanese Government (MITI-NEDO) in a terms
from 1986 to 1991.

Code Number: C-8

1. Project Title : RARE METAL RESOURCES DEVELOPMENT
2. Location : Riau
3. Executing Agency : The Ministry of Mines and Energy
4. Objectives : - To develop such potential rare metal resources in Riau, such as tin in Singkep, Karimun and Bangkinang and other rare metals
5. Project Description : - A feasibility study will be required after the prospecting and exploration survey is finished
6. Project Duration : 24 months
7. Project Cost : (Feasibility study only) US\$ 1,000,000
8. Related to Project Aid: Prospecting and exploration survey will be done with the technical assistance from JICA during the period of 1988 to 1991
9. Stage of Project Preparation : Under promotion

Code Number: D-1

1. Project Title : PROMOTION OF INDUSTRY-TO-INDUSTRY EXTENSION SERVICES (BAPAK-ANGKAT PROJECTS)
2. Location : Aceh, North Sumatra, West Sumatra and Riau
3. Executing Agency : Ministry of Industry
4. Objectives : To develop small industries
5. Project Description : Large industries are to assist small industries as if 'foster fathers' (Bapak Angkat) look after their sons. A Presidential Directive has been issued that state enterprises can spend 1 to 5% of their profits for this purpose. Private industries are invited to join in this scheme. The assistance will be in the form of technical guidance, provision of equipment, marketing of products, etc.
6. Project Duration : To be continued for sometime
7. Project Cost : US\$ 500,000/year (provisional estimate)
8. Related to Project Aid: None
9. Stage of Project Preparation : Under revision

Code Number: D-2

1. Project Title : SMALL INDUSTRY DEVELOPMENT PROJECT (BIPIK)
2. Location : Aceh, North Sumatra, West Sumatra and Riau
3. Executing Agency : Provincial Governments
4. Objectives : To develop small industries
5. Project Description : The Project has been decentralized so that the provincial governments are now responsible for the execution. The assistance is rendered in the form of extension services and provision of equipment.
6. Project Duration : Will be continued for sometime
7. Project Cost : US\$ 500,000/year (provisional estimate)
8. Related to Project Aid: The World Bank assisted KIK/KMKP loan scheme
9. Stage of Project Preparation : Under revision

Code Number: D-3

1. Project Title : DEVELOPMENT OF AGRO-INDUSTRIES
2. Location : Aceh, North Sumatra, West Sumatra and Riau
3. Executing Agency : Investment Coordination Board (BKPM)
4. Objectives :
 - To identify development possibilities of agro-based industries in the northern part of Sumatra, where various crops are available in abundance but mostly exported as raw materials
 - To recommend appropriate policy for overcoming present bottlenecks in establishing agro-based industries competitive in the international markets
5. Project Description : Following subjects will be studied:
 - (1) Present status of agro-based industries.
 - (2) Domestic and overseas demand for region's agro-industrial products and their marketing prospects.
 - (3) Supply capacity of crops as raw materials.
 - (4) Technological improvements and manpower training required.
 - (5) Infrastructural improvements required.
 - (6) Profitability of investment projects and financial schemes appropriate especially for small- and medium-scale investors.
 - (7) Comparative analysis of agro-industrial development in other countries.
6. Project Duration : 12 months (for the study)
7. Project Cost : US\$ 2,500,000 for the study and fellowships *
8. Related to Project Aid: None
9. Stage of Project Preparation : Details yet to be prepared

* Provisional estimate

Code Number: D-4

1. Project Title : DEVELOPMENT OF MARKETABLE HANDICRAFT PRODUCTS
2. Location : Aceh, North Sumatra, West Sumatra and Riau
3. Executing Agency : Dinas Perindustrian of the Province concerned under the supervision of the Ministry of Industry.
4. Objectives : Objectives of this project are to widen the markets of selected small/cottage industries in the Region through market and product development and, ultimately, to increase the employment in these industries and raise the income of those engaged in them.
5. Project Description : The project will have following components:
 - Services of junior experts in combination with that of senior experts.
 - Fellowship for staff of Dinas Perindustrian (Office of Industry) at the levels of the Province and the Regency (Kabupaten) as well as industrialists.
 - Provision of equipment for pilot manufacturing units, that for quality testing, etc.The responsibilities of the junior experts are as follows:
 - To identify products which could possibly find niche market.
 - To liaise with prospective buyers/traders for product modifications.
 - To help industries improve production technology.
 - To design and organize a system of production.
 - To supervise the implementation of the above.
6. Project Duration : 30 months
7. Project Cost : US\$ 440,000*
8. Related to Project Aid: None
9. Stage of Project Preparation : Details yet to be prepared.

* Provisional estimates.

Code Number: D-5

1. Project Title : DEVELOPMENT OF EDUCATIONAL INSTITUTES FOR INDUSTRIAL TECHNOLOGY
2. Location : Medan, in the initial stage
3. Executing Agency : Directorate of Education and Training (PUSBINLAT), Ministry of Industry
4. Objectives : To improve and expand education of industrial technology in order to meet the increasing demand for specialized manpower in the industries
5. Project Description : The project in this stage is to upgrade and expand the Chemical Industry Development and Training Centre (PTKI) in Medan by adding specialized courses at the level equivalent to the technical universities.
It comprises of;
 - construction of an additional school building,
 - provision of training equipment, and
 - training teaching staff and preparing teaching materials.Expansion of other institutes and establishing new ones will be considered in the medium and long range.
6. Project Duration : 42 months
7. Project Cost : US\$ 5,000,000 (provisional estimate)
8. Related to Project Aid: JICA assistance for the Medan institute in the past
9. Stage of Project Preparation : Under preparation

Code Number: D-7

1. Project Title : DEVELOPMENT OF INDUSTRIAL ESTATES/AREAS
2. Location : Medan, Lhokseumawe, Padang, etc. in the short range
3. Executing Agency : Dinas Perindustrian of the province concerned under the supervision of the Ministry of Industry
4. Objectives : To promote industrial development by providing industrial land with adequate infrastructure in selected locations in the Region
5. Project Description : The project in this stage is to expand the existing industrial estate in Medan (120 hectares in addition to existing 80 hectares) and to establish new ones in Lhokseumawe, Padang, etc. It will include plots which will be sold to entrepreneurs, those on which standard factory buildings are constructed for rental, and common service facilities. In the medium and long range, further expansion of these and establishing more new ones will be considered.
6. Project Duration : (in months)

| | |
|-----------------|-------|
| | Medan |
| Detailed design | 12 |
| Construction | 30 |
7. Project Cost : (in US dollars)

| | |
|-----------------|-------------|
| | Medan |
| Detailed design | 250,000* |
| Construction | 15,000,000* |
8. Related to Project Aid: None
9. Stage of Project Preparation : Under preparation

* Provisional estimates

Code Number: D-12

1. Project Title : DISTRIBUTED DATA PROCESSING SYSTEMS
2. Location : Batam Island, Riau, as the first step
3. Executing Agency : Agency for the Assessment and Application of Technology (BPPT)
4. Objectives :
 - To provide industries, trade and other establishments in the area with efficient data processing services such as CAD/CAM, FA, banking, accounting, POS, airline reservation handling, etc.
 - To make international business and other information services available to the local business community
 - And in the initial stage to accumulate operational data and technical experience for the future applications of similar systems in other areas
5. Project Description : The project in this stage comprises of:
 - Establishing a master plan of the system to be introduced in Batam Island in coordination with the development master plan of the island.
 - Undertaking system design and equipment selection.Establishment of similar system in other locations will be considered in the medium and long range.
6. Project Duration : Master plan : 12 months
Implementation: 24 months *
7. Project Cost : Master plan : US\$ 2,200,000
Implementation: US\$ 50,000,000 *
8. Related to Project Aid: None
9. Stage of Project Preparation : Under preparation

* Provisional estimates

Code Number: D-26-79

1. Project Title : PRIVATE INVESTMENTS
2. Location : Aceh, North Sumatra, West Sumatra and Riau
3. Executing Agency : Private investors
4. Objectives : To establish industrial production units
5. Project Description : The projects have been approved by BKPM or licensed by the Ministry of Industry. Number and amount of investments of the individual projects are summarized in the attached sheet.
6. Project Duration : 60 months (most of the individual projects may complete and start production earlier)
7. Project Cost : US\$ 3,000,000,000 (total of approved/licensed amounts)
8. Related to Project Aid: None
9. Stage of Project Preparation : Under preparation

Summary of Proposed Private Investment Projects
(approved by BKPM or licensed by Ministry of Industry)

| Sub-sector | Province | Number of Projects | Development Area | Domestic Invest. (Rp. mil) | Foreign Invest. (US\$ mil) |
|--|----------|--------------------|------------------|----------------------------|----------------------------|
| Agro-Processing Industries | Aceh | 2 | 2,6 | 47,460 | - |
| | North S. | 4 | 8,9,U | 70,015 | 1.1 |
| | West S. | 1 | 17 | 5,811 | - |
| | Riau | 4 | 20,24 | 142,251 | 0.5 |
| | | | <u>11</u> | | <u>270,537</u> |
| Wood/Rattan Processing Industries | Aceh | 2 | 1,7 | 1,330 | - |
| | North S. | 22 | 8,9,U | 56,271 | 10.7 |
| | West S. | 4 | 14,15,17,19 | 9,235 | - |
| | Riau | 29 | 20 - 24 | 102,592 | 8.8 |
| | | | <u>57</u> | | <u>169,428</u> |
| Fishery/Livestock Related Industries | Aceh | 1 | U | 1,200 | - |
| | North S. | 4 | 8,9 | 5,258 | - |
| | West S. | - | - | - | - |
| | Riau | 4 | 20,21 | 13,175 | - |
| | | | <u>9</u> | | <u>19,633</u> |
| Mineral Processing Industries | Aceh | - | - | - | - |
| | North S. | 2 | 8,9 | 11,981 | 100.0 |
| | West S. | - | - | - | - |
| | Riau | 2 | 24 | 2,849 | - |
| | | | <u>4</u> | | <u>14,830</u> |
| Consumer Goods Industries | Aceh | 2 | 2 | 9,365 | - |
| | North S. | 1 | 8 | 2,100 | - |
| | West S. | - | - | - | - |
| | Riau | - | - | - | - |
| | | | <u>3</u> | | <u>11,465</u> |
| Pulp and Paper Industries | Aceh | 1 | 2 | - | 424.6 |
| | North S. | 1 | 11 | 430,000 | - |
| | West S. | - | - | - | - |
| | Riau | 1 | U | - | 253.0 |
| | | | <u>3</u> | | <u>430,000</u> |
| Chemical Industries (including rubber glove, etc.) | Aceh | 3 | 2 | 1,255 | 1,275.0 |
| | North S. | 30 | 8,9,U | 352,201 | 4.2 |
| | West S. | - | - | - | - |
| | Riau | 4 | 21,U | 165,109 | 50.0 |
| | | | <u>37</u> | | <u>518,565</u> |
| Capital Goods | Aceh | - | - | - | - |
| | North S. | 6 | 8,9 | 25,048 | - |
| | West S. | - | - | - | - |
| | Riau | 1 | 24 | 17,837 | 3.1 |
| | | | <u>2</u> | | <u>42,885</u> |
| Grand Total | Aceh | 11 | | 60,610 | 1,699.6 |
| | North S. | 68 | | 957,874 | 116.0 |
| | West S. | 5 | | 15,046 | - |
| | Riau | 50 | | 437,204 | 315.4 |
| | | | <u>134</u> | | <u>1,470,734</u> |

Note : 'U' denotes the Development Area unspecified.

Source : Ministry of Industry (information as of Jan., 1989).

Code Number: E-1

1. Project Title : FUEL EFFICIENT STOVE DISSEMINATION
(HOUSEHOLD ENERGY DIVERSIFICATION AND SAVING PROGRAM)
2. Location : Aceh, North Sumatra, West Sumatra and Riau
3. Executing Agency : Ministry of Social Affairs in cooperation with Ministry of Mines and Energy
4. Objectives :
 - To raise the standard of living of rural people (particularly of women) by introduction of new sources of energy and improvement of household oven systems under a policy of energy diversification and saving
 - To contribute to the prevention of excessive deforestation due to firewood consumption by 90% of people
5. Project Description : (1) Under the above situation the following programs are proposed:
 - Production of secondary products of coal such as briquette
 - Improvement of domestic oven to a higher heat efficiency type
 - Introduction of natural gas for domestic use(2) The scope of work is:
 - To investigate the situation and pattern of domestic energy use
 - To research the diversified use of coal and develop a high efficiency oven
 - To investigate and evaluate possible introduction of natural gas for domestic use
6. Project Duration : 24 months
7. Project Cost : US\$ 750,000 (study & research only)
8. Related to Project Aid: No information available
9. Stage of Project Preparation : Some existing studies will be integrated under this study

Code Number: E-2

1. Project Title : RURAL ELECTRIFICATION PROGRAM
2. Location : Aceh, North Sumatra, West Sumatra and Riau
3. Executing Agency : Perusahaan Umum Listrik Negara (PLN),
Ministry of Mines and Energy and Ministry of
Cooperatives
4. Objectives : - To promote the current electrification
programs in rural and isolated areas
undertaken by the agencies concerned and
also stimulate development of local
small-medium industries
5. Project Description : - The rural electrification program will be
realized through the extension of
existing power grid systems and/or the
development of indigenous generating
sources
6. Project Duration : During Repelita V and beyond
7. Project Cost : Under study
8. Related to Project Aid: IBRD's and ADB's loans for development of
mini-hydro plants
9. Stage of Project
Preparation : Under promotion

Code Number: E-4, 15 and 26

1. Project Title : MINI-HYDROPOWER DEVELOPMENT
2. Location : Aceh, North Sumatra and West Sumatra
3. Executing Agency : Perusahaan Umum Listrik Negara (PLN), Ministry of Mines and Energy and Ministry of Cooperatives
4. Objectives : - To supply electric energy to remote or isolated areas under the rural electrification programs
5. Project Description : The northern part of Sumatra is endowed with hydropower development potentials of small to large scales. A number of sites for promising mini-hydro power development have been identified.
6. Project Duration : During Repelita V and beyond
7. Project Cost : US\$ 17,500,000
8. Related to Project Aid: Aids for design and implementation from IBRD and ADB
9. Stage of Project Preparation : To be integrated under the rural electrification program (E-2)

Code Number: E-5

1. Project Title : PEUSANGAN-1 & 2 HYDROPOWER DEVELOPMENT
2. Location : Central Aceh, Aceh
3. Executing Agency : Perusahaan Umum Listrik Negara (PLN),
Ministry of Mines and Energy
4. Objectives :
 - To supply electric energy for rapidly increasing domestic and industrial demand and support the rural electrification program in the nearby areas
 - To make the maximum use of indigenous, clean and recycling energy under a national energy diversification program
5. Project Description : The project is identified as an upstream most scheme to be developed on the Peusangan river and consist of two serial schemes: 24 MW/113 GWh for No. 1 and 40 MW/196 GWh for No. 2.
6. Project Duration : 48 months
7. Project Cost : US\$ 108,300,000
8. Related to Project Aid: Feasibility Study completed in 1987 under the technical assistance from the Belgian Administration for Development Cooperation
9. Stage of Project Preparation : Detailed engineering design should be followed

Code Number: E-6

1. Project Title : PEUSANGAN-4 HYDROPOWER DEVELOPMENT (ETA-175)
2. Location : Central Aceh and North Aceh, Aceh
3. Executing Agency : Perusahaan Umum Listrik Negara (PLN),
Ministry of Mines and Energy
4. Objectives : - To supply electric energy for rapidly increasing domestic and industrial use and support the rural electrification program in the nearby areas
- To make the maximum use of indigenous, clean and recycling energy under a national energy diversification program
5. Project Description : - The Peusangan-4 hydropower project is proposed as one of the serial hydropower schemes to be developed in the Peusangan river.
- According to the pre-feasibility study conducted in 1987, the proposed plant is expected to generate 234 GWh annually with an installed capacity of 30.9 MW.
6. Project Duration : Feasibility study: 12 months
Implementation : 60 months
7. Project Cost : Feasibility study: US\$ 1,650,000
Implementation : US\$ 46,200,000
8. Related to Project Aid: Feasibility study on Peusangan No. 1 & No. 2 located upstream of No. 4 completed with the assistance of the Belgian Government in 1987
9. Stage of Project Preparation : Pre-feasibility study completed by PLN in 1987

Code Number: E-7

1. Project Title : TAMPUR-1 HYDROPOWER DEVELOPMENT
2. Location : East Aceh and Southeast Aceh, Aceh
3. Executing Agency : Perusahaan Umum Listrik Negara (PLN),
Ministry of Mines and Energy
4. Objectives : - To supply electric energy to the eastern
Aceh and North Sumatra where the energy
demand for domestic and industrial use is
projected to grow very rapidly
5. Project Description : - The project site is identified on the
upstream reaches of the Tamiang river.
- The project is of storage-dam type and
the installed capacity is sized at 428
MW, producing 1,214 GWh.
- The project is expected to stimulate the
regional development in the less
developed area in Aceh through the road
construction between the eastern coast
and the inner part of Aceh for
construction and operation proposes.
6. Project Duration : 84 months
7. Project Cost : US\$ 549,000,000
8. Related to Project Aid: Feasibility study completed in 1984 with the
IBRD's financial aid
9. Stage of Project
Preparation : The project is ready for engineering design

Code Number: E-8

1. Project Title : JAMBU-AYE HYDROPOWER SCHEMES
2. Location : Central Aceh and East Aceh, Aceh
3. Executing Agency : Perusahaan Umum Listrik Negara (PLN),
Ministry of Mines and Energy
4. Objectives : - To investigate and study a feasibility on
the hydropower development in the Jambu-
Aye River basin where a number of high
potential schemes are identified
5. Project Description : - The upstream reaches of the Jambu-Aye
river is endowed with hydropower
development potentials. Of these
schemes, Ramasan-1, Ramasan-5 and Jambu
Aye-5 schemes are identified as most
promising. Their power outputs are
preliminarily assessed at 128 MW, 64 MW
and 58 MW respectively.
- A basin-wide power development study is
needed prior to selection of high
priority schemes, including a review on
the multipurpose dam and reservoir scheme
(Jambu-Aye 8) proposed on the downstream
reaches.
6. Project Duration : Basin-wide study and feasibility study: 24
months
7. Project Cost : Feasibility study: US\$ 2,300,000
8. Related to Project Aid: Jambu-Aye Multipurpose Dam Project under the
UK's assistance, F/S completed in 1985
9. Stage of Project
Preparation : Under promotion

Code Number: E-9

1. Project Title : GAS-FIRED THERMAL PLANT
2. Location : Lhokseumawe, Aceh
3. Executing Agency : Perusahaan Umum Listrik Negara (PLN),
Ministry of Mines and Energy
4. Objectives : - To develop a gas-fired thermal plant
which will use natural gas available in
Arun, aiming at effective use of
indigenous energy source and in line with
the national policy of energy
diversification
5. Project Description : - Investigation and study are necessary to
justify the technical and economic
feasibility of constructing a natural gas
fired steam plant at Lhokseumawe.
6. Project Duration : Feasibility study: 15 months
Implementation : 48 months
7. Project Cost : Feasibility study: US\$ 1,000,000
Implementation : US\$ 120,000,000 *
8. Related to Project Aid: None
9. Stage of Project
Preparation : Under promotion

* Assuming a 200 MW plant

Code Number: E-10

1. Project Title : HIGH VOLTAGE TRANSMISSION LINE
2. Location : Northern and Eastern Aceh, Aceh
3. Executing Agency : Perusahaan Umum Listrik Negara (PLN),
Ministry of Mines and Energy
4. Objectives : - To extend the high voltage transmission
line, aiming at more efficient and stable
service of electricity and promotion of
electrification
5. Project Description : - A high voltage transmission line of 150
KV is being extended from North Sumatra
and Langsa. It is necessary to further
extend the line along the coast with
source development of hydropower in the
Peusangan, Jambu-Aye or Tamiang river.
6. Project Duration : Feasibility study: 18 months
7. Project Cost : Feasibility study: US\$ 1,000,000
8. Related to Project Aid: Pre-feasibility study on power generation
and transmission in 1982 by CIDA
9. Stage of Project
Preparation : Under promotion

Code Number: E-16

1. Project Title : ASAHAN NO. 1 & NO. 3 HYDROPOWER
2. Location : Asahan, North Sumatra
3. Executing Agency : Asahan Authority and Perusahaan Umum Listrik Negara (PLN), Ministry of Mines and Energy
4. Objectives : - To supply electricity for domestic and industrial use in North Sumatra, by utilizing high potentials of hydropower in Lake Toba and the Asahan river
5. Project Description : - Following the development of Asahan No. 2 plant which is mainly used for aluminium production, implementation of Asahan No. 1 and No. 3 is required to meet the increasing energy demand in Medan and its surroundings.
- Asahan No. 1 plant is rated at 180 MW to produce 1,360 GWh and Asahan No. 2 plant is 400 MW to produce 1,945 GWh.
- Detail design for Asahan No. 1 and No. 3 plant was completed in 1987.
6. Project Duration : Implementation: 5 years
7. Project Cost : No. 1: US\$ 240,000,000
No. 3: US\$ 760,000,000
8. Related to Project Aid: Engineering design by OECF loan
9. Stage of Project Preparation : Under promotion

Code Number: E-17

1. Project Title : RENUN-TOBA HYDROPOWER DEVELOPMENT
2. Location : North Tapanuli, North Sumatra
3. Executing Agency : Perusahaan Umum Listrik Negara (PLN),
Ministry of Mines and Energy
4. Objectives :
 - To meet rapidly increasing electric energy demand for domestic and industrial use in North Sumatra
 - To increase energy in a series of power plants to have been or to be developed in the Asahan river
5. Project Description :
 - (1) The project is an interbasin transfer scheme which aims at diverting water of 10.1 m³/s on average in the Renun river into Lake Toba through a 24 km long tunnel.
 - (2) Installed capacity is sized at 82 MW, which is expected to generate 603.4 GWh of energy annually, including the increment at the Asahan No. 2 plant.
6. Project Duration : 48 months
7. Project Cost : US\$ 233,400,000
8. Related to Project Aid: Feasibility study completed by JICA in 1984
9. Stage of Project : Engineering design completed with the financial assistance from OECF in 1988 and the project is ready for implementation

Code Number: E-18

1. Project Title : SIPANG SIPAPORAS HYDROPOWER
2. Location : Central Tapanuli, North Sumatra
3. Executing Agency : Perusahaan Umum Listrik Negara (PLN),
Ministry of Public Works
4. Objectives : - To provide a stable energy source mainly
to Sibolga and its surroundings, which
are the development center for central
Tapanuli.
5. Project Description : - The proposed site is located about 20 km
east of Sibolga.
- The installed capacity is rated at 48 MW
in the feasibility study.
6. Project Duration : Implementation: 4 years
7. Project Cost : US\$ 120,000,000 (Tentative)
8. Related to Project Aid: Feasibility study completed in 1989 by JICA
9. Stage of Project Preparation : Under promotion

Code Number: E-19

1. Project Title : WAMPU HYDROPOWER DEVELOPMENT (ETA-176)
2. Location : Langkat and Tanah Karo, North Sumatra
3. Executing Agency : Perusahaan Umum Listrik Negara (PLN),
Ministry of Mines and Energy
4. Objectives : - To meet the rapidly growing power demand
in North Sumatra, particularly in and
around Medan which will lead the
industrial development in the northern
part of Sumatra
5. Project Description : - The Wampu hydropower project is located
on the upstream reaches of the Wampu
river about 50 km southwest of Medan.
- According to the reconnaissance report
prepared in 1984, the project will
consist of two schemes; 156 MW for the
upper scheme and 100 MW for the lower
scheme, generating 718 GWh in total.
6. Project Duration : Feasibility study: 18 months
Implementation : 80 months
7. Project Cost : Feasibility study: US\$ 2,225,000 *
Upper scheme : US\$ 224,000,000 *
Lower scheme : US\$ 115,000,000 *
8. Related to Project Aid: None
9. Stage of Project Preparation : Reconnaissance survey was made by a Japanese
Consultant in 1984

* Cost tentative

Code Number: E-20

1. Project Title : TORU HYDROPOWER
2. Location : North Tapanuli, North Sumatra
3. Executing Agency : Perusahaan Umum Listrik Negara (PLN),
Ministry of Mines and Energy
4. Objectives : - To investigate and study a feasibility on
the hydropower development by the Toru
transbasin scheme in the frame-work of
the Asahan overall hydropower development
or by other schemes alternatively
selected from the proposed study
5. Project Description : - The project envisages to divert a part of
water in the Toru upper basin into Lake
Toba not only to generate energy at its
own plant but also to increase the energy
on a series of power plant in the Asahan
river
- A basin-wide power development study is
needed prior to the consolidation of the
proposed scheme with due care to water
use in the Toru river
- The scheme would yield 125 MW of power
and 262 GWh of energy per year plus 1,403
GWh from the Asahan plants
6. Project Duration : Study : 18 months
Implementation: 60 months
7. Project Cost : Study : US\$ 2,000,000
Implementation: US\$ 370,000,000
8. Related to Project Aid: Asahan hydropower projects under the OECF's
loan
9. Stage of Project
Preparation : Under promotion

Code Number: E-21

1. Project Title : MEDAN GAS TURBINE PLANT II
2. Location : Belawan, North Sumatra
3. Executing Agency : Perusahaan Umum Listrik Negara (PLN),
Ministry of Mines and Energy
4. Objectives : - To increase generating capacities to meet
the increasing demand and pressing need
for electricity in Medan and its vicinity
5. Project Description : - It is planned to build a 130 MW gas
turbine plant at Belawan, following the
completion of Unit I.
6. Project Duration : 36 months
7. Project Cost : US\$ 40,000,000
8. Related to Project Aid: Unit I by IBRD's loan
9. Stage of Project
Preparation : Under promotion

Code Number: E-22

1. Project Title : GAS-FIRED THERMAL PLANT
2. Location : Pangkalan Brandan, North Sumatra
3. Executing Agency : Perusahaan Umum Listrik Negara (PLN),
Ministry of Mines and Energy
4. Objectives : - To develop a gas-fired thermal plant
which will use natural gas available in
Pangkalan Brandan, aiming at effective
use of indigenous energy source and in
line with the national policy of energy
diversification
5. Project Description : - Investigation and study are necessary to
justify the technical and economic
feasibility of constructing a natural gas
fired steam plant at Pangkalan Brandan.
6. Project Duration : Feasibility study: 15 months
Implementation : 48 months
7. Project Cost : Feasibility study: US\$ 1,000,000
Implementation : US\$ 120,000,000 *
8. Related to Project Aid: None
9. Stage of Project
Preparation : Under promotion

* Assuming a 100 MW plant

Code Number: E-23

1. Project Title : COAL-FIRED THERMAL PANT
2. Location : North Sumatra
3. Executing Agency : Perusahaan Umum Listrik Negara (PLN); Directorate General for Electric Power and New Energy, Ministry of Industry
4. Objectives : To investigate the most technical and economical thermal plant as a base load plant using coal with due comparison to gas-fired plant
5. Project Description : - A coal-fired plant is considered as a promising power generation mode to generate energy for the increasing demand in the area, while a gas-fired plant using natural gas available in the area is also a candidate.
- Under a long-term power development program, the most appropriate generating source should be selected, with due review to source development of fuel.
6. Project Duration : Feasibility study: 18 months
7. Project Cost : Feasibility study: US\$ 1,200,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

Code Number: E-24

1. Project Title : POWER GRID EXPANSION
2. Location : North Sumatra
3. Executing Agency : Perusahaan Umum Listrik Negara (PLN),
Ministry of Mines and Energy
4. Objectives : - To extend the high voltage transmission
line, aiming at more efficient and stable
service of electricity and promotion of
electrification
5. Project Description : - The power grid system should be properly
expanded along with development of new
generating sources
6. Project Duration : 120 months
7. Project Cost : Under estimation
8. Related to Project Aid: North Sumatra Transmission Line project
financed by OECF
9. Stage of Project
Preparation : Under promotion

Code Number: E-27

1. Project Title : OMBILIN COAL-FIRED POWER PLANT
2. Location : Sawahlunto, West Sumatra
3. Executing Agency : Perusahaan Umum Listrik Negara (PLN) /
Ministry of Mines and Energy
4. Objectives : To build a 2 x 65 MW coal-fired steam power plant to meet the increasing demand for power and to improve the quality and reliability of power supply in West Sumatra.
5. Project Description : (1) A new coal-fired plant is proposed to be installed at Ombilin.
(2) The current production of coal at Ombilin is around 700,000 tons a year and it is planned to more than double the production by 1991.
6. Project Duration : 60 months
7. Project Cost : US\$ 183,200,000
8. Related to Project Aid: The financial assistance for implementation will be provided by the Government of West Germany
9. Stage of Project Preparation : Feasibility study was finalized by a German consultant

Code Number: E-28

1. Project Title : SINGKARAK HYDROPOWER DEVELOPMENT
2. Location : Tanah Datar, West Sumatra
3. Executing Agency : Perusahaan Umum Listrik Negara (PLN),
Ministry of Mines and Energy
4. Objectives : - To supply energy for domestic and
industrial use in West Sumatra
5. Project Description : (1) The project is a transbasin scheme which
diverts water in Lake Singkarak into the
Anai river. The run-off to be diverted
will be 57.3 m³/s on average.
(2) Installed capacity is sized at 200 MW
which is expected to generate 1,209 GWh
annually.
6. Project Duration : 60 months
7. Project Cost : US\$444,000,000 *
8. Related to Project Aid: Feasibility study done by an Italian
consultant and engineering design completed
in 1988 with the ADB's loan
9. Stage of Project Preparation : Additional investigation on the subsurface
geological condition is underway

* Cost tentative

Code Number: E-30

1. Project Title : KOTA PANJANG HYDROPOWER DEVELOPMENT
2. Location : Kampar, Riau
3. Executing Agency : Perusahaan Umum Listrik Negara (PLN),
Ministry of Mines and Energy
4. Objectives :
 - To supply electric energy for domestic and industrial use in Riau
 - To contribute the national energy diversification policy to conserve oil reserves for export
5. Project Description :
 - The project is a storage-dam scheme, whose damsite is proposed in the Kampar Kanan river. The dam is of concrete gravity type of 58 m in height.
 - Installed capacity is sized at 114 MW (3 x 38 MW), which is expected to generate 542 GWh annually.
6. Project Duration : 72 months
7. Project Cost : US\$ 268,400,000
8. Related to Project Aid: Feasibility study completed by JICA in 1984 and engineering design completed with the financial assistance from OECF in 1988
9. Stage of Project Preparation : The project is ready for implementation, while establishment of the resettlement program for the reservoir submergence is needed

Code Number: E-31

1. Project Title : INTERCONNECTION OF POWER GRID SYSTEMS BETWEEN RIAU AND WEST SUMATRA
2. Location : Riau and West Sumatra
3. Executing Agency : Perusahaan Umum Listrik Negara (PLN), Ministry of Mines and Energy
4. Objectives : - To make interconnection of the power grid systems between Riau and West Sumatra aiming at more economical and stable supply of power in the Wilayah III system.
5. Project Description : (1) The project consists of provision and expansion of a high voltage transmission line (150 kV) of 2 circuits.
(2) The first section will be a 70 km-long transmission line between Kotapanjang and Pekanbaru and the second line will be a 141 km-long line between Ombilin and Kotapanjang and a 113 km-long line between Pekanbaru and Dumai.
6. Project Duration : 60 months
7. Project Cost : US\$ 154,700,000
8. Related to Project Aid: Feasibility study on the electric power system development project in Central Sumatra completed in 1986 by JICA
9. Stage of Project Preparation : To be developed in line with the completion of the Kotapanjang hydropower project

Code Number: F-1

1. Project Title : ARTERIAL ROAD UPGRADING
2. Location : Aceh, North Sumatra, West Sumatra and Riau
3. Executing Agency : Directorate General of Highways, Ministry of Public Works
4. Objectives :
 - To execute the feasibility study to make rehabilitation plans for road sections which fall far below practical road engineering standards and which hinder smooth and safe traffic movement
 - To improve road sections with high priority recommended by the feasibility study
5. Project Description : The project comprises of:
 - The feasibility study in geometric improvement of strategic road links totalling about 4,900 km in Sumatra and Java (2,400 km and 2,500 km respectively),
 - Geometric improvement of sections recommended by the feasibility study of road links totalling about 1,700 km in the objective area, and
 - Consulting services for detailed design and supervision works.
6. Project Duration : Feasibility Study: 18 months
Implementation : 36 months
7. Project Cost : Feasibility Study: US\$ 1,550,000
Implementation : US\$ 92,000,000 *
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

* Cost tentative to be based on F/S

Code Number: F-2

1. Project Title : ROAD DISASTER PREVENION
2. Location : Aceh, North Sumatra and West Sumatra
3. Executing Agency : Directorate General of Highways, Ministry of Public Works
4. Objectives :
 - To execute the feasibility study to identify the sections with high incidence of the disasters on road slope or those with such possibilities along the study roads
 - To improve road sections with high priority recommended by the feasibility study
5. Project Description : The project comprises of:
 - The feasibility study on road disaster prevention for road links totalling about 1,200 km in Sumatra and Java (700 km and 500 km respectively),
 - Implementation of disaster prevention measures for sections recommended by the feasibility study for road links totalling about 500 km in the objective area, and
 - Consulting services for detailed design and supervision works.
6. Project Duration : Feasibility Study: 15 months
Implementation : 30 months
7. Project Cost : Feasibility Study: US\$ 1,490,000
Implementation : US\$ 45,000,000 *
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

* Cost tentative to be based on F/S

Code Number: F-3

1. Project Title : SUMATRA EAST COAST ROAD DEVELOPMENT
2. Location : Medan - Pekanbaru - Jambi - Palembang - Bandar Lampung
3. Executing Agency : Directorate General of Highways, Ministry of Public Works
4. Objectives :
 - To examine the economic and technical feasibilities of the construction and grading up of arterial road network to be connected among the provincial capitals along the east coast of Sumatra
 - To carry out route alternative study by consideration of the future traffic demand and future land use development plan
 - To improve road sections with high priority recommended by the feasibility study
5. Project Description : The project comprises of:
 - The feasibility study on the construction and grading up of road network along the east coast of Sumatra, namely Medan, Pekanbaru, Jambi, Palembang and Bandar Lampung, totalling about 1,850 km in Sumatra,
 - Implementation of the construction or grading up of sections recommended by the feasibility study of road links totalling about 450 km in the area, and
 - Consulting services for detailed design and supervision works.
6. Project Duration : Feasibility study: 21 months
Implementation : 36 months
Total : 57 months
7. Project Cost : Feasibility study: US\$ 2,400,000
Implementation : US\$ 48,000,000 *
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

* Cost tentative to be based on F/S

Code Number: F-4

1. Project Title : BRIDGE REPLACEMENT PROGRAM FOR SELECTED RURAL ROADS IN ACEH AND RIAU
2. Location : Aceh and Riau
3. Executing Agency : Directorate General of Highways, Ministry of Public Works
4. Objectives : To enhance regional development, to facilitate socio-economic extension services to the communities served, and to seek to support movement of non-oil product in the rural areas of Aceh and Riau.
5. Project Description : The project comprises of:
 - Construction of new bridge structures to provide crossing facilities over rivers and streams along selected rural roads in the areas which are either at present unbridged or weak temporary structures, totally about 100 bridges with an aggregate length approximately 3,000 lineal meters, and
 - Consulting services for detailed design and supervision works.
6. Project Duration : 30 months
7. Project Cost : US\$ 19,000,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

Code Number: F-5

1. Project Title : BANDA ACEH - MEULABOH ROAD BETTERMENT
2. Location : Banda Aceh - Meulaboh, Aceh
3. Executing Agency : Directorate General of Highways, Ministry of Public Works
4. Objectives : - To improve the road network between Banda Aceh and Meulaboh to support regional development and to promote balanced socio-economic development in the region
5. Project Description : The project comprises of:
 - Road betterment from the point of 0 km to that of 120 km from Banda Aceh including road alignment improvement and slope protection,
 - Road betterment from the point of 226 km to that of 248 km from Banda Aceh, and
 - Consulting services for detailed design and supervision works.
6. Project Duration : 30 months
7. Project Cost : US\$ 13,000,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Project idea

Code Number: E-7

1. Project Title : TAPAKTUAN - SIDIKALANG ROAD BETTRMENT
2. Location : Tapaktuan - Sidikalang, Aceh and North Sumatra
3. Executing Agency : Directorate General of Highways, Ministry of Public Works
4. Objectives : - To improve the road network between Tapaktuan in Aceh and Sidikalang in North Sumatra to support regional development and to promote balanced socio-economic development in the region
5. Project Description : The project comprises of:
 - Implementation of existing road betterment (216 km) and its connected feeder road improvement, and
 - Consulting services for detailed design and supervision works.
6. Project Duration : 30 months
7. Project Cost : US\$ 20,000,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

Code Number: F-11

1. Project Title : ACEH COLLECTOR ROAD BETTERMENT
2. Location : Aceh
3. Executing Agency : Directorate General of Highways, Ministry of Public Works
4. Objectives : - To improve collector roads in the remote area of Aceh to support rural development and to promote balanced socio-economic development in the region
5. Project Description : The project comprises of:
 - Implementation of the following road links totalling about 200 km in Aceh:
 - 1) Peureulok - Lokop
 - 2) Meulaboh - Tutut
 - 3) Simpang Peut - Lhok Sumat
 - 4) Penanggai - Singkil
 - Consulting services for detailed design and supervision works
6. Project Duration : 30 months
7. Project Cost : US\$ 16,000,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

Code Number: F-12

1. Project Title : MEDAN - BESITANG - LANGSA RAILWAY RECONSTRUCTION
2. Location : East Aceh, Aceh and Langkat, North Sumatra
3. Executing Agency : Directorate General of Land Transport, Ministry of Transport & Indonesian State Railways
4. Objectives : To execute the feasibility study on railway for easy transportation of plantation product (palm oil, beans, etc.), industrial product (timber, etc.) to Medan and port of Belawan
5. Project Description : - Gauge 1067 mm is recommended
- Utilization of existing truck
6. Project Duration : Feasibility Study: 20 months
7. Project Cost : US\$ 70,000,000 *
8. Related to Project Aid: NF/S on Medan - Binjai Toll Road Development
9. Stage of Project Preparation : F/S, E/S needed

* Cost tentative to be based on F/S

Code Number: F-15

1. Project Title : ACEH WEST COAST PORT DEVELOPMENT
2. Location : Aceh Besar, West Aceh and Southeast Aceh, Aceh
3. Executing Agency : Directorate General of Sea Communication, Ministry of Transport
4. Objectives : - To execute the comprehensive study on new port construction in the western coast of Aceh for the integrated regional development
5. Project Description : Among five possible locations (Meulaboh, Tapaktuan, Calang, Lhok Jamin and Sabang), Meulaboh is most prospective because of its industrial potential. Detailed engineering study should be conducted among the alternatives.
6. Project Duration : Feasibility Study: 12 months
7. Project Cost : US\$ 1,000,000 *
8. Related to Project Aid: None
9. Stage of Project Preparation : Project idea

* Cost tentative to be based on F/S, assuming Sibolga class rehabilitation is conducted at Meulaboh

Code Number: F-16

1. Project Title : LHOKSEUMAWE PORT EXPANSION
2. Location : North Aceh, Aceh
3. Executing Agency : Directorate General of Sea Communication,
Ministry of Transport & Indonesia Port
Authority I
4. Objectives : - Promotion of local industrial development
(such as timber, chemical, etc.) in the
hinterland area
- Masterplan for 2000 can accommodate
397,000 (ton/yr) of cargoes
5. Project Description : - Transit shed
- Road and pavement
- Utilities
- Equipment
6. Project Duration : 24 months
7. Project Cost : US\$ 3,600,000
8. Related to Project Aid: None
9. Stage of Project
Preparation : M/P was completed on April, 1984 (IBRD) but
study result was not feasible

Code Number: F-18

1. Project Title : SIMEULU ISLAND PORT DEVELOPMENT
2. Location : Aceh Islands, Aceh
3. Executing Agency : Directorate General of Sea Communication,
Ministry of Transport & Indonesian Port
Authority I
4. Objectives : - Service for isolated island
- Incentive for industrial development
(crove production, etc.)
5. Project Description : - Feasibility study
- Implementation of new construction of
40 m berth (4 m deep)
6. Project Duration : Feasibility study: 12 months
7. Project Cost : US\$ 1,000,000 *
8. Related to Project Aid: None
9. Stage of Project
Preparation : Project idea

* Cost tentative to be based on F/S, assuming 40 m berth (4 m deep) is constructed

Code Number: F-20

1. Project Title : BANDA ACEH AIRPORT DEVELOPMENT
2. Location : Aceh Besar, Aceh
3. Executing Agency : Directorate General of Air Communication,
Ministry of Transport
4. Objectives : - Modernization of capital city
- For safety
5. Project Description : Extension of runway for larger aircraft
6. Project Duration : Feasibility study: 12 months
7. Project Cost : US\$ 7,000,000 *
8. Related to Project Aid: None
9. Stage of Project Preparation : F/S, E/S needed

* Cost tentative to be based on F/S

Code Number: F-22

1. Project Title : MEDAN - BINJAI TOLL ROAD DEVELOPMENT
2. Location : Medan - Binjai, North Sumatra
3. Executing Agency : Directorate General of Highways, Ministry of Public Works & Indonesia Highway Cooperation
4. Objectives :
 - To prepare a careful study for examining the economic and technical feasibilities for construction of tollway between Medan and Binjai considering the future traffic demand, the effect on land use development in and around the city of Binjai and southern part of Aceh east coast area, the effect of the Belawan - Medan - Tanjung Morawa Tollway, and the development programme of the other public transport sector, such as railway
 - To construct Medan - Binjai Tollway to induce strong impact and means for the expansion of the Medan Metropolitan Area
5. Project Description : The project comprises of:
 - Preparation of a preliminary engineering design for the proposed tollway (24 km) and study on alternative alignments between Medan and Binjai,
 - Implementation of new construction of Medan - Binjai Tollway, and
 - Consulting services for detailed design and supervision works
6. Project Duration : Feasibility Study: 18 months
Implementation : 30 months
7. Project Cost : Feasibility Study: US\$ 1,700,000
Implementation : US\$ 70,000,000 *
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

* Cost tentative to be based on F/S

Code Number: E-23

1. Project Title : MEDAN - SIDIKALANG ROAD NETWORK DEVELOPMENT
2. Location : Medan - Sidikalang, North Sumatra
3. Executing Agency : Directorate General of Highways, Ministry of Public Works
4. Objectives : - To improve the road network between Medan - Sidikalang to promote regional industry and balanced socio-economic development in the region
5. Project Description : The project comprises of:
 - Implementation of upgrading existing highway (144 km) and its connected feeder road betterment, and
 - Consulting services for detailed design and supervision works
6. Project Duration : 24 months
7. Project Cost : US\$ 20,000,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Under promotion

Code Number: F-24
(See also I-6)

1. Project Title : LAKE TOBA TOURISM ROAD DEVELOPMENT
2. Location : Brastagi - Parapat and the circumference of Lake Toba, North Sumatra
3. Executing Agency : Directorate General of Highways, Ministry of Public Works
4. Objectives : - To improve the road network between Brastagi and Parapat, and around Lake Toba in North Sumatra to support tourism and regional development
5. Project Description : The project comprises of:
 - Implementation of new construction of Brastagi - Parapat road (70 km) and existing road betterment around Lake Toba (257 km), and
 - Consulting services for detailed design and supervision works
6. Project Duration : 36 months
7. Project Cost : US\$ 51,000,000
8. Related to Project Aid: Tourism Development Study in Lake Toba and its Visinity (I-6)
9. Stage of Project Preparation : Under promotion

Code Number: E-25

1. Project Title : RANTAUPRAPAT - PADANGSIDEMPUAN ROAD NETWORK DEVELOPMENT
2. Location : R. Prapat - P. Sidempuan, North Sumatra
3. Executing Agency : Directorate General of Highways, Ministry of Public Works
4. Objectives : - To improve the road network between Rantauprapat and Padangsidempuan to support regional development and to promote balanced socio-economic development in the region
5. Project Description : The project comprises of:
 - Implementation of existing road betterment (128 km), and
 - Consulting services for detailed design and supervision works.
6. Project Duration : 24 months
7. Project Cost : US\$ 18,000,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Project idea

Code Number: F-27

1. Project Title : WEST COAST TAPANULI ROAD DEVELOPMENT
2. Location : Tapanuli Tengah and Tapanuli Selatan, North
Sumatra
3. Executing Agency : Directorate General of Highways, Ministry of
Public Works
4. Objectives : - To carry out a feasibility study on the
road network development covering trunk,
feeder and local roads in the west coast
Tapanuli area
- To improve road sections with high
priority recommended by the feasibility
study to support regional development and
to promote balanced socio-economic
development in the region
5. Project Description : The project comprises of:
 - The feasibility study for the following
road links:
 - (1) Trunk road: Tarutung - Sibolga - Padangsidempuan
 - (2) Feeder road: in the central valley area
 - (3) Local road: Siabu - Sibuan, west coast road
 - Implementation of betterment of sections
recommended by the feasibility study of
road links totalling about 300 km in the
area, and
 - Consulting services for detailed design
and supervision works.
6. Project Duration : Feasibility study: 12 months
Implementation : 30 months
Total : 42 months
7. Project Cost : Feasibility study: US\$ 1,500,000
Implementation : US\$ 26,000,000 *
8. Related to Project Aid: None
9. Stage of Project
Preparation : Project idea

* Cost tentative to be based on F/S

Code Number: F-28

1. Project Title : NIAS ISLAND RING ROAD DEVELOPMENT
2. Location : Nias island, North Sumatra
3. Executing Agency : Directorate General of Highways, Ministry of Public Works
4. Objectives :
 - To improve the road network in the Nias island to support agricultural and tourism development in the Nias island and to promote the balanced socio-economic development in the region
5. Project Description : The project comprises of:
 - Road betterment of about 350 km of ring road along the coast,
 - Road betterment of about 55 km of island crossing road from Miga to Lolowau,
 - Construction of feeder roads to be connected to the above roads, and
 - Consulting services for detailed design and supervision works.
6. Project Duration : 36 months
7. Project Cost : US\$ 27,000,000
8. Related to Project Aid: None
9. Stage of Project Preparation : Project idea

Code Number: F-29

1. Project Title : VITALIZATION OF NORTH SUMATRA RAILWAY SYSTEM
IN MEDAN METROPOLITAN AREA
2. Location : Medan and Belawan, North Sumatra
3. Executing Agency : Directorate General of Land Transport,
Ministry of Transport & Indonesian State
Railways
4. Objectives : - For container transportation
- Realization of Urban railway system
(passenger transport, etc.)
5. Project Description : - Track rehabilitation, improvement of
railway facilities including rolling
stock
- Container terminal construction at
Belawan
6. Project Duration : 36 months
7. Project Cost : US\$ 80,000,000 *
8. Related to Project Aid: Belawan port extension
9. Stage of Project Preparation : - F/S completed by JICA but should be
reviewed
- E/S needed

* Cost tentative

Code Number: F-30

1. Project Title : MEDAN - RANTAUPRAPAT & TEBINGTINGGI -
PEMATANG SIANTAR TRACK REHABILITATION
2. Location : Deli Serdang, Simalungun, Asahan and Labuhan
Batu, North Sumatra
3. Executing Agency : Directorate General of Land Transportation,
Department of Communication & Indonesian
State Railways
4. Objectives : - For container transportation around
Belawan
- Industrial development of eastern coast
of North Sumatra
5. Project Description : - Reinforcement of existing track for
container transportation, etc.
- Rehabilitation of truck for container
transportation in North Sumatra railway,
excluding Medan Metropolitan area
- Construction of non-custum base container
terminal at Rantauprapat and Tebingtinggi
6. Project Duration : - Feasibility/DD study: 15 months
Implementation : 24 months
7. Project Cost : US\$ 9,000,000 *
8. Related to Project Aid: Vitalization Plan of North Sumatra Railway
System in Medan Metropolitan Area
9. Stage of Project
Preparation : F/S, E/S needed

* Cost tentative to be based on F/S