

**REPORT TO TECHNOLOGY POLICY
IMPLEMENTATION COMMITTEE**

**WORKING GROUP TO EVOLVE POLICY GUIDELINES FOR
PROMOTING INTERNATIONAL R & D COLLABORATION AT
THE ENTERPRISE/INSTITUTIONAL LEVEL**

DECEMBER 1984

**DEPARTMENT OF SCIENCE & TECHNOLOGY
NEW DELHI**

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INTERNATIONAL R&D COLLABORATIONS

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1.2 Recognising the importance of technology in the socio-economic development, the Government of India announced the Technology Policy Statement (TPS) in January, 1983. It is significant that following the announcement of the TPS, the Government has constituted a high level committee for the implementation of Technology Policy consisting of Secretaries of several Economic Ministries under the Chairmanship of Prof. M. G. K. Menon, Member Planning Commission. The sub-part 5.1 of the Technology Policy Statement relates to "Technology Acquisition". This states that a Policy directed towards technological self-reliance does not imply technological self-sufficiency. Further that Government Policy will be directed towards reducing technological dependence in key areas. The same sub-part of the T.P.S. also suggests that we should take advantage of technological developments elsewhere and that this could, inter-alia, be achieved through well-defined collaborative arrangements in research ii and development.

INTERNATIONAL R&D COLLABORATIONS

1. INTRODUCTION

1.1 The Government has accorded considerable importance and priority to the development of Science & Technology in India during the last several decades. Scientific Policy Resolution was announced in 1958. Various mechanisms had been set up such as Scientific Advisory Committee to the Cabinet (SACC), Committee on Science and Technology (COST), National Committee on Science & Technology (NCST), a Cabinet Committee on Science & Technology under the Prime Minister's Chairmanship, etc. The aims of the Scientific Policy Resolution included "to foster, promote and sustain, by all appropriate means, the cultivation of sciences and scientific research in all its aspects - pure, applied and educational". As a result of these planned efforts, a sound base for Science & Technology and industry, has been built up which is reflected in the substantial increase in the resources devoted to research and development, the large number of people engaged in Science & Technology activity and a wide range of S&T institutions built in the country. The total S&T Plan outlays increased from Rs.20 crores in the First Plan (1951-56) to Rs.3,367 crores during the Sixth Plan (1980-85). Current S&T expenditure is 0.68% of the G.N.P. India today has a large complement of S&T manpower. To encourage research in industry, a scheme to recognise in-house R&D units by Department of Science & Technology was initiated some years back. Such units are eligible for various facilities and fiscal incentives including tax concessions. The industries based on indigenous technology are given preferential treatment in industrial licensing. There are over 900 in-house R&D units recognised by Department of Science & Technology, incurring an expenditure of over Rs.300 crores yearly.

1.2 Recognising the importance of technology in the socio economic development, the Government of India announced the Technology Policy Statement (TPS) in January, 1983. It is significant that following the announcement of the TPS, the Government has constituted a high level committee for the implementation of Technology Policy consisting of Secretaries of several Economic Ministries under the Chairmanship of Prof. M.G.K. Menon, Member, Planning Commission. The sub-para 5.1 of the Technology Policy Statement relates to "Technology Acquisition". This states that a Policy directed towards technological self-reliance does not imply technological self-sufficiency. Further that Government Policy will be directed towards reducing technological dependence in key areas. The same sub-para of the T.P.S. also suggests that we should take advantage of technological developments elsewhere and that this could, inter-alia, be achieved through well-defined collaborative arrangements in research and development.

1.3 Industrial activities have grown substantially during the last 3 decades. In the industrial sector, foreign collaboration approvals, technical/financial, have been allowed on a case to case basis in the areas of national priority and keeping in view the indigenous R&D efforts and capabilities. Major thrust has also been given in the export front supporting the accelerated exports of goods & services and establishment of joint ventures abroad. NRIs are also being encouraged to set up industrial activities in India and several 100% export processing zones have also come up. A number of turnkey projects have been undertaken in and outside India indicating the technical and industrial capabilities built up over the years. Technology absorption and upgradation in industry continues to be of great importance at all levels. All these activities are indicative of the fact that India has now developed capabilities to assess and utilise the R&D facilities and expertise available elsewhere, as per its requirements, and it is very unlikely that the foreign agencies would be able to exploit the facilities in India. India is in transition stage at present, particularly in the new and emerging technologies, and is in a position to take advantage of developments elsewhere speeding up its own efforts. Under such circumstances, the promotion of R&D collaborative arrangements at international levels would be in the larger interest of the country.

1.4 In view of the fact that advances in science and technology are taking place at a very rapid pace, and further the utilisation of new discoveries and inventions involve a certain amount of lead time and strain on financial resources, it may not always be possible or necessary to depend entirely on our limited indigenous facilities and capabilities, specially in the context of newly emerging international development. Specific efforts are required in identifying and appropriately supporting those areas of technology which have potential for resulting in major breakthroughs from our national point of view. It has been recognised that international R&D collaborative arrangements at the enterprise/institutional level will enable the industries/institutions to optimally use their financial, manpower and material resources devoted to technological development. Such arrangements in selected fields on an international contemporary basis, need to be encouraged. International R&D collaborations would appear to be specially relevant in the case of industries, which have once been allowed to import the full package of technology; and whose efforts during stipulated period of such a collaboration are directed to absorb and improve upon the imported technology.

2. SETTING UP OF THE WORKING GROUP

2.1 Reference has already been made to the directions in sub-para 5.1 of the Technology Policy Statement (T.P.S.) namely, "advantage should be taken of technological developments elsewhere - This can also be achieved through well-defined collaborative arrangements in research and development." Chairman, Technology Policy Implementation Committee has set up a Working Group to evolve Policy guidelines for promoting International R&D collaboration at the enterprise/institutional/diagonal level, with the following terms of reference :-

- (i) To evolve Policy Guidelines for encouraging and promoting International R&D collaboration between recognised R&D units of industries in public/private sectors in India with those of similar units located in industrially advanced countries, on the basis of mutually beneficial and equitable terms, with particular regard to the intellectual property rights generated as a result of such collaboration;
- (ii) To evolve similar guidelines for encouraging and promoting International R&D collaboration at the Inter-Institutional/Institutional-Industry level;
- (iii) To examine what changes, if any, the policy Guidelines would need when the collaborating industries/institutions are located in other developing countries, as distinguished from industrially developed countries.

2.2 The composition of this Working Group is given in Annexure-I.

2.3 The Working Group had five meetings on 14th June, 10th July, 31st July, 22nd Sept., and 22nd Dec. 1984 and considered wide ranging issues involved in formulating Policy Guidelines for promotion of International R&D collaborations. Secretary TPIC, had circulated a copy of the reprint of his Paper published in 1975 on "Technology Transfer through International Collaboration in Research and Development", which covered some of the case histories of the International R&D Collaborations approved.

Reference was made to present International R&D collaborations on Government to Government basis such as those entered into by Department of Space, Department of Atomic Energy, Department of Ocean Development and Ministry of Defence, etc. Such Government to Government arrangements are advantageous because they provide greater strength and bargaining power. The scope of the Group excluded these arrangements.

The issues discussed included aims and objectives of the International R&D collaborations, various forms and mechanisms of collaborations, present status and practices, areas of collaboration, sharing of industrial property rights, the promotional measures and support required from the Government, etc.

After the third meeting on 31st July, 1984, a draft report was prepared that covered the various issues discussed, and in its fourth meeting on 22nd September, 1984 this draft report was discussed. On the basis of the discussions held a revised draft report was prepared and this was finalised at the fifth meeting of the group held on 22nd December 1984.

3. PRESENT STATUS OF INTERNATIONAL R&D COLLABORATIONS

3.1 The need for entering into collaborative arrangements in the field of Research and Development with various countries has been long felt, and also being pursued in one form or the other, with a view to optimally utilise our local resources and to achieve a faster rate of development. These efforts have, however, been sporadic and need to be accelerated in a coordinated fashion. The various forms of arrangements include agreements and protocols for mutual cooperation in the field of Science & Technology with a number of countries (about 40) which include developed as well as developing countries. These agreements or protocols at the Governmental levels are primarily confined to the formation and execution of joint programmes, exchange of personnel and information, etc., mainly in the field of pure and applied sciences and are mostly of academic interest. Such arrangements do help in establishment of our infrastructural facilities in the form of institutions, trained personnel, data bank, etc., but are of little use as far as commercialisation is concerned.

International collaborative arrangements are also being made at Governmental levels in various important fields such as Space, Atomic Energy, Oceanography, Defence, Environment, etc. Such arrangements are generally directed towards specific projects/missions with time schedule, and are mostly towards building up our capabilities at national level. These arrangements are advantageous because they ultimately provide greater strength and bargaining power for negotiations in transfer of technology. As indicated in the previous section the present report has excluded the examination of such arrangements.

3.2 Presently, some international R & D collaborations are approved by Foreign Investment Board (FIB). While granting approvals to new foreign collaboration cases, Government imposes a standard condition that the Indian firms should set up adequate R&D facilities for absorption and adaptation of the imported technology and its further improvement. This clause, however, appears to be a theoretical measure as of to-day. These types of R&D arrangements with the foreign suppliers of technologies assume significance in view of the results available for development and commencement of industrial activities in a short time. The payments for such collaborative arrangements are normally embodied in the form of equity, lumpsum, royalty, payments for design and drawings, payment for training of personnel and services of foreign experts, etc., and are normally for a period of 8 to 10 years. The arrangements for purely R&D purposes with foreign parties

become all the more important in cases where the industry has enjoyed commercial foreign collaboration arrangements which have expired with time. There had been only a limited number of cases of industrial international R&D collaborations during the last two decades while the potential existed for many more such collaborations. Brief details of some of the cases in the past are given in Annexure-II.

3.3 R&D collaborations can be classified into different categories based on objective of the collaboration, nature of arrangement, nature of related services, basis of payment, duration, aegis etc. An indication of what is involved in such a classification is given in Annexure-III.

Thus the objectives could be for basic or applied research, advisory services, patenting a process, aspects relating to technology transfer etc.

3.4 The terms of reference have identified that such R&D collaborations could be from institute to institute, enterprise to enterprise or institute to enterprise. The institutes are generally research organisations such as Labs. of CSIR, ICMR etc., and can include institutions of higher education like IIT's, University Departments. In addition they could also include societies or associations which are established with the objective of undertaking scientific research. In the case of such institutions it is expected that they would have a valid approval granted by Deptt. of Science & Technology under section 35(i) (ii) of the Income Tax Act.

An enterprise could however be a commercial organisation either under public or private sector. It is expected that normally such R&D collaborations in such enterprise would be led by their R&D wing. Again it is expected that such enterprises would have an in-house R&D unit recognised by Deptt. of Science & Technology.

Where enterprises and institutions are to have a collaborative arrangement, two possibilities may arise depending upon whether the Indian party is an institution or an enterprise. Obviously the objectives of a collaboration would be very different in these two cases.

In such cases of institution - enterprise collaboration the government itself could be a partner on one side and other partner is institution or enterprise not connected with the Government.

3.5 . It may be mentioned here that International R&D collaborative arrangements should not become a by pass route for import of technologies or Industrial foreign collaborations which are not normally approved by the Government.

The possibilities for International R&D collaborative arrangements depend upon many factors, some of which are given below :-

- (a) Centralised purchase of know-how which may be at lab level, and can be developed for pilot plant production with the help of R&D collaboration.
- (b) Conversion of prototype to production levels is at times, very difficult for medium sized companies in Western countries for want of various resources. Generally, one out of five prototypes or so developed goes for production depending upon the market and the competition. At the stage of prototype development, it may be possible to enter into R&D collaboration.
- (c) Reorientation is a necessity in a developing country like India as far as systems engg. and application engg. are concerned. This may lead to some developmental work in Collaboration with a foreign country. An example of interest is of a Japanese Company in India for process control systems development, in recent times. This involved one year development in India, both in software and hardware systems. In this particular case, it was easier to do the developmental work in India rather than giving it to another country.
- (d) Some R&D projects in the initial stage are highly manpower intensive abroad, like conversion of software into firmware in the field of computers. This is a natural technological change taking place in Western Countries, and such R&D opportunities involving manpower intensive projects, may be utilised by India.
- (e) Non-resident Indians have lots of contacts with reputed companies abroad which could be utilised for R&D in India. Service oriented research collaborations may be thought of, from these NRI contacts.
- (f) Special natural resources available in India could be used in a better way with technical and R&D collaboration abroad. By this, exploitation of our natural resources is averted. If we

try to develop these natural resources on our own, It may take long time and there may be financial constraints also. R&D collaboration in such cases will be very fruitful. The present collaboration arrangement of the Deptt. of Atomic Energy with the Govt. of France may be taken for guidelines.

(g) Manpower intensive services are at a premium in a number of countries in the Middle East and Far East. Export of services to third countries are to be explored in collaboration with other countries. These services may involve software exports, installation, systems engineering etc. Application engineering and systems engineering involve lots of developmental activities. These should be tapped for R&D work with international collaboration.

(h) International collaboration for R&D work may be considered for existing infrastructure development thrust in Western Countries. The technologies for land based telecommunication systems and satellite communication systems, have not been fully utilised in Europe due to lots of impedances. Application development for these technologies can be tried in India through some R&D collaboration arrangements. By this arrangement, both countries will stand to benefit.

(i) We, in India, give some kind of thrust to certain programs due to social considerations, like family planning, productivity etc. Some of the technologies developed elsewhere in the fields like family planning which is of more relevance to India, may be tried here through collaborative R&D arrangements for further development to suit our conditions, which may otherwise remain unused.

(j) To set up R&D Centres on the lines of export promotion zones in India. These centres may undertake developmental work, sponsored, funded and managed by foreign companies and the results of which could flow to them. The benefits likely to accrue are many, like availability of good infrastructural facilities to carry out R&D; the fruits of research and development will be disseminated within India in due course of time, availability of sound technical manpower, employment opportunities, etc.

4. MAJOR ISSUES CONSIDERED

4.0 The Group has closely examined the overall context of promoting and encouraging international R&D collaboration. It has focussed attention on certain specific issues, the more important of such issues are dealt with in this section.

4.1 Areas of Collaboration

The basic objectives of promoting international R&D collaborations is to build up and augment the indigenous R&D capabilities and transfer of technology mechanisms in most efficient manner in areas of national interest. Naturally the areas of R&D collaborations should be intimately related to the thrust areas and technology missions identified by the Planning Commission, and the import-export policy which indirectly reflects the technological and industrial status in the country.

Following criteria may be adopted as guidelines to identify areas of collaboration :

- The areas of great potential in the national interest.
- Development by us is likely to take much longer time than if some international arrangements are made.
- Closely held technologies and where foreign collaborations are not likely to be available.
- Cases where development has already taken place abroad but results are not commercialised due to market conditions or otherwise.
- Areas of high technology and requiring large investment.
- Capital goods embodying modern technology.

There could thus be areas where Government would like to encourage R&D collaborations on priority basis and which could be open to all interested; however, there could be some sensitive areas from national point of view restricted to only Government organisations at international level. There could thus be two broad categories for promotion of international R&D collaborations.

(a) Priority List

e.g. - Export-oriented areas/products or those likely to acquire a global market, high investment/high risk/sophisticated fast changing technologies, selected technology development missions to be undertaken during the 7th Plan, Solar Energy conversion and utilisation, energy-saving research or research that would help in saving any of the scarce material resources of the country. R&D projects in areas such as photovoltaics, LSI, VLSI, etc. An illustrative list of such products is given in Annexure IV.

(b) Restricted List:

e.g. - Defence Sector (Only Inter-Government Institutional/PSE level R&D collaboration may be permitted in carefully chosen areas);

- Sensitive areas of research in environmental/Biological/Agricultural/Medical Sciences;
- Sensitive areas of research in Atomic Energy/Space/Oceanographic Sciences;
- Any other delicate or sensitive areas that may be banned for International Collaborative research by Government from time to time.

4.2 Sponsoring Research Projects by Enterprises:

When a foreign company wishes to sponsor R&D projects in an Indian company/R&D laboratory and the cost of such research projects is met through inward remittance of foreign exchange, we may not have any serious objection to such an arrangement. In fact, this would further help in providing gainful employment to many of our scientists/engineers. Likewise, when adequate facilities for certain highly sophisticated kinds of research and/or development work are not available in India or where the setting up of such facilities is likely to require investment of considerable resources and time, there can perhaps be no objection in allowing an Indian firm sponsoring such R&D problems in a foreign concern/R&D establishment, subject to appropriate payments. The main issues to be considered in such cases should be: whether the R&D problems in question are of relevance to the Indian scene and whether a little out go of foreign exchange at this juncture would have the potentiality to save a much larger out-go at a later stage on account of wholesale import of technology?

4.3 Role for MRTP/FERA Companies:

International R&D collaboration would be permitted with the objectives indicated earlier. Recognising the capabilities of relatively large companies, the MRTP companies are in fact expected to take full advantages of this and as such there will be no objection on their entering into such arrangements. In the case of FERA companies it will be expected that the parent company or their principals would provide the Indian Company with the necessary inputs relating to their area of manufacture. In other cases of FERA companies where they identify arrangements with the institutions or enterprises, not connected with their principals, could also be considered on a case to case basis. Such collaborations by MRTP/FERA Companies could be supported even if the area of activity is with a view for their future diversification or expansion.

4.4 Preferential Treatment in Licensing:

Special consideration is now given to the technology developed indigenously in the matter of industrial licensing. Preferential treatment in licensing to be extended in the event of commercialisation of results arising out of such international R&D collaboration should keep in view that the objective of the R&D collaboration was in fact the commercialisation itself. Since it is expected that a substantial part of the work will be done within the country the same preferential licensing criteria that is given to indigenously developed technology would be applied in the commercialisation of results arising out of the international R&D. In the event the substantial part of the work is not done within the country in which case the licensing considerations could be similar as to when import of technology are normally necessary. It should, however, be borne in mind that even in such cases preference should be given to such technology developed through international R&D collaboration rather than an all out imported technology.

4.5 Areas reserved for Small Scale Sector:

In the areas of manufacture reserved for the small scale sector it is apprehended that these units may not by itself be able to effectively enter into international R&D collaborations. Perhaps, institutions from within the country, keeping in view the needs of selected areas of small scale sector, can profitably enter into such international R&D collaborations. Further, there could be also the possibility of large companies, both in the public and private sector, entering into such international R&D collaboration keeping

In view of the needs of the ancillaries which supply components or parts or materials to them. In exceptional cases in view of proven capability of large industrial R&D units, they may also be permitted to have such international R&D collaborations but in this case it would be expected that they will transfer this technology, even if it be with a profit margin, to other small scale industrial units in this country.

Since small scale industries have often limitations of funds and technical facilities for continuing absorption and upgradation of technologies, it is necessary to support this sector. A group of companies may like to set up R&D facilities in a particular discipline, in collaboration with a suitable agency abroad. Such a consortium approach, keeping in view the indigenous facilities already available in the country, may need to be encouraged for the development of small scale sector in our country.

4.6 Activity Reserved for Public Sector:

Schedule 'A' of the Industrial Policy has reserved certain industries for public sector. If the private sector industrial enterprises or research institutions wish to enter into international collaborations there will be no objection to the same with the understanding that this will not be for being commercialised by them but only with a view for enhancing their technological capabilities or for eventual transfer to public sector units. However, where such activities support 100% export of products, the proposal would be viewed differently.

4.7 Current Status of Proven Technology:

International R&D collaborations are generally expected to be in areas where commercially viable technologies in those areas are not readily available or the collaboration is intended to upgrade or improve the existing technology. In fact, the latter situation is a continuing phenomenon except where technological obsolescence makes the technology no longer viable. While there will be unlimited scope for such collaboration in technologies which are yet to be developed in the world there could be some special consideration with respect to technologies which are already developed and commercially viable. In the event of such technologies not being introduced in this country international R&D collaborations could be a very useful first step before the introduction of such technologies themselves. Where

technologies are already available within the country an international R&D collaboration for the manufacture of such products normally need not be encouraged except when the horizontal transfer of such technologies is not possible or the agencies which have control on such technology is likely to use its monopolistic or dominant position to the disadvantage of the society.

4.8 Sharing of Intellectual Property Rights:

The sharing of intellectual property rights resulting from the international R&D collaboration work will, to a very great extent, depend on the relative share of the cost incurred by the two partners. Even so by way of the ability to use the knowhow arising from such collaborative work it is essential to provide for a standard condition. This condition could take the form of unlimited rights for the two parties in their own countries and a mutually acceptable sharing mechanism in all the remaining countries.*

4.9 Co-operative arrangement between developing countries:

The Technology Policy Statement in para 6.3 had already recognised the importance of technical cooperation among developing countries; it reads:

"A concerted effort will be made to participate fully in technical cooperation among developing countries. Encouragement will be provided for participation in technology development programmes with other developing countries which can contribute to mutual national development".

Normally preferential treatment should be extended in such international R&D collaboration of an Indian enterprise or institution with those in a developing country. Such preferential treatment may take the form of providing free demonstration, a more liberal cost sharing mechanism of the research investigations and eventually a less stringent demand on the sharing of royalties or other financial returns from the commercialisation of the results arising from such international R&D collaborations.

India has been actively promoting the concept of TCDC, in other international activities of interest to the developing world. It may be seen from the recent activities of the international organisations such as ESCAP, UNIDO, UNCTAD, WIPO, etc. that greater and greater emphasis is being laid on technological developments of the Member countries. In fact, the theme topic of the 40th Session of ESCAP held in Tokyo during April, 1984 was

* One member of the Committee felt that a more detailed presentation of the issues involved should be included in this section, in view of the wordings in para (i) of the terms of reference, given on page 3, para 2.1 (i) of this report.

"Technology for Development". ESCAP plan of action will focuss on development of technological infrastructure with possible ties for International R&D collaborative arrangements. It is also possible that India could undertake field trials of the equipment, products, etc. developed through indigenous R&D efforts; this can facilitate outflow of appropriate technologies to other developing countries.

4.10 Setting up of new Research Centres in India by foreign companies or foundations.

In the recent past several enquiries have been considered in which a foreign firm or a foundation has explored the possibility of setting up a Research Centre in India. This could have a company set up or a society to undertake scientific research in the areas of national interest; particularly related to identified technology missions, priority projects, and frontier technologies. There could be exclusive zones housing such organisations on an internationally competitive basis by jointly involving competent Indian Enterprises/Institutions having the needed interest and competence in selected areas, and similar enterprises/institutions of other countries. Even the non-resident Indians could be invited to collaborate with Indian parties in such ventures. All necessary facilities and concessions normally provided to the 100% export processing zones for manufacture and export of goods, will also be provided to such exclusive zones based on international R&D collaborative arrangements. The foreign equity in such ventures should not normally be allowed to exceed 40 or 50% although in special cases even upto 100% may be agreed to on value judgement. Suitable measures be evolved in order to protect and take care of the indigenous R&D efforts. For example no sale or transfer of hardware should be allowed to flow into the country for a limited period; the technologies developed in such zones can be transferred within the country only against valid foreign collaboration approvals. In effect such exclusive zones may be treated as foreign to India as far as outflow of outputs is concerned.

The advantages and disadvantages of setting up such exclusive zones were considered in depth, and there were two schools of thoughts. One school of thought was that the results of such R&D zones will flow out of the country and never flow within the country, while locally available inputs including specialist manpower, will be utilised by them. This may result in an undesirable atmosphere among the scientific and technical community in the country, and also open another channel for brain drain. Therefore, setting up of such R&D zones may not be in the national interest.

The other school of thought was that the indepth knowledge and experience gained by Indians while working in such centres will create pool of specialists and back up strength of specialists in frontier technologies. The scientists there will be many steps ahead of their counterparts in India, and Indian industry/scientific organisation can make use of these scientists later on. In fact, there are many recent examples of this nature from existing 100% export processing zones, where scientists/technologists working in units in such zones have delinked themselves from their parent units and became available for employment outside or started their own venture. The major attraction of this type of activity would be to create the climate for competitive R&D, generate foreign exchange, enlarge the availability of trained manpower for indigenous R&D activities and industry, etc. As regards brain drain, it was felt that even at present there are no regulatory mechanisms to avoid the migration of brain power from India to other countries. Now a days the Indians are being discriminated in employment in sophisticated industries in many developed countries; setting up such R&D zones may enable their absorption. In any case this will be better, socially and linkagewise compared to Indian Intellegentia working abroad with no chance of return to India.

Export of services including the man-power is being encouraged to earn the much needed foreign exchange. It is likely that export of goods and services to other developing countries, would also be accelerated if such specialised facilities are set up in India. In view of the various advantages that might accrue, setting up of exclusive R&D zones, need to be encouraged.

The committee could not reach a consensus view on this issue and desired that this may be placed before the TPIC for a final view.

4.11 Procedures & Mechanisms:

Any attempt to encourage & promote international R&D collaborations, in the context of the issues discussed above, will require an organised structure to implement the system. Clear mechanisms, clearcut procedure, — guidelines, application forms, etc. must be evolved with a view to ensure speedy decisions; It is also necessary that in many areas of critical importance where the association of enterprises is desirable financial support should be extended to enable such a participation. Details relating to the consideration of these cases are presented in the next section.

5. PROCEDURES, GUIDE-LINES AND CLEARANCE MECHANISMS:

5.1 Nodal Agency:

As mentioned earlier, Department of Science & Technology operates a Scheme relating to according recognition to in house R&D units of Industries which are given certain facilities and fiscal incentives. This scheme was formulated with a view to promote R&D activities in industry. At present over 900 in house R&D units in Small Scale, Medium and Large Scale Sectors are recognised by Department of Science & Technology. It is expected that the bulk of the Companies who will seek international R&D collaboration arrangements will be from in house R&D Companies recognised by Department of Science & Technology. The details about the Companies recognised by the DST, in terms of the infrastructure, manpower, research programmes, production details, etc. are available with the DST., as furnished by the Company in a standard format.

A large number of scientific associations and institutions are approved by the Department of Science & Technology under section 35(1)(ii) of the Income Tax Act. In fact from 1st June, 1982, Secretary, DST is the Single Prescribed Authority for such scientific research associations covering areas of agriculture, medicine, natural and other applied sciences. In DST a Research Review Group examines the activities of such scientific associations regularly and makes recommendations for the continuation of the approval or otherwise. There are over 500 such associations and institutions which are approved by the DST.

Thus it is considered that DST could effectively cater to the needs of a very large number of in-house research and development units as well as other scientific research associations who may wish to pursue international R&D collaborations.

5.2 Procedure

As far as the intending collaborator is concerned, the following procedure is suggested :-

- (a) The intending collaborator should apply to the Department of Science & Technology on a prescribed form (Annexure-V) giving details of the proposed collaboration. If the collaborator is not already recognised or approved by DST, he will also submit additional information to DST in the prescribed form meant for this purpose.

- (b) The intending collaborator should follow the standard conditions outlined in the model agreement (Annexure-VI).
- (c) These applications will be processed in DST and the intending collaborator will be informed accordingly within a stipulated time period.
- (d) The monitoring of the progress of the approved collaborations will be done by DST; by obtaining progress report of the project in a standard proforma on half yearly basis.
- (e) The progress of the project shall be reviewed by DST periodically and at the end of collaboration period; further necessary action taken as deemed necessary.
- (f) Initial approval for the collaboration will be normally for a period of three years or less if considered so necessary.

5.4 Guidelines

The following guidelines should be observed by Indian collaborator, be it Industry/Institution willing to pursue R&D programmes in collaboration with foreign companies or research laboratories as the case may be :-

- (a) The Indian Industry should have adequate competence in the area in which it wants R&D tie-up with a foreign party, so that it can derive fullest possible advantage from such an arrangement. One could thus insist that a pre-requisite for giving permission for any international R&D collaboration would be the establishment of proper in-house R&D facilities by the Indian Industry to the satisfaction of Government.
- (b) While there can, in general, be no objection to an Indian company undertaking R&D work sponsored with it by a foreign party (subject of course, to Government approval), the Indian Industry would also be permitted to farm out well-defined R&D problems, specially in newly emerging and sophisticated fields, for solution by a foreign company or R&D laboratory in appropriate cases.

- (c) Before any research problems are allowed to be farmed out to a foreign concern/R&D set up, the concerned agency or authority should be satisfied that solutions to such problems cannot be offered within the country at a reasonable cost and within a reasonable time.
- (d) R&D contributions by subsidiaries of foreign companies in India to their principals should not be allowed; only in exceptional cases within the framework of the guidelines for R&D collaboration such contribution will be approved.
- (e) The industries/institutions participating in an international R&D venture should generally keep themselves free to exploit the results of research in their respective countries, while exploitation in third countries could be subject to mutually agreed terms and conditions.
- (f) Such collaboration agreements must preferably be on a project by project basis.
- (g) All international R&D collaborations amongst industries should be based on the principle of co-operation for mutual benefit and optimal utilisation of manpower and material resources at both the ends for the achievement of their (common) objectives.
- (h) The results achieved from such R&D collaborations will be treated as indigenous efforts and will be eligible for fiscal incentives and facilities as applicable to in-house R&D units recognised by DST. The normal rules and procedures for licensing as applicable from time to time, will apply for commercialisation of technologies based on the results of such efforts.

5.3 Clearance mechanisms and time limits

- (a) A Cell in DST will deal with all matters related to R&D collaborations, including the analysis and evaluation of the data.
- (b) Following mechanisms may be adopted to examine and clear the applications received for international R&D collaborations :
 - (i) Proposals involving one time payments upto 10,000 US dollars should be released by Reserve Bank of India on the advice of DST. The proposal will be disposed off within 15 days.

- (ii) All other proposals will be considered by an Inter-Ministerial Committee in the DST with representatives from DEA, CSIR, DGTD, concerned administrative Ministry, MEA, Commerce and Law. These proposals will be cleared within 60 days.

5.5 Promotional measures

- (a) Government should announce or make a statement regarding its policy to encourage international R&D collaborations, particularly in specified areas. The procedures and guidelines should also be made available to the public in this respect.
- (b) Establish a Data Bank for collection and dissemination of information related to areas of researches taking place in other countries, institutes/organisations/industries interested in R&D collaborations, patent information, etc.
- (c) Facilitate the visits of scientists/experts from institutions/universities in India to institutions/universities abroad, particularly in areas having high degree of potential for commercialisation or of national importance.
- (d) Recognise that an individual enterprise/institution may not be in a position to go for R&D collaboration in sophisticated areas on its own and therefore support R&D collaborations in priority areas which involve high investments.
- (e) Support the establishment of research companies purely for R&D collaboration.

5.6 Incentives & special facilities

A package of incentives and facilities will have to be worked out, devised and offered to encourage the institutions and enterprises for promotion of R&D collaborative arrangements at international levels, particularly in the areas of high technologies and new and frontier technologies. Such incentives and facilities will be all the more necessary in the initial stages, in order to attract really good and reputed companies/institutions in the respective fields, and the same can be reviewed after a period, say 3 years, when the policy becomes well known. The various types of incentives could include

liberal terms for financing the projects, funding facilities including risk investment specially in areas of high technology and high investment or having export potential, tax concessions, liberalised import of equipments, raw materials and components, attractive tax concessions to foreign personnel who may be required to stay in India in connection with the implementation of the project, encourage participation in international seminars, exhibitions, buyer-seller meets, etc., exchange of experts/personnel etc. etc. It is already mentioned in para 5.4 that the results achieved from such R&D collaborations will be treated as indigenous efforts and will be eligible for fiscal incentives and facilities as applicable to in-house R&D units recognised by D.S.T. Special considerations will have to be given for encouraging the R&D collaborations in those areas which are reserved for small scale sector in our country. However, details of such package should be worked out by a Committee — consisting of representatives of concerned Ministries/organisations.

While a suitable package of incentives and facilities is necessary for promotion of R&D collaborations, it is all the more necessary that the indigenous efforts are not retarded or the proposed scheme should not act as an anti-catalytic agent to indigenous efforts. In fact, these activities should be complementary to each other, and ultimately should help in accelerating and building up indigenous capabilities even in areas of high and frontier technologies. It may also be recognised that the commercialisation of technologies from laboratory stage to industry, needs about 5 to 6 times the investments than what has been spent in developing technologies upto the laboratory level. Further the commercialisation of technologies or technology transfer is a multi disciplinary activity which involves support and interaction of other organisations including those concerned with economic and social sciences. Necessary incentives and safeguards are, therefore, to be provided for promotion of R&D collaborations as well as to protect and encourage the indigenous efforts in R&D.

5.7 Special Considerations for cooperation with Developing Countries

The R&D projects in collaboration with other developing countries will also be dealt in similar fashion as in case of other projects. In such cases, however, all efforts will be made to assist the other developing countries through the funds available under various international organisations and programmes, in which India is actively participating. Under special circumstances, the support to R&D projects in collaboration with other developing countries can be considered with the funds available with DST for this purpose.

5.8 Coordination and other related aspects

A large number of projects with assistance of UN or other International agencies are being implemented or will continue to be implemented in our country. However, there appears to be a need for a streamlined mechanism to evaluate, process, and monitor such projects. It is, therefore, suggested that the proposed cell for the purposes of International R&D collaborations, in DST, could also be entrusted with the responsibility of monitoring of such projects. Such coordinated efforts at the national level will help in the overall integrated development of technology and industry in the country.

India has entered into collaborative arrangements in the field of Science & Technology, with various developing and developed countries, and such arrangements are likely to grow in future. It will be in the national interest if a standard clause related to possible R&D collaboration in specific areas of mutual interest, is also introduced in the various S&T agreements and protocols. Even in case of trade protocols, possibilities of inclusion of the standard clause related to R&D collaborations could be considered.

In cases of foreign collaboration, particularly in the areas of high technology and high investments, there could be a guiding clause related to encouraging parallel R&D collaborations between the enterprises. This need not be always a regulatory clause but could be of a promotional nature. Such a clause may be insisted upon in cases of extension of foreign collaborations, in order to minimise the continuing dependence.

5.9 Authority - Funds and Allocations

The Working Group constituted by the Planning Commission to examine the proposals and make recommendations on the activities of the DST in the 7th Five Year Plan has suggested the establishment of a Technology Promotion Board (TPB). For this TPB certain allocations during the 7th Five Year Plan has been sought to strengthen the indigenous technology base.

The promotional measures indicated in para 5.5, 5.6 and 5.7 of this report are proposed to be carried out under the overall direction of the TPB; funds for this activity will be made available from within the resources provided for the Technology promotion Board. It is estimated that these measures would require about Rs. 20 crores during the 7th Five Year Plan period.

6. CONCLUDING REMARKS AND RECOMMENDATIONS

6.1 Although sound infrastructural facilities have been built up, a large number of skilled S&T manpower has become available, and adequate Policy and decision making mechanisms have been set up, it is generally felt that the technological outputs in the commercial forms are not commensurate with the inputs. At the same time, there are fast technological developments in the developed world which would make our facilities obsolete in a short time if adequate measures are not taken to continuously update our technological inputs. Failure to update our facilities & capabilities would mean the benefits of the technologies would be denied to our society and chances for the international competitiveness would be attenuated. Obviously, availability of financial resources of a large magnitude to meet the challenges, would be a major constraint. The various measures already taken include the increased funds for S&T activities, import of technologies in identified sectors of national interest, planning and execution of R&D projects in various areas including newly emerging fields, S&T cooperation programmes with various developed and developing countries, encouragement to in-house R&D activities in industries, etc. All these efforts have led to build up our capabilities to a certain extent; there is now an urgent need to accelerate these efforts and formulate new mechanisms to take advantage of our capabilities already built up. One such mechanism could be to promote international R&D collaborations particularly with those countries who also see some advantages for themselves through such arrangements.

6.2 There are immense possibilities for international R&D collaboration particularly in two clearly distinguishable domains :

- (i) Where an enterprise or institution is seeking benefits of R&D carried out or being carried out in other countries by paying only the marginal costs and latter pursuing their R&D in India with such inputs.

This needs to be encouraged and supported. Some means and mechanisms have been identified to achieve this objective.

- (ii) Where other agencies, particularly from developed countries, identify capability in this country, and/or economic advantages and desire to take advantage of our scientific infrastructure.

Such opportunities should be optimally utilised and taken advantage of; ensuring that the arrangement is mutually advantageous and does not result in unfair exploitation of our scientific infrastructure.

6.3 The experiences, India has had during the last two decades or so, of both types of R&D arrangements have been discussed in the preparation of this report. These experiences are however very limited, and have been on a case to case basis only. Keeping in view the need to promote international R&D collaborative efforts, as a means for accelerated development and to achieve quick commercial outputs, the policy guidelines, procedures and mechanisms have been suggested.

Some of the specific recommendations made in this report include:

- (i) Government should make an announcement or issue a statement declaring its intentions to promote international R&D collaborations, particularly in specified areas of national importance.
- (ii) The guidelines, procedures and mechanisms to be followed for approval of such collaborations, to be made known in the form of a publication/booklet.
- (iii) The details of the package of promotional measures, incentives and facilities available for promotion of R&D collaboration should be worked out, and made known at national as well as international levels. The R&D collaborations in the areas of interest to other developing countries or of common interest will be encouraged and all possible measures will be taken to utilise the international facilities as well as national resources for this purpose. Such measures would also help in accelerating the exports of goods and services.
- (iv) Set up a Cell in DST to facilitate the integration of activities covering promotion of international R&D collaborative arrangements; providing advisory and consultancy services to the intending collaborators; conduct studies related to areas of collaboration, organisations interested in such collaborations, current status of R&D elsewhere, negotiating terms and conditions; coordination with various Ministries/organisations/embassies in India and abroad, etc.
- (v) Funding facilities for: Promotion of collaborative arrangements in the areas of high investment, and/or high risk; projects of common interest with other developing countries; projects for small scale

sector and rural development; projects towards building up infra-structural capabilities in the country; visits of Indian experts to R&D Institutions abroad, etc.

(vi) It is estimated that a provision of about Rs.20 crores for a period of five years (1985-90) to begin with, would be required, for abovesaid activities.

(vii) DST be the nodal Ministry to implement the scheme. The proposed Technology Promotion Board would coordinate the activities in this area.

6.4 The advantages and disadvantages of setting up exclusive R&D zones, on the lines of 100% export processing zones for manufacture of goods, were discussed in detail during various meetings of the Working Group (para 4.10). It is suggested that this proposal may be further examined and a decision taken accordingly by TPIC on this issue.

6.5 It is felt that the collaborative arrangements at the Government to Government levels or at institution levels, may not pose any serious problem from operational point of view. There may be some problems in case of Industry to Industry collaborations; where it should not become alternative means for import of technology which is otherwise not allowed by the Government, and may open up one more possible channel for activities which may have an adverse effect on the economy of developing countries. Therefore, adequate safeguards are provided in the suggested mechanism of operation. On the other hand, if international R&D collaborative programmes are evolved and executed by industries in the right spirit, it should be possible to find solutions to many complex technological problems within much shorter time spans and lesser financial resources than might otherwise be possible.

ANNEXURE - I

COMPOSITION OF THE WORKING GROUP TO EVOLVE
POLICY GUIDELINES FOR PROMOTING INTERNATIONAL R&D COLLABORATION

1. Dr. K.V. Swaminathan, Chairman
Adviser,
Department of Science & Technology
2. Dr. N. Seshagiri, Member
Additional Secretary,
Electronics Commission,
IPAG
3. Shri S.C. Dhingra, Member
Adviser (Technical)
Department of Heavy Industry
4. Dr. V. Siddhartha, Member
Adviser,
C.S.I.R.
5. Dr. Deepak Nayyar, Member
Economic Adviser,
Ministry of Commerce
6. Shri N. Biswas, Member
Deputy Director General,
D.G.T.D.
Ministry of Industry
7. Shri A.K. Jain, Member
Director
Department of Economic Affairs
8. Representative, Member
Ministry of External Affairs,
International Economic/Technical
Cooperation
9. Secretary, TPIC Member-Secretary

ILLUSTRATIVE INSTANCES OF INTERNATIONAL R&D COLLABORATION

A. Enterprise - Enterprise

1. A small scale industry located in Maharashtra which is engaged in the manufacture of marine paints and associated products, has been having a Government approved R&D tie-up from 1968 with a Danish firm, a Company of international repute in the same field. The Indian Company does not have any foreign equity participation and it assists the Danish firm in evaluating and improving its products in the tropical climate as well as in the execution of sponsored R&D projects. The personnel working in the Research and Development Laboratories of the Indian Company are all Indian scientists/engineers and the foreign company meets the entire cost of the collaborative R&D projects. Both the Indian party and the foreign 'collaborator' are free to exploit the results of such joint research projects commercially anywhere in the world. The Indian party is not required to pay any royalty, etc. to the foreign company for such commercial exploitation.

2. Another Indian firm located in Haryana has recently proposed to enter into an R&D agreement with a well-known French concern to develop technology for the manufacture of Tri-oxane and Polyacetal Resins, starting with formaldehyde as a base. Stated briefly, the arrangement envisaged is that the existing process and experimental data in possession of the two firms are to be pooled up, pilot plant trials are then to be conducted (at Indian firm's cost) in India and the designs are to be checked and the quality of end products tested in France at the foreign company's cost. The process to be finally developed would be a 'joint' process and the ownership of patents to be obtained in India, France and other countries would be 'joint and equal'.

3. The Government of India have approved a case of tie-up between an Indian Company (located in Madras) and a well-known British firm, mainly to enable the Indian company to obtain assistance from the foreign collaborators for establishing a suitable research and development base in India. The Indian company has had approved licensing-cum-financial collaboration arrangements with the British company for the manufacture of brake linings and clutch facings. The extension of this collaboration has now been allowed on the ground mentioned above, for another period of 5 years, on the basis of 0.5% royalty on internal sales and 5% royalty on exports (both subject to

Indian taxes), along with enhanced foreign equity participation. It has been hoped that with adequate R&D base, the Indian party would be in a position to offer some competition to another existing foreign majority company, which has been dominant in this field in the country.

4. R&D collaboration of a firm in Madras with a firm in U.K. holding about 25% equity, was approved in 1980 for a period of 5 years involving an annual payment of 25,000 in two half-yearly basis. The F&D work involved carrying out research on various aspects of frictions materials.

5. The Indian firm located in Bombay and manufacturing specialised welding rods had reduced the foreign equity holding from 50 to 40% in terms of FERA guidelines. The Swiss firm which held the foreign equity offered to enter into an R&D collaboration with the firm. Since there were no payment requirements the parties went ahead with the arrangements. The Indian party desired that the DST should take their agreement on record. It was however, found that there were a few clauses in the agreement relating to the exploitation of the results of research which were inequitable. The party was advised suitably but subsequently there was no indication that the arrangement was modified. This agreement is not on the record of DST either.

6. A multinational drug manufacturing company with an R&D Centre in Bangalore desired to have a collaboration with their principals. At that time the firm's 100% equity was held by the USA company. Subsequently, the firm has been asked to reduce its foreign equity to 40% and at this stage the firm has not followed it up with the research agreement for any approval.

7. A firm located in Faridabad has sought an approval for a collaboration with a West German firm and was given approval in September 1983 relating to the manufacture of biomass management equipments namely boilers, straw collectors and combine harvesters.

8. An Indian firm located in Bangalore had an arrangement for manufacturing communication equipments with a firm in France. There they had an agreement in relation to research and development activities as well as the training of personnel. The concerned administrative Ministry had consulted DST in the finalisation of the terms and conditions of this agreement. There were payments to be made by the Indian unit relating to some of the services to be provided by the French centre.

9. An industry located in Bombay and engaged in the manufacture of glass had its majority equity held by an English firm. Two partners had an agreement which require the Indian firm to make certain payments to the R&D Centre of U.K. in obtaining the results of research and development activities directly. Even though such payments have been made for some time this was not permitted when latter requests were received.

10. Many Indian firms had also dealt with the Centre of Arthur D. Little in making financial contributions for notified research programmes of the U.S. company which entitle them for receiving reports relating to the area of investigation. The payments involved here were also generally nominal.

11. A Swedish Company had equity investments in an Indian firm and was willing to support the research activities of their Indian Centre. They examined several options like making direct contribution to the research centre of the Indian company, or alternatively to form a research company in India. The Swedish company had envisaged that the research centre in India would be in the area of biotechnology. Later it was suggested to them that it will be desirable that the Indian unit could be a research society to which the Swedish firm could make contributions to undertake research activities in India. It was suggested that the Governing Council of the Indian Society should have substantial representation from the Indian scientific community and the benefits of R&D carried out in the Centre will be patented in India first in the name of the society.

12. A large public undertaking at one stage had proposed a tie-up with a well known electrical engineering firm in Germany for Research covering a wide range of areas. The West German firm has a very large R&D set up and is a leading manufacturer in the world in many products. It had been argued that such a tie-up with company of proven R&D capability would be very useful to us. The collaboration period has been proposed as 15 years and it had a few clauses which indicated that in the event of our discontinuing this arrangement in the last three years or so, they would not be furnishing us any new information. However, it was considered that such a multi-purpose project which was not specific programme oriented, was not desirable and the firm was advised to go in for a project collaboration in specific areas.

B. Institution - Institution

1. A scientific research association located in Nagda sought that they should have a collaborative research arrangement with a research Institute in Japan. In view of the inequitable conditions in this agreement the Indian

association was requested to negotiate and modify the terms suitably. A private research centre located in Calcutta wanted to have an arrangement with the National Institute of Health in the U.S. The agreement did not involve exchange of funds with either parties. The Indian unit will provide clinical resources material required and the laboratory systems within its facilities. The U.S. institute was willing to bear the cost towards a scientist who would visit India for this purpose. They would also bear the cost of international transportation for specimen and other materials required. They had indicated that the requirement of U.S. and Indian laws concerning the protection of human beings would be specified. They are also provided for due acknowledgement of the contribution of the Indian Centre and that of the U.S. Centre in the papers published by the respective centres.

2. A U.S. foundation desired to establish a foundation in India with the object of sponsoring certain research projects with the Indian companies which would eventually lead to a more fruitful technology transfer arrangement between Indian firm and several other U.S. firm which the U.S. foundation represented. The mechanism of its operation was more in the nature of preparing the Indian enterprises to the opportunities arising from the development work already carried out by a large number of small and medium scale industries in the U.S.

3. A research institute located in Haryana under a bilateral arrangement through Government negotiated for the purchase of certain knowhow relating to the manufacture of cement. This could then be worked by the Indian Centre so that based on their work appropriate design could be evolved to suit our raw materials and operating conditions. It is gathered that the foreign research centre has not made much progress with the collaboration of the research centre but on the other hand are negotiating directly with certain Indian companies for the sale of such research results.

C. Enterprise - Institution

1. A manufacturing unit in Hyderabad have become a contributory member of the Foundation named Swedish Detonic Research Foundation, Sweden. The Indian firm has to pay a sum of Rs. 2 lakhs per year for a period of 5 years. During this arrangement both the parties agreed for exchange of scientists to work in the laboratories of Indian firm and Detonic Research Foundation.

2. Many companies in the electrical industry had certain arrangements to carry out certain notified programmes by the Electrical Research Association of U.K. The payments involved were generally nominal and this entitled the Indian firms to receive the research reports pertaining to such notified programme from the association in U.K.

INTERNATIONAL R&D COLLABORATIONS

Classification of Collaborations

A. OBJECTIVES

- a) Basic Research
- b) Applied Research
- c) Improvement/ Upgradation of Technologies
- d) Standardisation and quality control, testing and evaluation
- e) Advisory Services
- f) Training
- g) Design engineering and consultancy
- h) Developing/patenting a process/knowhow/product
- i) Technology Transfer
- j) Others

B. NATURE OF ARRANGEMENT

- a) Exchange of personnel
- b) Exchange of documentation, drawing and designs
- c) Exchange of provision of equipment and instruments, raw materials and components
- d) Training
- e) Exchange of Data/Information

C. NATURE OF RELATED SERVICES

- a) Assist in identification of research programmes and facilities needed
- b) Assist in establishing a centre
- c) Undertake joint programmes
- d) Joint exploitation including sharing of markets and industrial property rights
- e) Assistance in establishing data bank/information centre
- f) Assist in setting up consultancy/design engineering centres
- g) Assist to develop capabilities for technical services
- h) Assist in setting up pilot plant/prototype facilities

D. ON THE BASIS OF PAYMENT

- a) No fees - only exchanges
- b) Actual costs to be shared
 - i) Cash
 - ii) Kind
- c) By virtue of equity
- d) Income arising from industrial property rights

E. DURATIONS

- a) Perpetual
- b) Limited period
- c) One time, short duration
- d) Depending upon the duration of foreign collaboration, if any

F. AEIGIS

- a) Bilateral S&T agreements
- b) Bilateral agreements/ protocols
- c) Agencies/ Councils/ Associations
- d) Purely independent

G. AGENCIES INVOLVED

- a) Government - Government
- b) Institution - Institution
- c) Enterprise - Enterprise
- d) Enterprise - Institution
- e) Institution - Enterprise

Illustrative List of Areas for International R&D Collaborations

- Agriculture
- Applied Optics
- Automation including application of robots in industries
- Automobiles and components
- Biotechnology
- Cement sintering at low temps.
- CNC Machine tools
- Coal
- Communication
- Cryogenics
- Diesel Engines
- Fertilizers
- Fibre Optics
- Foundry technology
- Fuel Efficiency Devices
- High Energy Physics
- High Valued added Capital Goods and Industrial Machinery
- HVDC Transmission System
- Iron & Steel
- Laser
- Life Saving Drugs
- Material Science & Technology
- Microelectronics
- New Energy Sources/Energy Saving Devices
- Petroleum and Petro Chemicals
- Semi Conducting Devices
- Pollution Control Devices
- Powder Metallurgy
- Solid State Batteries
- Sophisticated Analytical and Measuring Instruments

ANNEXURE V

APPLICATION FORM FOR SEEKING RESEARCH &
DEVELOPMENT COLLABORATION

A) Particulars of the Company seeking R&D collaboration

1. Name and Address
2. Is the R&D unit of the company recognised by DST
 - i) If yes, Reference No.
 - ii) If no, Give particulars as at Annexure (A)/(B)

(A for industrial unit and B for Research institutions.
These annexure A/B are not attached to the report and will
be the same as provided by DST for recognition/ approval
of inhouse R&D unit/ Scientific institution respectively

B) Particulars of the Company with whom R&D collaboration has
been sought.

1. Name and Address of the Company.
(enclose annual report of the company for the last 3 years)
2. Product range of the company
3. No. of persons employed on R&D.
4. Annual expenditure of R&D.
5. Annual turnover.
6. No. of patents held by the company and the titles of the patents
 - a) Patents granted during the last 3 years .
 - b) Applied during the last 3 years .
 - c) Details of the patents taken in India.
 - d) Details of any other intellectual/industrial property held
in India .
7. Do they have R&D collaboration with any company in India
(If yes, please give details).
8. Do they have any R&D collaboration in any other country
(If yes, the details thereof) or proposed.

C) Details of the R&D collaboration

1. Brief description of the area in which R&D collaboration is envisaged.
2. Programmes of work to be carried out and the specific objectives
3. Duration of the agreement.
4. Estimated cost. Total
Share of Indian party and Share of other party
5. Indicate the services offered by the collaborator.
6. Fees, if any, for the R&D collaboration
7. Terms and conditions of the collaboration
(Attach a copy of the draft agreement)
8. Indicate relevance of the work to the socio-economic needs of the country.
9. A note on the specific steps to be taken in the implementation of the project.

ANNEXURE VI

AGREEMENT

THIS AGREEMENT is made on this (day) of (month & year) between

X
AND
Y

PREAMBLE :-

SCOPE :-

NOW THEREFORE in consideration of the rights and obligations herein set forth, the parties agree as follows :-

- ARTICLE 1 :- DEFINITION
- ARTICLE 2 :- EXCHANGE OF INFORMATION
- ARTICLE 3 :- SUPPLY OF MATERIAL/EQUIPMENT
- ARTICLE 4 :- EXCHANGE OF PERSONNEL
- ARTICLE 5 :- FEES AND PAYMENTS
- ARTICLE 6 :- DETAILS OF THE COLLABORATIONS
- ARTICLE 7 :- CONFIDENTIALITY
- ARTICLE 8 :- PATENTS AND INDUSTRIAL PROPERTY RIGHTS
- ARTICLE 9 :- LICENSING
- ARTICLE 10 :- DURATION
- ARTICLE 11 :- TERMINATION

ARTICLE 12:- SETTLEMENTS OF DISPUTES

ARTICLE 13:- GENERAL PROVISIONS AND RESTRICTIVE CLAUSES IF ANY

ARTICLE 14:- FORCE MAJEURE

IN WITNESS WHEREOF, the parties hereto have caused this AGREEMENT to be signed by their duly authorised representatives the day and year first above written.

For and on behalf of 'X'

WITNESS

Signature :-

1.

Name :-

2.

Position:-

For and on behalf of 'Y'

Signature :-

1.

Name :-

2.

Position :-

(DRAFT MODEL AGREEMENT TO BE PREPARED)

