# ANNEX

ANNEX-1 Members of the Study Team

| | |
|---|---|
| Mr. Mitsuru INAGAKI | Team Leader<br>Deputy Director,<br>Chemical Products Div.<br>Basic Industry Bureau,<br>Ministry of International Trade and Industry |
| Dr. Katsuji ISHIBASHI | Technical Official<br>Senior Researcher<br>Government Industrial Development Laboratory,<br>Hokkaido Agency of Industrial Science & Technology,<br>Ministry of International Trade and Industry |
| Mr. Takeshi IMAZU | Grant Aid Cooperation Planning Coordinator<br>Head of First Basic Design Study Div.<br>Grant Aid Planning and Survey Department<br>Japan International Cooperation Agency |
| Mr. Osamu KOSEGAWA | Project Coordinator<br>First Basic Design Study Div.<br>Grant Aid Planning and Survey Department<br>Japan International Cooperation Agency |
| Mr. Kikuji NAKAGAWA | Expert, Research & Development Equipment<br>UNICO International Corporation |
| Dr. Akio KATO | Oil and Fat Chemist<br>UNICO International Corporation |
| Mr. Akira YUKAWA | Project Engineer<br>UNICO International Corporation |

ANNEX-2 Survey Schedule

| | | | |
|---|---|---|---|
| 1. | Jul. 31 | (Sun) | Lv. Tokyo<br>(Mr. Inagaki, Mr. Ishibashi, Mr. Kosegawa,<br>Mr. Nakagawa, Mr. Kato, Mr. Yukawa)<br>Ar. Manila |
| 2. | Aug. 1 | (Mon) | Courtesy meeting at the Embassy of Japan and JICA office<br>Courtesy call on DOST<br>Courtesy call on ITDI and schedule meeting<br>Submission of inception report and questionnaires |
| 3. | Aug. 2 | (Tue) | Meeting with ITDI (CMD) Committee<br>Explanation on inception report and questionnaires<br>Survey of the proposed project site. |
| 4. | Aug. 3 | (Wed) | Meeting with ITDI (CMD) Committee<br>Survey of Contents of the project |
| 5. | May 4 | (Thu) | Meeting with ITDI (CMD) Committee<br>Survey of future research activities<br>Discussions on important research fields |
| 6. | Aug. 5 | (Fri) | Meeting with ITDI (CMD) Committee<br>Survey of project implementation schedule<br>Lv. Bangkok (Mr. Imazu)<br>Ar. Manila |
| 7. | Aug. 6 | (Sat) | Survey of similar facilities<br>Team meeting |
| 8. | Aug. 7 | (Sun) | Team Meeting<br>Data arrangement |

| | | | |
|---|---|---|---|
| 9. | Aug. 8 | (Mon) | Meeting with DOST Committee<br>Signing of the Minutes of Discussions<br>Report to the Embassy of Japan and JICA office<br>Meeting with ITDI (CMD) Committee<br>Discussion on visiting schedule of related organizations and similar facilities |
| 10. | Aug. 9 | (Tue) | Lv. Manila (Mr. Inagaki, Mr. Ishibashi, Mr. Kosegawa)<br>Ar. Tokyo<br>Survey of existing equipment, facilities and buildings<br>Discussions on equipment requested |
| 11. | Aug. 10 | (Wed) | Lv. Manila (Mr. Imazu)<br>Ar. Tokyo<br>Meeting with PCA, PCRDF<br>Meeting with NFA, NEDA<br>Data collection and discussions on the project |
| 12. | Aug. 11 | (Thu) | Meeting with TLRC, DTI, BSMBD<br>Data collection and discussion on the project<br>Survey of rice miller in Manila<br>Meeting with ITDI (CMD) Committee<br>Discussions on the specifications of equipment requested |
| 13. | Aug. 12 | (Fri) | Meeting with ITDI (CMD) Committee<br>Survey of utility facilities in ITDI (CMD)<br>Discussion scope of work<br>Survey factory of related industry |
| 14. | Aug. 13 | (Sat) | Meeting with ITDI (CMD) Committee<br>Discussions on layout plan of equipment |
| 15. | Aug. 14 | (Sun) | Team Meeting<br>Data arrangement |

| | | |
|---|---|---|
| 16. | Aug. 15 (Mon) | Meeting with NFA, PIPAC<br>Data collection and survey of similar facilities<br>Meeting with ITDI (CMD) committee<br>Discussions on the specifications of equipment requested |
| 17. | Aug. 16 (Tue) | Meeting with ITDI (CMD)<br>Discussions on the specifications of equipment and data collection<br>Signing of the Memorandum<br>Courtesy call on the Embassy of Japan and JICA office |
| 18. | Aug 17 (Wed) | Lv. Manila (Messrs. Nakagawa, Kato, Yukawa)<br>Ar. Tokyo |

ANNEX-3 List of persons Interviewed

1. DOST (Department of Science and Technology)

| | |
|---|---|
| Secretary of Science and Technology | Dr. Antonio V. Arizabal |
| Executive Director | Benjamin T. Damian |

2. ITDI (Industrial Technology Development Institute)

| | |
|---|---|
| Director | Dr. Rufino C. Lirag, Jr. |
| Deputy Director | Dr. Ing. Adolfo Jesus R. Gopez |
| Chemicals and Mineral Division, Chief | Violeta P. Arida |
| Environment Division, OIC-Office of Chief | Benjamin S. Magbanua, Jr. |
| Economics Division, Chief | Nuna E. Almanzor |
| National Standards & Testing Center, Head, Biology & Toxicology Dept. | Eulalia L. Venzon, M.D. |
| Deputy Director | Mercedes R. Soriano |

3. DTI (Department of Trade and Industry)

| | |
|---|---|
| Undersecretary | Ceferino L. Follosco |

4. BSMBD (Bureau of Small and Medium Business Development)

| | |
|---|---|
| Director | Zafrullah G. Masahud |
| Staff | Maurino P. Bolante |

5. TLRC (Technology and Livelihood Resource Center)

| | |
|---|---|
| Director-General | Jose M. Kalaw, Jr. |
| Information Systems and Services Department, Manager Director | Norlito S. Quimel |

6. PCA (Philippine Coconut Authority)

| | |
|---|---|
| Chairman | Jose V. Romero, Jr. |
| Manager | Elazar A. Tejano |

7. PCRDF (Philippine Coconut Research & Development Foundation, Inc.)

| | |
|---|---|
| Executive Director | Ernesto P. Lozada |

8. NFA (National Food Authority)

Agro-processing and Marketing Project Office

| | |
|---|---|
| Director | Gaudencio Ferrer |
| Asst. Director | Jun Nunez |
| Project Manager | Wenceslao M. Sison |

9. NEDA (National Economic and Development Authority)

| | |
|---|---|
| Public Investment Staff | Rachel S. Kapunan |

10. UCCI (United Coconut Chemicals, Inc.)

| | |
|---|---|
| Plant Manager | Florants S. Sebastian |
| Marketing Manager | Rodulfo G. Jimenez |

11. PIPAC (Philippine Institute of Pure and Applied Chemistry)

| | |
|---|---|
| Research Coordinator | Fabian M. Dayrit, ph.D. |

12. ESTRELLA

| | |
|---|---|
| Rice Mill Owner | Leonardo Estrella |

13. The embassy of Japan in the Philippines

| | |
|---|---|
| First Secretary | Atsushi Inoue |
| Third Secretary | Kouichi Mizushima |

14. JICA Manila Office

| | |
|---|---|
| Resident Representative | Moriya Miyamoto |
| Assistant Resident Representative | Katsuhiko Ohshima |
| Resident Staff | Toru Saitoh |

# MINUTES OF DISCUSSIONS ON THE PROJECT FOR UPGRADING OF AGRI-INDUSTRIAL CHEMICALS RESEARCH AND DEVELOPMENT EQUIPMENT IN THE REPUBLIC OF THE PHILIPPINES

In response to the request of the Government of the Republic of the Philippines, the Government of Japan decided to conduct a basic design study on the project for upgrading of agri-industrial chemicals research and development equipment for Chemicals and Mineral Division, Industrial Technology Development Institute (hereinafter referred to as "The Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA"). JICA sent to the Republic of the Philippines the basic design study team headed by Mr. Mitsuru INAGAKI, Deputy Head, Chemical Products Division, Basic Industry Bureau, Ministry of International Trade and Industry, for 18 days from 31st July to 17th August 1988.

The team had a series of discussions and exchanged views with the authorities concerned of the Government of the Republic of the Philippines.

As a result of the study and discussions, both parties agreed to recommend to their respective Governments that the major points of understanding reached between them, attached herewith, should be examined towards the realization of the Project.

8th August 1988

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MR. MITSURU INAGAKI
Team Leader
JICA Study Team

DR.RUFINO C. LIRAG, JR.
Director
Industrial Technology
Development Institute

## ATTACHMENT

1. The objective of the Project is to strengthen the capabilities of Chemicals and Mineral Division, Industrial Technology Development Institute, for its conduct of research and development studies through the supply of necessary equipment.

2. Major equipment requested by the Philippine authorities concerned are listed in Annex I.

3. The site of the Project is located at Taguig, Metro Manila as shown in Annex II.

4. Industrial Technology Development Institute is responsible for the administration and execution of the Project.

5. The Philippine authorities concerned have understood Japan's Grant Aid System explained by the Study Team.

6. The Philippine authorities concerned will take necessary measures listed in Annex III, on condition that the grant aid by the Government of Japan is extended to the Project.

## ANNEX I REQUESTED EQUIPMENT

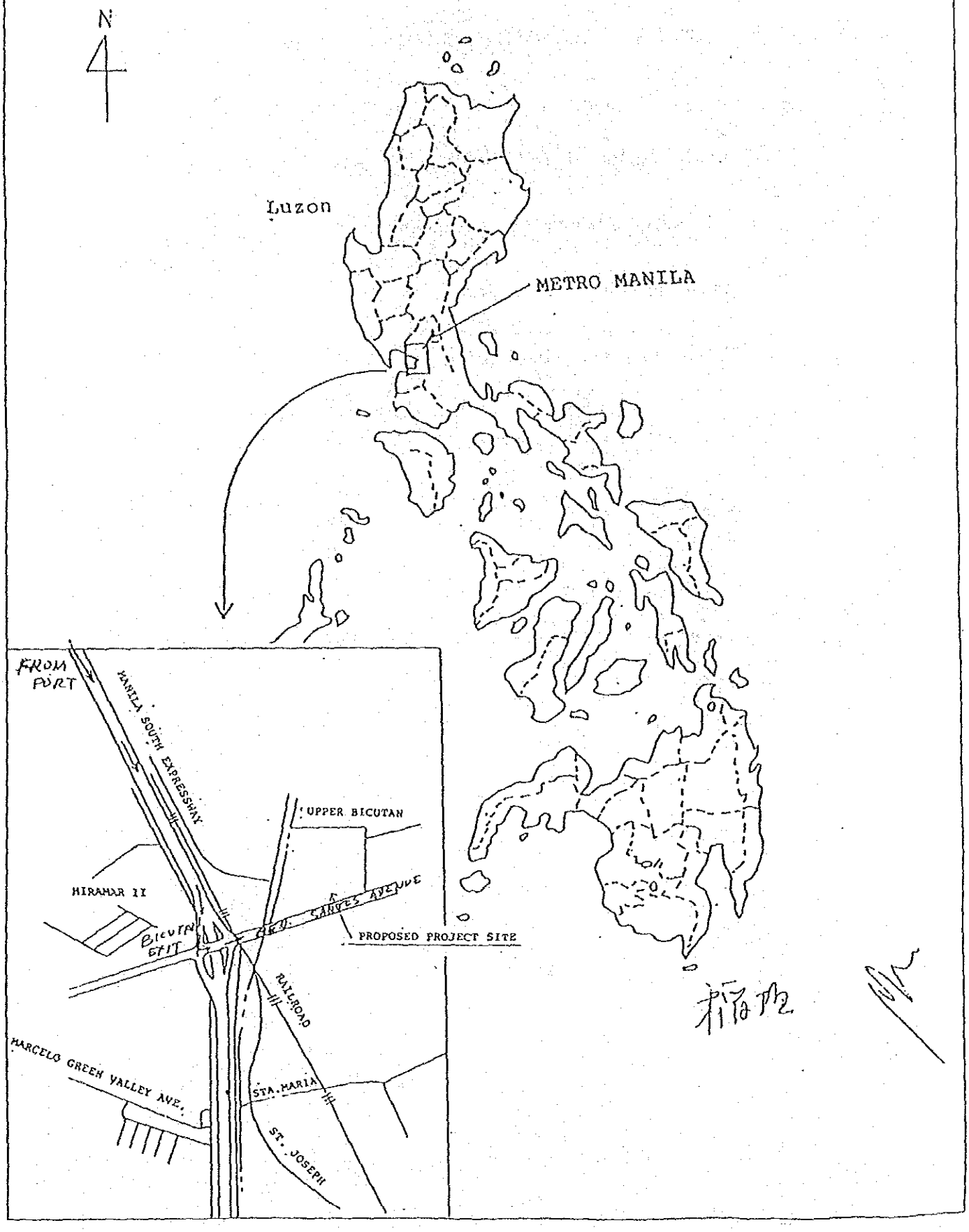
a. Basic equipment for chemical processing

b. Analytical/laboratory equipment

c. Furniture/auxiliaries/facilities

d. Scale-up processing equipment

ANNEX II THE SITE OF THE PROJECT



ANNEX III

Following arrangements are requested to be taken by the Government of the Philippines, on condition that the grant aid by the Government of Japan is extended to the Project.

1. To ensure prompt unloading, tax exemption, customs clearance at port of disembarkation in the Philippines, and prompt internal transportation therein of the equipment purchased under the grant.

2. To exempt Japanese nationals engaged in the Project from customs duties, internal tax, and other fiscal levies which may be imposed in the Philippines with respect to the supply of the equipment and the services under the verified contracts.

3. To accord Japanese nationals whose services may be required in connection with the supply of equipment and the services under the varified contract such facilities as may be necessary for their entry into the Philippines and stay therein for the performance of their work.

4. To bear all the expenses other than those to be borne by the Grant, necessary for the execution of the Project.

5. To maintain and use properly and effectively the equipment purchased under the Grant.

MEMORANDUM OF DISCUSSIONS
ON THE PROJECT FOR UPGRADING OF AGRI-INDUSTRIAL CHEMICALS RESEARCH AND DEVELOPMENT EQUIPMENT IN THE REPUBLIC OF THE PHILIPPINES

1. The order of priority in research and development activities after the completion of the project were discussed and determined as shown in Appendix-1.

2. In addition to the above, the order of priority in the selection of equipment was settled as shown in Appendix-2 in consideration of clarification of the basic design study in Japan.

3. Equipment marked as "to be deleted" in Appendix-2 shall be deleted in consideration of running cost, the order of priority for R&D and/or unappropriateness in the future activities of ITDI (CMD).

4. ITDI (CMD) strongly requested to add equipment shown in Appendix-3 in order to upgrade and/or strengthen the technical supporting activities for micro/cottage/small scale industries. This shall replace the deleted equipment on Item 3 above.

5. Through indepth discussions on the planning for actual experiments for R&D, small accessories and/or tools should be included for each equipment as shown in Appendix-4.

6. Equipment as shown in Appendix-5 should replace existing equipment due to their being damaged and/or obsolescence.

   In this connection, type and/or model for such equipment should be same as much as possible as the existing ones in view of maintenance and familiarities.

16th August 1988

MR. KIKUJI NAKAGAWA
Expert, Research and Development
JICA Study Team

DR. RUFINO C. LIRAG, JR.
Director
Industrial Technology Development Institute

Appendix - 1

## PRIORITIZATION OF R&D ACTIVITIES

1. Development of technology for fresh coconut in rural area.

   1.1. Simplified edible oil manufacturing technology.

   1.2. Simplified laundry and toilet soap manufacturing process.

2. Basic study for rice husks utilization.

   2.1. Laboratory scale study for silica derivatives (sodium silicate, silica gel)

   2.2. Laboratory scale study for slow release type fertilizer processing and application.

   2.3. Screening test and basic analysis on rice husk derivatives (construction material, soil conditioner, etc.)

3. Development of derivatives preparation from coconut oil and rice bran oil.

   3.1. Isolation and purification technology of medical and food grade glycerides (medium chain triglycerides, monoglycerides)

   3.2. Training and technical transfer services in established technology for small and medium scale industries in rural area.

4. Technical services and supporting activities for MICSMEC Program.

5. Process development of coconut and rice bran oils into other derivatives.

Appendix 2

LIST OF REQUIRED EQUIPMENT

| No. | Description | Q'ty | Priority | R/D Theme | Remarks |
|---|---|---|---|---|---|
| | 1. BASIC EQUIPMENT FOR CHEMICAL PROCESSING | | | | |
| 1 | Glass lined stirred reactors, complete system, laboratory scale | 1 | A | 3.1, 2, 4.5 | |
| 2 | Fluidized bed with complete system, lab. scale | 1 | A | 2.2, 4 | |
| 3 | Hydrogenator, low pressure shaker type, 5L & 250 ml | 1 | A | 3.1 & 4.5 | |
| 4 | Thin film evaporator , 50L capacity | 1 | B | 3.1 , 4.5 | |
| 5 | Crystallizer/Evaporator, 5-50L/Hr | 1 | A | 3.1 , 4.5 | |
| 6 | Raw material sample preparation system, complete set | 1 | A | 2.1,2.2,2.3,4 | |
| 7 | Rotary kiln, laboratory scale | 1 | A | 2.2, 4 | |
| 8 | Muffle furnace 1000°C x 2, 1500°C | 3 | A | 2.1,2.2,2.3,4 | |
| 9 | Reverse osmosis filter | 1 | C | 5 | |
| .0 | Oil milling and extraction equipment, laboratory scale with complete system (basket centrifuge) | 1 | A | 1.1, 4 | |
| 11 | Oil refinery equipment (laboratory scale) with complete system | 1 | A | 1.1 , 3.2, 4 | |
| 12 | Vacuum distillation apparatus set | 1 | A | 3.1, 4, 5 | |
| 13 | Fractional distillation apparatus set | 1 | A | 3.1, 4, 5 | |
| 14 | Soapmaking equipment (laboratory scale) with complete system | 1 | A | 1.2 | |
| 15 | Mixing tanks 10L, 25L, 50L, 100L | 4 | A | 1, 2, 3, 4, 5 | |
| 16 | Natural draft oven , max. 200°C | 2 | A | 1, 2, 3, 4, 5 | |
| 17 | Inert gas oven | 2 | A | 1.1,3.1, 5 | |
| 18 | Air ventilation oven; large type oven (200L) | 3 | A | 1.1, 2, 3.1,4, 5 | |
| 19 | Mixing & filtration system, complete set, silica comp. | 1 | A | 2.1, 4 | |
| 20 | Distillation apparatus ( SUS.27, SS, 5L) | 1 | A | 3.1, 3.2, 4 | |
| 21 | Centrifuge | 1 | A | 1.1, 4 | |
| 22 | High bead granulation machine | 1 | B | 2.1,2.2,2.3,4 | |
| 23 | Pre-treatment and activation reactor, laboratory scale, complete system | 1 | A | 2.1, 4 | |
| 24 | Autoclave, 50 kg/cm², 1L, 2L, 5L | 3 | A | 2.1, 2.3, 4,5 | |
| .5 | Counter-current classifier, laboratory scale | 1 | | | Delete |
| 26 | Gravity settler, cone type, and baffled type, laboratory scale | 1 | | | Delete |
| 27 | Molecular distillation apparatus set | 1 | B | 3.1 , 4, 5 | |
| 28 | Emulsion & dispersion settler, vertical, laboratory scale | 1 | C | 3.1 , 4, 5 | |
| 29 | Spray dryer, laboratory scale (10L/hr) | 1 | B | 3.1, 3.2, 4 | |
| 30 | Vacuum dryer, laboratory scale | 2 | A | 2.1, 2.3, 4, 5 | |
| 31 | Rotary dryer, laboratory scale | 1 | | | Delete |
| 32 | Freeze dryer, laboratory scale | 1 | | 3.2 | Delete |
| 33 | Tray dryer, 61W x 91L x 130 cm, laboratory scale | 1 | A | 2.1, 2.2, 2.3 | |
| 34 | Complete pelletizing system, laboratory scale | 1 | A | 2.1, 2.2, 2.3 | |
| 35 | Briquetting machine | 1 | C | 2.1, 2.2, 2.3 | |
| 36 | Metering pump, flow range : 50-400m/min | 2 | A | 2.1 -2.3; 3.2 | |
| 37 | High vacuum pump, $10^{-4}$ mm Hg | 3 | A | 1 - 5 | |
| 38 | Stainless steel/teflon gear pump | 1 | A | 3.1, 5 | |
| 39 | Boiler , portable type | 1 | A | 1.1, 1.2, 3.2 | |
| 40 | Weighing balance 25, 50, 100 kg | 2 | A | 1, 2, 3 | |

| | | | | | |
|---|---|---|---|---|---|
| 41 | Coolnics circulator | 3 | A | 1, 2, 3 | |
| 42 | Ultrasonic pipet washer | 3 | A | 1, 2, 3, 5 | |
| 43 | Centrifuge , three-way | 2 | A | 1, 3, 5 | |
| 44 | Rotary shaker | 2 | A | 2, 3 | |
| 45 | Voltage stabilizer ( 10KW;220V) | 2 | A | 1 - 5 | |
| 46 | Vacuum gauge | 2 | A | 1 - 5 | |
| 47 | Ultrasonic cleaner | 1 | A | 1 - 5 | |
| 48 | Air conditioner , window type | 4 | | | Delete |
| 49 | Micro encapsulating apparatus | 1 | B | 2.2 | |
| 50 | Calciner | 1 | A | 2.1, 2.2, 2.3 | |
| | 2. ANALYTICAL/SCIENCE LABORATORY EQUIPMENT | | | | |
| 51 | FT Infra-red spectrophotometer | 1 | B | 3.1 , 4, 5 | |
| 52 | Atomic absorption flame emission spectrophotometer | 1 | A | 2 , 1.1, 4 | |
| 53 | Flame emission spectrophotometer | 1 | A | 2 , 1.1, 4 | |
| 54 | Ion chromatograph | 1 | A | 2, 4 | |
| 55 | Gas chromatograph, with data processor | 1 | A | 1 , 3.1, 4, 5 | |
| 56 | GC - MS system w/ data index system w/ data processor | 1 | A | 3.1, 4, 5 | |
| 57 | High pressure liquid chromatograph w/ data processor | 1 | A | 1.1 , 3.1, 4, 5 | |
| 58 | Thermogravimetric analyzer | 1 | A | 2, 4 | |
| 59 | Thermomechanical analyzer, large type | 1 | A | 2, 4 | |
| 60 | X - ray diffractometer | 1 | A | 2, 4 | |
| 61 | X - ray Fluoresence spectrometer | 1 | A | 2, 4 | |
| 62 | Inductively coupled plasma emission spectrometer | 1 | B | 5 | |
| 63 | Proximate analysis system | 1 | A | 2, 4 | |
| 64 | JIS $SiO_2$ testing, complete set | 1 | A | 2, 4 | |
| 65 | Soxhlet extraction apparatus, complete system | 1 | A | 1.1 , 3.2, 4 | |
| 66 | Thin layer chromatograph | 1 | A | 1.1 , 3.1, 4 | |
| 67 | Ozonolysis apparatus | 1 | A | 5 | |
| 68 | Dehumidifier | 4 | A | 1 - 5 | |
| 69 | Water softener/water distillation apparatus | 2 | A | 1 - 5 | |
| 70 | Direct reading balance | 4 | A | 1 - 5 | |
| 71 | pH meter | 2 | A | 1 - 5 | |
| 72 | Homogenizer, laboratory scale | 2 | A | 1 - 5 | |
| 73 | Moisture meter ( Karl Fischer ) | 1 | A | 1 - 5 | |
| 74 | Potentiometric automatic titrator | 1 | A | 1 - 5 | |
| 75 | Surface tensiometer ( Wilhelmy ) | 1 | A | 1.2 , 4, 5 | |
| 76 | Detergency test apparatus | 1 | A | 1.2 , 5 | |
| 77 | Dual-wavelength TLC scanner | 1 | A | 3.1 , 4, 5 | |
| 78 | UV-Lamp | 1 | A | 1.1 , 5 | |
| 79 | Aflatoxin meter | 1 | | | Delete |
| 80 | Internal surface area analyzer | 1 | A | 2 | |
| 81 | Low temperature plasma ashing apparatus | 2 | A | 2 | |
| 82 | Scanning electrom microscope | 1 | A | 2 | |
| 83 | UV-VIS-NIR spectrometer | 1 | A | 1.1, 3.1, 4, 5 | |
| 84 | Pore distribution analyzer | 1 | A | 2 | |
| 85 | Infra-red thermal analyzer ( 900°C) | 1 | A | 2 | |
| 86 | Loviband tintometer | 1 | A | 1.1 , 3.2, 4 | |
| 87 | Stirrer for laboratory, different types | 2 | A | 2 | |
| 88 | Rotary evaporator with water pump & water bath, 5L | 2 | A | 1 - 5 | |
| 89 | Automatic pipet dispenser | 2 | A | 1 - 5 | |
| 90 | Spectrophotometer | 1 | A | 2 | |
| 91 | Analytical balance | 2 | A | 1 - 5 | |
| 92 | Saccarimeter | 1 | B | 5 | |
| 93 | Constant temperature chamber | 1 | A | 1 - 5 | |
| 94 | Gas flow meter, complete system | 1 | A | 2.2 | |

| | | | | | |
|---|---|---|---|---|---|
| 95 | Hot plates with magnetic stirrer | 3 | A | 1 - 5 | |
| 96 | Heating block | 1 | A | 1 - 5 | |
| 97 | Elemental analyzer | | | | Delete |
| 98 | Microbalance ( Microgram) | 1 | A | 1 - 5 | |
| 99 | Viscosimeter ( Stormer ) | 1 | B | 3.1 | |
| 100 | Tristimulus color analyzer | 1 | C | 5 | |
| 101 | Recording sediment | 1 | C | 5 | |
| 102 | Incubator (water bath, shaking type & oil bath) | 2 | A | 2 | |
| 103 | Ice machine | 1 | A | 1 - 5 | |
| | 3. FURNITURE/AUXILIARIES/FACILITIES | | | | |
| 104 | Passenger car | 1 | A | | |
| 105 | Field work car jeep 4WD | 1 | A | | |
| 106 | Lorry (pick-up type) | 1 | A | | |
| 107 | Copying machine | 1 | A | | |
| 108 | Personal computer (32 bits) PC-9801 | 2 | A | | |
| 109 | Personal computer w/ software of word process | 1 | A | | |
| 110 | Laboratory center table ( 360 cm L ) | 5 | B | | |
| 111 | Laboratory side table ( 180 cm L ) | 4 | B | | |
| 112 | Laboratory side table ( 120 cm L ) | 3 | B | | |
| 113 | Laboratory sink unit ( 10 cm L ) | 3 | B | | |
| 114 | Balance table | 2 | B | | |
| 115 | Working table ( 240 cm L ) | 5 | B | | |
| 116 | Air conditioner, 2 Hp | 2 | | | Delete |
| 117 | Refrigerator | 2 | B | | |
| 118 | Storage cabinet ( 120 cm W ) | 2 | B | | |
| 119 | Fume hood ( 150 cm W ) | 3 | B | | |
| | 4. SUPPORTING EQUIPMENT (SCALE-UP) | | | | |
| 120 | Air compressor | 2 | A | 1 - 5 | |
| 121 | Calibrator for process controllers | 1 | | | Delete |
| 122 | Filter press, type F2 | 1 | | | Delete |
| 123 | Densitometer | 1 | A | 5 | |
| 124 | Hand refractometer | 2 | A | 4 | |
| 125 | Programmable liquid processor | 1 | C | 4, 5 | |
| 126 | Programmable liquid dispenser | 1 | C | 4, 5 | |
| 127 | Infra-red moisture balance | 2 | A | 1.1, 2 | |
| 128 | Vibrating screen separator | 1 | A | 1 - 5 | |
| 129 | Willey's pulverizer | 1 | B | 3.1, 3.2 | |
| 130 | Standby generator, 50 KVA | 1 | B | 1 - 5 | |
| 131 | Programmable Lathe | 1 | A | 1 - 5 | |
| 132 | Universal milling machine | 1 | A | 1 - 5 | |
| 133 | Universal cylindrical grinder | 1 | B | 1 - 5 | |
| 134 | Surface grinder | 1 | A | 1 - 5 | |
| 135 | Radial drilling machine | 1 | A | 1 - 5 | |
| 136 | Shaper machine | 1 | B | 1 - 5 | |
| 137 | Spot welding machine | | | | Delete |
| 138 | AC-DC arc welding machine | | | | Delete |
| 139 | Hydraulic press, 50 tons | 1 | A | 1 - 5 | |
| 140 | Tool and cutter grinder | 1 | A | 1 - 5 | |
| 141 | Indexing table | 1 | A | 1 - 5 | |
| 142 | Height gauge | 1 | B | 1 - 5 | |
| 143 | Vernier caliper | 1 | C | 1 - 5 | |
| 144 | Band saw | 1 | C | 1 - 5 | |
| 145 | Oxy-Acetylene gas welding; cutting equipment | 1 | A | 1 - 5 | |

Appendix - 3

## ADDITIONAL EQUIPMENT LIST

1. Facsimile

   1 for ITDI, Pedro Gil
   1 for CMD, Bicutan

2. Portable Measuring Devices

   2.1. Equipment for aflatoxin measurement
   2.2. Portable saccharimeter
   2.3. Portable digital thermometer, digital pyrometer
   2.4. Portable hydrometer (for heavy liquids) (3)
   2.5. Portable weighing scale and stainless steel weighing pans (2)
   2.6. Melting point apparatus (electrothermal)
   2.7. Alkalimeter (for $CO_2$ and lime analysis)
   2.8. Tachometer
   2.9. Recording temperature , pressure, humidity, volume, viscosity
   2.10. Vibration measurement
   2.11. Caliper
   2.12. Surface temperature indicator

3. Portable Electrical Equipment for Survey

   3.1. Variable transformer; stepdown transformer
   3.2. Circulating pumps (4)
   3.3. Heating mantles 500 ml, 1 L, 2 L, 5 L
   3.4. Paging system
   3.5. Multimeter electrical tester
   3.6. Watt meter
   3.7. Strobuscope
   3.8. Immersion heaters
   3.9. Wrap arround drum heaters

4. Handling and Moving Auxiliaries

   4.1. Stainless steel carts (3 units)
   4.2. Fork lift, pallet truck
   4.3. Hoisting machine
   4.4. Transfer pump (electric and manual)

5. Flexeframe

6. Solvent extraction kit for ion chromatography including filtration kit for chromatographic samples

7. Dessiccator cabinet type (3)

8. Training Facility
   8.1. Overhead projector
   8.2. Educational transparency

Appendix - 4

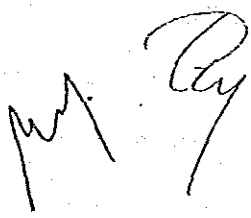
## LIST OF SMALL ACCESSORIES AND TOOLS TO BE INCLUDED IN EQUIPMENT

1. Laboratory jack and assembling sets, etc.
2. Laboratory scale fflexible frame sets
3. Hand pumps (One set)
4. Pippet dispenser, safe/pipet, aspirating bulb
5. Tool for glass working, burner
6. Timer and stop watches
7. Expensive laboratory glass ware set

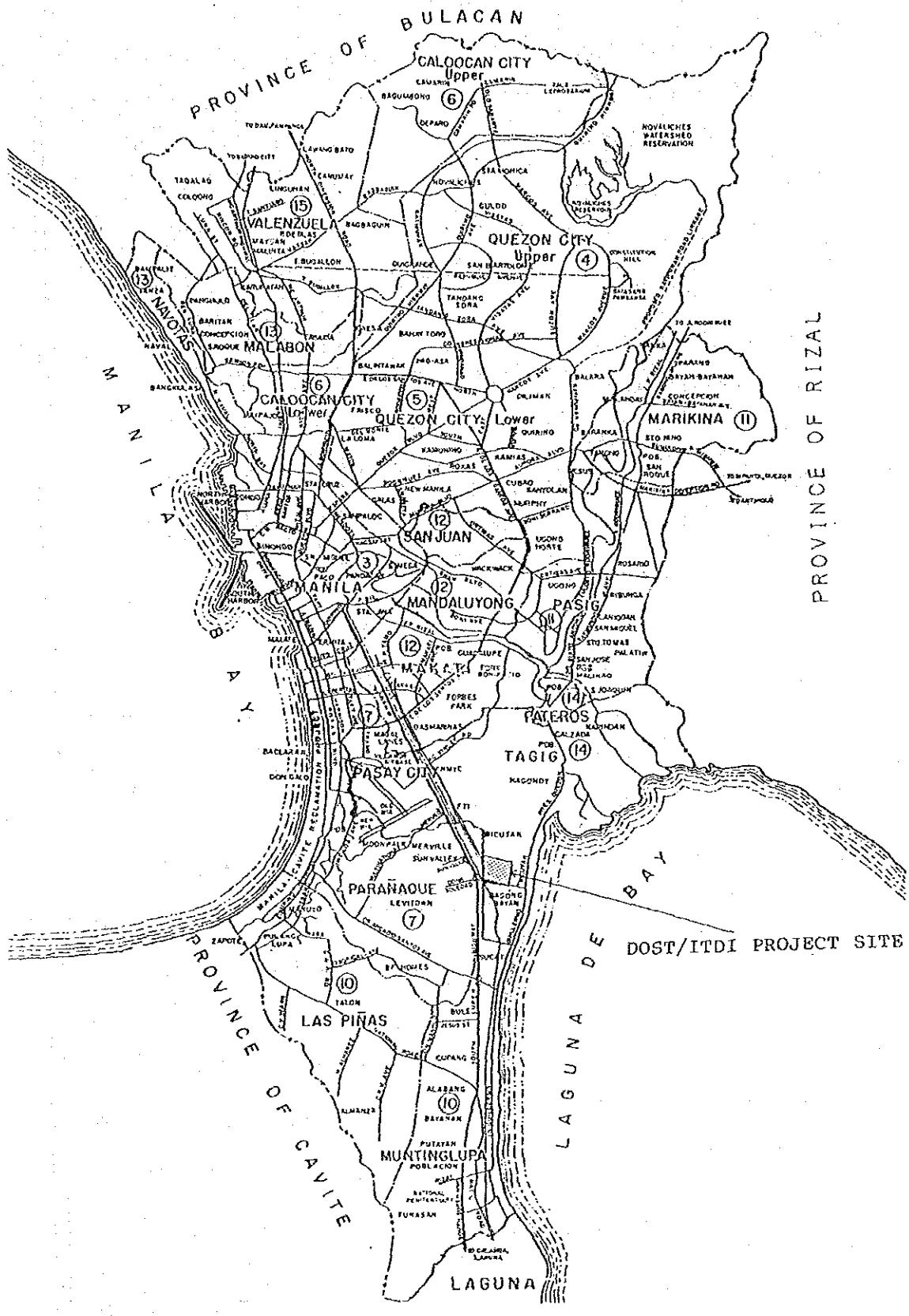
## EQUIPMENT FOR REPLACEMENT

| NO. | EQUIPMENT | QUANTITY |
|---|---|---|
| 8 | Muffle furnace, 1000°C, 1500°C | 3 |
| 12 | Vacuum distillation apparatus set | 1 |
| 13 | Fractional distillation apparatus set | 1 |
| 15 | Mixing tanks, 10l, 25l, 50l, 100l | 4 |
| 16 | Natural draft oven | 2 |
| 17 | Inert gas oven | 2 |
| 20 | Distillation apparatus | 1 |
| 29 | Spray dryer, laboratory scale | 1 |
| 30 | Vacuum dryer, laboratory scale | 2 |
| 33 | Tray dryer, 61W x 91L x 13D cm, Laboratory scale | 1 |
| 36 | Metering pump, floor range; 50-400 m/min | 2 |
| 37 | High vacuum pump, $10^{-4}$mm Hg | 3 |
| 39 | Boiler | 1 |
| 40 | Weighing balance, 25, 50, 100 Kg. | 2 |
| 41 | Coolnics circular | 3 |
| 44 | Rotary shaker | 2 |
| 57 | High pressure liquid chromatograph | 1 |
| 65 | Soxlet extraction apparatus, complete system | 1 |
| 70 | Direct reading balance | 4 |
| 71 | pH meter | 2 |
| 72 | Homogenizer, laboratory scale | 2 |

| | | |
|---|---|---|
| 73 | Moisture meter (Karl Fisher) | 1 |
| 84 | Pore distribution analyzer | 1 |
| 88 | Rotary evaporator with meter pump and motor bath | 2 |
| 91 | Analytical balance | 2 |
| 95 | Hot plates with magnetic stir | 3 |
| 98 | Micro balance | 1 |
| 120 | Air compressor | 2 |
| 132 | Universal milling machine | 1 |
| 134 | Surface grinder | 1 |
| 135 | Radial drilling machine | 1 |
| 136 | Shaper machine | 1 |
| 139 | Hydraulic press, 50 tons | 1 |
| 140 | Tool and cutter grinder | 1 |
| 141 | Indexing table | 1 |
| 145 | Oxy-Acetylene gas welding cutting equipment | 1 |



ANNEX-5 Conditions Around the Project Site



ANNEX-6 List of Existing Equipment

| No. | Description | Q'ty | No. of Equipment List |
|---|---|---|---|
| | (1) INORGANIC LABORATORY (2nd Floor) | | |
| 1 | Analytical Balance | 2 | 91 |
| 2 | Rough Balance | 2 | - |
| 3 | Drying Oven | 4 | 33 |
| 4 | Electric Furnace | 1 | 8 |
| 5 | Electric Heater | 4 | - |
| 6 | Stirrer with Hot Plate | 1 | 95 |
| 7 | Vacuum Drying Oven | 1 | 30 |
| 8 | Water Bath | 3 | - |
| 9 | Vacuum Pump | 1 | 37 |
| 10 | Spectronic 20 | 1 | 90 |
| 11 | Distilled Water Apparatus | 1 | 20 |
| 12 | Shaker | 1 | 44 |
| 13 | pH Meter | 1 | 71 |
| 14 | Homogenizer | 1 | 72 |
| 15 | Balance Table | 2 | - |
| | (2) ORGANIC LABORATORY (2nd Floor) | | |
| 16 | Analytical Balance | 2 | 91 |
| 17 | Rough Balance | 2 | - |
| 18 | Oven | 1 | - |
| 19 | Vacuum Oven | 1 | 30 |
| 20 | Rotary Evaporater | 3 | 88 |
| 21 | Agitator | 2 | - |
| 22 | Centifuge | 1 | 43 |

| No. | Description | Q'ty | No. of Equipment List |
|---|---|---|---|
| 23 | Super Centrifuge | 1 | - |
| 24 | Shaker | 1 | 44 |
| 25 | Homogenizer | 1 | 72 |
| 26 | Freeze Dryer | 1 | - |
| 27 | Laboratory Spray Dryer | 1 | 29 |
| 28 | Air Compressor | 1 | 120 |
| 29 | Fractional Distillation Apparatus | 1 | 13 |
| 30 | Auto Clave | 1 | - |
| 31 | Micro Kjeldahl Apparatus | 1 | - |
| 32 | Melting Point Apparatus | 1 | - |
| 33 | pH Meter | 1 | 71 |
| 34 | Polarimeter | 1 | 84 |
| 35 | Abbe Refractometer | 1 | - |
| 36 | UV-VIS Spectrophotometer | 1 | - |
| 37 | Gas Chromatograph | 1 | - |
| 38 | HPLC | 1 | 57 |
| 39 | Soap Mixer | 1 | - |
| 40 | Vacuum Distillation Apparatus | 1 | 12 |
| 41 | Draft Chamber | 3 | 16 |
| 42 | Vacuum Pump | 2 | 37 |
| 43 | Low Temperature Coolnics. | 3 | 41 |
| 44 | Soxley Extraction Apparatus | 1 | 65 |
| 45 | Moisture Meter (Karl-Fischer Type) | 1 | 73 |
| 46 | Agitator with Hot Plate | 2 | 95 |
| 47 | Micro Balance | 1 | 98 |
| 48 | Refrigerator | 1 | - |

| No. | Description | Q'ty | No. of Equipment List |
|---|---|---|---|
| | (3) ACTIVATED CARBON QUALITY CONTROL ROOM (1st Floor) | | |
| 49 | Analytical Balance | 1 | 91 |
| 50 | Digital Balance | 1 | 70 |
| 51 | pH Meter | 1 | 71 |
| 52 | Magnetic Stirrer | 1 | 95 |
| 53 | Air Compressor | 1 | 120 |
| 54 | Purverizing Machine | 1 | - |
| 55 | Classification Apparatus | 1 | - |
| 56 | Shaker | 1 | 44 |
| 57 | Centrifuge | 1 | - |
| 58 | Drying Oven | 2 | 33 |
| 59 | Carbonization Apparatus | 1 | - |
| 60 | Muffle Furnace | 1 | 8 |
| 61 | Thermal Analyzer | 1 | - |
| 62 | Spectrophotometer | 1 | - |
| 63 | Gas Chromatograph | 1 | - |
| 64 | Atomic Absorption Spectro Photometer | 1 | - |
| 65 | Activating Apparatus | 1 | - |
| 66 | Distilled Water Apparatus | 1 | 20 |
| | (4) PROCESS DEVELOPMENT LABORATORY | | |
| 67 | Extruder | 1 | - |
| 68 | Weighing Balance | 3 | 40 |
| 69 | Roll Crusher | 1 | - |
| 70 | Mixing Tank | 2 | 15 |
| 71 | Filtration Tank | 1 | - |

| No. | Description | Q'ty | No. of Equipment List |
|---|---|---|---|
| 72 | Tank | 1 | 15 |
| 73 | Air Compressor | 3 | 120 |
| 74 | Reactor | 1 | - |
| 75 | Distillation Tower | 1 | - |
| 76 | Hydraulic Press | 1 | 139 |
| 77 | High Temperature Furnace Chamber | 1 | - |
| 78 | Shaper | 1 | 136 |
| 79 | Planer | 1 | - |
| 80 | Jig Saw | 1 | - |
| 81 | Band Saw | 1 | - |
| 82 | Radial Drill Press | 1 | 135 |
| 83 | Drilling Machine | 2 | - |
| 84 | Power Saw | 1 | - |
| 85 | Indexing Table | 3 | 141 |
| 86 | Universal Milling Machine | 2 | - |
| 87 | Lathe | 3 | - |
| 88 | Surface Grinder | 3 | 134 |
| 89 | Tool and Cutter Grinder | 1 | 140 |
| 90 | Grinder | 2 | - |
| 91 | Acetylene Gas Welder | 1 | 145 |
| 92 | Shaper | 1 | - |
| 93 | Cutter | 1 | - |
| 94 | Bender | 1 | - |
| 95 | Rolling Machine | 1 | - |
| | (5) COMMON FACILITY | | |
| 96 | Boiler | 1 | 39 |

ANNEX-7 List of Required Equipment

| No. | Description | Q'ty | CL |
|---|---|---|---|
| | 1. BASIC EQUIPMENT FOR CHEMICAL PROCESSING | | |
| 1 | Glass lined stirred reactors, complete system, laboratory scale | 1 | O |
| 2 | Fluidized bed with complete system, lab. scale | 1 | R |
| 3 | Hydrogenator, low pressure shaker type, 5L & 250ml | 1 | O |
| 4 | Evaporator | 1 | O |
| 5 | Crystallizer/Evaporator, 5-50L/Hr | 1 | O |
| 6 | Raw material sample preparation system, complete set | 1 | R |
| 7 | Rotary kiln, laboratory scale | 1 | R |
| 8 | Muffle furnace 1000°C, 1500°C | 3 | R |
| 9 | Reverse osmosis filter | 1 | O R |
| 10 | Oil milling and extraction equipment, laboratory scale with complete system | 1 | O |
| 11 | Oil refinery equipment (laboratory scale) with complete system | 1 | O |
| 12 | Vacuum distillation apparatus set | 1 | O |
| 13 | Fractional distillation apparatus set | 1 | O |
| 14 | Soapmaking equipment (laboratory scale) with complete system | 1 | O |
| 15 | Mixing tanks 10L, 25L, 50L, 100L | 4 | O R |
| 16 | Natural draft oven | 4 | O R |
| 17 | Inert gas oven | 2 | O |
| 18 | Air ventilation oven; large type oven (200L) | 3 | O R |
| 19 | Mixing & filtration system, complete set silica comp. | 1 | R |

| No. | Description | Q'ty | CL |
|---|---|---|---|
| 20 | Distillation apparatus | 1 | O |
| 21 | Centrifuge | 1 | O |
| 22 | High bead granulation machine | 1 | R |
| 23 | Pre-treatment and activation reactor, laboratory scale, complete system | 1 | R |
| 24 | Autoclave, 50 kg/cm$^2$, 1L, 2L, 5L | 3 | O R |
| 25 | Counter current classifier, laboratory scale | 1 | O |
| 26 | Gravity settler, cone type, and baffled type, laboratory scale | 1 | O |
| 27 | Molecular distillation apparatus set | 1 | O |
| 28 | Emulsion & dispersion settler, vertical, laboratory scale | 1 | O |
| 29 | Spray dryer, laboratory scale | 1 | O |
| 30 | Vacuum dryer, laboratory scale | 2 | O R |
| 31 | Rotary dryer, laboratory scale | 1 | O |
| 32 | Freeze dryer, laboratory scale | 1 | O R |
| 33 | Tray dryer, 61W x 91L x 13D cm, laboratory scale | 1 | R |
| 34 | Complete pelletizing system laboratory scale | 1 | R |
| 35 | Briquetting machine | 1 | O |
| 36 | Metering pump, flow range: 50-400m/min | 4 | O R |
| 37 | High vacuum pump, $10^{-4}$ mmHg | 4 | O R |
| 38 | Stainless steel/teflon gear pump | 1 | O |
| 39 | Boiler | 2 | O |
| 40 | Weighing balance | 2 | O R |
| 41 | Coolnics circulator | 4 | O R |
| 42 | Ultrasonic pipet washer | 4 | O R |

| No. | Description | Q'ty | CL |
|---|---|---|---|
| 43 | Centrifuge, three-way | 3 | O R |
| 44 | Rotary shaker | 2 | O R |
| 45 | Voltage stabilizer (10kW; 220V) | 4 | O R |
| 46 | Vacuum gauge | 4 | O R |
| 47 | Ultrasonic cleaner | 2 | O R |
| 48 | Air conditioner | 8 | O R |
| 49 | Micro encapsulating apparatus | 1 | R |
| 50 | Calciner | 1 | R |
| | 2. ANALYTICAL/SCIENCE LABORATORY EQUIPMENT | | |
| 51 | FT Infra-red spectrophotometer | 1 | O |
| 52 | Atomic absorption flame emission spectrophotometer | 1 | R |
| 53 | Flame emission spectrophotometer | 1 | R |
| 54 | Ion chromatograph | 1 | R |
| 55 | Gas chromatograph, w/data processor | 2 | O |
| 56 | GC-MS system w/data index system w/data processor | 1 | O |
| 57 | High pressure liquid chromatograph w/data processor | 1 | O |
| 58 | Thermogravimetric analyzer | 1 | R |
| 59 | Thermomechanical analyzer, large type | 1 | R |
| 60 | X-ray diffractometer | 1 | R |
| 61 | X-ray fluoresence spectrometer | 1 | R |
| 62 | Inductively coupled plasma emission spectrometer | 1 | O R |
| 63 | Proximate analysis system | 1 | R |
| 64 | JIS $SiO_2$ testing, complete set | 1 | R |

| No. | Description | Q'ty | CL |
|---|---|---|---|
| 65 | Soxhlet extraction apparatus, complete system | 2 | O |
| 66 | Thin layer chromatograph | 1 | O |
| 67 | Ozonolysis apparatus | 1 | O |
| 68 | Dehumidifier | 4 | O R |
| 69 | Water softener/water distillation apparatus | 3 | O R |
| 70 | Direct reading balance | 4 | O R |
| 71 | pH meter | 4 | O R |
| 72 | Homogenizer, laboratory scale | 4 | O R |
| 73 | Moisture meter (Karl Fischer) | 1 | O |
| 74 | Potentiometric automatic titrator | 2 | O R |
| 75 | Surface tensiometer (Wilhelmy) | 1 | O |
| 76 | Detergency test apparatus | 1 | O |
| 77 | Dual-wavelength TLC scanner | 1 | O |
| 78 | UV-Lamp | 1 | O |
| 79 | | | |
| 80 | Internal surface area analyzer | 1 | R |
| 81 | Low temperature palsma ashing apparatus | 2 | R |
| 82 | Scanning electron microscope | 1 | R |
| 83 | UV-VIS-NIR spectrometer | 1 | O |
| 84 | Pore distribution analyzer | 1 | R |
| 85 | Infra-red thermal analyzer | 1 | R |
| 86 | Loviband tintometer | 1 | O |
| 87 | Stirrer for laboratory, different types | 4 | O R |
| 88 | Rotary evaporator with water pump & water bath, 5L | 2 | O R |
| 89 | Automatic pipet dispenser | 10 | O R |

| No. | Description | Q'ty | CL |
|---|---|---|---|
| 90 | Spectrophotometer | 2 | R |
| 91 | Analytical balance | 4 | O R |
| 92 | Saccarimeter | 1 | O |
| 93 | Constant temperature chamber | 2 | O R |
| 94 | Gas flow meter, complete system | 2 | O R |
| 95 | Hot plates with magnetic stirrer | 6 | O R |
| 96 | Heating block | 2 | O R |
| 97 | Elemental analyzer | 1 | O |
| 98 | Microbalance (Microgram) | 2 | O R |
| 99 | Viscosimeter (Stormer) | 1 | O |
| 100 | Tristimulus color analyzer | 1 | O |
| 101 | Recording sedimeter | 1 | |
| 102 | Incubator (water bath, shaking type & oil bath) | 4 | O R |
| 103 | Ice machine | 1 | O R |
| | 3. FURNITURE/AUXILIARIES/FACILITIES | | |
| 104 | Passenger car | 1 | |
| 105 | Field work car jeep 4WD | 1 | |
| 106 | Lorry (pick-up type) | 1 | |
| 107 | Copying machine | 1 | |
| 108 | Personal computer (32 bits) PC-9801 | 2 | |
| 109 | Prsonal computer w/software of word process | 1 | |
| 110 | Laboratory center table (360 cmL) | 5 | |
| 111 | Laboratory side table (180 cmL) | 4 | O R |
| 112 | Laboratory side table (120 cmL) | 3 | O R |
| 113 | Laboratory sink unit (10 cmL) | 3 | O R |

| No. | Description | Q'ty | CL |
|---|---|---|---|
| 114 | Balance table | 2 | O R |
| 115 | Working table (240 cmL) | 5 | O R |
| 116 | Airconditioners, 2 Hp | 2 | O R |
| 117 | Refrigerator | 2 | O R |
| 118 | Storage cabinet (120 cmW) | 2 | O R |
| 119 | Fume hood (150 cmW) | 3 | |
| | 4. PILOT PLANT EQUIPMENT (SCALE-UP) | | |
| 120 | Air compressor | 2 | O R |
| 121 | Calibrator for process controllers | 1 | O |
| 122 | Filter press, type F2 | 1 | O |
| 123 | Densitometer | 1 | |
| 124 | Hand refractometer | 2 | O |
| 125 | Programmable liquid processor | 1 | |
| 126 | Programmable liquid dispenser | 1 | |
| 127 | Infra-red moisture balance | 2 | O R |
| 128 | Vibrating screen separator | 1 | O R |
| 129 | Willey's pulverizer | 1 | |
| 130 | Standby generator | 1 | |
| 131 | Programmable lathe | 1 | |
| 132 | Universal milling machine | 1 | |
| 133 | Universal cylindrical grinder | 1 | |
| 134 | Surface grinder | 1 | |
| 135 | Radial drilling machine | 1 | |
| 136 | Shaper machine | 1 | |
| 137 | Spot welding machine | 1 | |

| No. | Description | Q'ty | CL |
|---|---|---|---|
| 138 | AC DC arc welding machine | 1 | |
| 139 | Hydraulic press, 50 tons | 1 | |
| 140 | Tool and cutter grinder | 1 | |
| 141 | Indexing table | 1 | |
| 142 | Height gauge | 1 | |
| 143 | Vernier caliper | 1 | |
| 144 | Band saw | 1 | |
| 145 | Oxy-acetylene gas welding cutting equipment | 1 | |

Table 8.1 GROSS NATIONAL PRODUCT, NATIONAL INCOME AND GROSS DOMESTIC PRODUCT BY INDUSTRIAL ORIGIN (1972 to 1986)

(In million pesos at constant prices of 1972)

| Industry | 1972 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. AGRICULTURE, FISHERY AND FORESTRY | 16,040 | 18,218 | 19,671 | 20,646 | 21,620 | 22,595 | 23,732 | 24,608 | 25,378 | 24,845 | 25,409 | 26,252 | 27,233 |
| 2. INDUSTRIAL SECTOR | 17,442 | 22,690 | 24,904 | 27,554 | 29,598 | 32,343 | 33,471 | 34,963 | 35,714 | 35,955 | 32,282 | 29,000 | 28,204 |
| a. Mining & quarrying | 1,346 | 1,445 | 1,491 | 1,742 | 1,809 | 2,134 | 2,236 | 2,175 | 2,016 | 1,966 | 1,755 | 1,768 | 1,558 |
| b. Manufacturing | 13,388 | 16,537 | 17,481 | 19,532 | 21,108 | 22,239 | 23,175 | 23,959 | 24,535 | 25,108 | 23,319 | 21,541 | 21,717 |
| c. Construction | 2,240 | 4,101 | 5,254 | 5,568 | 5,913 | 7,121 | 7,139 | 7,830 | 8,079 | 7,689 | 5,866 | 4,258 | 3,382 |
| d. Electricity, gas and water | 468 | 607 | 678 | 712 | 768 | 849 | 921 | 999 | 1,084 | 1,192 | 1,342 | 1,433 | 1,547 |
| 3. SERVICE SECTOR | 22,593 | 27,453 | 28,387 | 29,790 | 31,579 | 33,408 | 35,503 | 36,636 | 37,907 | 39,120 | 36,236 | 34,551 | 35,333 |
| a. Transportation | 2,418 | 3,277 | 3,875 | 4,235 | 4,501 | 4,613 | 4,827 | 5,040 | 5,165 | 5,266 | 5,032 | 4,953 | 5,084 |
| b. Trade | 12,688 | 15,056 | 14,999 | 15,838 | 16,861 | 18,085 | 19,345 | 19,695 | 13,103 | 13,930 | 14,073 | 14,066 | 14,337 |
| c. Finance & housing | 7,487 | 9,120 | 9,513 | 9,717 | 10,217 | 10,710 | 11,331 | 11,901 | 7,252 | 7,578 | 5,134 | 3,985 | 4,062 |
| d. Services | | | | | | | | | 12,387 | 12,346 | 11,997 | 11,547 | 11,850 |
| GROSS DOMESTIC PRODUCT at market prices | 56,075 | 68,361 | 72,962 | 77,990 | 82,797 | 88,346 | 92,706 | 96,207 | 98,999 | 99,920 | 93,927 | 89,803 | 90,770 |
| Net factor income from abroad | (549) | 169 | (244) | (201) | 273 | 390 | (77) | (166) | (1,460) | (1,301) | (2,283) | (2,037) | (1,676) |
| GROSS NATIONAL PRODUCT at market prices | 55,526 | 68,530 | 72,718 | 77,789 | 83,070 | 88,736 | 92,629 | 96,041 | 97,539 | 98,619 | 91,644 | 87,766 | 89,094 |
| - Indirect taxes net of subsidies | 4,382 | 7,143 | 6,674 | 7,016 | 8,188 | 9,303 | 9,009 | 8,393 | 8,332 | 9,024 | 7,632 | 7,212 | 7,578 |
| - Depreciation | 5,353 | 6,324 | 6,910 | 7,534 | 7,981 | 8,757 | 9,440 | 10,544 | 11,149 | 11,394 | 10,936 | 10,726 | 10,323 |
| NET NATIONAL PRODUCT or NATIONAL INCOME | 45,791 | 55,063 | 59,134 | 63,237 | 66,901 | 70,676 | 74,180 | 77,104 | 78,058 | 78,201 | 73,076 | 69,828 | 71,193 |

Preliminary estimates as of May 1987
Source: National Accounts Staff, Statistical Coordination Office,
National Economic and Development Authority

Table 8.2 GROSS VALUE ADDED IN MANUFACTURING BY INDUSTRY GROUP (1972 to 1986)

(In million pesos at constant prices of 1972)

| Industry Group | 1972 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Food manufactures | 3,623 | 4,245 | 4,558 | 4,922 | 8,622 | 7,865 | 8,419 | 8,803 | 9,099 | 9,246 | 9,344 | 8,646 | 8,727 |
| Beverage industries | 724 | 808 | 859 | 1,158 | 685 | 707 | 732 | 730 | 747 | 763 | 805 | 796 | 733 |
| Tobacco manufactures | 950 | 1,542 | 1,556 | 1,590 | 438 | 1,038 | 1,039 | 1,100 | 1,114 | 1,117 | 890 | 970 | 747 |
| Textile manufactures | 798 | 923 | 1,097 | 1,348 | 1,212 | 1,071 | 1,049 | 1,095 | 1,053 | 1,050 | 949 | 734 | 89 |
| Footwear, wearing apparel | 431 | 591 | 628 | 682 | 344 | 932 | 1,019 | 1,189 | 1,224 | 1,247 | 1,299 | 1,213 | 1,378 |
| Wood and cork products | 582 | 471 | 558 | 588 | 518 | 686 | 665 | 707 | 704 | 716 | 588 | 536 | 388 |
| Furniture and fixtures | 86 | 74 | 79 | 90 | 157 | 114 | 132 | 139 | 140 | 142 | 142 | 109 | 120 |
| Paper and paper products | 345 | 486 | 538 | 520 | 195 | 202 | 191 | 188 | 172 | 196 | 182 | 158 | 172 |
| Publishing and printing | 265 | 447 | 455 | 475 | 283 | 301 | 324 | 344 | 359 | 368 | 370 | 389 | 430 |
| Leather and leather products | 22 | 30 | 31 | 34 | 26 | 49 | 68 | 70 | 71 | 66 | 63 | 69 | 61 |
| Rubber products | 220 | 263 | 232 | 290 | 292 | 312 | 302 | 311 | 324 | 316 | 334 | 281 | 290 |
| Chemicals and chemical products | 1,812 | 2,165 | 2,462 | 2,787 | 2,162 | 2,321 | 2,365 | 2,317 | 2,273 | 2,315 | 1,797 | 1,704 | 1,584 |
| Products of petroleum and coal | 1,048 | 1,230 | 1,134 | 1,143 | 1,657 | 1,398 | 1,373 | 1,287 | 1,313 | 1,351 | 1,259 | 1,153 | 1,156 |
| Non-metallic mineral products | 445 | 597 | 613 | 654 | 520 | 535 | 574 | 540 | 569 | 587 | 481 | 375 | 377 |
| Basic metal industries | 409 | 587 | 631 | 787 | 742 | 865 | 853 | 791 | 856 | 947 | 1,121 | 1,070 | 1,018 |
| Metal products | 401 | 398 | 389 | 465 | 932 | 1,040 | 1,041 | 977 | 1,052 | 1,091 | 740 | 746 | 725 |
| Machinery except electrical | 184 | 190 | 195 | 234 | 618 | 670 | 726 | 764 | 787 | 797 | 442 | 409 | 429 |
| Electrical machinery | 355 | 443 | 394 | 605 | 821 | 1,005 | 1,153 | 1,401 | 1,475 | 1,717 | 1,964 | 1,600 | 1,913 |
| Transport equipment | 516 | 842 | 854 | 931 | 775 | 898 | 885 | 910 | 883 | 742 | 124 | 136 | 130 |
| Miscellaneous manufactures | 172 | 205 | 218 | 229 | 109 | 230 | 265 | 296 | 320 | 334 | 425 | 447 | 448 |
| GROSS VALUE ADDED IN MANUFACTURING | 13,388 | 16,537 | 17,481 | 19,532 | 21,108 | 22,239 | 23,175 | 23,959 | 24,535 | 25,108 | 23,319 | 21,541 | 21,717 |

Preliminary estimates as of May 1987
Source: National Accounts Staff, Statistical Coordination, Office,
National Economic and Development Authority

Table 8.3 GROSS VALUE ADDED IN AGRICULTURE, FISHERY AND FORESTRY BY INDUSTRY GROUP (1972 to 1986)

(In million pesos at constant prices of 1972)

| Type of production | 1972 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AGRICULTURAL CROPS | 8,860 | 11,198 | 12,069 | 12,707 | 13,282 | 14,149 | 14,996 | 15,418 | 15,932 | 14,968 | 15,564 | 16,434 | 17,198 |
| Palay | 2,746 | 3,354 | 3,395 | 3,792 | 3,767 | 3,948 | 4,169 | 4,307 | 4,489 | 3,900 | 4,201 | 4,665 | 4,973 |
| Corn | 1,011 | 1,228 | 1,240 | 1,357 | 1,439 | 1,423 | 1,447 | 1,494 | 1,522 | 1,373 | 1,470 | 1,698 | 1,847 |
| Coconut including copra | 1,155 | 1,135 | 1,437 | 1,327 | 1,330 | 1,270 | 1,313 | 1,396 | 1,306 | 1,210 | 952 | 1,420 | 1,821 |
| Sugarcane | 1,065 | 1,358 | 1,640 | 1,344 | 1,295 | 1,366 | 1,322 | 1,337 | 1,544 | 1,133 | 1,332 | 829 | 775 |
| Banana | 602 | 1,264 | 1,402 | 1,733 | 2,053 | 2,183 | 2,402 | 2,356 | 2,358 | 903 | 908 | 931 | 935 |
| Other crops | 2,281 | 2,859 | 2,955 | 3,154 | 3,398 | 3,959 | 4,343 | 4,528 | 4,713 | 6,449 | 6,701 | 6,691 | 6,847 |
| LIVESTOCK | 1,762 | 1,704 | 1,740 | 1,808 | 1,912 | 1,957 | 1,841 | 1,925 | 2,017 | 2,170 | 2,162 | 2,114 | 2,283 |
| POULTRY | 74 | 865 | 968 | 1,057 | 1,207 | 1,387 | 1,633 | 1,958 | 2,192 | 2,481 | 2,589 | 2,576 | 2,547 |
| FISHERY | 2,682 | 3,186 | 3,300 | 3,491 | 3,655 | 3,667 | 3,876 | 4,132 | 4,254 | 4,407 | 4,329 | 4,422 | 4,551 |
| FORESTRY | 2,012 | 1,265 | 1,594 | 1,583 | 1,564 | 1,435 | 1,386 | 1,175 | 983 | 819 | 765 | 706 | 654 |
| GROSS VALUE ADDIN IN AGRICULTURE, FISHERY AND FORESTRY | 16,040 | 18,218 | 19,671 | 20,646 | 21,620 | 22,595 | 23,732 | 24,608 | 25,378 | 24,845 | 25,409 | 26,252 | 27,233 |

Preliminary estimates as of May 1987
Source: National Accounts Staff, Statistical Coordination, Office, National Economic and Development Authority

Table 8.4 (1) QUANTITY AND VALUE OF AGRICULTURAL PRODUCTION BY KIND OF CROP, PHILIPPINES (1950 to 1986)

(Quantity in thousand metric tons; Value in million pesos)

| Crop Year | All Crops | | | | | | Food Crops | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | | Food | | Commercial | | Palay (rough rice) | | Corn (shelled) | | Banana | | Mango | | Pineapple | | Other fruits and nuts | |
| | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value |
| 1950 | 6,011.0 | 1,497.9 | 4,275.8 | 1,014.9 | 1,735.2 | 483.0 | 2,606.1 | 768.6 | 573.7 | 89.4 | 161.4 | 37.8 | 27.4 | 11.7 | 56.5 | 8.5 | 80.6 | 17.2 |
| 1955 | 8,885.1 | 1,563.2 | 6,054.1 | 935.7 | 2,831.0 | 627.5 | 3,202.9 | 612.1 | 770.1 | 106.0 | 294.8 | 21.3 | 50.4 | 17.7 | 103.2 | 14.6 | 147.0 | 25.1 |
| 1960 | 10,411.4 | 2,046.1 | 7,315.1 | 1,167.9 | 3,096.3 | 878.2 | 3,739.5 | 711.9 | 1,165.3 | 149.7 | 307.3 | 24.1 | 57.6 | 13.9 | 133.9 | 19.5 | 176.6 | 31.4 |
| 1965 | 12,243.0 | 3,278.5 | 8,478.9 | 1,965.2 | 3,764.1 | 1,313.3 | 3,992.5 | 1,227.7 | 1,312.7 | 272.8 | 684.8 | 44.1 | 129.4 | 27.6 | 176.1 | 25.3 | 223.2 | 41.3 |
| 1970 | 15,486.8 | 8,154.0 | 10,670.0 | 4,750.3 | 4,816.8 | 3,403.7 | 5,233.4 | 2,073.7 | 2,008.2 | 525.9 | 896.0 | 656.9 | 151.7 | 142.9 | 233.4 | 109.5 | 288.4 | 212.5 |
| 1971 | 15,863.8 | 9,269.8 | 11,016.1 | 5,685.1 | 4,847.7 | 3,584.7 | 5,578.4 | 2,613.6 | 2,011.8 | 723.4 | 1,034.8 | 811.8 | 137.5 | 127.0 | 234.3 | 121.4 | 256.6 | 198.5 |
| 1972 | 15,657.5 | 10,525.7 | 10,865.7 | 6,933.1 | 4,791.8 | 3,592.6 | 5,324.9 | 3,369.3 | 2,024.2 | 1,048.1 | 980.1 | 781.2 | 143.4 | 132.3 | 282.1 | 146.6 | 337.2 | 287.5 |
| 1973 | 15,515.4 | 10,930.7 | 10,096.5 | 6,392.4 | 5,418.9 | 4,538.3 | 4,609.2 | 2,771.2 | 1,842.8 | 831.4 | 1,012.6 | 814.7 | 187.6 | 180.0 | 293.4 | 166.4 | 309.8 | 284.6 |
| 1974 | 17,926.7 | 18,031.2 | 12,288.0 | 10,557.0 | 5,638.7 | 7,474.2 | 5,840.7 | 5,180.1 | 2,257.5 | 1,504.6 | 1,235.5 | 1,038.1 | 191.5 | 297.8 | 338.3 | 285.7 | 326.8 | 427.0 |
| 1975 | 20,002.4 | 20,329.4 | 13,743.9 | 13,603.1 | 6,258.5 | 6,726.3 | 5,909.5 | 5,579.5 | 2,513.9 | 2,100.9 | 1,686.0 | 1,542.6 | 239.3 | 254.9 | 424.4 | 504.1 | 337.4 | 569.2 |
| 1976 | 23,551.5 | 20,433.8 | 15,661.9 | 14,504.7 | 7,889.6 | 5,929.1 | 6,431.0 | 6,200.0 | 2,717.3 | 2,394.6 | 2,270.6 | 817.0 | 293.1 | 592.0 | 419.9 | 521.5 | 347.1 | 553.4 |
| 1977 | 24,722.5 | 28,092.2 | 17,072.9 | 17,217.9 | 7,649.6 | 10,874.3 | 6,740.6 | 6,890.1 | 2,774.8 | 2,605.3 | 2,447.4 | 1,043.9 | 307.6 | 684.7 | 421.8 | 558.1 | 470.9 | 749.5 |
| 1978 | 26,340.4 | 27,065.2 | 18,615.5 | 18,373.1 | 7,724.9 | 8,692.1 | 7,198.8 | 7,093.5 | 2,796.1 | 2,671.4 | 3,155.0 | 1,510.4 | 335.2 | 678.5 | 464.6 | 707.0 | 505.4 | 825.5 |
| 1979 | 28,240.5 | 34,032.2 | 20,478.7 | 20,900.8 | 7,761.8 | 13,131.4 | 7,514.8 | 7,573.9 | 3,090.3 | 2,851.1 | 3,581.8 | 1,749.0 | 363.3 | 1,056.5 | 604.6 | 736.1 | 607.7 | 1,055.5 |
| 1980 | 29,809.1 | 37,992.1 | 21,837.1 | 23,568.4 | 7,972.0 | 14,423.7 | 7,835.8 | 8,376.6 | 3,122.8 | 3,024.1 | 3,977.1 | 2,154.9 | 377.2 | 1,208.5 | 1,280.7 | 721.8 | 524.4 | 701.4 |
| 1981 | 29,507.8 | 42,368.1 | 21,748.6 | 26,539.8 | 7,759.2 | 15,828.3 | 7,722.8 | 9,304.5 | 3,109.7 | 3,501.7 | 4,072.9 | 2,160.8 | 366.6 | 1,577.9 | 1,292.7 | 1,032.8 | 518.3 | 818.8 |
| 1982 | 29,709.3 | 41,355.2 | 22,258.7 | 28,254.3 | 7,450.6 | 13,100.9 | 8,121.7 | 10,924.1 | 3,290.2 | 3,985.7 | 4,077.5 | 2,376.9 | 426.3 | 1,786.4 | 1,242.1 | 1,114.7 | 578.1 | 913.7 |
| 1983 | 27,459.9 | 38,217.3 | 20,372.8 | 26,202.3 | 7,087.1 | 12,015.0 | 7,730.5 | 10,721.9 | 3,125.9 | 3,949.3 | 3,885.8 | 2,197.4 | 372.6 | 1,494.4 | 1,682.9 | 1,456.5 | 333.7 | 581.1 |
| 1984 | 27,332.9 | 63,698.2 | 20,858.6 | 38,278.6 | 6,474.2 | 25,419.7 | 7,840.9 | 15,311.8 | 3,346.2 | 5,166.8 | 3,818.9 | 3,421.4 | 378.0 | 2,633.3 | 1,718.9 | 1,781.8 | 316.4 | 669.9 |
| 1985 | 27,093.2 | 81,545.6 | 21,092.0 | 57,395.0 | 6,001.0 | 24,150.6 | 8,200.1 | 24,969.5 | 3,438.8 | 9,542.6 | 3,697.8 | 4,255.0 | 384.3 | 3,109.4 | 1,448.6 | 2,182.1 | 300.2 | 902.9 |
| 1986 | 28,529.8 | 77,862.3 | 22,921.4 | 63,710.4 | 5,608.4 | 14,151.8 | 9,097.1 | 27,983.1 | 3,922.0 | 9,842.1 | 3,820.2 | 4,855.3 | 296.3 | 2,994.8 | 1,601.9 | 3,423.9 | 311.9 | 1,000.9 |

1. Includes atis, avocado, caimito, cashew, chico, guayabano, jackfruit, lanzones, papaya, pili and watermelon from 1950 to the present. Grapes were included starting 1975.
2. Includes calamansi, mandarin, orange and pomelo.
3. Includes camote, cassava, gabi pao (galiang), tugui and ubi.
4. Vegetables include cabbage, eggplant, garlic, pechay, radish and tomatoes from 1950 to the present. Ginger was included starting 1970.
5. Includes drybeans and monggo from 1950 to the present. Soybeans were included starting 1970.
6. Includes other fruits and vegetables.
7. Includes nuts used for making copra, dessicated coconut, home-made oil and as food nuts from, 1950 to the present. Nuts used for commercial manufacturing were included starting 1970.
8. Includes sugarcane used for centrifugal sugar, muscovado, panocha and molasses.
9. Includes kapok from 1950 to the present. Starting 1975, castor beans and cotton (seeded) were added to this category.

Sources: National Economic and Development Authority (formerly NEC), The Raw Materials Resources Survey Bulletin, Series No.1, June 1959; Agricultural Economics Division, DANR, Crop, Livestock and Natural Resources Statistics; Bureau of Agricultural Economics.

Table 8.4 (2) QUANTITY AND VALUE OF AGRICULTURAL PRODUCTION BY KIND OF CROP, PHILIPPINES (1950 to 1986) (continued)

(Quantity in thousand metric tons; Value in million pesos)

| Crop Year | Food Crops | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Citrus[2] | | Rootcrops[3] | | Vegetables including onions & potatoes[4] | | Beans & Peas[5] | | Coffee | | Cacao | | Peanuts (unshelled) | | Other food crops[6] | |
| | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value |
| 1950 | 19.8 | 5.2 | 664.3 | 47.0 | 52.5 | 11.7 | 15.4 | 7.4 | 4.0 | 4.8 | 0.7 | 1.5 | 12.3 | 4.1 | 1.1 | n.a. |
| 1955 | 31.5 | 9.7 | 1,200.0 | 50.7 | 183.4 | 38.2 | 40.0 | 19.4 | 7.0 | 10.6 | 1.5 | 4.5 | 17.6 | 5.4 | 4.7 | 0.4 |
| 1960 | 43.3 | 10.5 | 1,411.6 | 84.3 | 185.2 | 45.6 | 42.3 | 23.3 | 25.9 | 38.1 | 3.1 | 9.0 | 15.3 | 5.2 | 8.2 | 1.4 |
| 1965 | 70.8 | 17.5 | 1,536.7 | 149.5 | 216.0 | 60.9 | 5.7 | 14.0 | 44.0 | 58.6 | 4.2 | 11.3 | 13.2 | 5.6 | 49.5 | 9.0 |
| 1970 | 70.7 | 41.0 | 1,316.3 | 404.5 | 310.2 | 245.8 | 23.0 | 37.8 | 49.0 | 222.8 | 4.3 | 20.5 | 17.4 | 16.0 | 68.0 | 40.5 |
| 1971 | 62.7 | 37.7 | 1,220.8 | 426.8 | 304.4 | 275.1 | 23.6 | 39.5 | 49.5 | 219.6 | 3.6 | 18.9 | 18.9 | 19.1 | 79.2 | 52.7 |
| 1972 | 65.5 | 41.0 | 1,217.7 | 446.7 | 305.6 | 302.7 | 23.6 | 41.0 | 51.6 | 236.8 | 3.5 | 18.8 | 18.9 | 19.8 | 87.4 | 60.5 |
| 1973 | 63.8 | 50.7 | 1,220.5 | 490.5 | 345.1 | 382.1 | 25.9 | 51.6 | 50.9 | 233.8 | 3.6 | 19.6 | 18.2 | 24.3 | 113.1 | 91.5 |
| 1974 | 61.6 | 87.6 | 1,410.8 | 560.9 | 400.0 | 588.7 | 23.2 | 67.0 | 53.0 | 291.3 | 4.1 | 34.9 | 21.6 | 41.3 | 123.4 | 152.0 |
| 1975 | 77.9 | 102.5 | 1,807.1 | 811.9 | 444.6 | 1,000.9 | 34.9 | 129.6 | 91.4 | 647.1 | 3.3 | 35.3 | 36.2 | 98.5 | 138.0 | 226.1 |
| 1976 | 120.2 | 242.8 | 2,143.5 | 892.4 | 463.6 | 873.1 | 41.1 | 152.7 | 80.8 | 640.5 | 3.2 | 45.0 | 40.8 | 128.5 | 289.7 | 450.3 |
| 1977 | 126.0 | 266.6 | 2,773.6 | 1,275.6 | 497.8 | 743.5 | 41.7 | 174.2 | 105.1 | 1,562.4 | 2.9 | 62.2 | 46.2 | 148.6 | 316.5 | 453.2 |
| 1978 | 122.7 | 263.8 | 3,004.4 | 1,060.2 | 524.3 | 853.9 | 41.1 | 162.7 | 118.8 | 1,871.8 | 3.1 | 78.8 | 37.8 | 116.1 | 306.4 | 479.5 |
| 1979 | 122.1 | 311.2 | 3,568.8 | 1,562.9 | 467.2 | 992.3 | 42.0 | 195.5 | 115.5 | 1,755.0 | 3.8 | 132.8 | 49.2 | 181.4 | 347.6 | 747.6 |
| 1980 | 130.5 | 408.7 | 3,469.7 | 1,896.5 | 505.3 | 1,247.4 | 47.3 | 226.2 | 125.3 | 2,635.7 | 4.1 | 133.2 | 49.9 | 188.3 | 387.0 | 645.1 |
| 1981 | 129.9 | 393.1 | 3,406.6 | 2,191.9 | 502.3 | 1,411.9 | 48.5 | 293.3 | 146.7 | 3,042.7 | 4.2 | 102.7 | 29.6 | 129.1 | 397.8 | 578.6 |
| 1982 | 132.6 | 459.7 | 3,173.5 | 2,152.7 | 516.2 | 1,506.3 | 50.3 | 253.9 | 171.4 | 1,784.4 | 5.3 | 103.6 | 48.6 | 233.5 | 424.9 | 658.7 |
| 1983 | 130.1 | 333.5 | 2,102.3 | 1,533.9 | 448.8 | 1,258.0 | 36.9 | 180.3 | 146.9 | 1,705.6 | 5.5 | 81.0 | 35.8 | 170.2 | 335.1 | 539.2 |
| 1984 | 124.2 | 450.2 | 2,286.5 | 2,433.9 | 476.8 | 2,095.1 | 38.0 | 322.0 | 116.8 | 2,819.3 | 4.8 | 106.3 | 42.2 | 281.5 | 350.0 | 785.2 |
| 1985 | 123.4 | 548.5 | 2,453.2 | 3,430.0 | 467.2 | 2,681.9 | 41.2 | 421.0 | 133.4 | 3,590.1 | 5.1 | 161.8 | 45.2 | 383.7 | 353.2 | 1,212.3 |
| 1986 | 132.2 | 619.4 | 2,668.5 | 3,915.9 | 487.3 | 2,888.5 | 37.7 | 406.8 | 136.5 | 3,882.4 | 6.2 | 189.4 | 43.9 | 430.9 | 359.7 | 1,277.2 |

Table 8.4 (3) QUANTITY AND VALUE OF AGRICULTURAL PRODUCTION BY KIND OF CROP, PHILIPPINES (1950 to 1986) (continued)

(Quantity in thousand metric tons; Value in million pesos)

| Crop Year | Commercial Crops | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Coconut[7] | | Sugarcane[8] | | Abaca | | Native Tobacco | | Virginia Tobacco | | Ramie | | Rubber | | Maguey | | Other Commercial crops[9] | |
| | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value |
| 1950 | 846.1 | 260.8 | 654.0 | 146.8 | 82.2 | 52.6 | 26.4 | 20.7 | ... | ..... | .. | ... | 1.3 | 1.1 | 1.8 | 0.6 | 3.4 | 0.4 |
| 1955 | 1,142.9 | 241.4 | 1.546.6 | 321.4 | 104.5 | 35.2 | 20.0 | 7.5 | 10.1 | 17.5 | 1.7 | 1.1 | 2.0 | 2.4 | 0.2 | 0.1 | 3.0 | 0.9 |
| 1960 | 1,117.3 | 389.6 | 1,808.7 | 349.9 | 94.5 | 58.8 | 29.8 | 13.1 | 34.2 | 60.3 | 2.2 | 1.1 | 3.1 | 3.5 | 2.1 | 0.5 | 4.4 | 1.4 |
| 1965 | 1,533.6 | 672.3 | 2,034.8 | 506.3 | 134.0 | 78.6 | 28.6 | 15.8 | 17.2 | 29.2 | 5.5 | 3.2 | 5.9 | 6.7 | 2.5 | 0.5 | 2.0 | 0.7 |
| 1970 | 2,012.4 | 1.327.1 | 2,594.6 | 1,801.6 | 122.4 | 105.7 | 39.2 | 80.3 | 22.0 | 48.7 | 3.1 | 7.1 | 19.0 | 27.9 | 2.4 | 3.2 | 1.7 | 2.1 |
| 1971 | 1,679.1 | 1,261.7 | 2,980.2 | 2,079.3 | 104.6 | 90.9 | 35.8 | 66.3 | 20.0 | 44.6 | 3.1 | 7.2 | 20.9 | 29.2 | 2.4 | 3.2 | 1.6 | 2.3 |
| 1972 | 2,043.5 | 1,442.8 | 2,553.5 | 1,870.3 | 110.1 | 102.6 | 35.8 | 83.7 | 20.5 | 52.0 | 3.1 | 6.8 | 21.7 | 29.4 | 2.5 | 3.3 | 1.1 | 1.7 |
| 1973 | 2,014.2 | 1,700.4 | 3,190.8 | 2,499.0 | 119.2 | 118.5 | 43.7 | 107.6 | 21.1 | 67.5 | 3.2 | 7.5 | 23.1 | 32.6 | 2.5 | 3.5 | 1.1 | 1.7 |
| 1974 | 1,964.6 | 3,785.5 | 3,449.7 | 3,020.8 | 125.9 | 374.7 | 44.8 | 151.6 | 18.6 | 84.1 | 2.8 | 7.7 | 28.6 | 44.4 | 2.7 | 3.7 | 1.0 | 1.7 |
| 1975 | 2,723.1 | 2,895.5 | 3,287.7 | 2,988.4 | 133.6 | 514.1 | 34.9 | 145.8 | 22.2 | 96.4 | 1.4 | 2.8 | 45.7 | 74.0 | 1.8 | 1.2 | 8.1 | 8.1 |
| 1976 | 3,557.1 | 2,012.5 | 4.070.7 | 3,202.2 | 139.3 | 313.4 | 33.4 | 125.6 | 25.5 | 130.1 | 0.4 | 1.0 | 57.3 | 137.6 | 2.6 | 2.6 | 3.3 | 4.1 |
| 1977 | 3,844.9 | 4,044.4 | 3,541.1 | 6,176.4 | 150.6 | 306.2 | 27.9 | 105.6 | 22.5 | 83.2 | 0.4 | 1.1 | 58.2 | 153.0 | 2.7 | 1.9 | 1.3 | 2.5 |
| 1978 | 4,194.8 | 4,398.5 | 3,282.1 | 3,661.8 | 129.8 | 240.1 | 34.5 | 126.2 | 22.2 | 137.2 | 1.4 | 3.2 | 54.4 | 109.8 | 3.3 | 2.8 | 2.4 | 12.5 |
| 1979 | 4,295.5 | 8,524.9 | 3,198.9 | 3,762.5 | 148.3 | 297.0 | 28.1 | 189.3 | 23.2 | 151.0 | 1.4 | 3.2 | 58.8 | 190.1 | 3.9 | 4.4 | 3.7 | 9.0 |
| 1980 | 4,570.2 | 9,263.8 | 3,120.8 | 4,226.7 | 157.2 | 440.5 | 23.5 | 105.7 | 18.5 | 108.3 | 0.2 | 0.7 | 67.7 | 240.0 | 4.4 | 5.0 | 9.5 | 33.0 |
| 1981 | 4,312.1 | 6,332.1 | 3,193.0 | 8,558.8 | 128.3 | 366.1 | 21.2 | 128.6 | 17.9 | 146.5 | 0.5 | 1.8 | 72.0 | 251.2 | 3.6 | 5.1 | 10.6 | 38.1 |
| 1982 | 3,785.5 | 5,354.3 | 3,402.7 | 6,881.3 | 119.7 | 307.4 | 22.0 | 113.5 | 24.8 | 203.9 | 0.7 | 3.1 | 78.6 | 182.5 | 3.6 | 6.9 | 13.0 | 48.0 |
| 1983 | 3,381.6 | 3,793.9 | 3,435.6 | 7,219.0 | 89.3 | 284.3 | 15.7 | 166.8 | 29.1 | 240.9 | 0.6 | 3.1 | 122.9 | 269.9 | 3.4 | 6.5 | 8.9 | 30.6 |
| 1984 | 2,921.9 | 12,270.1 | 3,260.2 | 11,150.0 | 88.7 | 574.1 | 20.2 | 302.4 | 46.1 | 517.0 | 0.5 | 4.8 | 123.1 | 547.1 | 3.3 | 7.9 | 10.1 | 45.8 |
| 1985 | 2,964.8 | 12,628.7 | 2,747.6 | 9,278.0 | 83.7 | 679.8 | 13.0 | 264.8 | 34.0 | 448.9 | 0.7 | 9.3 | 146.2 | 786.2 | 3.3 | 9.5 | 7.7 | 45.4 |
| 1986 | 3,162.4 | 4,496.1 | 2,135.3 | 7,662.9 | 82.7 | 440.6 | 19.2 | 298.2 | 36.8 | 464.3 | 8.1 | 243.0 | 154.0 | 499.1 | 3.4 | 10.1 | 6.4 | 37.4 |

Table 8.5 FOREIGN TRADE OF THE PHILIPPINES (1935 to 1986)

(F.O.B. value in million U.S. Dollars)

| Year | Total Trade | Exports | | | Imports | | | Balance of Trade: Favorable(+) Unfavorable(-) |
|---|---|---|---|---|---|---|---|---|
| | | Value | Percent to Total Trade | Average Exchange Rate (P/U.S.$) | Value | Percent to Total Trade | Average Exchange Rate (P/U.S.$) | |
| 1935 | 187.47 | 101.93 | 54.37 | 2.000 | 85.54 | 45.63 | 2.000 | 16.39 |
| 1940 | 290.65 | 155.92 | 53.65 | 2.000 | 134.73 | 46.35 | 2.000 | 21.19 |
| 1945 | 29.60 | 0.67 | 2.26 | 2.000 | 28.93 | 97.74 | 2.000 | (28.26) |
| 1950 | 688.88 | 332.70 | 48.30 | 2.000 | 356.18 | 51.70 | 2.000 | (23.48) |
| 1955 | 955.60 | 419.26 | 43.87 | 2.000 | 536.34 | 56.13 | 2.000 | (117.08) |
| 1960 | 1,159.96 | 535.44 | 46.16 | 2.000 | 624.52 | 53.84 | 2.000 | (89.08) |
| 1965 | 1,630.99 | 795.74 | 48.79 | 3.900 | 835.25 | 51.21 | 3.874 | (39.51) |
| 1970 | 2,301.49 | 1,142.19 | 49.63 | 5.729 | 1,159.30 | 50.37 | 5.764 | (17.11) |
| 1971 | 2,450.08 | 1,189.25 | 48.54 | 6.305 | 1,260.83 | 51.46 | 6.391 | (71.58) |
| 1972 | 2,502.03 | 1,168.43 | 46.70 | 6.682 | 1,333.60 | 53.30 | 6.605 | (165.17) |
| 1973 | 3,433.81 | 1,837.19 | 53.50 | 6.755 | 1,596.62 | 46.50 | 6.754 | 240.57 |
| 1974 | 5,868.25 | 2,724.99 | 46.44 | 6.791 | 3,143.26 | 53.56 | 6.772 | (418.27) |
| 1975 | 5,753.65 | 2,294.47 | 39.88 | 7.238 | 3,459.18 | 60.12 | 7.230 | (1,164.71) |
| 1976 | 6,207.16 | 2,573.68 | 41.46 | 7.384 | 3,633.48 | 58.54 | 7.466 | (1,059.80) |
| 1977 | 7,065.65 | 3,150.89 | 44.59 | 7.346 | 3,914.76 | 55.41 | 7.436 | (763.87) |
| 1978 | 8,157.07 | 3,424.87 | 41.99 | 7.314 | 4,732.20 | 58.01 | 7.392 | (1,307.33) |
| 1979 | 10,742.94 | 4,601.19 | 42.83 | 7.323 | 6,141.75 | 57.17 | 7.400 | (1,540.56) |
| 1980 | 13,514.70 | 5,787.79 | 42.83 | 7.454 | 7,726.91 | 57.17 | 7.508 | 1,939.12 |
| 1981 | 13,666.08 | 5,720.40 | 41.87 | 7.834 | 7,945.68 | 58.13 | 7.856 | (2,225.28) |
| 1982 | 12,687.51 | 5,020.59 | 39.57 | 8.463 | 7,666.92 | 60.43 | 8.484 | (2,646.33) |
| 1983 | 12,491.92 | 5,005.29 | 40.07 | 11.125 | 7,486.63 | 59.93 | 10.989 | (2,481.34) |
| 1984 | 11,460.26 | 5,390.65 | 47.04 | 16.570 | 6,069.61 | 52.96 | 16.700 | (678.96) |
| 1985 | 9,739.62 | 4,628.95 | 47.53 | 18.535 | 5,110.67 | 52.47 | 18.738 | (481.72) |
| 1986 | 9,885.38 | 4,841.78 | 48.98 | 20.259 | 5,043.60 | 51.02 | 20.403 | (201.82) |

Sum of domestic exports and re-exports
Source: National Census and Statistics Office

Table 8.6 TOTAL EXPORTS AND TEN PRINCIPAL EXPORTS (1950 to 1986)

(F.O.B. value in thousand U.S.Dollars; Quantity in thousand kilograms)

| Year | Value of Exports | | | Copra | | Sugar | | Bananas | | Logs and Lumber | | Desiccated Coconut | | Coconut Oil | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Ten Principal | Others | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value | Quantity | Value |
| 1950 | 332,700 | 284,028 | 48,672 | 707,186 | 137,953 | 420,475 | 45,906 | - | - | 144,247 | 10,691 | 73,050 | 24,157 | 69,806 | 12,482 |
| 1955 | 419,260 | 337,026 | 82,234 | 804,838 | 118,680 | 926,796 | 106,296 | - | - | 726,507 | 41,542 | 48,529 | 12,810 | 74,177 | 16,535 |
| 1960 | 535,440 | 477,014 | 58,426 | 804,371 | 138,643 | 1,089,845 | 133,484 | 138 | 18 | 1,515,416 | 91,600 | 58,775 | 18,837 | 59,965 | 15,669 |
| 1965 | 795,740 | 632,460 | 163,290 | 883,495 | 170,004 | 1,017,485 | 132,439 | 30 | 2 | 3,013,372 | 162,001 | 67,730 | 20,447 | 235,759 | 68,095 |
| 1970 | 1,142,191 | 867,714 | 274,477 | 447,443 | 80,581 | 1,236,215 | 188,012 | 106,792 | 5,904 | 4,067,555 | 255,637 | 60,241 | 18,083 | 339,241 | 97,567 |
| 1971 | 1,189,250 | 917,607 | 271,643 | 692,464 | 114,040 | 1,344.677 | 212,348 | 267,243 | 15,389 | 3,644,749 | 225,907 | 72,666 | 20,741 | 397,420 | 103,451 |
| 1972 | 1,168,430 | 869,900 | 298,530 | 925,640 | 110,480 | 1,210,939 | 208,639 | 422,421 | 24,326 | 3,098,315 | 174,444 | 75,987 | 17,551 | 465,775 | 84,269 |
| 1973 | 1,837,188 | 1,359,329 | 477,859 | 734,431 | 165,764 | 1,470,337 | 273,966 | 465,786 | 27,831 | 3,468,890 | 338,680 | 78,049 | 32,456 | 427,373 | 151,083 |
| 1974 | 2,724,989 | 2,144,310 | 580,679 | 267,697 | 139,784 | 1,542,081 | 737,365 | 662,999 | 45,479 | 2,108,521 | 245,711 | 63,909 | 60,300 | 416,120 | 380,020 |
| 1975 | 2,294,470 | 1,618,680 | 675,790 | 761,147 | 172,318 | 927,217 | 580,736 | 882,742 | 73,104 | 2,055,477 | 194,110 | 66,245 | 30,429 | 614,387 | 230,299 |
| 1976 | 2,573,676 | 1,587,929 | 985,747 | 822,736 | 149,722 | 1,455,998 | 426,522 | 796,177 | 75,618 | 1,197,556 | 403,417 | 81,003 | 37,494 | 862,497 | 298,713 |
| 1977 | 3,150,887 | 1,899,985 | 1,250,902 | 634,636 | 200,525 | 2,418,990 | 511,708 | 692,688 | 72,461 | 1,060,138 | 200,516 | 97,952 | 90,047 | 769,631 | 412,237 |
| 1978 | 3,424,876 | 1,750,409 | 1,674,467 | 365,241 | 135,684 | 1,124,245 | 196,903 | 776,495 | 84,127 | 2,783,320 | 230,058 | 90,856 | 81,888 | 1,016,998 | 620,571 |
| 1979 | 4,601,190 | 2,232,393 | 2,368,797 | 144,743 | 89,128 | 1,150,296 | 211,553 | 858,606 | 96,685 | 2,162,996 | 342,752 | 85,814 | 107,001 | 803,483 | 742,513 |
| 1980 | 5,787,788 | 2,634,693 | 3,153,095 | 121,452 | 47,253 | 1,735,257 | 624,034 | 992,707 | 114,184 | 1,456,334 | 273,207 | 87,164 | 115,991 | 917,607 | 566,848 |
| 1981 | 5,720,397 | 2,315,000 | 3,407,157 | 108,313 | 33,634 | 1,222,041 | 566,560 | 868,556 | 124,024 | 1,252,360 | 201,864 | 86,337 | 101,788 | 1,039,900 | 533,466 |
| 1982 | 5,020,593 | 1,871,678 | 3,148,915 | 177,730 | 49,218 | 1,247,520 | 416,028 | 926,684 | 146,108 | 1,343,082 | 202,173 | 90,251 | 68,283 | 921,237 | 401,026 |
| 1983 | 5,005,291 | 1,729,728 | 3,275,563 | 16,125 | 4,441 | 962,761 | 299,345 | 643,375 | 104,725 | 1,513,903 | 222,755 | 89,362 | 87,909 | 998,252 | 515,811 |
| 1984 | 5,390,646 | 1,645,839 | 3,744,807 | - | - | 1,157,932 | 307,649 | 799,649 | 122,256 | 1,382,879 | 194,349 | 76,618 | 105,964 | 587,575 | 580,241 |
| 1985 | 4,628,954 | 1,124,572 | 3,504,382 | - | - | 571,596 | 168,662 | 789,251 | 113,492 | 961,303 | 129,652 | 64,752 | 75,666 | 650,605 | 347,377 |
| 1986 | 4,841,780 | 1,067,601 | 3,774,180 | 125,331 | 17,600 | 222,245 | 86,796 | 855,743 | 130,222 | 786,562 | 129,712 | 67,893 | 44,269 | 1,249,448 | 332,783 |

In thousand bd. ft.
In troy ounce
Source: National Census and Statistics Office

Table 8-7 PHILIPPINE EXPORTS BY MAJOR COMMODITY GROUP (1960 to 1986)

(F.O.B. value in million U.S. dollars)

| Major commodity group | 1960 | 1965 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total: | 535 | 796 | 1,142 | 1,189 | 1,168 | 1,837 | 2,725 | 2,294 | 2,574 | 3,151 | 3,425 | 4,601 | 5,788 | 5,720 | 5,021 | 5,005 | 5,391 | 4,629 | 4,842 |
| Coconut products | 177 | 271 | 212 | 254 | 228 | 374 | 609 | 466 | 540 | 761 | 908 | 1,024 | 811 | 750 | 590 | 680 | 727 | 459 | 470 |
| Copra | 139 | 170 | 81 | 114 | 110 | 166 | 140 | 172 | 150 | 201 | 136 | 89 | 47 | 34 | 49 | 4 | - | - | 18 |
| Coconut oil | 16 | 69 | 98 | 103 | 84 | 153 | 381 | 231 | 299 | 412 | 621 | 742 | 567 | 533 | 401 | 516 | 580 | 347 | 333 |
| Desiccated Coconut | 19 | 20 | 19 | 21 | 18 | 32 | 60 | 30 | 37 | 90 | 82 | 107 | 116 | 102 | 68 | 88 | 106 | 76 | 44 |
| Copra meal or cake | 3 | 12 | 14 | 16 | 16 | 23 | 28 | 33 | 54 | 58 | 69 | 86 | 81 | 81 | 72 | 72 | 41 | 36 | 75 |
| Sugar and sugar products | 135 | 147 | 196 | 220 | 218 | 294 | 766 | 616 | 456 | 535 | 216 | 240 | 657 | 609 | 445 | 321 | 327 | 189 | 108 |
| Centrifugal and refined sugar | 133 | 132 | 188 | 212 | 211 | 274 | 737 | 581 | 429 | 512 | 197 | 212 | 624 | 567 | 416 | 299 | 290 | 169 | 87 |
| Molasses | 2 | 10 | 8 | 8 | 6 | 19 | 28 | 34 | 24 | 20 | 16 | 27 | 33 | 38 | 25 | 17 | 33 | 16 | 16 |
| Others | * | 5 | * | * | 1 | 1 | 1 | 1 | 3 | 3 | 3 | 1 | - | 4 | 4 | 5 | 4 | 4 | 5 |
| Forest products | 95 | 195 | 301 | 264 | 235 | 444 | 338 | 260 | 308 | 294 | 362 | 536 | 468 | 469 | 362 | 331 | 323 | 246 | 251 |
| Logs | 85 | 155 | 243 | 215 | 164 | 304 | 216 | 167 | 135 | 134 | 145 | 144 | 92 | 76 | 78 | 74 | 88 | 39 | 26 |
| Lumber | 7 | 8 | 13 | 11 | 10 | 35 | 30 | 27 | 68 | 67 | 85 | 198 | 181 | 126 | 124 | 149 | 107 | 90 | 103 |
| Plywood | 2 | 18 | 20 | 24 | 34 | 58 | 26 | 21 | 43 | 41 | 72 | 107 | 111 | 111 | 67 | 76 | 56 | 51 | 56 |
| Others | 1 | 14 | 25 | 14 | 27 | 47 | 66 | 45 | 62 | 52 | 60 | 87 | 84 | 156 | 93 | 32 | 72 | 66 | 66 |
| Mineral products | 37 | 70 | 224 | 224 | 239 | 374 | 518 | 332 | 371 | 501 | 554 | 831 | 1,031 | 758 | 532 | 440 | 266 | 243 | 267 |
| Copper concentrates | 30 | 47 | 185 | 185 | 191 | 290 | 393 | 212 | 266 | 268 | 250 | 440 | 545 | 429 | 312 | 249 | 115 | 84 | 90 |
| Gold | ... | ... | ... | 8 | 27 | 40 | 74 | 76 | 65 | 71 | 76 | 103 | 239 | 215 | 169 | 154 | 104 | 100 | 140 |
| Iron ore and concentrates | * | 2 | 13 | 13 | 9 | 18 | 12 | 13 | 7 | - | - | - | - | - | - | - | - | - | - |
| Chromite ore | 5 | 11 | 9 | 6 | 5 | 9 | 13 | 13 | 15 | 25 | 25 | 23 | 33 | 25 | 15 | 10 | 19 | 12 | 10 |
| Others | 2 | 10 | 17 | 12 | 7 | 17 | 26 | 18 | 18 | 137 | 203 | 265 | 214 | 89 | 36 | 27 | 28 | 47 | 27 |
| Fruits and vegetables | 25 | 17 | 35 | 41 | 52 | 57 | 91 | 124 | 142 | 157 | 177 | 214 | 365 | 378 | 374 | 327 | 392 | 354 | 346 |
| Pineapple products | 7 | 12 | 22 | 20 | 21 | 23 | 35 | 41 | 52 | 64 | 74 | 96 | 97 | 101 | 107 | 102 | 115 | 128 | 128 |
| Banana | 18 | 2 | 6 | 15 | 24 | 28 | 45 | 73 | 76 | 72 | 86 | 100 | 114 | 124 | 146 | 105 | 122 | 113 | 130 |
| Others | * | 3 | 7 | 6 | 7 | 6 | 11 | 10 | 14 | 21 | 17 | 18 | 154 | 153 | 121 | 120 | 155 | 113 | 88 |
| Abaca products | 43 | 26 | 17 | 15 | 16 | 24 | 46 | 22 | 27 | 29 | 25 | 38 | 31 | 25 | 26 | 25 | 37 | 31 | 35 |
| Abaca unmanufactured | 42 | 24 | 15 | 13 | 13 | 20 | 38 | 15 | 18 | 18 | 15 | 25 | 27 | 21 | 20 | 18 | 33 | 16 | 13 |
| Abaca rope | 1 | 2 | 2 | 2 | 3 | 4 | 8 | 7 | 9 | 11 | 10 | 13 | 4 | 4 | 6 | 7 | 4 | 15 | 22 |
| Tobacco products | 3 | 16 | 15 | 15 | 18 | 27 | 31 | 35 | 29 | 29 | 30 | 33 | 30 | 50 | 49 | 35 | 31 | 28 | 26 |
| Raw tobacco | 3 | 15 | 14 | 14 | 17 | 26 | 30 | 34 | 28 | 28 | 29 | 32 | 29 | 48 | 47 | 33 | 28 | 24 | 21 |
| Cigars and others | * | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 4 | 5 |
| Mineral fuel and lubricants | * | 6 | 17 | 24 | 19 | 16 | 17 | 37 | 34 | 37 | 30 | 42 | 38 | 42 | 33 | 115 | 87 | 42 | 66 |
| Chemicals | 2 | 2 | 5 | 6 | 6 | 10 | 15 | 21 | 26 | 51 | 59 | 112 | 89 | 107 | 96 | 87 | 104 | 151 | 243 |
| Textiles | 3 | 5 | 5 | 7 | 9 | 24 | 20 | 22 | 28 | 21 | 31 | 39 | 33 | 69 | 56 | 25 | 38 | 39 | 44 |
| Miscellaneous manufactures and others | 14 | 39 | 114 | 111 | 124 | 191 | 271 | 357 | 589 | 722 | 1,011 | 1,463 | 2,198 | 2,453 | 2,449 | 2,586 | 2,934 | 2,807 | 2,874 |
| Re-exports | 1 | 2 | 1 | 8 | 4 | 2 | 3 | 2 | 24 | 14 | 22 | 29 | 37 | 10 | 9 | 33 | 125 | 40 | 112 |

Source: National Census and Statistics Office

Table 8-8 EMPLOYED PERSONS BY MAJOR INDUSTRY AND BY MAJOR OCCUPATION GROUP AND BY REGION (THIRD QUARTER 1986)

(In thousands)

| Major Industry/ Occupation Group | Total | Metropolitan Manila Area (National Capital Region) | Region | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Industry | 20,595 | 2,049 | 1,384 | 1,114 | 1,910 | 2,656 | 1,523 | 1,949 | 1,754 | 1,336 | 1,028 | 1,301 | 1,579 | 1,011 |
| Agriculture, fishery and forestry | 10,289 | 31 | 790 | 767 | 717 | 1,165 | 867 | 1,163 | 933 | 889 | 662 | 724 | 936 | 644 |
| Mining and quarrying | 150 | 1 | 38 | 4 | 8 | 9 | 13 | 6 | 24 | 3 | 2 | 18 | 24 | - |
| Manufacturing | 1,905 | 382 | 93 | 38 | 214 | 346 | 150 | 122 | 193 | 76 | 54 | 85 | 86 | 68 |
| Electricity, gas and water | 62 | 11 | 5 | 1 | 7 | 6 | 5 | 5 | 6 | 1 | 4 | 7 | 3 | 3 |
| Construction | 629 | 112 | 46 | 25 | 88 | 125 | 37 | 32 | 38 | 29 | 14 | 28 | 39 | 15 |
| Wholesale and retail trade | 2,814 | 444 | 142 | 79 | 306 | 393 | 186 | 252 | 219 | 164 | 120 | 170 | 217 | 123 |
| Transportation, storage and communication | 841 | 179 | 46 | 29 | 136 | 156 | 43 | 46 | 50 | 26 | 26 | 38 | 48 | 17 |
| Financing, insurance, real estate & business services | 390 | 187 | 18 | 8 | 39 | 41 | 15 | 12 | 19 | 7 | 10 | 13 | 16 | 5 |
| Community, social and personal services | 3,516 | 701 | 207 | 162 | 396 | 416 | 208 | 312 | 274 | 142 | 136 | 219 | 210 | 133 |
| Industry not adequately defined | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Occupation | 20,595 | 2,049 | 1,384 | 1,114 | 1,910 | 2,656 | 1,523 | 1,949 | 1,754 | 1,336 | 1,028 | 1,301 | 1,579 | 1,011 |
| Professional, technical and related workers | 1,144 | 203 | 72 | 72 | 120 | 152 | 75 | 90 | 75 | 44 | 44 | 72 | 71 | 54 |
| Administrative, executive and managerial worker | 182 | 55 | 11 | 6 | 17 | 24 | 9 | 13 | 15 | 3 | 5 | 11 | 9 | 6 |
| Clerical and related workers | 845 | 260 | 42 | 23 | 88 | 102 | 32 | 58 | 66 | 22 | 28 | 53 | 54 | 18 |
| Sales worker | 2,756 | 439 | 138 | 82 | 303 | 390 | 185 | 245 | 211 | 155 | 116 | 167 | 207 | 119 |
| Service worker | 1,615 | 364 | 86 | 61 | 178 | 178 | 97 | 161 | 124 | 73 | 56 | 89 | 97 | 52 |
| Agricultural, animal husbandry and forestry workers; fishermen and hunters | 10,179 | 31 | 791 | 761 | 711 | 1,161 | 863 | 1,144 | 924 | 888 | 660 | 704 | 901 | 642 |
| Production and related workers, transport equipment operators and laborers | 3,873 | 699 | 243 | 109 | 494 | 650 | 263 | 237 | 338 | 153 | 120 | 206 | 241 | 120 |
| Occupation not adequately defined | 1 | - | - | - | - | - | - | - | - | - | 1 | - | - | - |

Source: National Census and Statistics Office

Table 8.9 PRODUCTION, IMPORTATION AND CONSUMPTION OF LOCAL FERTILIZERS (1976 to 1986)

(In thousand metric tons)

| Year | Plant Nutrients | | | | Fertilizer Products | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Nitrogen (N) | Phosphorous (P) | Potassium (K) | Total | Urea | Ammosul/ Amchlor | NP & P | NPK | Potash |
| **Production** | | | | | | | | | | |
| 1976 | 124.0 | 48.4 | 31.0 | 44.6 | 306.1 | 14.1 | 104.7 | 88.7 | 98.6 | - |
| 1977 | 75.7 | 37.9 | 29.3 | 8.5 | 228.0 | - | 62.6 | 103.1 | 62.3 | - |
| 1978 | 103.1 | 45.7 | 36.1 | 21.3 | 289.7 | - | 61.0 | 74.3 | 154.4 | - |
| 1979 | 90.2 | 35.5 | 38.8 | 15.9 | 233.7 | - | 5.0 | 114.7 | 114.0 | - |
| 1980 | 90.5 | 34.0 | 37.0 | 19.5 | 230.0 | - | 3.9 | 85.8 | 140.3 | - |
| 1981 | 99.0 | 41.1 | 38.2 | 19.7 | 265.3 | - | 31.5 | 92.7 | 141.1 | - |
| 1982 | 51.2 | 18.2 | 18.9 | 14.1 | 125.8 | - | 1.3 | 24.0 | 100.5 | - |
| 1983 | 64.3 | 23.6 | 24.0 | 16.7 | 164.3 | - | 7.4 | 36.4 | 120.5 | - |
| 1984 | 37.3 | 15.7 | 14.3 | 7.3 | 102.4 | - | 14.7 | 32.9 | 54.8 | - |
| 1985 | 204.1 | 88.9 | 109.7 | 5.5 | 499.7 | - | 149.5 | 310.9 | 39.3 | - |
| 1986 | 371.1 | 111.8 | 248.1 | 11.2 | 695.8 | - | 21.9 | 539.6 | 134.3 | - |
| **Importation** | | | | | | | | | | |
| 1976 | 111.2 | 63.2 | - | 48.0 | 193.0 | 83.1 | 35.3 | - | - | 74.6 |
| 1977 | 184.3 | 141.5 | - | 42.8 | 448.1 | 257.6 | 119.6 | - | - | 70.9 |
| 1978 | 239.6 | 177.5 | 8.2 | 53.9 | 549.9 | 337.4 | 103.2 | 16.8 | 3.0 | 89.5 |
| 1979 | 306.1 | 217.1 | 18.2 | 70.8 | 734.6 | 355.5 | 195.4 | 23.9 | 53.9 | 105.9 |
| 1980 | 319.5 | 224.4 | 16.5 | 78.6 | 752.0 | 386.9 | 167.5 | 38.5 | 23.3 | 135.8 |
| 1981 | 196.6 | 112.7 | 10.9 | 73.0 | 426.9 | 204.2 | 45.1 | 41.7 | 18.6 | 117.3 |
| 1982 | 322.6 | 221.6 | 29.0 | 72.0 | 765.3 | 364.9 | 151.5 | 94.6 | 43.6 | 110.7 |
| 1983 | 296.1 | 222.3 | 25.6 | 48.2 | 642.8 | 320.2 | 118.4 | 102.3 | 27.3 | 74.6 |
| 1984 | 255.3 | 178.1 | 33.5 | 43.7 | 622.4 | 283.3 | 113.4 | 86.4 | 87.1 | 52.2 |
| 1985 | 240.8 | 181.6 | 33.5 | 25.7 | 557.5 | 321.2 | 21.3 | 85.0 | 112.9 | 17.1 |
| 1986 | 357.6 | 305.5 | 10.3 | 41.8 | 876.0 | 553.9 | 197.4 | 29.0 | 32.7 | 63.0 |
| **Consumption** | | | | | | | | | | |
| 1976 | 251.5 | 158.1 | 38.3 | 55.1 | 667.9 | 174.8 | 185.4 | 116.3 | 108.0 | 83.4 |
| 1977 | 264.5 | 177.3 | 40.4 | 46.8 | 686.5 | 229.3 | 177.7 | 106.1 | 124.1 | 49.3 |
| 1978 | 316.6 | 210.2 | 49.8 | 56.6 | 795.7 | 291.2 | 171.2 | 125.3 | 147.2 | 60.8 |
| 1979 | 342.3 | 226.7 | 51.9 | 63.7 | 848.7 | 319.8 | 175.4 | 124.2 | 159.5 | 69.8 |
| 1980 | 332.8 | 224.2 | 52.8 | 55.8 | 819.6 | 329.2 | 143.6 | 131.8 | 158.2 | 56.8 |
| 1981 | 321.7 | 209.9 | 51.2 | 60.6 | 785.3 | 307.3 | 126.4 | 124.2 | 163.7 | 63.7 |
| 1982 | 346.3 | 232.8 | 56.1 | 57.4 | 846.0 | 342.2 | 140.3 | 143.1 | 161.6 | 58.8 |
| 1983 | 363.4 | 244.2 | 54.8 | 64.4 | 878.3 | 371.5 | 137.7 | 145.2 | 150.5 | 73.4 |
| 1984 | 262.0 | 178.0 | 45.4 | 38.6 | 720.0 | 256.3 | 178.6 | 116.8 | 134.3 | 34.0 |
| 1985 | 283.2 | 205.4 | 42.8 | 35.0 | 710.2 | 310.4 | 126.2 | 113.6 | 131.4 | 28.6 |
| 1986 | 390.4 | 298.3 | 45.8 | 46.3 | 959.7 | 490.3 | 166.3 | 125.1 | 130.1 | 47.9 |

Source: Fertilizer and Pesticide Authority

Table 8-10 (1) IMPORT QUANTITY AND VALUE OF AGRO-BASED PRODUCT RELATED TO ITDI (CMD) ACTIVITIES

| | | 1986 | | | 1984 | | | 1982 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | QUANTITY | FOB $ | CIF $ | QUANTITY | FOB $ | CIF $ | QUANTITY | FOB $ | CIF $ |
| Silica Sand | (kg) | 11,173,378 | 133,397 | 354,631 | 7,174,460 | 218,011 | 272,402 | 36,354,092 | 880,611 | 1,482,735 |
| Dolomite, Calcined | (kg) | 1,270,754 | 127,739 | 200,049 | 3,262,456 | 351,787 | 558,318 | 3,300,997 | 427,077 | 588,089 |
| Industrial Salt Rock | (kg) | 35,174,500 | 572,357 | 1,117,282 | 29,166,588 | 521,686 | 893,788 | 80,288,664 | 1,009,733 | 2,745,476 |
| Industrial Salt Rock | (kg) | 53,497,232 | 1,115,632 | 1,092,082 | 36,084,623 | 928,769 | 1,269,368 | 49,019,436 | 802,748 | 2,478,575 |
| Industrial Salt Rock (Refined) | (kg) | 245,736 | 15,616 | 31,318 | 163,962 | 22,008 | 31,636 | 1,228,534 | 90,780 | 157,779 |
| Filtering Materials | (kg) | 380,675 | 95,776 | 136,520 | 336,503 | 98,755 | 143,136 | 1,008,496 | 234,737 | 330,899 |
| Filtering Materials (Others) | (kg) | 26,590 | 5,467 | 7,638 | 136,465 | 48,109 | 64,826 | 250,714 | 73,410 | 100,100 |
| Briquettes | (kg) | 85,186,248 | 8,064,032 | 10,051,611 | 352,965,880 | 22,505,008 | 47,306,086 | 271,800,036 | 18,761,474 | 21,338,938 |
| Diesel Oil | (kg) | 24,872,610 | 1,533,900 | 1,818,309 | 20,375,926 | 5,063,272 | 5,200,749 | 141,301,428 | 37,098,165 | 42,579,106 |
| Fuel Oil | (kg) | 2,000,635 | 43,414 | 65,545 | 2,988,035 | 115,311 | 142,092 | 1,111,670 | 47,799 | 96,086 |
| Lubricating Oil | (kg) | 2,434,254 | 1,594,688 | 1,755,180 | 3,126,880 | 1,685,659 | 2,021,291 | 5,904,693 | 2,646,952 | 3,291,861 |
| Lubricating Oil | (kg) | 108,153 | 102,972 | 123,094 | 42,562 | 121,624 | 138,331 | 973,693 | 677,626 | 786,291 |
| Lubricating Oil (Grease) | (kg) | 103,327 | 180,278 | 198,577 | 60,338 | 107,543 | 124,864 | 63,967 | 177,578 | 192,748 |
| Paraffine Wax | (kg) | 5,676,838 | 2,305,756 | 2,512,488 | 7,481,485 | 2,198,290 | 3,508,819 | 9,757,653 | 4,412,457 | 4,769,442 |
| Other Mineral Wax | (kg) | 965,308 | 879,718 | 978,898 | 683,304 | 668,738 | 755,497 | 645,955 | 564,812 | 646,266 |
| Lard Stearin | (kg) | 969,475 | 566,491 | 619,982 | 555,176 | 392,580 | 420,468 | 1,275,819 | 686,611 | 779,091 |
| Soybean Oil Crude | (kg) | 3,463,297 | 1,502,026 | 1,751,423 | 3,845,443 | 3,021,712 | 3,390,797 | 3,095,767 | 1,582,044 | 1,828,539 |
| Soybean Oil Crude (Refined) | (kg) | 6,122,206 | 3,269,450 | 3,658,253 | 1,545,459 | 1,345,910 | 1,439,177 | 2,563,325 | 1,854,743 | 2,106,151 |
| Fixed Vegetable Oils | (kg) | 9,854,329 | 4,939,728 | 5,590,402 | 5,547,772 | 4,531,968 | 5,005,761 | 5,851,061 | 3,702,345 | 4,221,142 |
| Palm Oil Refined | (kg) | 2,988,827 | 1,028,860 | 1,147,259 | 23,898,181 | 17,063,844 | 17,771,620 | 10,983,404 | 3,684,417 | 4,047,848 |
| Palm Kernel Oil | (kg) | - | - | - | 1,524,546 | 1,343,010 | 1,411,615 | 176,000 | 284,860 | 303,815 |
| Corn Oil | (kg) | 32,362 | 35,453 | 49,360 | 20,066 | 24,608 | 27,270 | 2,720 | 3,231 | 3,927 |
| Stearic and Oleic Acid | (kg) | 946,020 | 373,919 | 442,004 | 527,502 | 367,858 | 426,858 | 651,416 | 392,193 | 456,754 |
| Other Fatty Acid | (kg) | 429,112 | 228,523 | 274,145 | 104,970 | 113,273 | 128,719 | 860,781 | 494,425 | 594,562 |
| Other Acyclic Hydrocarbons | (kg) | 21,757,715 | 8,324,417 | 9,413,709 | 16,747,770 | 6,772,201 | 8,761,082 | 13,555,952 | 6,649,226 | 8,364,899 |
| Other Acylic Alcohol | (kg) | 11,912,216 | 6,739,423 | 7,479,779 | 10,824,250 | 6,103,761 | 6,963,849 | 12,982,341 | 9,772,550 | 11,021,502 |
| Stearic Acid, Chemically Pure | (kg) | 1,347,458 | 524,689 | 595,336 | 681,858 | 385,079 | 436,974 | 487,237 | 259,000 | 291,396 |
| Zinc Stearate | (kg) | 99,469 | 101,830 | 112,954 | 103,198 | 105,476 | 115,119 | 129,850 | 169,523 | 183,700 |
| Silica Gel | (kg) | 194,259 | 370,176 | 416,937 | 327,424 | 426,886 | 478,308 | 392,684 | 419,315 | 477,027 |
| Manganese Oxides | (kg) | 874,050 | 1,029,650 | 1,093,285 | 911,999 | 1,085,597 | 1,153,486 | 1,049,449 | 1,999,802 | 2,103,177 |
| Potassium Hydroxide | (kg) | 2,394,379 | 1,126,707 | 1,344,785 | 1,481,788 | 771,575 | 905,247 | 1,414,316 | 848,193 | 1,000,525 |
| Shampoos | (kg) | 44,460 | 44,009 | 52,300 | 3,221 | 4,176 | 4,552 | 73,303 | 51,476 | 66,948 |
| Toilet Preparations | (kg) | 138,795 | 275,355 | 311,012 | 43,818 | 171,516 | 189,966 | 36,915 | 205,275 | 218,690 |
| Laundry Soaps | (kg) | 15,700 | 5,320 | 6,000 | 95 | 168 | 298 | - | - | - |
| Toilet Soaps | (kg) | 1,491,198 | 940,786 | 1,042,315 | 32,358 | 39,672 | 44,989 | 672,507 | 591,927 | 673,246 |
| Organic Surface-active agents | (kg) | 2,789,134 | 4,739,197 | 5,288,135 | 2,973,230 | 4,909,120 | 5,403,581 | 3,982,301 | 6,312,065 | 7,035,700 |
| Surface-active preparations | (kg) | 272,437 | 441,922 | 492,057 | 162,604 | 293,493 | 322,372 | 113,840 | 268,016 | 294,314 |
| Detergents and Emulsifiers | (kg) | 70,074 | 34,020 | 44,279 | 3,280 | 4,024 | 6,592 | 8,135 | 9,900 | 11,963 |
| Soap, Cleansing and Polishing | (kg) | 4,697,891 | 6,248,517 | 6,976,457 | 3,182,918 | 5,257,365 | 5,790,572 | 4,842,318 | 7,289,452 | 8,139,985 |
| Fertelizers, Manufactured | (kg) | 860,612,194 | 83,408,941 | 95,389,115 | 586,937,277 | 87,993,395 | 100,314,122 | 745,817,471 | 107,994,308 | 127,995,711 |
| Condensation, Policondensations | (kg) | 10,232,983 | 16,814,278 | 17,961,321 | 6,923,081 | 14,803,552 | 16,060,072 | 9,093,620 | 13,018,811 | 14,149,456 |

Table 8-10 (2) EXPORT QUANTITY AND VALUE OF AGRO-BASED PRODUCT RELATED TO ITDI (CMD) ACTIVITIES

| | | 1986 | | | 1984 | | | 1982 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | QUANTITY | FOB $ | CIF $ | QUANTITY | FOB $ | CIF $ | QUANTITY | FOB $ | CIF $ |
| Oil-cake and Other Residues | (kg) | 821,562,329 | 74,757,222 | 109,921,762 | 364,405,640 | 41,108,877 | 61,267,022 | 588,565,229 | 72,116,240 | 97,912,509 |
| Feeding Stuff for Animals | (kg) | 827,626,121 | 76,277,371 | 111,816,086 | 390,073,957 | 45,485,508 | 67,007,318 | 604,682,232 | 75,653,963 | 102,414,953 |
| Margarine and Shortening | (kg) | 1,139,478 | 925,174 | 959,387 | 675,000 | 971,005 | 1,032,046 | 676,146 | 628,404 | 688,635 |
| Coco Vinegar | (kg) | 48,042 | 31,276 | 41,748 | 21,024 | 14,305 | 17,732 | 558 | 261 | 333 |
| Castor Oil Seeds | (kg) | 8,742,035 | 1,543,195 | 1,948,906 | 21,659,941 | 9,439,718 | 10,687,052 | 16,894,263 | 5,588,757 | 6,672,915 |
| Dolomite, Calcined or Not | (kg) | 271,246,887 | 2,653,103 | 8,157,704 | 354,466,000 | 2,631,703 | 20,836,979 | 316,337,370 | 2,277,625 | 16,404,148 |
| Coconuts Oil, Crude | (kg) | 1,227,569,657 | 326,298,252 | 391,411,557 | 555,079,519 | 542,491,001 | | 866,213,264 | 373,756,310 | 426,906,022 |
| Coconuts Oil, Refined | (kg) | 21,878,600 | 6,484,955 | 7,442,549 | 32,495,780 | 37,749,859 | | 55,024,056 | 27,269,522 | 30,358,277 |
| Other Fixed Vegetable Oils | (kg) | 1,259,509,257 | 334,038,471 | 400,476,667 | 587,683,949 | 580,318,972 | | 921,326,619 | 401,129,881 | 457,375,058 |
| Coconuts Acid Oils | (kg) | 9,748,287 | 2,301,336 | 2,974,761 | 8,968,226 | 5,630,509 | | 3,826,472 | 1,008,173 | 1,361,536 |
| Other Fatty Acids and Acid Oil | (kg) | 23,120,631 | 5,749,382 | 7,269,087 | 18,006,456 | 18,165,928 | | - | - | - |
| Fatty Alcohols | (kg) | 48,948,148 | 40,101,296 | 44,752,458 | 21,945,301 | 28,056,429 | 29,223,551 | 16,894,286 | 18,028,135 | 18,966,530 |
| Glycerin, Crude | (kg) | 8,322,540 | 8,865,595 | 9,470,031 | 5,007,547 | 4,634,411 | 5,048,200 | 2,138,574 | 1,713,437 | 1,898,521 |
| Glycerin, Refined | (kg) | 5,355,118 | 7,674,734 | 8,003,520 | 2,773,512 | 3,234,324 | 3,383,228 | 2,879,415 | 2,953,683 | 3,128,748 |
| Carboxylic Acid & Anhydrides | (kg) | 16,310,333 | 4,072,875 | 4,984,235 | 14,142,511 | 14,845,872 | 16,377,295 | 14,728,800 | 7,995,215 | 9,513,909 |
| Perfumery and Cosmetics | (kg) | 104,984 | 329,471 | 361,069 | 153,976 | 526,947 | 575,794 | 139,173 | 394,940 | 428,940 |
| Laundry Soaps | (kg) | 12,255 | 7,071 | 8,797 | 90,897 | 46,506 | 53,049 | 82,008 | 66,392 | 95,519 |
| Medicated Soaps | (kg) | 25,316 | 66,535 | 69,554 | 1,000 | 4,800 | 4,991 | 253 | 703 | 776 |
| Toilet Soaps | (kg) | 20,574 | 28,218 | 30,742 | 14,691 | 28,476 | 32,685 | 159,364 | 250,145 | 264,805 |
| Soap, Cleansing and Polishing | (kg) | 6,114,386 | 3,948,975 | 4,459,917 | 3,794,921 | 2,192,114 | 2,440,241 | 514,861 | 727,913 | 818,101 |
| Fertelizers, Manufactured | (kg) | 588,907,149 | 113,458,206 | 131,844,082 | 4,816,855 | 1,086,242 | 1,557,210 | - | 297 | 425 |

Table 8-11 SIZE OF FARMS BY MAJOR CATEGORY, PHILIPPINES (1971 and 1980)

| Item | Number of Farms (in thousands) | | Area of Farms (thousand hectares) | |
|---|---|---|---|---|
| | 1971 | 1980 | 1971 | 1980 |
| All farms | 2,354.5 | 3,420.1 | 8,493.7 | 9,725.2 |
| Palay | 981.9 | 1,610.5 | 2,661.2 | 3,755.7 |
| Corn | 514.2 | 753.6 | 1,493.9 | 1,955.0 |
| Coconut | 432.5 | 709.6 | 2,152.8 | 2,842.9 |
| Sugarcane | 27.0 | 34.6 | 368.1 | 312.8 |
| Abaca | 12.5 | 16.0 | 64.3 | 60.1 |
| Tobacco | 3.9 | 5.3 | 7.3 | 8.1 |
| Other crops | - | 227.3 | - | 576.0 |
| Livestock and Poultry[1]) | 38.3 | 52.2 | 415.6 | 181.6 |
| Others, nec. | 344.2 | 11.0 | 1,330.5 | 33.0 |

1) Includes chicken, hog, and cattle

Source: National Census and Statistics Office, 1971 and 1980 Censuses of Agriculture

Table 8-12 NUMBER AND AREA OF FARMS BY TENURE OF FARM AND BY SIZE OF FARM, PHILIPPINES (1980)

| Tenure of Farm | Size of Farm | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | All Farms | Under 0.50 Ha. | 0.50 to 0.99 Ha. | 1.00 to 1.99 Ha. | 2.00 to 2.99 Ha. | 3.00 to 4.99 Ha. | 5.00 to 7.00 Ha. | 7.01 to 9.99 Ha. | 10.00 to 24.99 Ha. | 25.00 Ha. and over |
| Total number of Farms | 3,420,323 | 289,962 | 485,829 | 964,220 | 613,824 | 588,151 | 283,585 | 76,421 | 103,723 | 14,608 |
| Farms operated under one form of tenure | 2,967,667 | 256,067 | 412,325 | 823,349 | 532,712 | 514,975 | 255,460 | 66,326 | 93,536 | 12,917 |
| Owned or held in owner-like possession | 1,993,293 | 161,246 | 238,017 | 498,658 | 356,660 | 384,003 | 208,186 | 55,432 | 79,640 | 11,451 |
| Rented or leased from others | 871,536 | 71,058 | 156,201 | 298,339 | 162,750 | 119,690 | 40,384 | 9,891 | 11,998 | 1,225 |
| Rented free | 65,376 | 14,454 | 14,653 | 19,834 | 8,041 | 5,206 | 2,123 | 414 | 581 | 70 |
| Other single forms of tenure | 37,462 | 9,309 | 3,454 | 6,518 | 5,261 | 6.076 | 4,767 | 589 | 1,317 | 171 |
| Farms operated under more than one form of tenure | 452,655 | 33,894 | 73,504 | 140,871 | 81,112 | 73,176 | 28,125 | 10,095 | 10,187 | 1,691 |
| Owned and rented or leased from others | 367,304 | 25,028 | 58,505 | 114,662 | 67,108 | 61,108 | 23,375 | 8,194 | 8,082 | 1,242 |
| Other combination of the forms of tenure | 85,351 | 8,866 | 14,999 | 26,209 | 14,004 | 12,068 | 4,750 | 1,901 | 2,105 | 449 |
| Total farm area | 97,251 | 689 | 3,002 | 11,899 | 13,323 | 20,667 | 16,121 | 6,309 | 14,063 | 11,178 |
| Owned or held in owner-like possession | 70,411 | 399 | 1,624 | 6,798 | 8,455 | 14,710 | 12,637 | 5,006 | 11,543 | 9,238 |
| Rented or leased from others | 24,116 | 249 | 1,254 | 4,726 | 4,516 | 5,453 | 3,016 | 1,172 | 2,186 | 1,544 |
| Rented free | 1,343 | 33 | 98 | 280 | 217 | 259 | 171 | 60 | 128 | 97 |
| Other forms of tenure | 1,381 | 8 | 26 | 95 | 135 | 245 | 297 | 71 | 206 | 299 |

Source: National Census and Statistics Office

Table 8-13 TOTAL NUMBER OF FAMILIES, TOTAL AND AVERAGE FAMILY INCOME AND EXPENDITURES BY INCOME CLASS, PHILIPPINES (1985)

| Income Class | Total Number of Families (thousands) | Income | | Expenditures | |
|---|---|---|---|---|---|
| | | Total (thousand pesos) | Average (pesos) | Total (thousand pesos) | Average (pesos) |
| Total | 9,847 | 305,775,274 | 31,052 | 264,551,855 | 26,865 |
| Under - 6,000 | 375 | 1,699,850 | 4,523 | 2,079,228 | 5,532 |
| 6,000 - 9,999 | 1,117 | 9,202,175 | 8,240 | 9,940,445 | 8,901 |
| 10,000 - 14,999 | 1,778 | 22,207,257 | 12,490 | 22,240,849 | 12,509 |
| 15,000 - 19,999 | 1,540 | 26,769,814 | 17,385 | 25,841,737 | 16,782 |
| 20,000 - 29,999 | 1,936 | 47,373,441 | 24,465 | 44,544,140 | 23,004 |
| 30,000 - 39,999 | 1,086 | 37,402,390 | 34,452 | 33,584,417 | 30,935 |
| 40,000 - 59,999 | 1,044 | 50,498,966 | 48,393 | 43,784,484 | 41,958 |
| 60,000 - 99,999 | 626 | 47,225,272 | 75,471 | 39,067,076 | 62,433 |
| 100,000 and over | 346 | 63,396,111 | 183,439 | 43,469,480 | 125,781 |
| Median (pesos) | | 20,480 | | 18,988 | |

Source: National Census and Statistics Office

Table 8-14 TOTAL NUMBER OF FAMILIES, TOTAL AND AVERAGE FAMILY INCOME AND EXPENDITURES BY INCOME CLASS, URBAN AND RURAL (1985)

| Income Class | Total Number of Families (thousands) | Income | | Expenditures | |
|---|---|---|---|---|---|
| | | Total (thousand pesos) | Average (pesos) | Total (thousand pesos) | Average (pesos) |
| Urban | | | | | |
| Total | 3,726 | 171,869,677 | 46,127 | 145,815,208 | 39,134 |
| Under - 6,000 | 45 | 195,664 | 4,349 | 288,623 | 6,415 |
| 6,000 - 9,999 | 168 | 1,380,440 | 8,239 | 1,557,600 | 9,296 |
| 10,000 - 14,999 | 369 | 4,678,960 | 12,681 | 4,921,564 | 13,338 |
| 15,000 - 19,999 | 444 | 7,786,993 | 17,553 | 7,907,224 | 17,824 |
| 20,000 - 29,999 | 757 | 18,737,649 | 24,742 | 18,359,192 | 24,243 |
| 30,000 - 39,999 | 553 | 19,202,853 | 34,703 | 17,572,202 | 31,756 |
| 40,000 - 59,999 | 647 | 31,447,237 | 48,637 | 27,996,901 | 43,301 |
| 60,000 - 99,999 | 457 | 34,814,518 | 73,126 | 29,599,596 | 64,723 |
| 100,000 and over | 286 | 53,625,363 | 187,278 | 37,612,306 | 131,355 |
| Rural | | | | | |
| Total | 6,121 | 133,905,597 | 21,875 | 118,736,647 | 19,397 |
| Under - 6,000 | 331 | 1,504,186 | 4,546 | 1,790,605 | 5,412 |
| 6,000 - 9,999 | 949 | 7,821,735 | 8,240 | 8,382,894 | 8,831 |
| 10,000 - 14,999 | 1,409 | 17,528,298 | 12,440 | 17,319,285 | 12,291 |
| 15,000 - 19,999 | 1,096 | 18,982,821 | 17,317 | 17,934,513 | 16,360 |
| 20,000 - 29,999 | 1,179 | 28,635,792 | 24,288 | 26,184,948 | 22,209 |
| 30,000 - 39,999 | 532 | 18,199,536 | 34,191 | 16,012,214 | 30,082 |
| 40,000 - 59,999 | 397 | 19,051,728 | 47,995 | 15,787,583 | 39,772 |
| 60,000 - 99,999 | 168 | 12,410,754 | 73,692 | 9,467,480 | 56,216 |
| 100,000 and over | 59 | 9,770,747 | 164,889 | 5,857,174 | 98,845 |

Source: National Census and Statistics Office

Table 8-15 TOTAL NUMBER OF FAMILIES, TOTAL AND AVERAGE FAMILY INCOME AND EXPENDITURES BY EXPENDITURE CLASS, PHILIPPINES (1985)

| Expenditure Class | Total Number of Families (thousands) | Income | | Expenditures | |
|---|---|---|---|---|---|
| | | Total (thousand pesos) | Average (pesos) | Total (thousand pesos) | Average (pesos) |
| Total | 9,847 | 305,775,274 | 31,052 | 264,551,855 | 26,865 |
| Under - 6,000 | 412 | 2,303,627 | 5,598 | 1,869,200 | 4,542 |
| 6,000 - 9,999 | 1,203 | 11,400,725 | 9,474 | 9,871,507 | 8,203 |
| 10,000 - 14,999 | 1,965 | 27,350,230 | 13,918 | 24,534,722 | 12,486 |
| 15,000 - 19,999 | 1,627 | 31,423,987 | 19,319 | 28,169,323 | 17,318 |
| 20,000 - 29,999 | 1,970 | 53,954,372 | 27,383 | 48,274,113 | 24,501 |
| 30,000 - 39,999 | 1,041 | 40,264,296 | 38,669 | 35,852,578 | 34,432 |
| 40,000 - 59,999 | 906 | 49,642,384 | 54,797 | 43,665,898 | 48,200 |
| 60,000 - 99,999 | 512 | 44,584,411 | 87,073 | 38,487,874 | 75,166 |
| 100,000 and over | 211 | 44,851,242 | 212,318 | 33,826,639 | 160,129 |

Source: National Census and Statistics Office

Table 8-16 TOTAL NUMBER OF FAMILIES, TOTAL AND AVERAGE FAMILY INCOME AND EXPENDITURES BY EXPENDITURE CLASS, URBAN AND RURAL (1985)

| Expenditure Class | Total Number of Families (thousands) | Income | | Expenditures | |
|---|---|---|---|---|---|
| | | Total (thousand pesos) | Average (pesos) | Total (thousand pesos) | Average (pesos) |
| Urban | | | | | |
| Total | 3,726 | 171,869,677 | 46,127 | 145,815,208 | 39,134 |
| Under - 6,000 | 54 | 304,918 | 5,682 | 246,373 | 4,591 |
| 6,000 - 9,999 | 172 | 1,697,736 | 9,879 | 1,427,587 | 8,307 |
| 10,000 - 14,999 | 394 | 5,579,957 | 14,178 | 4,981,660 | 12,658 |
| 15,000 - 19,999 | 483 | 9,412,483 | 19,503 | 8,448,766 | 17,506 |
| 20,000 - 29,999 | 855 | 23,843,352 | 27,883 | 21,187,974 | 24,777 |
| 30,000 - 39,999 | 598 | 23,393,577 | 39,121 | 20,651,307 | 34,535 |
| 40,000 - 59,999 | 587 | 32,733,373 | 55,795 | 28,466,008 | 48,521 |
| 60,000 - 99,999 | 398 | 34,744,082 | 87,352 | 30,142,373 | 75,782 |
| 100,000 and over | 187 | 40,160,200 | 214,949 | 30,263,161 | 161,977 |
| Rural | | | | | |
| Total | 6,121 | 133,905,597 | 21,875 | 118,736,647 | 19,397 |
| Under - 6,000 | 358 | 1,998,709 | 5,585 | 1,622,827 | 4,535 |
| 6,000 - 9,999 | 1,032 | 9,702,989 | 9,407 | 8,443,921 | 8,186 |
| 10,000 - 14,999 | 1,571 | 21,770,273 | 13,853 | 19,553,062 | 12,442 |
| 15,000 - 19,999 | 1,144 | 22,011,504 | 19,241 | 19,720,557 | 17,238 |
| 20,000 - 29,999 | 1,115 | 30,111,020 | 27,001 | 27,086,140 | 24,288 |
| 30,000 - 39,999 | 443 | 16,870,719 | 38,060 | 15,201,272 | 34,293 |
| 40,000 - 59,999 | 319 | 16,909,011 | 52,962 | 15,199,890 | 47,609 |
| 60,000 - 99,999 | 114 | 9,840,329 | 86,101 | 8,345,501 | 73,021 |
| 100,000 and over | 24 | 4,691,043 | 192,179 | 3,563,478 | 145,986 |

Source: National Census and Statistics Office

## 8.2 List of Data Related to ITDI (CMD) Project

[Coconuts Data]

- Agricultural Land Utilization by Kind of Crop, by Region, Philippines, Cropyear 1986
- Crushing Capacities of RP Oil Mills Showing Plant Sites
- Marketing Channels of Coconut Products
- Coconut Conversion Table

[Brochure of PCA]

- The Philippine Coconut Industry in Perspective, June 1988

[National Plan for ITDI]

- Related National Plans
- Plans of the NFA for the Rice Industry

[List of Engineering/Machinery Contractor]

[Discussions on Aflatoxin]

- Comparative Illustration of Scale of Deductions Used in Copra Purchases
- Aflatoxin Levels in the Philippines
- Aflatoxin Levels in Luzon
- Aflatoxin Levels in Visayas
- Aflatoxin Levels in Mindanao
- Summary: Aflatoxin Contamination Level Copra Meal Pellets
- Copra Expeller Pellets
- Copra Solvent Extracted Pellets

[Outside condition]

- Developments on Aflatoxin at the Food and Agricultural Organization of the United Nations
- Manila Bulletin, Wed. Aug. 3, 1988
- Legaspi Oil Company, Inc.

[Content of Research and Development Activities]

- Business Plan of Laundry Soap Production at Oriental Mindoro

[Economics and Industry]

- Economic Recovery and Long-run Growth: Agenda for Reforms
- Crop Production, Philippines: 1980 to 1986

[Related organization]

- Philippine Institute and Organization List
- PCA COCO UPDATE Aug. 24-30. 1987
- Micro, Cottage, Small and Medium Enterprise Council
- Department of Trade and Industry
  (Bureau of Small and Medium Business Development)
- Programs and Services for Cottage, Small and Medium Enterprises
- BSMBD
- What BSMBD Is -
- PCRDF Publications Catalogue
- Philippine Chemical News
- COCO UPDATE Nov. 1-9, 1987
- COCO UPDATE Jan. 1988
- COCO UPDATE Feb. 1988

[Content of Activities]

- Department of Science and Technology
- National Standards and Testing Laboratory
- Linkages with Industries/Private Sectors
- Memorandum of Agreement
- Small Capacity Oil Mill
- Preliminary Report on the Assessment of Village-level
  processing Technologies
- Establishment of a Rice Hull Fuelled Power Plant

[Utility Condition]

- Single Line Diagram for Power Load Center Unit Substation
- Schedule of Low Voltage Switchgear

[Annual Expenditure]

- Utilities Specifications/Condition
- Running Cost for 1986/1987 and Budget for 1988 and Estimated Annual Cost after the Completion of the Project
- Manila Electric Company Official Receipt
- Cost Data
- Water Chemical Analysis
- Personnel Expenditure
- Bacteriological Examination of Water

[Map of the Site]

- Metro Manila
- Map of METROPOLITAN Manila
- Tagig and Pateros

[Project Matters]

- Schedule of Activities
- Schedule of Visits to Different Agencies/companies
- Memorandum of Discussion on the Project for Up-grading of Agri-industrial Chemicals Research and Development Equipment in the Republic of Philippines
- Prioritization of R&D Activities
- List of Required Equipment
- Additional Equipment List
- List of Small Accessories and Tools to be Included in Equipment
- Equipment for Replacement
- Schedule of Loads for Power Panel "PI"

[Work of the Philippine Side]

- ITDI Building Repair 1988 Budget Summary
- Time Table
- Invitation for Prequalification

- TAPI
- Repair/Renovation of ITDI Building

[Information on Equipment required]

- Inventory of ITDI Computers
- Outline for the Preparation of $SiO_2$ from Rice Husks
- Production of Sodium Silicate from Rice Hull Ash
- Flow Process for the Production of Sodium Silicate
- $Sio_2$ Gel Process
- Metal Silicon Process
- Integrated Villege Level Processing of Fresh Coconut into Edible Oil, Soap, Coco Flour, Vinegar, Coir Fiber and Charcoal
- Objective/Justification for Requested Auxiliary Equipment
- Expeller
- Oil Refining Process
- Soap Making Process
- Milling Process
- Coconut Oil Extraction
- Supply Materials Needed in the Inorganic Chemicals Section
- Prioritization of R&D Activities
- Memorandum of Discussions on Equipment
- List of Small Laboratory Accessories and/or Tools
- Soap Making
- Justification for Vehicle
- Quotation
- Percentage Fatty Acids Composition of Coconut Oil Compared with Palm Kernel, Babasu, Soybean, Corn, Palm and Tallow
- Food Terminal Incorporated

[Layout Data]

- Layout Plan for Laboratory Equipment
- Layout Plan for Existing Buildings & Laboratories
- NSTA Science Community
- Repair/Renovation of Chemical Process Dev. & Material Science Building
- First Floor Plan Showing Power System
- Second Floor Plan Showing Power System
- Chemicals & Mineral Division-Second Floor Plan

[Publications]

- PIPAC
- KOMPASS 1 1987 Philippines
- SPECTRUM of Coconut Products
- Philippine Coconut Research and Development Foundation, Inc.
- THE LOS BANOS MULTI-CROP DRYER
- Trade & Market Department
  [THE PHILIPPINE COCONUT TRADE DIRECTORY]
- Technical Information and Documentation Division National Institute of Science and Technology
  [NIST TECHNO-TRANSFER AND CONTRACT RESEARCH PROJECTS WITH INDUSTRY (1983-1986)]
- COCONUT AQUEOUS PROCESSING
- Robert D. Hagenmaier, Ph. D.
  [COCONUT AQUEOUS PROCESSING]
  San Carlos Publications, 1980
- Visayas State College of Agriculture (VISCA)
  [Symposium on Coconut-Based Farming Systems)