**PC-I**

GOVERNMENT OF PAKISTAN
PLANNING COMMISSION

NAME OF PROJECT

# BALANCING AND MODERNIZATION OF WORKSHOP FACILITIES AT PITAC, LAHORE.

UNDER THE
PROJECT TYPE TECHNICAL CO-OPERATION
OF JICA

**Approved by CDWP on 27th November, 1999**

**Pakistan Industrial Technical Assistance Centre (PITAC), Lahore.**
**(Ministry of Industries & Production)**
*project.doc/2*

## Balancing & Modernization of Workshop Facilities at PITAC, Lahore

# EXECUTIVE SUMMARY OF THE PROJECT

1. The CDWP in its meeting held on 27.11.99 decided to recommend the project to ECNEC with the following conditions (1) Reduction in consultancy from 20% to 10% (2) Confirmation of exemption of customs duty by CBR on equipment to be imported (3) Deletion of cost for the purchase of car (4) Reduction in annual recurring expenditure and (5) Approval of Ministry of Finance for new posts.

   ***The directives of the CDWP have been incorporated in the PC-1 document (Refer Pages Number 4, 5, 11, 18, 19 & 20) and it has been revised accordingly with the following financial effect:***

| | | |
|---|---|---|
| *i.* | *Purchase of vehicle for the Project (1300 cc Car)* | *Rs. 0.800 million* |
| *ii.* | *Annual Recurring Expenditure (for 3 years)* | *Rs. 2.050 million* |
| | *Total* | *Rs. 2.850 million* |

   ***The total Local Cost of the project has reduced to Rs. 8.350 million from Rs. 11.20 million.***

2. The project relates to the Balancing & Modernization of Workshop Facilities at PITAC, Lahore, sponsored by the Ministry of Industries Production, Government of Pakistan, at a total cost of Rs. 738.4 Million with FEC of Rs. 728 Million (US$ 14 Million). The FEC will be provided by Government of Japan through JICA under Project Type Technical Co-operation Programme (PTTC) and will be completed in 36 months.

3. A Basic Study Team from JICA visited Pakistan and signed a Minutes of Discussion on 12th April 1999 at the Ministry of Industries & Production, Islamabad, wherein the JICA indicated the willingness to provide necessary technical assistance.

3. The more important objective of the project is the Transfer of Technology in Plastic Mould Designing and Manufacturing for supporting industries using the state-of-the-art techniques practiced in Japan.

4. High precision plastic moulds required by the automobile industry, home appliances and other allied industries are imported from abroad at high cost in foreign exchange and entailing time lags in delivery.

5. The domestic production of plastic moulds lacks proper design, precision and use of right materials. Products from such moulds are not acceptable to foreign experts in the auto industry to replace imported parts/components in the deletion programmes.

6. Owing to the expertise gained by PITAC and experience of past relationship as an efficient recipient of Japanese co-operation and aid, the JICA has shown willingness to provide Transfer of Technology to PITAC in the field of Plastic Mould Making with the aim that PITAC will share with the private sector the technology through training, consultancy and designing and manufacturing plastic moulds and their try out.

7. The Japanese co-operation in the project comprises of (1)Transfer of Technology in the field of Plastic Mould Making through Computer Integrated Manufacturing (CIM) Techniques and on-the-job- training of counterparts by Japanese experts in Japan and in Pakistan, (2) Plastic Mould Design, Mould Processing, Assembling and Try out, (3) Supply of latest Machines and Equipment.

8. As result of the implementation of the project a new state-of-the-art technology to the Pakistani engineers and technicians will be introduced and inculcated and designing and manufacture of high precision plastic mould hitherto imported, will be carried out in the country effecting saving of precious foreign exchange. PITAC will become a focal point and a centre excellence for providing technological backup support to the engineering industry in the private & public sector engaged in plastic mould making.

***

BMR3

*Code number for project (to be filled in by Planning Commission).*

P.C. I

PART 'A'

# PROJECT DIGEST

| | |
|---|---|
| 1. *Name of Project & Location:* | Balancing and Modernization of Workshop Facilities at PITAC, Moulana Jalal-ud-Din Roomi Road, Lahore, 54600 |
| 2. *Authorities responsible for* | |
| i. *Sponsoring* | Ministry of Industries and Production, Government of Pakistan. |
| ii. *Execution* | Pakistan Industrial Technical Assistance Centre (PITAC), Maulana Jalal-ud-Din Roomi Road, Lahore-54600 |
| iii. *Operation & Maintenance* | Pakistan Industrial Technical Assistance Centre (PITAC), Maulana Jalal-ud-Din Roomi Road, Lahore-54600 |
| 3. *Time required for completion of Project in months.* | 36 months commencing January 2000 |

4. *a) Plan Provision*

i. *If the project is included in the current five year plan specify actual allocation.*

The project is covered under the objectives and major strategies for the manufacturing sector as mentioned in the 9th Five Year Plan (1998 - 2003).

ii. *If not included in the current plan how is it now proposed to be accommodated (inter/inter-sectoral adjustments in allocation or other resources may be indicated)*

Japanese Govt. will provide Foreign Exchange component under their Project Type Technical Cooperation Programme (PTTC) which comprise of three elements viz. Transfer of Technology through despatch of Japanese Experts in the field of plastic mould making with the aid of CAD and CAM, supply of most modern machinery and equipment and training of Coounterparts, starting with the financial Year 1999/2000. Therefore, there is no liability on the Governmen of Pakistan in the FEC. The local currency requirements being very small (about 1.6% of the total project layout) could be be met from sectional adjustments in the Federal Annual Development Programmes.

iii. *If the project is proposed to be financed out of block provision for a programme indicated.*

No

b) *If project is not in the plan, what warrants its inclusion in the plan.*

The project addresses a vital need of production of quality, precision moulds required by the engineering industry, specifically the metal working and assembly industries. The use of plastic parts, components, articles and goods is growing. One of the more important users of plastic moulds is the Automobile industry in Pakistan. About 50 to 60 thousand vehicles are produced annually by about 20 manufacturers. All these vehicles are fitted with plastic parts and components. At present there are 527 vendor companies catering to the automobile industry alone. In addition, out of about 4500 plastic manufacturers who depend on vendors for their die and mould requirements, many die and mould makers are available in the country but their quality is not upto the mark. However, there are only few leading companies specializing in mould making with PITAC regarded as having the highest expertise in the field and produce top class moulds. As all the auto makers are producing famous brands mostly Japanese, strict quality control is maintained. At present the dies and moulds for the auto industry are imported from Japan as the local tool and mould makers cannot come up to the quality of the plastic components due to low technology level. Another important user of dies and moulds is the TV and other electronic equipment. Quality moulds are also required for the many household appliances and other alied items, being produced in the country. It will be seen, therefore, that

a) a great demand exists in the country for quality and precision dies and moulds for various industrial and commercial uses.

b) it is high time to transfer technology to assist industrial undertakings comping up in the wake of 9th Five Year Plan the field of mould manufacturing as more intricate and precision designed moulds are required.

c) it is necessary to enhance the knowhow and skills of the engineers and technicians in modern mould designing and making techniques by of imparting training and retraining.

d) a large number of moulds are imported entailing considerable sums of **foreign exchange averaging about Rs. 10-12 Crorers annualy**. (Data available in " Foreign Trade Statistics of Pakistan" [published by Federtal Bureau of Statistics, EAD] of last 5 years is given at Annx- VII).

The project would enable design and production of these dies and moulds locally as well as training of personnel to undertake plastic mould design, plastic mould processing and assembling mould parts and tryout of the moulding independently in the country in the respective industrial zones in different provinces so that "tool down" time could be shortened and expenditure in Foreign Exchange be minimized. This expenditure could be reduced upto 1/6 and the time to procure such tooling from one/two years to 3/12 months.

This will facilitate and provide the industries, specially the SMEs, with production tool requirements as well as trained and skilled manpower in their respective regions.

The overall impact of the project will be in the saving of precious foreign exchange and rovide addtional jobs to the trained manpower since the project emphasizes on the trasfer of techncology to the counterparts from the Japanese experts and provision of latest machinery and equipment thus it will help in promoting productivity of the SMEs.

5. ***Relationship of the project with the objectives of the sector.***

The project is related to the objectives of the sector in as much as it augments the complementary requirements of industrialization. The project will fulfill the needs of the engineering, metal working, automobile and other industry's requirements of high precision moulds through technology transfer in the areas of:

i. Design of moulds as per the latest technology using Computer-Aided-Design.
ii. Manufacture of moulds using the latest equipment with the state-of-the-art technology on Numerical Control and Computer controlled machines (CIM).
iii. Training of personnel in the latest technology of mould making thus enhancing HRD capability of PITAC. The training will have multiplier effect through PITAC training programmes open to all relevant industrial personnel.
iv. Dissemination of the latest techniques to the industry by way of consultancy and advisory service to industry in the field of mould making.

The overall goal of the project is to facilitate plastic mould manufacturers in Pakistan to provide the domestic assembly industries with high quality precision moulds.

6. *Capital Cost of Project (in millions):*

| | | | |
|---|---|---|---|
| **A)** | **Local Cost** | | **Rs. 8.350** |
| **B)** | **Foreign Exchange Cost** | **US $14.000** | **Rs. 728.000 million** |
| | **Total** | | **Rs. 736.350 million** |

*A. Local Cost in Pak. Rupees (Million)*

| | | |
|---|---|---|
| 1. | Construction of Buildings, Electrification, Air-conditioning and dust proofing for Precision Machinery. Refer (i) Site Plan at Annex. 10 of the Minutes of Discussion and (ii) Break up of Cost of Civil Work at Annex. VIII. | 5.000 |
| 2. | Customs Duty | Exemption from CBR to be obtained by EAD on receipt of draft grant assistance agreement from Embassy of Japan (Ref. EAD Letter No. 3(545)JPN-I/98 dated 8th December, 1999. |
| 3. | Clearance and internal transportation of Machinery & Equipment | 0.500 |
| 4. | Erection and Installation of Machinery at PITAC | 0.300 |
| 5. | Pay and Allowances of project implementation staff. (Annexure IV) | 2.050 |
| 6. | Purchase of essential tools and operating items (Local), as per Minutes of Discussion (p. 17) | 0.500 |
| | **TOTAL:** | **8.350** |

*B. Foreign Exchange Cost in Million*(Tentative) *US $*

| | | | |
|---|---|---|---|
| 1. | Despatch of Experts (Ref. Project Implementation Schedule) | 01.400 | 72.800 |
| 2. | Cost of Machinery & Equipments (Ref. Annexure 1/2 & 1/2 ) | 11.200 | 582.400 |
| 3. | Counterpart Training in Japan (Ref. Project Implementation Schedule) | 01.400 | 72.800 |
| | **Total** | **14.00** | **728.00** |

*TOTAL CAPITAL COST IN PAK. RS. MILLION*

Taking 1 US$ = Rs. 52.00

| Local Currency | Foreign Exchange | Total |
|---|---|---|
| 8.350 | 728.00 | 736.350 |

7. ***Annual Recurring Expenditure***

Pay & Allowances (Details at Annex IV) — **Rs. 0.7560 Million**
The balance to be met through the resources generated from earnings.

***8. a) Objectives of the project preferably in quantitative terms.***

The overall goal of the project is to facilitate plastic mould manufacturers in Pakistan to provide domestic assembly industries with high class moulds. The demand for plastic parts, components and housings has been growing for the following reasons:

1. With the advent of auto industry, the number of auto manufacturers has grown to twenty with annual production of above 50,000 vehicles. This has resulted in the growth of large number of vendors, standing at 227 in 1998 which specialize in auto parts and components, and specifically the plastic parts being used in vehicles. Consequently, the demand for precision and intricate moulds has grown considerably. For the purpose of deletion, the locally manufactured plastic part requires approval of the foreign experts to match the international quality and finish.

2. Further, the use of plastic parts and components in industry, agriculture and home appliances is increasing with more precision and intricate designs enhancing demand for precision moulds.

3. New and improved mould making materials and developments in the resin (plastic) as well as new technology is being introduced in the international market. Many resinous materials require special moulds made of special quality steels. It is, therefore, imperative to acquire most modern technology in the mould and tool making being introduced and applied in the foreign countries to be in step with the developed countries in this field.

4. The expertise gained through technology transfer in this project is also essential for our future requirements. The mould and tool making industry is lagging far behind the state-of-the-art being practiced in foreign countries. It is necessary to acquire the latest technology in this field for sound development of industry.

5. As a result of implementation of this project the effectiveness of PITAC will highly improve its capabilities of design, manufacturing, training and providing consultancy services to the industry in the field of mould and tool making in particular and in allied fields in general. Another important objective is to reduce the dependence on the import of quality tools from abroad thus saving precious foreign exchange.

Within the frame work of charter of functions and responsibility, PITAC since inception, is contributing its share in the development and improvement of national productivity for the economic development of the country. PITAC has been rendering technical assistance and providing technical support to tackle engineering problems of the manufacturing industries and as such has been playing a leading role for the sound development of the manufacturing industry. PITAC with its back-up facilities of workshops is also rendering advisory services, and 'On-the-job-training' for industrial personnel (engineering graduate to technician level) with the aim to meet the need for highly skilled personnel to man the Pakistan Industry.

It is worthwhile to mention that personnel and services available at PITAC are shared by the industry as a whole without any commercial strings and their effect is catalytic in technical development of Industry. The benefits thus accruing from the Design, development and manufacturing of tools dies, jigs, fixtures, inspection gauges, moulds, etc. will not only bring about foreign exchange saving but also cut down short deliveries and tool down time. It is important to note that there is no other institution or organization in Pakistan which is dealing with the Research, Design and Development activities for manufacturing industries, The benefits of PITAC to industry, therefore, are several-fold.

With the development and expansion in the industry of the country, it is becoming more and more difficult for PITAC to attend to their ever-increasing problems without qualitative and quantitative improvement in the facilities. The experience of about 36 years gained in providing technical assistance to the Manufacturing Sector of Industry would go waste if this organization is not expanded to be in step with the increase, both in sophistication and volume, of the needed assistance. This organization must modernize in order to provide advanced technological support for sound development of the industry. The machinery and equipment at Lahore Workshop are in use for the last 36 years both for tool making as well as for training purposes. Precision machines when used for training do not remain true and need immediate replacement. Additional equipment is essential for balancing and modernization in view of the advanced techniques in the world in the field of machine tools and metal Industries.

The modern and sophisticated machinery and equipment provided by JICA during 1985 has, to some extent, increasedthe efficiency of the Centre both in Production and Training activities for Human Resources Development Programme. Thus the Centre was in a better position to continue its share towards productivity promotion activities and transfer of Technology in the country. But now after a lapse of almost 13 years these equipments have become obsolete as latest developments have taken place and more sophisticated and Modern Machinery and Equipments have been developed.

Hence the Centre needs the envisaged assistance as given under:

(1) Transfer of Technology in the field of Plastic Mould Making through training of Counterparts by Japanese Experts locally as well as in Japan,

(2) Plastic Mould Design, Mould Processing, Assembling and Try out,

(3) Supply of most modern machinery and equipment.

*b) Value of additional income by way of manufacture of tools, moulds dies, jigs, fixtures, gauges and other products and services per annum on completion of the project.*

| | |
|---|---|
| First year | **Rs. 4,000,000** |
| Second year | **Rs 4,000,000** |
| Third year | **Rs. 5,000,000** |

A preliminary identification survey has revealed that adequate demand exists for quality plastic injection moulds in different sectors such as automobile, house appliances, furniture, electronic items, etc. which are being imported. After the completion of the project and technology transfer PITAC will be able to cater to a part of this demand to the extent of about 50-60 moulds in the first and second year and about 70-75 in the third year. In addition practical on-the-job training will be imparted to the industrial personnel in the field which will add to the number of moulds manufactured in the country and generating additional revenue as training/consultancy fee. It will also help in employment generation in the country.

**However, about five years after the implementation/completion of the project and technology transfer for high precision mould making, it is expected that PITAC will be able to acquire self sustainability and the Government subsidy will be gradually reduced to minimum. In this connection a viable action plan to achieve sustainability will be made out in consultation with the Japanese survey/implementation team. For cash flow of PITAC revenue after the completion of the project please refer Annex - XI.**

PREPARED BY: **ARIF ALI SHEIKH**
Manager (Coordination), PITAC

CHECKED BY: **SYED AHSAN ALI KHAN**
Senior Manager (O&W), PITAC PITAC

DATE: **03rd November, 1999**

APPROVED BY: **M. A. JABBAR KHAN**
GENERAL MANAGER, PITAC

PART 'B'

# PROJECT'S DESCRIPTION AND FINANCING

*9. Location of Project.*

The project will be located in Lahore which is the capital of Punjab Province. The site for the project has already been earmarked and shown at Annexure 10 of the Minutes of Discussion. The project is a part of the existing workshop facilities of PITAC Lahore and is aimed at modernization and balancing of these facilities with introduction of new and improved technology in the field of plastic die and mould making in particular. The project envisages:

1) Technology transfer through dispatch of Japanese Experts in the field of plastic mould making with the latest techniques of computer-aided-design and computer-integrated-manufacturing (CIM).

2) Supply of most modern machinery and equipment as per list at Annex- I/1 to I/2.

3) Training of counterpart personnel in Japan in the latest techniques of mould making and operation and maintenance of the machinery and equipment to be supplied under the project.

4) Providing services of long term and short term Japanese experts to the project in addition to a Chief Expert and a Coordinator.

*10. Market Analysis.*

*a) Description of product or products:*

There is an increasing demand for quality production of tools particularly plastic moulds. With the advent of auto industry in the country, the vendor industry has grown manifold. The demand for international quality plastic parts of vehicles by auto assemblers has in turn created a demand for high precision moulds for plastic parts and components. As there is scarcity of such mould makers in the country, quality moulds are being imported in large numbers to adhere to the deletion programme.

Undoubtedly, the creation of precision mould making capability after implementation of the project will be a great help for the development of the industry engaged in plastic and Metal Trades Engineering fields. With the proposed modernization, the application of these techniques will bring

about a revolutionary change in the manufacturing industry as project planning and concept clarification method entitled Project Cycle Management (PCM) has been introduced to every Project Type Technical Co-operation (PTTC) programme to monitor and evaluate the level of achievement and enhance the communication for its smooth implementation. The project Design M )PDM) will be prepared to ensure the project is result oriented. Besides the training activity will be enhanced to cope with the future demands for training in latest mould making techniques. Training of counterparts in Japan will enhance capability of PITAC to provide advisory and consultancy services to industry in the field of mould making and related matters. More effective training in the field will be provided by PITAC.

*b) Existing demand (for last 5 years) met from local production/import. Give information on main local supplies, the prices of their products and marketing arrangements:*

The nature of products is such that the present as well as future demands cannot be measured in quantity or number. There is no fixed line of production in the PITAC. The charter of functions and responsibilities restricts PITAC's role to providing technological backup support-service and Human Resource Development to industry for economic development and productivity. Every Industry is in need of technical assistance and demand is proportional to the growth of Industry. The requirements of parts and components by the industries will increase with the passage of time. The capacity of PITAC , Lahore, is limited and cannot entirely cope with the demand for its services by the industry. PITAC is, therefore, in need of balancing and modernizing the facilities and needs technology transfer in the field of mould making to cope with the demand of precision moulds as well as help industry in overcoming shortcomings in quality mould making. After implementation of project PITAC will be able to more effectively deal with the industry's requirements in the fields of

(a) training in the field of precision plastic injection techniques,

(b) technical know-how for the transfer to technology in the field mentioned in (a) above,

(c) designing and

(d) manufacturing precision moulds for plastic products.

*11. a) Mention the objective of the project:*

To enhance and improve the technical services provided by PITAC to plastic mould industry, the JICA will consider to provide the following to PITAC under the PTTC Programme:

a. Transfer of technology in the field of Mould Making Technology through Japanese Experts

b. Computer-aided-Design technique (CAD)

c. Modern equipment operated on Computer-Integrated Manufacturing (CIM)

d. Training of counterpart personnel in Japan

e. Trial of moulds at PITAC.

*b) Give detailed description of major equipment items and structure:*

Please see Annexure -I.

*c) Give administrative form of the organization, Govt. Deptt; or corporation and structure of Organization.*

PITAC is a Semi Government organization under the administrative control of Ministry of Industries and Production, Government of Pakisrtan. Organization Chart attached at Annexure-II.

PITAC has two layers of decision making structure, the Governing Body and the Executive Committe.

The Governing Body consists of 12 members drawn from the Federal and Provincial Governments, Federation of Pakistan Chambers of Commerce & Industries and one member each from the Chambers of Commerce & Industry at provincial headquarters respectively. The Senior Joint Secretary, Ministry of Industries & Production, is the Chairman of the Governing Body. It lays down the policy for managing all affairs and funds of PITAC in view of the policy directions received from Federal Governments.

The Executive Committee comprises of five members including Financial Advisor and Deputy Secretary (Administration), Ministry of Industries & Production, and one member from Federation of Pakistan Chambers of Commerce & Industry and the Lahore Chamber of Commerce & Industry. The General Manager of PITAC is the Chairman. The Executive Committee exercises the powers of Governing Body in day to day running of PITAC except in the matters of major policy and functions.

*12. Give date when capital expenditure were prepared:*

The capital expenditure Estimates have been prepared during April 1999.

13. *Give break-down of capital cost covering the whole of investment period as indicated below:*

(Duration of Project 36 months w.e.f. 01-01-2000).

| | FIRST YEAR | 2ND YEAR | 3RD YEAR | TOTAL |
|---|---|---|---|---|
| Local Currency in Pak Rupees. (in Million) | 4.00 | 2.20 | 2.15 | 8.350 |
| Foreign Exchange U.S. Dollars. (in Million) | 4.00 | 7.00 | 3.00 | 14.00 |

14. *Basis of Cost Estimate.*

The cost estimates have been worked out by PITAC experts and are based on international standards and prices prevailing in Pakistan and Japan.

15. *Give cost of sales in the first year of operation and on full operation of project.*

The project deals with training, advisory services, and facilities for design and production of plastic injection moulds. As the facilities do not fall under the general concept of consumer products the details as desired are not applicable. These are tools for production or tools that help production of quality plastic producdts/components. These are tailor made for the specific requirements of each customer for mass production of different items. There is, therefore no regular market for these but the demand depends on the market of end products. Their production substitutes imports both for the tooling as well as the end products. However, value of additional income after the implementation of the project is given at S. No. 8(b), page 6.

16. a) *Indicate fixed variable costs:*

**Does not apply in view of the nature of products and services as mentioned in Clause-10 above.**

b) *Give sale price per unit for each product. Give basis of fixation of price.*

PITAC does not produce a line of products on commercial basis. It only provides back up technoological support to the industry as such value of additional income by way of manufacture of tools, moulds as a result of implementation of project has been estimated and given against Item No. 8(b) at page 6.

Prices are estimated according to rates approved by the competent authority.

*17. Give a cash flow statement indicating the in-flow and out-flow of cost for five years preferable for ten years.*

PITAC does not produce a line of products on commercial basis. It only provides back up technoological support to the industry as such value of additional income by way of manufacture of tools, moulds as a result of implementation of project has been estimated and given against Item No. 8(b) at page 6.

Prices are estimated according to rates approved by the competent authority.

*18. a) Give profit and loss account for five years (preferably) for ten years indicate profit, sales, sales/investment.*

**Not applicable in view of the nature of products and services.**

*b) Give a statement showing phasing of repayable of loans indicate debt servicing capacity (i) of project (ii) of loan organization.*

The grant for the project from Government of Japan under the PTTC programme is not repayable.

*19. Annual phasing of physical work and financial requirement for the project attach PERT or Bar Diagram, if prepared.*

Please see Annexure-III

*20. Foreign Exchange effect of the Project:*

The Technology Transfer in the field of Plastic Mould Designing, Manufacturing, Assembly and Try out of the Moulds and Training of the Counterparts through the Japanese Experts will enhance the existing mould manufacturing capability at PITAC directly and in industry through PITAC assistsance. This will result in creating skilfull manpower resources.

The modernization and balancing of PITAC Lahore would create more capacity and better manufacturing facilities in the Centre particularly the precision mould making for plastic and other moulds and generally for all metal working engineering industry. PITAC is known in the industry for its mould making expertise.

Acquisition of the new equipment will enable PITAC to become a centre of excellence in designing and manufacturing of quality moulds and tool production. The mould which are being imported will be made in PITAC with the same precision.

Till the time such facilities are made available in PITAC, Karachi, Peshawar and Quetta also, PITAC Lahore will continue to act as a focal point for the entire needs of the country. Acquisition and establishment of a nucleus of latest machine tools and creation of a cell for latest machines would increase production and also contribute towards training facilities for the industry besides imparting training to our own engineers and technicians.

Dissemination of latest technical knowhow to the engineering industry will help industries in cutting down their production costs.

The impact of the project would thus be a net saving of foreign exchange being spent on the import of precision moulds.

21. a) ***Likely sources of purchase of equipment and financing of foreign exchange cost of the project:***

Government of Japan under the PTTC Programme through JICA.

The Project Type Technical Cooperation (PTTC) programme of Japan is a type of technical support under which three elements i.e. dispatch of experts, taking in participants for training in Japan and provision of equipment and material, are organically linked and the whole process from project formulation through to implementation and evaluation is managed and controlled in an integrated manner. Such projects generally involved cooperation for a period upto five years and centre on cooperation with the development of economic self-reliance in the developing countries. This type of cooperation involves ensuring that the transferred technology takes firm root. It also incorporates the establishment of organizational and institutional structures needed to guarantee that skills and technology transferred to the recipient country take root and that the country is able to execute projects on its own initiative once Japanese cooperation has come to an end.

As such under this programme the government of Japan has proposed to provide the total foreign exchange component of the project in the form of capital goods, expert services and training of local counterparts in Japan for effective technology transfer.

*b) Present position regarding availability commitment or negotiations:*

The Minutes of Discussion have been signed between Japan International Cooperation Agency (JICA), the official implementation agency of Government of Japan for execution of grant/and Technical Co-operation Projects, and Government of Pakistan on 4-99 at the Ministry of Industries & Production for considering to provide a comprehensive three years PTTC package to PITAC, Lahore. (Annexure - V).

The Economic Affairs Division has conveyed Government's proposal to utilize the Technical Co-operation of Japan under PTTC programme, vide letter No. 3(545)JPN-1-98 dated 19-5-99 (Copy at Annexure VI)

*22. Financial structure and sources of financing:*

Foreign Exchange component of the project will be provided through JICA to PITAC which includes:

(1) Dispatch of Japanese Experts

(2) Training of Counterparts in Japan

(3) Supply of Machinery and Equipment, etc. for the Transfer of Technology in the field of Plastic Mould Designing, Manufacturing, Assembling and Try outs.

The local currency requirements being very small (about 1.6% of the total project layout) will be met from the Federal Annual Development Programmes.

*23. a) Benefits of project other than sales of products:*

**Tangible Benefits:**

- Introduction and Inculcation of new state of the art technology to the local manpower.
- Harnessing/developing/enhancing the skill of the technical personnel in order to providing timely and quality output to the related organization. This would help in building a focal point from where research or information would be disseminated to other organizations.
- Auto and other industries will gain through acquiring latest technologies in plastic and die moulding. Training to technical personal including technicians will increase the work force and this help in enhancing the quality of the products, increasing the sale of the product, increasing the trust in local products and decrease the dependence on imported parts, especially plastic etc.

**General Benefits**

The proposed modernization and balancing of PITAC Lahore and consequent enhancement of facilities of production, training and advisory services, will provide industries in general and metal industries in particular, the capability to design, produce and test trial various types of plastic injection moulds. Also precision parts and components would be easily manufactured, bringing about saving in foreign exchange. This will create self reliance in industry. Instead of looking for imported tools for production all the time, they will now be tapping own internal resources.

The training facilities will remove deficiencies presently being faced by industries due to lack of highly skilled trained and experienced technical hands and engineers. The trained and skilled workforce will be able to handle with confidence the design, production and maintenance problems of their respective industries.

The advisory services would help in improving quality of products and step up productivity.

*b) Return to Government in form of taxes reduction in subsidy etc.*

PITAC is not a commercial organization. It is operating on Government's Grants in Aid with a part of annual budget being met through income generated by local production, training and advisory services.

*24. a) Approximate number and categories of Job opportunities likely to be created indirectly as a result of:*

*i. Implementation:*

In addition to existing personnel of PITAC in the technical cadres, additional staff will be required to be recruited (Please see Annex-IV)

*ii. Operation of Project:*

The qualified and experienced manpower required for operation of the project will consist of the personnel required for the implementation of the project in addition to the existing personnel from PITAC.

## PART "C"

25. a) *Manpower:*

As explained in 24 above.

b) *Likely shortage of manpower by occupation:*

No shortage envisaged.

c) *Steps to be taken to availability of manpower.*

Training by experts and through local programmes.

d) *Approximate number of persons required to be trained abroad for the project:*

A list of Counterpart personnel is given in Annexure 8. The selection for training in Japan will be done by the General Manager, PITAC and the Leader of the Implementation Team keeping in view the actual requirements for training needs as agreed in the Minutes of Discussion at para 9 (b), page 16. To have the multiplier effect of the Project about 250 - 300 technical persons will be locally training from different ngineering industries

* * *

ANNEXURE - I/1

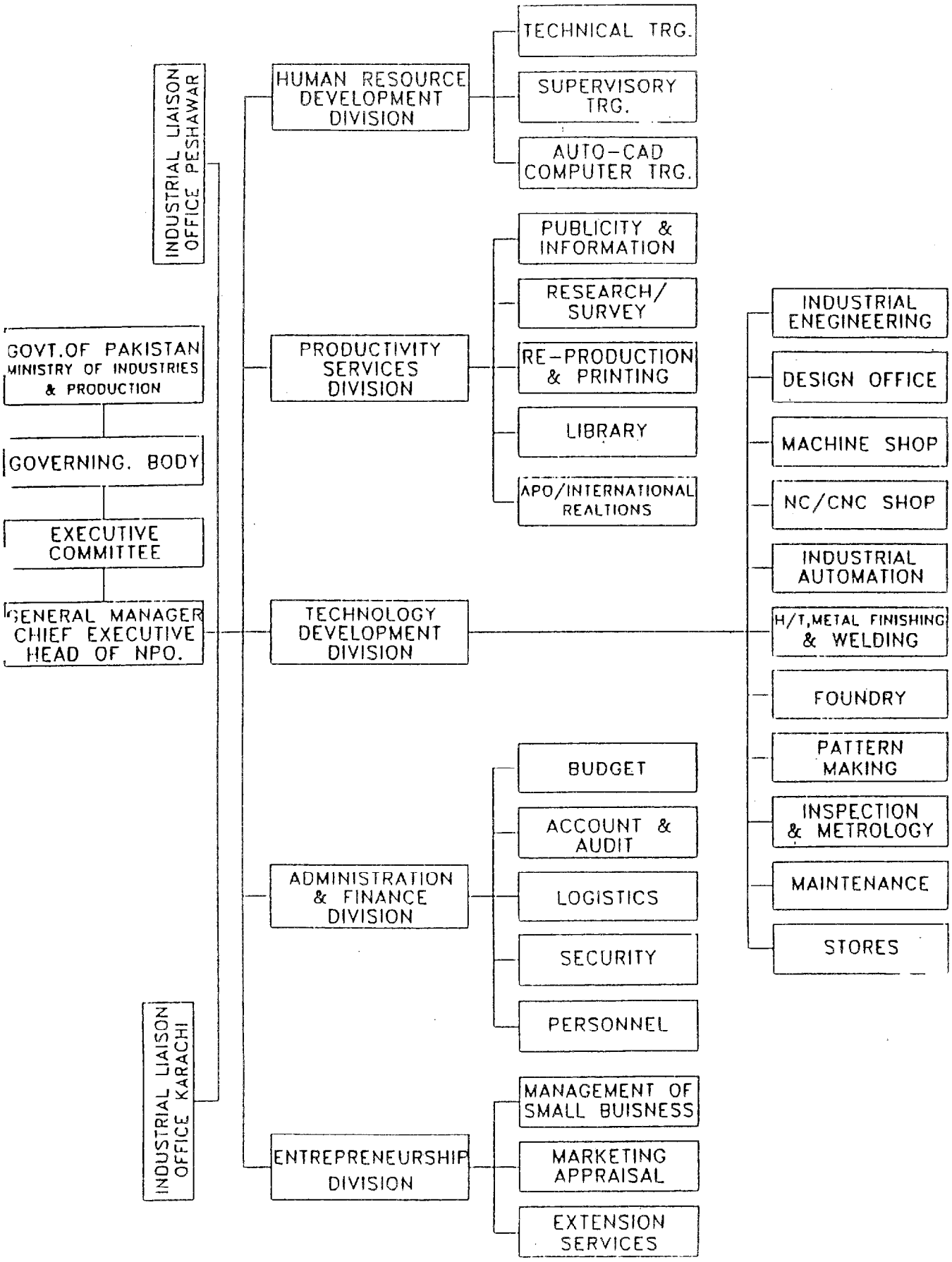
# PROPOSED LIST OF MACHINERY AND EQUIPMENT

| Sl.N | Description | Specification | Quantity | Cost in USD (Million) |
|---|---|---|---|---|
| 01 | EDM (S) Spark Erosion | 700 x 450 x 310 | 2 Nos. | 0.180 |
| 02 | EDM (M) Spark Erosion | 1000x650x410 | 2 " | 0.200 |
| 03 | Wire Cut | 680x530x260 | 2 Nos. | 0.300 |
| 04 | Precision Surface Grinding Machine (M) | 800 x 500 | 2 Nos. | 0.100 |
| 05 | Rapid Prototype Testing Equipment | | 1 Set. | 1.600 |
| 06 | Injection Moulding Machine (M) | 350 Ton | 1 No. | 0.120 |
| 07 | Injection Moulding Machine (S) | 170 Ton | 1 No. | 0.110 |
| 08 | Overhead Traveling Crane | 5 Ton | 3 Nos. | 0.030 |
| 09 | Hoist | 5 Ton | 1 No. | 0.002 |
| 10 | Coordinate Measuring Machine | 1200 x 1000 x 800 | 1 No. | 0.200 |
| 11 | Polishing Machine (Ultrasonic) | 1500 x 1000 | 1 No. | 0.050 |
| 12 | Chemical Etching | 1400 x 1100 x 400 | 1 No. | 0.050 |
| 13 | CAD for Mould Designing (Hardware & Software) | CATTA | 6 Nos. | 1.800 |
| 14 | CAM for Mould Making | Grade | 4 Nos. | 4.000 |
| 15 | Box Type Elec. Furnace Max. Temp. 2500° F | 24" x 24" 18" | 1 No. | 0.020 |
| 16 | Continuous Gas Carborising Hardening furnace with Automatic Control for Annealing Normalizing & Carborizing Max Tap 2000° F | Charge size 250 Kf/charge | 1 No. | 0.050 |

| Sl.N | Description | Specification | Quantity | Cost in USD (Million) |
|---|---|---|---|---|
| 17 | Induction Hardening Machine with special attachment for gear tooth hardening. | Medium size | 1 No. | 0.100 |
| 18 | Equipment on Master Making Techniques (for Copy Milling Work) | 300 x 600 mm | 1 No. | 0.050 |
| 19 | N.C. Precision Jig Grinding Machine with all accessories | | 1 Set. | 0.100 |
| 20 | Vertical Machining Centre (with ATC) | 710x410x760 | 2 Nos. | 0.175 |
| 21 | Laser Cutting | | 1 Set. | 0.020 |
| 22 | Jig Boring Machine | 1020 x760x800 | 1 Set. | 0.100 |
| 23 | Ram Type Milling Machine<br><br>(with DRO) | | 6 Nos. | 0.075 |
| 24 | Programming Computer for CNC Milling Machine KE-55 | | 1 Set. | 0.007 |
| 25 | NC Copy Milling Machine | 500x850x450 | 1 Set. | 0.100 |
| | Maintenance equipment cost | | | 0.261 |
| | | Total Cost | | 9.8400 |
| | | Equipment commiissioning cost | | 1.3600 |
| | | Grand Total | | 11.2000 |

**Machinery & Equipment will be finalized under PTTC Project on visit of JICA Survey/Implementation Team for Transfer of the Technology. However, steps have already been taken for the disposal of the old and absolete machinery and equipment through PITAC's Executie Committee.**

# PITAC: Organisation Chart.



# ANNUAL FINANCING PHASING OF THE PROJECT MODERNIZATION AND BALANCING OF PITAC WORKSHOPS FACILITIES AT LAHORE.

| | 1st Year | 2nd Year | 3rd Year | Total Amount |
|---|---|---|---|---|
| Local Currency in Pak Rupees (Million) | 4.00 | 2.20 | 2.15 | 8.350 |
| Foreign Currency US Dollars (Million) | 4.00 | 7.00 | 3.00 | 14.00 |

ANNEXURE-IV

# DETAILS OF PAY & ALLOWANCES OF NEW STAFF REQUIRED FOR IMPLEMENTATION OF PROJECT

*(LOCAL COUNTER PARTS)*

| Designation | Grade | No. of Posts | Salary/ Month (Rupees) | Salary/ Year (Rupees) | Total during Project (3 yrs.) |
|---|---|---|---|---|---|
| Senior Manager | 19 | 2 | 20,000/- | 4,80,000/- | 14,40,000/- |
| Manager | 18 | 2 | 15,000/- | 3,60,000/- | 10,80,000/- |
| Dy. Manager | 17 | 2 | 10,000/- | 2,40,000/- | 7,24,000/- |
| Shop Tech. Asstt. | 14 | 6 | 4,000/- | 3,60,000/- | 7,23,000/- |
| Naib Qasid | 1 | 2 | 3,000/- | 72,000/- | 1,40,000/- |
| | | | **Grand total:** | 15,12,000/- | 41,00,000/- |
| | | | | **(1.512Million)** | **(4.100 Million)** |

**Note:** Posts of Shop Tech. Asstt. & Naib Qasid will be filled for the last two years of the project.

**Justification of the posts:**

(1) **Each incumbent Senior Manager wil head the Computer-Aided-Design (CAD) and Computer-Integrated-Manufacturing (CIM), assisted by a Manager and Deputy Manager. Qualified and experienced engineers will be required for the project to run the most sophisticated equipment of high technology such as CAD & CIM.**

(2) **Shop Technical Assistants are needed to operate the machines. Highly skilled technicians holding associate engineer diploma will be required.**

(3) **The presently available staff was trained to work on the conventional type of machinery and equipment and do not possess required level of skill to work on the computerized equipment. Hence qualified Engineering staff having experience in plastic injection mould making will be recruited to work on CAD and CIM equipment.**

# MINUTES OF DISCUSSIONS BETWEEN THE JAPANESE BASIC STUDY TEAM AND THE AUTHORITIES CONCERNED OF THE GOVERNMENT OF THE ISLAMIC REPUBLIC OF PAKISTAN ON THE JAPANESE TECHNICAL COOPERATION ON BALANCING AND MODERNIZATION OF WORKSHOP FACILITIES AT PAKISTAN INDUSTRIAL TECHNICAL ASSISTANCE CENTER (PITAC)-LAHORE

The Japanese Basic Study Team (hereinafter referred to as "the Team") organized by Japan International Cooperation Agency and headed by Ms. kyoko kuwajima, visited the Islamic Republic of Pakistan from April 4 to April 13,1999 for the purpose of collecting data on PITAC at present in the Islamic Republic of Pakistan, clarifying the background, concept and scope of the project proposal of the Japanese Technical Cooperation for the Project on balancing and modernization of workshop facilities at Pakistan Industrial Technical Assistance Center - Lahore (hereinafter referred to as "the Project") made by the authorities concerned of the Government of the Islamic Republic of Pakistan (hereinafter referred to as "the Pakistani side") and studying the feasibility of the Project.

During its stay in the Islamic Republic of Pakistan, the Team had a series of discussions and exchanged views with the Pakistani authorities concerned and also made a field survey to the relevant sites, facilities and so on.

As a result of the discussions, both sides came to reach a common understanding concerning the matters referred to in the document attached hereto.

Islamabad, April 12, 1999

桑島京子

Kyoko Kuwajima
Leader
Basic Study Team
Japan International Cooperation Agency
Japan

M.A.Jabbar Khan
General Manager
PITAC and
Head of NPO
Islamic Republic of Pakistan

Abu Shamim M.Ariff
Secretary
Ministry of Industries and Production
Islamic Republic of Pakistan

بسم الله الرحمن الرحيم

ANNEXURE -VI-

No. 3(5-15)JPN-I/98
GOVERNMENT OF PAKISTAN
MINISTRY OF FINANCE AND
ECONOMIC AFFAIRS
(ECONOMIC AFFAIRS DIVISION)

Telegram :ECONOMIC
Telex : ECDIV 05-634
Fax 92-51-9210734

Islamabad, the 19th May, 1999

SECTION OFFICER
PHONE: 9201805

Subject:- BALANCING AND MODERNIZATION OF WORKSHOP FACILITIES AT PAKISTAN INDUSTRIAL TECHNICAL ASSISTANCE CENTER (PITAC) LAHORE

Dear Mr. Watanabe,

Government of Pakistan proposes to utilize the Japanese Technical Cooperation under the Project Type Technical Cooperation for the following project.

| Name of the Project | Cost (Rs. Million) |
|---|---|
| Balancing And Modernization of Workshop Facilities at Pakistan Industrial Technical Assistance Center (PITAC) Lahore | Total 706.926<br>FEC 700 |

The above project is under process for approval by CDWP. Govt. of Pakistan requests to provisionally consider this proposal for Japanese technical assistance. Concept paper of the above proposal is enclosed. Project details (PC-I) will be forwarded shortly after approval by CDWP.

You are requested for favourable consideration of the above proposal.

With regards.

Yours sincerely

Rashid Manzoor
(DR RASHID MANZOOR)

Mr. Shiro Watanabe,
First Secretary,
Embassy of Japan,
Islamabad.

DS(A)

DS(A) 24/5/99

**Annexure VII**

## Detailed Value of Plastic Moulds Imported During last 5 Years in Million Rupees.

| 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 |
|---|---|---|---|---|---|
| **131.787** | **152.461** | **161.881** | **130.453** | **142.799** | **39.617 (July-Sept.)** |

**Source:**

"Foreign Trade Statistics of Pakistan"

Federal Bureau of Statistics, Economic Affairs & Statistics Division

Government of Pakistan

Annexure VIII

# Breakup of Cost of Civil Work

| | | Rupees in Million |
|---|---|---|
| 1 | Construction cost of Building<br>Land available in PITAC premises<br>Covered area 8031 sq. ft.<br>Construction cost per unit 450/sq. ft.<br>Building Plan is enclosed | 3.62 |
| 2 | Electrification work (Main supply available) | 0.26 |
| 3 | Internal Water Supply (main supply exists) | 0.05 |
| 4 | Internal Gas Supply (main supply exists) | 0.05 |
| 5 | Central Air conditioning for machinery & equipment<br>10 Tons Capacity and Window type AC for Experts<br>Office - 1½ Ton - 2 Nos. | 0.90 |
| 6 | External Boundary (already exists) | -- |
| 7 | Roads (already exists) | -- |
| 8 | Contingencies | 0.12 |
| | **TOTAL** | 5.00 |

Annexure IX

# Project Implementation Schedule (Tentative)

| | Stage | | I | II | III | |
|---|---|---|---|---|---|---|
| | | | Consultation | Technical Guidance | Implementation & Evaluation | |
| | Fiscal Year | | 1999-2000 | 2000-2001 | 2001-2002 | 2002 |
| | | | July-June | July-June | July-June | July-Dec |
| Pakistani Side | 1. Arrangements of facilities<br>2. Approval of PC-I<br>3. Appointment of Project Staff | | | | | |
| Japanese Side | 1. Dispatch of Basic Study Team & Signing of MOD | | | | | |
| | 2. Dispatch of Survey/Implementation Team | | | | | |
| | Dispatch of Japanese Expert | • Chief Advisor<br>• CAD<br>• CIM<br>• Mould making<br>• Installation & Maintenance | | | | |
| | Training of Counter Part in Japan (2 persons to each Technology) | • CAD<br>• CIM<br>• Mould making<br>• Installation & Maintenance | | | | |
| | Provision of Machinery & Equipment | | | | | |

Annexure X

# Technical Cooperation Programme

| Stage | I | II | III |
|---|---|---|---|
| Scope of Technical Cooperation | Preparation Stage | Foundation Stage | Research & Development Stage |
| Target | • Joint Committee Setup<br>• Arrangements of Facilities | • Provision of Machinery & Equipment<br>• Installation of Equipment<br>• Technology Guidance<br>• Training of Counter Parts | • Installation of Equipment<br>• Technology Guidance<br>• Evaluation |
| Operational Field | | • Modernization of Machinery & Equipment<br>• Modernization of Mould Making<br>• Consultancy activities for above mentioned Technologies | Utilization of<br>• CAD Technologies<br>• CIM Technologies<br>• Rapid Prototyping Technologies<br>• Mould Making Technologies<br>• Consultancy activities for above |

Annex - XI

# Tentative Cash flow of PITAC Revenue after the Completion of the project

## *PITAC Activities*

**1. Designing proto-type testing and Mould Manufacturing**

Four moulds per Month — 48 mould @ Rs.100000 each Average Cost — Rs. 48,00,000/-

**2. Jigs & Fixtures, Spare Parts**

Manufacturing & Providing other allied facilities — Rs. 19,00,000/-

**3. Impart Training to Industrial Personal**

**Application & Appreciation Courses**

a. CAD & CIM Techniques
10 participants, 4 courses/year @ Rs. 10,000/- — Rs. 4,00,000/-

b. On the Job Regular Training Courses
10 Weeks duration
20 participants, 4 Courses/year @ Rs. 5000/- — Rs. 4,00,000/-

c. 6 Weeks duration
20 participants, 8 Courses/year @ Rs. 3000/- — Rs. 4,80,000/-

| | No. of Participants | Course/year | Fee | |
|---|---|---|---|---|
| - Supervisory Training | 10 | 4 | 1000/- | |
| - Low Cost Automation & PLC | 10 | 4 | 2000/- | **Rs. 3,60,000/-** |
| - N.C Machining | 10 | 4 | 2000/- | |
| - AutoCAD | 10 | 4 | 4000/- | |

4. Seminar on Productivity Improvement
Q.C, ISO-9000 & 14000 etc.
25 participants, 4 Course/year @ 5000/- — Rs. 5,00,000/-

5. Advisory & Consultancy — Rs. 2,00,000/-

Rs. 90,40,000/-

Less PITAC Present Revenue — Rs. 50,00,000/-

Rs. 40,40,000/-

**Additional Revenue after completion of the project:** Say **Rs. 40,00,000/-**

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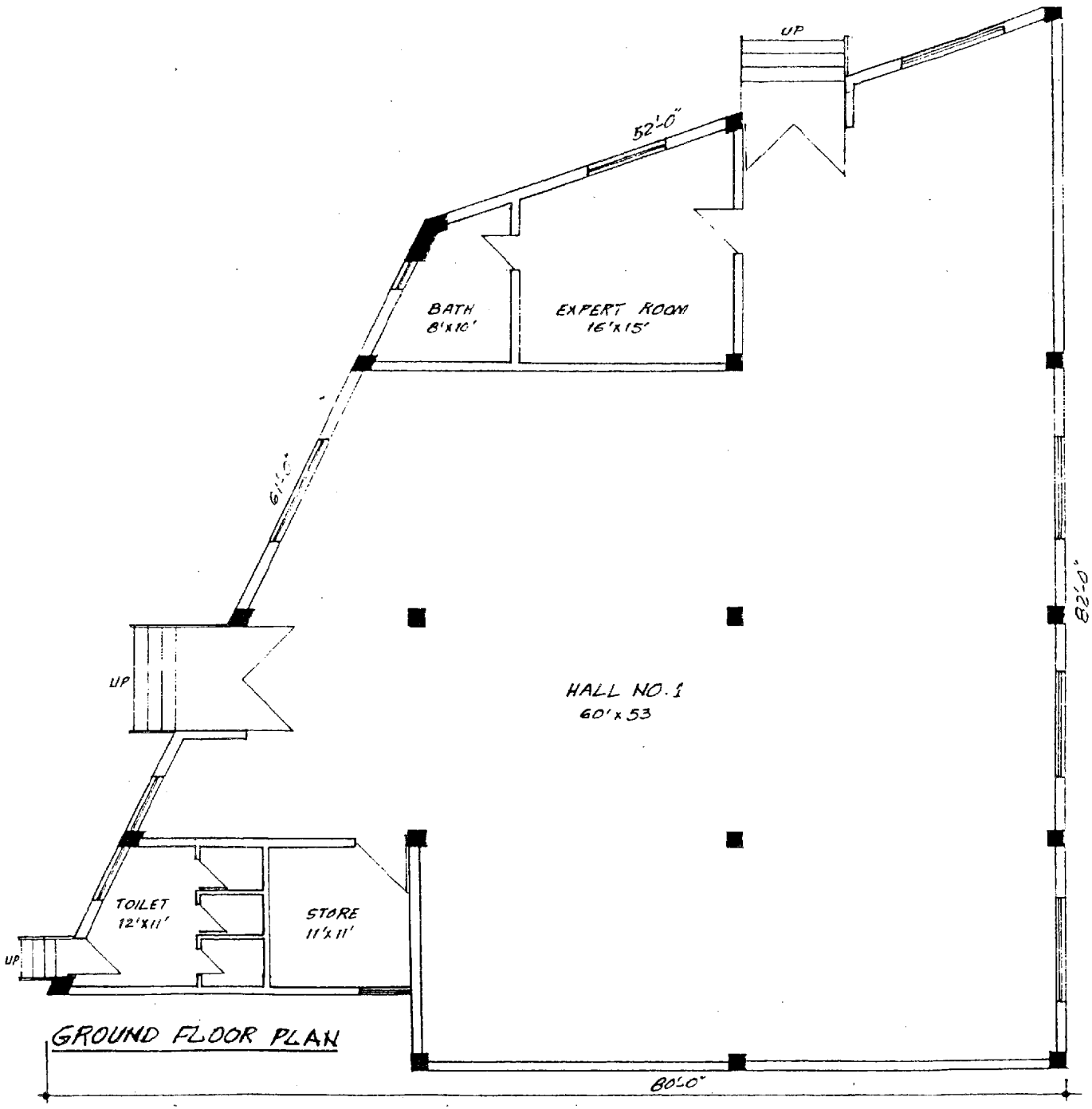
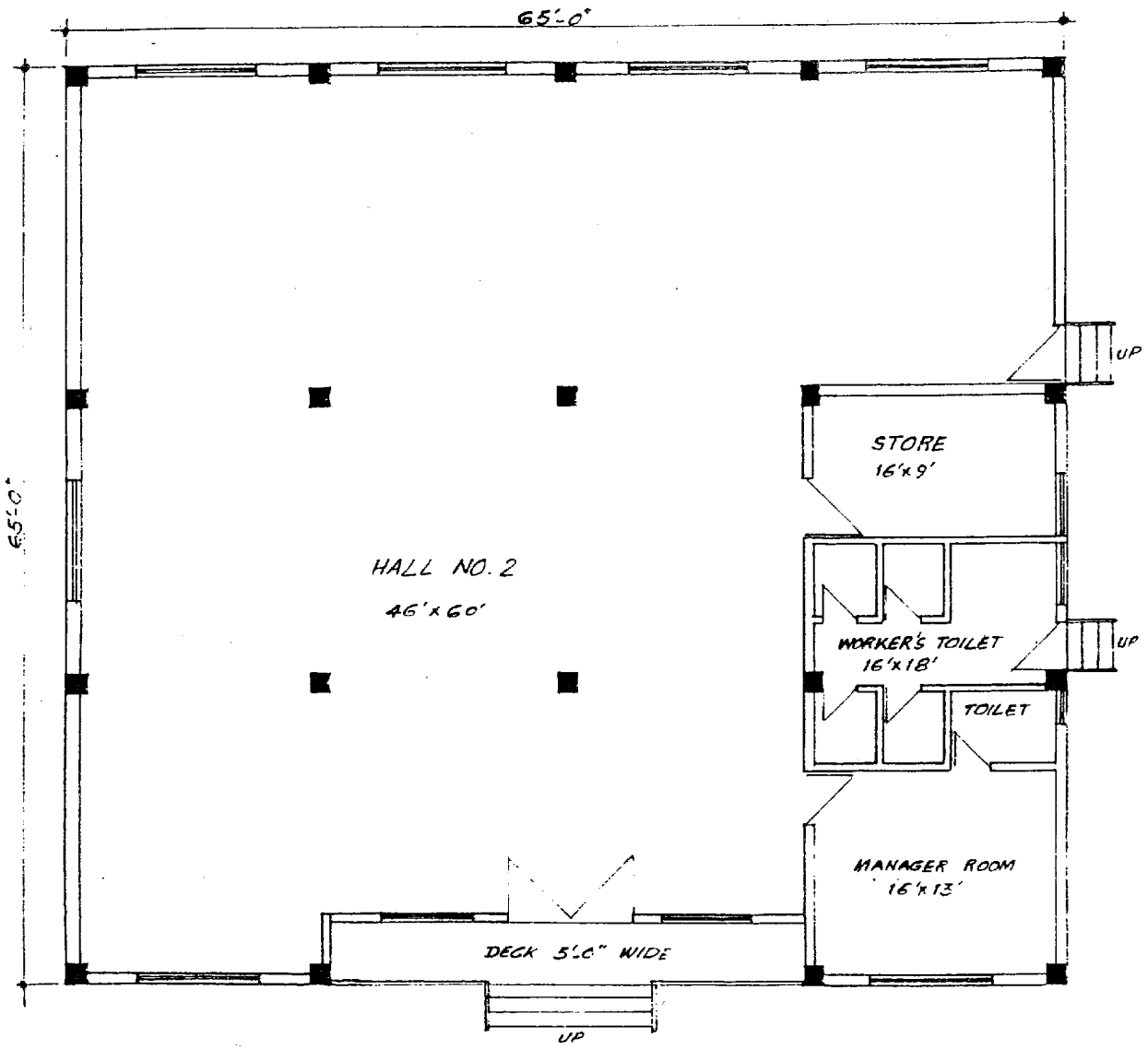



GROUND FLOOR PLAN

PROPOSED BUILDING FOR
JICA PROJECT
PHASE - II

COVERED AREA OF HALL NO.1 = 4131.0
SQ.FT.

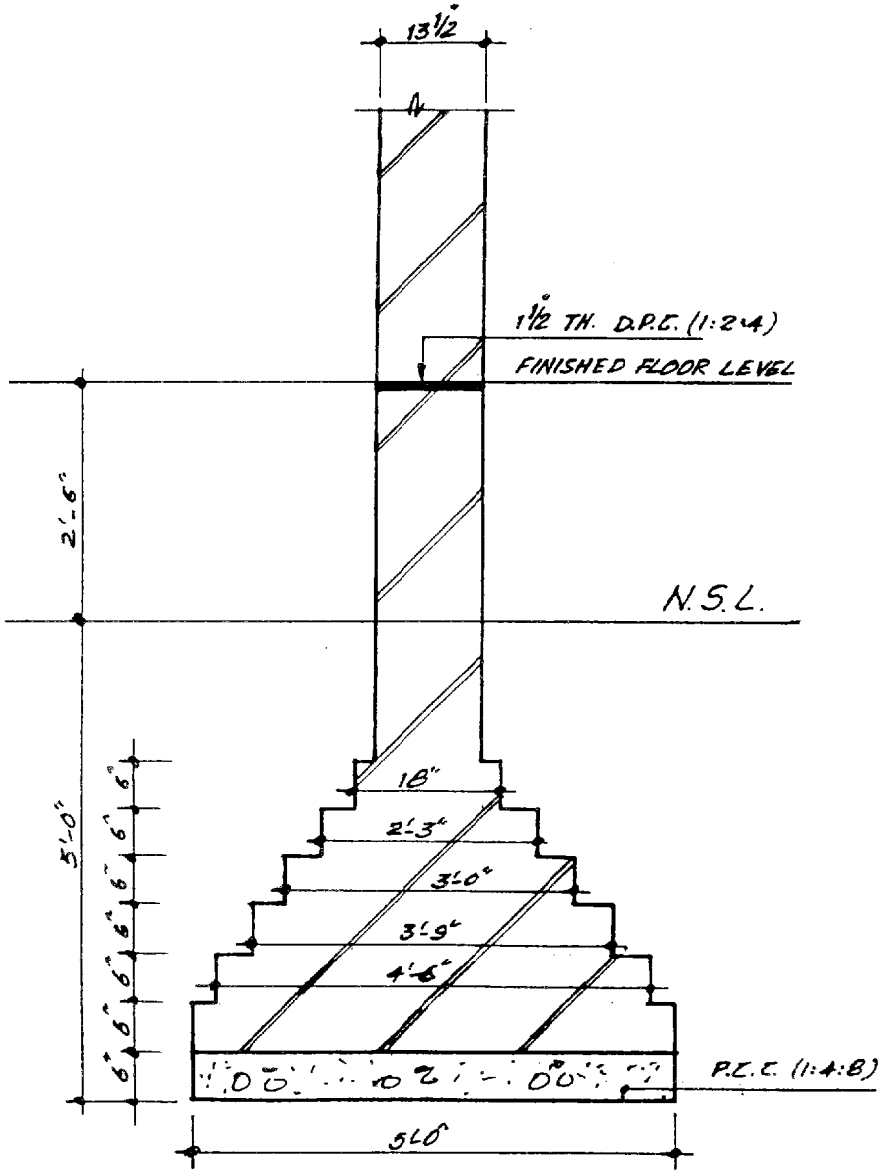



GROUND FLOOR PLAN

PROPOSED BUILDING FOR
JICA PROJECT
PHASE - II

COVERED AREA OF HALL NO.2 = 3900-0 SQ.FT.

PROPOSED BUILDING FOR
JICA PROJECT
PHASE - II




FOOTING PLAN

# 要請書（要約）

## プロジェクトの概要

- 本プロジェクト（Balancing and Modernization of Workshop Facilities at PITAC, Lahore）は、総額 7 億 3900 万ルピー（うち外貨 7 億 2800 万ルピー（1400 万米ドル））にて実施する。外貨は JICA のプロジェクト方式技術協力を通して日本政府から提供される。期間は 2000 年 1 月より 36 ヶ月とする。
- JICA の基礎調査団は、必要な技術協力を実施する意志を示し、1999 年 4 月 12 日、イスラマバードの工業産業省を訪れてミニッツに署名した。
- 本プロジェクトの目的は、産業界をサポートするために、日本の最新鋭の技術を導入し、プラスチック金型設計・製作の技術を移転することである。
- 自動車産業、家電製品、及びその他の製造業で必要とされる高精度のプラスチック金型は、日本、台湾、その他の国から輸入されているが、これによって多くの外貨が費やされ、また納品に時間がかかる要因ともなっている。
- 国内で製造されたプラスチック金型は、適正な設計、精度、及び適正な材料の使用といった点で不十分であり、このため国産の金型は輸入品を代替することができないというのが現状である。
- PITAC の専門性及び過去に効率的な日本の協力の受け手となった実績により、JICA はプラスチック金型製作の分野で PITAC に対し新たな技術協力を実施する意志を表明した。本協力は、PITAC がトレーニングや技術相談サービスによって、プラスチック金型の設計、製作、及び試打に関する技術を産業界に広めることを狙いとする。
- 本プロジェクトにおける日本の協力は、(1) パキスタン及び日本における日本人専門家による C/P に対する OJT を通した CAD (Computer-Aided Design)・ CIM (Computer-Integrated Manufacturing)技術によるプラスチック金型製作技術の移転、(2) プラスチック金型設計・製作・組立及び試打、(3) 最新の機材及び器具の供与、の分野とする。
- 本プロジェクトの実施により、パキスタンのエンジニア及び技術者に最新鋭の技術が移転され、これまでは輸入されていたプラスチック金型のパキスタン国内での設計・製造が可能となり、もって外貨の節約にもつながることが期待される。また、PITAC がエンジニアリング産業に対する技術支援の中心的な機関となることが期待される。

**PART A "Project Digest"**

1. プロジェクト名及び実施場所：Balancing and Modernization of Workshop Facilities at PITAC, Lahore（パキスタン、ラホール）

2. 所管機関
   i. スポンサー：パキスタン政府工業産業省
   ii. 実施機関：PITAC
   iii. 運営・メンテナンス：PITAC

3. プロジェクト期間：２０００年１月より３６ヶ月

4. 国家計画における位置付け
   - 第９次５カ年計画（1998-2003）の中の、製造業に対する主要戦略の中に位置付けられる。
   - プロジェクト費用の殆どは日本政府が負担し、パキスタン側の負担は全体の 1.6%であるため、連邦年間開発計画における業種調整とも合致している。
   - 本プロジェクトは、エンジニアリング産業、中でも金属加工及び組立産業のニーズに応えるものである。
   - プラスチック製品の使用は増大しているが、中でも重要なプラスチック金型ユーザーは自動車産業である。
     - 約２０社により年間５～６万台が製造されている
     - 現在自動車業界に部品を供給しているベンダーは５２７社
   - テレビなどの電気製品や家電製品メーカも重要なプラスチック金型ユーザーである。
   - プラスチック製品メーカ約４５００社に対して金型を供給しているパキスタン企業は多いが、その品質は高くない。高精度の金型は輸入されている。
   - プラスチック金型の輸入により、年間約１億～１億２０００万ルピーの外貨が費やされている。(EAD の統計より。Annex-Ⅶ参照)
   - 本プロジェクトにより高精度のプラスチック金型を国内で製作できるようになれば、金型の輸入に費やされる外貨は現在の 1/6 に減少し、また金型の調達にかかる時間も現在の１～２年から３～１２ヶ月に短縮できる見込みである。

5. プロジェクトと対象セクターの関係：下記の分野の技術移転により、エンジニアリング、金属加工、自動車、その他の産業における高精度の金型に対するニーズを満たすことが期待される。

i. CADを用いた最新の金型設計技術

ii. 数値制御（NC）およびCIMといった最新鋭技術を用いた金型加工技術

iii. 最新の金型製作技術分野での人材育成（産業界に対するトレーニング実施）

iv. 金型製作の分野での技術相談・アドバイスによる技術の普及

6. プロジェクト費用

A) ローカルコスト：１１２０万ルピー

| | | |
|---|---|---|
| （内訳）1. | 建屋（建設、電気設備、空調、脱塵）(Annex-Ⅷ参照) | ５００万ルピー |
| 2. | 関税 | 免除 |
| 3. | 機材通関費用、国内輸送料 | ５０万ルピー |
| 4. | 機材据付け費用 | ３０万ルピー |
| 5. | 車輌購入（Annex-Ⅺ参照） | ８０万ルピー |
| 6. | プロジェクトスタッフの給与・手当 (Annex-Ⅳ参照) | ４１０万ルピー |
| 7. | 部品購入などプロジェクトに必要な費用 | ５０万ルピー |

B) 外貨（日本負担分）：７億２８００万ルピー（１４００万米ドル）

| | | |
|---|---|---|
| （内訳）1. | 専門家派遣(Annex-Ⅹ参照) | 1億4560万ルピー（280万米ドル） |
| 2. | 機材供与（Annex-Ⅰ参照） | 5億960万ルピー（980万米ドル） |
| 3. | C/P研修（Annex-Ⅹ参照） | 7280万ルピー（140万米ドル） |

7. 年毎のプロジェクト費用：スタッフの給与・手当 (Annex-Ⅳ参照)

8. a) プロジェクトの目的

- プロジェクトの Overall Goal：国内の組立産業界に高精度の金型を供給できるプラスチック金型メーカを育成すること。
- プロジェクトを実施する必要性の説明（産業界におけるプラスチック金型の需要の増大、産業界がPITACに求める技術レベルの高度化、PITACの機器の陳腐化）

b) プロジェクトを実施した場合に期待できる収入の増加

- 事前に調査した結果、自動車、家電製品、家具、電気製品などの部品の金型に対する国内需要は十分にあり、その需要の一部に対してプロジェクトで移転される技術を用いて応えた場合、以下のような収入が見込める。

1年目：400万ルピー（年間５０～６０の金型を製作した場合）

2年目：400万ルピー（年間５０～６０の金型を製作した場合）

3年目：500万ルピー（年間７０～７５の金型を製作した場合）

- 上記以外に、トレーニング及び技術相談サービスによる収入も見込める。
- プロジェクト終了後約5年で PITAC は自立発展することを期待されており、これに伴い政府の補助金は徐々に削減される予定である。自立発展のための活動計画は日本人専門家とともに策定する予定だが、現時点でのプロジェクト終了後の PITAC 予算のキャッシュフロー見通しは Annex-XIIの通り。

**PART B "Project Description and Financing"**

9. プロジェクト実施場所：PITAC ラホールの敷地内にプロジェクト用建屋のための敷地を用意している。(Annex-XIII参照)

10. 市場分析（PITAC に対するニーズ）

- PITAC の役割は、産業界の経済発展と生産性向上のための技術支援サービスと人材育成サービスの提供である。
- プロジェクトの実施を通して、以下の分野における産業界の要求に、より効果的に応えられるようになることを目指している。
  - 精密プラスチック射出技術に関するトレーニング
  - 上記の技術分野でのノウハウ提供
  - 設計
  - プラスチック製品のための精密金型製造

11. a) プロジェクトの実施に際し JICA に期待すること

a. 日本人専門家の指導による金型製作技術分野での技術移転

b. CAD 技術（の移転）

c. CIM にて稼動する最新機器（の供与）

d. 日本における C/P 研修

e. PITAC における金型の試打

b) 希望する供与機材：Annex-I 参照

c) 運営組織の管理体制

- PITAC は工業産業省所管の半官の組織である。(Annex-IIの組織図参照)
- PITAC の意志決定機構は、Governing Body と Executive Committee から成る。

➢ Governing Body：以下の機関からの１２名のメンバーから成り、連邦政府の政策を受けて、PITAC の全体的な方針や予算を決定する。

メンバー構成：工業産業省次官（議長）、連邦政府、州政府、連邦商工会議所の州代表

➢ Executive Committee：以下の５名のメンバーから成り、Governing Body の決定に基づき、日常の活動方針を決定している。

メンバー構成：PITAC 所長（議長）、財政アドバイザー、工業産業省管理部次官補、連邦商工会議所、ラホール商工会議所

12. プロジェクト予算：１９９９年４月から用意されている。

13. プロジェクト期間中の予算執行計画（２０００年１月１日から３６ヶ月の計画）

| | １年目 | ２年目 | ３年目 | 合計 |
|---|---|---|---|---|
| ローカルコスト（ルピー） | 520 万 | 350 万 | 250 万 | 1120 万 |
| 外貨（米ドル） | 400 万 | 700 万 | 300 万 | 1400 万 |

14. プロジェクト予算の積算根拠：パキスタン及び日本の一般的な価格及び国際価格に基づき、PITAC の専門家が試算。

14. プロジェクト期間の売り上げ見込み：上記 8 項参照

16. a) プロジェクトの固定費用と変動費用：（本プロジェクトには関係しない項目）

b) 製品の小売り価格：（本プロジェクトには関係しない項目）

17. ５年間（１０年間）の収入と支出（キャッシュフロー）：上記 8 項参照

18. a) 損益計算書：（本プロジェクトには関係しない項目）

b) ローン返済能力：（本プロジェクトには関係しない項目）

19. 年毎の業務と予算計画：Annex-Ⅲ参照

20. プロジェクトが外貨に与える影響：従来大部分を輸入に頼ってきた金型を国内で製作できるようになれば、大幅な外貨節約につながる。

21. a) 機材購入とプロジェクト実施にかかる外貨費用のソース

- JICA のプロジェクト方式技術協力の下、上述の外貨援助が機材、専門家の派遣、日本での研修実施という形で供与される。
- プロジェクト終了後は、被援助国が自立的にプロジェクトの成果を自国に根付かせなければならないことを理解している。

b) プロジェクトの実現可能性

- 1999 年 4 月 12 日に JICA と工業産業省の間で署名されたミニッツに、JICA によるプロジェクト方式技術協力の実施を検討する旨が記載されている。(Annex-V 参照)
- EAD（パキスタンの援助窓口）は、Annex-VI として添付したレターの通り、日本政府のプロジェクト方式技術協力を活用したいとのパキスタン政府の意向を（日本側に）伝えている。

22. プロジェクトの財源

- JICA が、専門家の派遣、C/P の日本での研修、及び機材供与にかかる費用を負担。
- パキスタン側の負担はプロジェクト全体費用の約 1.6%

23. プロジェクト実施による（金銭面以外の）利益

- 目に見える利益
  - 地元企業に対する最先端技術の紹介
  - 関連組織に対して時宜を得た高品質の技術サービスを提供するための、技術者のスキル開発・向上
  - 自動車及び他の産業界がプラスチック金型の最新技術を得ることができ、また技術者の訓練により、労働者の質の向上、製品の品質向上、製品の売上増大、国産製品に対する信頼の増大、輸入品に対する依存度の低下などの効果が期待できる。
- 総合的な利益
  - プロジェクトの実施により、産業界一般、中でも特に金属加工業界に対する、プラスチック射出成形製品の設計・製作・試打の分野での製品製作サービス、トレーニング、及び技術相談サービスのための設備が改善される。
  - 精密な部品や器具の製造が容易になり、これによって輸入品の削減と外貨の節約が可能になる。

24. プロジェクトに関わる人員：現在 PITAC に所属する人員以外に必要な人材はリクリートする。(Annex-Ⅳ参照)

**PART C**

25. a) 人員：上記 24 項の通り。

b) 予想される人員の不足：人員の不足は予想されない。

c) 人員確保の手段：専門家及びローカルプログラムによるトレーニング

d) 海外でトレーニングを受ける必要がある人員の人数

C/P 候補者は、基礎調査団のミニッツの Annex-8 の通りである。日本での研修を受ける人員は、PITAC 所長とプロジェクトリーダーが、ミニッツ１６頁の 9 (b)項の内容を考慮し、研修の必要性を検討して選考する。

パキスタン国内においては、産業界の２５０～３００名の技術者に対して研修を実施する。

**要請書添付資料（Annex）リスト**

| | |
|---|---|
| Annex-Ⅰ | 要望機材リスト |
| Annex-Ⅱ | PITAC の組織図 |
| Annex-Ⅲ | プロジェクト期間中の年毎の予算計画 |
| Annex-Ⅳ | プロジェクトに係るスタッフの給与及び手当 |
| Annex-Ⅴ | 基礎調査の際のミニッツ |
| Annex-Ⅵ | EAD が日本政府に対し本プロジェクト申請の意向を表明したレター |
| Annex-Ⅶ | 過去５年間のプラスチック金型輸入額 |
| Annex-Ⅷ | プロジェクト建屋の建設費用内訳 |
| Annex-Ⅸ | プロジェクト実施スケジュール（案） |
| Annex-Ⅹ | 技術協力計画（案） |
| Annex-Ⅺ | 車輌購入の必要性に関する説明資料 |
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| Annex-ⅩⅢ | プロジェクト建屋計画図 |