

Event Report of

# Training Programme on Technology Diplomacy

October 04 - 08, 2010, Jaipur, India



**CUTS International**

D-217, Bhaskar Marg, Bani Park, Jaipur 3020016, India

Phone: +91-141-228 2821, Fax: +91-141-228 2733

Web: [www.cuts-international.org](http://www.cuts-international.org), Email: [cuts@cuts.org](mailto:cuts@cuts.org)

## Table of Content

1.	Executive Summary .....	2
2.	Inaugural Session 1 .....	3
3.	Session 2 .....	4
4.	Session 3 .....	4
5.	Session 4.....	5
6.	Session 5 .....	8
7.	Session 6 .....	8
8.	Session 7 .....	9
9.	Session 8 .....	10
10.	Session 9 .....	11
11.	Session 10 .....	11
12.	Session 11 .....	12
13.	Session 12.....	13
13.	Session 13 .....	14
14.	Session 14 .....	15
15.	Session 15 .....	15
16.	Session 16 & 17 .....	16
17.	Session 18 .....	16
18.	Session 19 .....	17
19.	Closing and Evaluation .....	18

## EXECUTIVE SUMMARY

CUTS CITEE<sup>1</sup> organised a training programme on “Technology Diplomacy” October 04 - 08, in Jaipur in order to build the capacity of scientists and technologists working with various ministries/departments/councils/institutes/research labs of Government of India. The Department of Science and Technology, Government of India supported this training programme to fill the vacuum that exists in terms of absence of adequate institutional base in India to offer training/education on issues related with technology diplomacy. Technology has played a vital role not only in the economic development of countries from time immemorial but has also been an important part of international relations. In recent years, the pace of technological development has increased manifold and today it is at the root of many trade controversies/disputes. Advancement in science and technology has led to increasing demand for expert inputs, especially as a prerequisite for successful negotiation of international agreements. The two important ground realities crucial for international negotiations are:

- Scientific and technological knowledge calls for specialised knowledge, and
- International diplomacy caters to demand for application of science and technology to development, leading to specialisation integration in/of divergent areas.

Unlike their counterparts in developed countries, negotiators and policy makers in developing countries often lack understanding of the underpinnings of science and technology agreements and thereby, effective negotiation techniques. One reason is the relative inadequacy of education and training in technology diplomacy. Therefore, this training programme had the aim of facilitating an overview of the basic principles of technology diplomacy including technology sourcing and valuation and an understanding of the technology agreements. Such training programmes will hopefully prepare the scientists and technologists to better exploit the opportunities that arise from the use of technology.

The said training programme was well attended by government officials, scientists and technologists from various ministries/departments/councils/institutes/research labs of the Government of India. Participants handle work related to technology, in particular patents and related issues in their official work. The training programme brought experts/resource persons together to explore and deliberate various aspects of technology diplomacy issues. Over the period of five days the participants sharpened their skills on various aspects of technology diplomacy issues through lectures, real life experiences of resource persons, simulation exercises, group discussions, etc.

Based on the feedback received from the participants and resource persons, it can be assertively said that the training programme was successful in terms of quality of participation, resource persons, resource materials and administrative and logistical arrangements. Participants acknowledged that learnings they derived from the training programme proved to be extremely enriching and valuable. Participants overwhelmingly found it very useful and looked forward to attend similar training programmes in the future.

This report summarises the presentations, principal issues and points discussed during the course of the five-day training programme.

---

<sup>1</sup> CUTS Centre for International Trade, Economics & Environment (CITEE) was established in 1996 with an aim to being a high-level global standard institution for research and advocacy on multilateral trade and sustainable development issues. Consumer Unity & Trust Society (CUTS), the parent body, was established 25 years back as a consumer rights organisation and has been engaged actively in research and advocacy on policy issues. For more details about CUTS International and CITEE please visit our websites [www.cuts-international.org](http://www.cuts-international.org) and [www.cuts-citee.org](http://www.cuts-citee.org)

## **Session 1: Inaugural**

*Inauguration and Understanding Participants' Expectations by Atul Kaushik, Advisor (Projects), CUTS International*

*Key note Address: Kishan Rana, Former Ambassador of India, Professor Emeritus, DiploFoundation*

In the inaugural session, Ambassador Rana said that science is the foundation for economic activity and is important for building relationships with countries. He pointed out that, presently, India has only four science counsellors placed abroad, as against Japan, which has 28 specialist scientific officers positioned in other countries. However, he also informed the participants that India now plans to expand its scientific collaboration and plans to increase the number of these counsellors in the near future. In the light of this development, capacity building of scientists in technology diplomacy through such workshops will be crucial for preparing them for the new environment of collaboration, including South-South cooperation. Rana cited examples of Indian partnerships with Kenya and Mauritius for scientific research and the development in this context.

Earlier in his introductory remarks, Atul Kaushik, Advisor (Projects), CUTS International, highlighted the importance of science and technology and diplomacy therein and opined that irrespective of the size, all countries need to collaborate. He also expressed that there are examples of good and bad technology diplomacy and it is important to learn to distinguish between them. He acquainted the participants with CUTS experience in organising training programmes on technology diplomacy and Intellectual Property Rights (IPRs) and emphasised that this workshop aims to provide knowledge about various aspects of technology diplomacy and gives an opportunity to expand the horizon of the scientists attending it.

Scientists attending this workshop work with various government agencies like the Defence Research and Development Organisation (DRDO), the Indian Agricultural Research Institute (IARI), Hindustan Aeronautics Ltd. (HAL), Central Institute of Cotton Research. While introducing themselves, most of the participants agreed that due to limited knowledge of technology diplomacy, there is a great loss of opportunities for India. They conveyed their expectations from this workshop and hoped to be prepared better for dynamic collaborative environment which involves many private players and international governments and experts.

### **Expectations of the Participants**

At the close of the inaugural session, participants were requested to express their expectations from the training programme. Their expectations are summarised below:

- To understand technology agreements including intellectual property rights and the negotiations thereof
- To learn about the commercial aspects of technological agreements and the various clauses that should be carefully considered while entering into the agreement;
- To gain knowledge about IPRs, in general, and patents, in particular;
- To learn the aspects of patent drafting and filing ;
- How to source technology and the related negotiations and essentials of negotiations; and
- To learn about diplomacy in general, specific tips related to technology negotiations and the role played by various institutions.

## **Session 2: Basics of Technology Diplomacy and Its Importance in International Relations**

*Mr. Kishan Rana, Former Ambassador of India to Germany and Professor Emeritus at DiploFoundation*

Kishan Rana commenced the session by providing his views on the importance of global diplomatic environment. He emphasised that various ministries under a government are not exclusive agencies and must work jointly with each other, as well as with domestic and international players from the industry, chambers, think-tanks and academia. In the present environment, economics is the key driver of foreign affairs and thus economic and commercial diplomacy become important subjects to understand tradeoffs on various issues. Whereas there is no clear distinction between these two forms of diplomacy but the former is a wider concept than the later and includes certain other aspects such as technology diplomacy as well. A well integrated and holistic approach of a country would build a stronger brand in the international domain to ultimately benefit commercial exchanges and attract investments. A Public-Private Partnership (PPP) model through innovative devices like 'India Brand Equity Fund' should work the best in this regard. Brand marketing should be integrated with tourism marketing and utilise models created by media.

Rana spoke about Free Trade Agreements (FTAs), especially ones among South Asian regions. He claimed that this region is currently the least integrated one, but an analysis of the long term interests of national interests will definitely suggest an increase in such FTAs. Moreover, better preparation for FTA negotiations and diplomacy would help nations anticipate partner's perspectives and interest. Thus, negotiations will lead to better outcomes.

Addressing the subject matter of this workshop i.e. technology diplomacy (TD), he firstly elaborated various characteristics of this branch of economic diplomacy. Diplomacy is a craft skill which hinges on personal connections and establishment of trust. Diplomats should not work towards short term advantage but on attainment of long term interests and relationships. In this regard, he insisted that since technology plays a substantially significant role in the development of a country, science institutions and administrators must be cultivated as interlocutors of diplomacy. Rana elaborated on certain ways to build connections such as conferences, invitations to visit one's country, networking with embassies and science counsellors, and learning more about the other country(s) with which one is going to negotiate.

One of the most important factors is development of entrepreneurial spirit among the scientists, diplomats, counsellors and others involved in this process. This spirit should be appended with "broad-band" skills, and awareness about technologies (at home and other countries), opportunities and best practices abroad. He concluded the session with the remark that the diplomats and the practitioners at home should not fall into a routine since the task of promoting home country interests is complex and multi-faceted and hinges on teamwork.

## **Session 3: Trade and Technology Promotion: Role of Indian Ministries, India's Missions Abroad, and Industry Associations**

*Dr. Ved Mitra, Former Science Counsellor to Germany*

Mitra's session focussed on the inter-linkages between science and diplomacy. He elaborated on the three dimensions to the relationship between diplomacy and science. The first dimension is *science in diplomacy*. Science offers new channels for engagement and improves relationships with other nations. According to him, since scientific values are similar the world over, it can help build trust among nations. Also, it provides a non-ideological environment for exchange of ideas amongst people. Given these advantages, more effective mechanisms for

dialogues between actors involved in foreign policy-making and scientific community are required. This would require leadership by the policy makers in the form of provision of opportunities to scientists to engage in policy debates and discussions. To identify the possibilities for involvement of the scientific community, the diplomats should have a minimum level of scientific literacy or network to communicate with scientists. Improving the scientific capacity of delegations from developing countries is particularly important, especially for international negotiations on health and climate policy.

The second dimension is diplomacy for science. Mitra emphasised that international scientific and engineering collaboration is imperative to meet global challenges. It seeks to facilitate international cooperation. It is important for the pursuit of both top-down strategic priorities for research or bottom-up collaboration between individual scientists and researchers.

The third dimension is science for diplomacy. This dimension primarily draws on the ‘soft power’ of science, i.e., its attractiveness and influence, both as a national asset and a universal activity that transcends national interests. Science for diplomacy can be extended by many means: Science cooperation agreements; creation of New institutions to reflect the goals of science for diplomacy (e.g., European Organisation for Nuclear Research (CERN)); educational scholarships; ‘track two’ diplomacy; and science festivals and exhibitions.

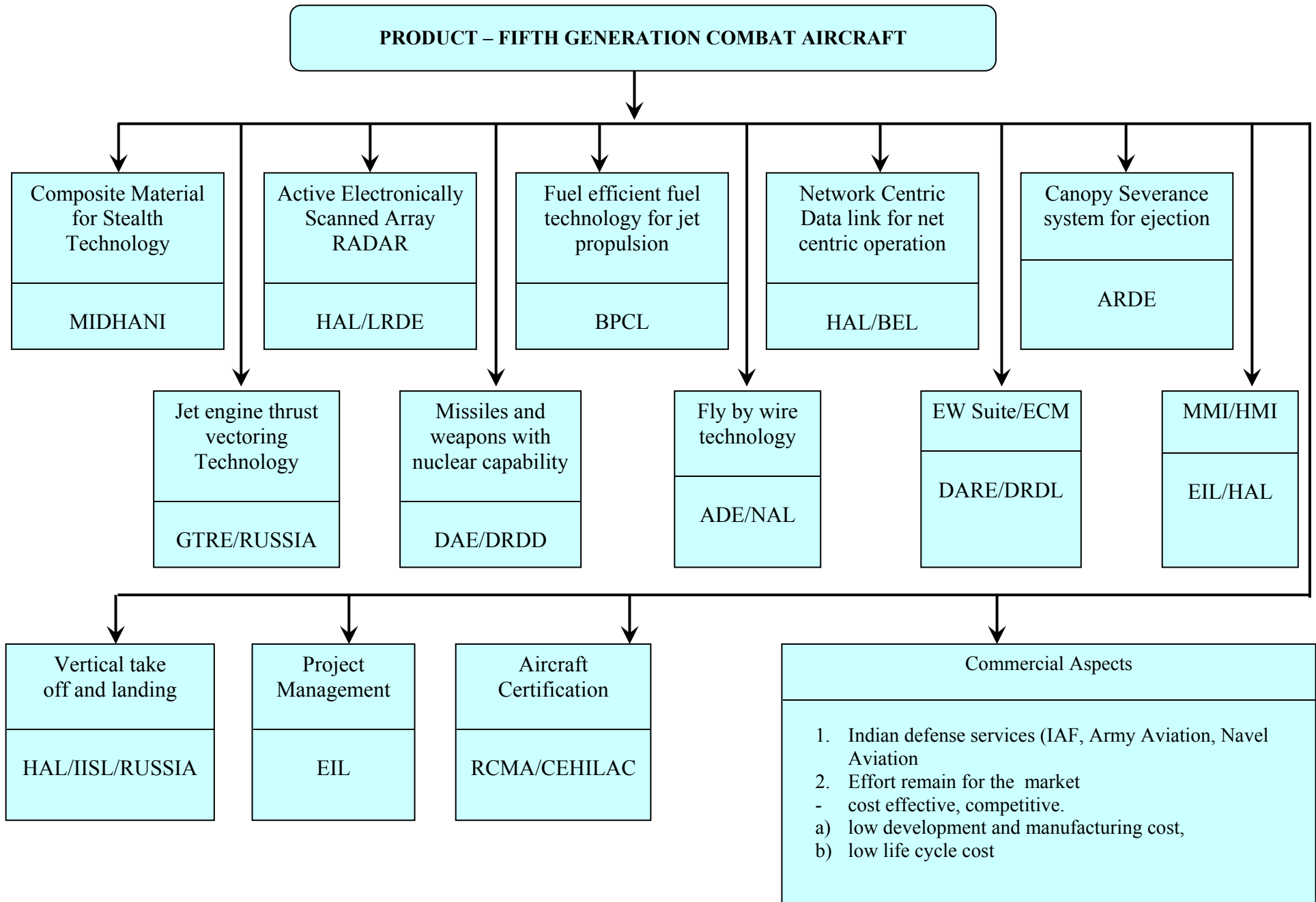
There is another upcoming dimension to the relationship between science and diplomacy, i.e., international security. Science in diplomacy can be used to diffuse tensions among countries posing military threats to each other, traditionally. He gave the instance of utilisation of science to strengthen the relationships with the Islamic world, which is otherwise a huge challenge. Conflicts over resource distribution and utilisation can also be solved, to some extent, through use of science.

In conclusion, Mitra said that the fluid concept of science diplomacy is gaining increasing importance in the US, the UK, Japan and elsewhere. It has an important role in solving the problem of governance of international spaces beyond national jurisdictions, including Antarctica, the high seas, the deep sea and the outer space, which otherwise cannot be managed through conventional models of governance and diplomacy. These issues require flexible approaches to international cooperation, informed by scientific evidence and underpinned by practical scientific partnerships.

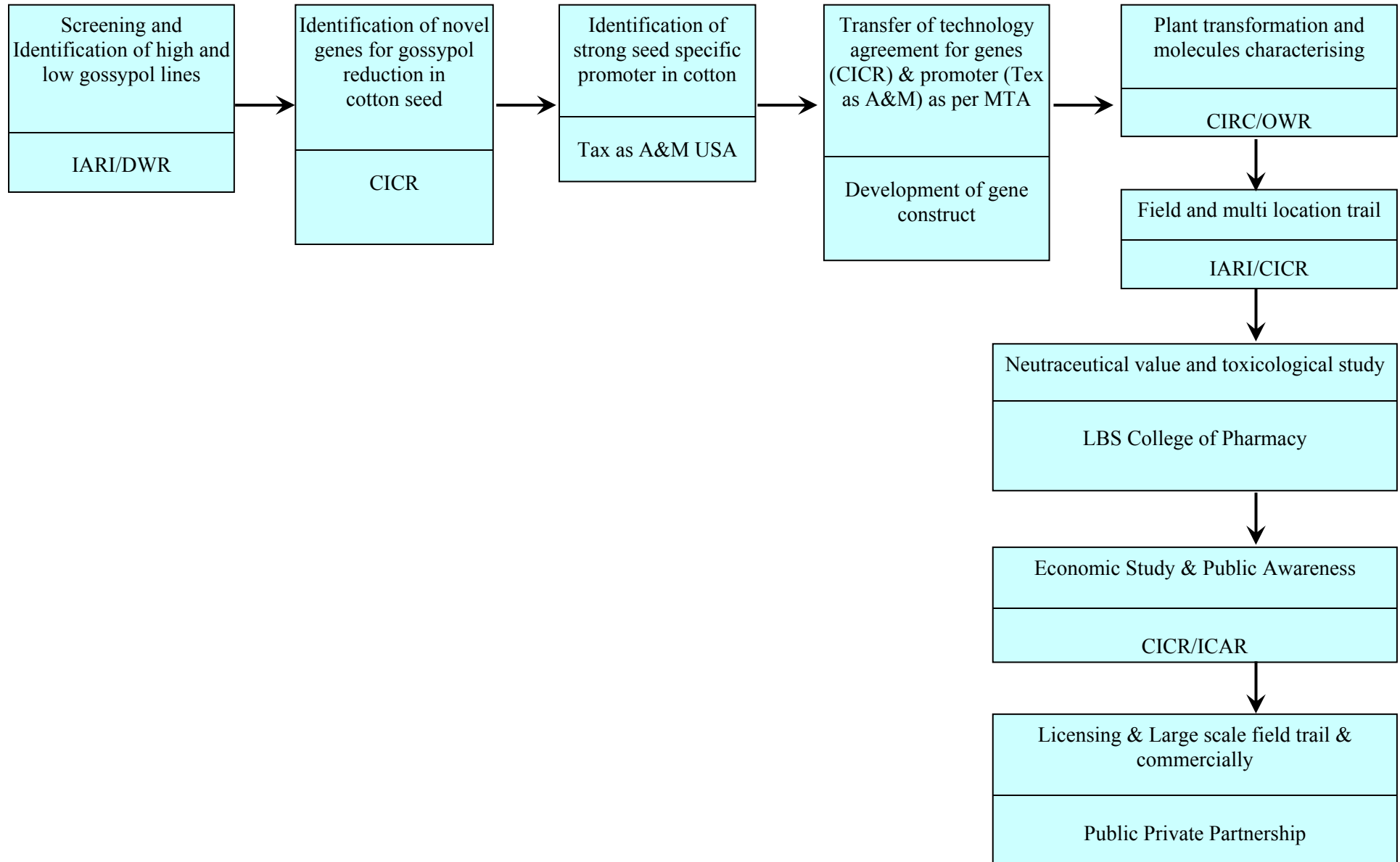
#### **Session 4: A Simulation / Analytical exercise**

*Dr. Ved Mitra, Former Science Counsellor to Germany*

In this session the participants were divided into two groups. Ved Mitra explained them the simulation exercise and the expected outcome from each team. Both the teams were asked to create a new technology (on paper) and detail the role to be played by each team member using her/his department’s expertise. Both the teams worked very efficiently and prepared flow charts explaining the innovation as well as the role of each team member in creation of the same. The following flow charts were prepared.



**Development of Seed Gossypol Free Cotton Genotypes for Improved Seed and Oil Quality**





## **Session 5: Historical Perspective and Approaches to Technology Diplomacy with a Sectoral Case Study**

*Deepak Bhatnagar, Head Centre for International Trade in Technology (CITT), Indian Institute of Foreign Trade*

Deepak Bhatnagar, at the beginning of his session, communicated to the participants that his session would require their active participation and commenced the session by quoting Sir John Maddox, who, in his words, recognised the increasing role of Indian (software) industry in the international market, which has come as a result of huge investments in the past in public research, education and so on. Bhatnagar referred to many modern ‘technology diplomats’ from India, such as Sabeer Bhatia, Vinod Dham, Kanwal Rekhi, Vinod Khosla, Rajat Gupta etc., who are contributing to development of technology and wealth creation throughout the world.

He stated that India has a legacy of technology development and innovation which started as early as the Indus valley civilisation. Though the country was under foreign rule for 200 years and, as a consequence, was exploited for its resources, but after assuming its independence, it has taken steps to ensure self-reliance and achieve high levels of economic growth. With the advent of globalisation, India, as is true for the whole world, is more inter-dependent for raw materials as well as for technology. It is in this environment that technology diplomacy becomes critically important, since science, technology and innovation are going to determine the economic and political power of the nations. He highlighted that international diplomacy now demands that government negotiators deal with both specialisation and integration. He also expressed that since science and technology are at the root of many trade controversies, it is essential that trade diplomats and policy makers understand the scientific underpinnings of trade issues.

Bhatnagar said that India is now exploring the field of scientific collaboration with a large number of countries throughout the world, such as the ‘India Gate Project’, India-US nuclear deal and S&T cooperation. The country has also established institutions such as the Centre for International Trade in Technology (CITT) at the Indian Institute of Foreign Trade (IIFT). Such collaboration will also help in solving the present ‘climate change issues’ that are faced by the world.

In his presentation, he also discussed biotechnology industry to provide a sectoral perspective to the participants. According to him, the industry has huge growth prospects, especially with the traditional Indian medicine system ‘AYUSH’ (Ayurveda, Yoga, Naturopathy, Unani, Siddha and Homeopathy). This sector, with a wide range of traditions, years of expertise and huge availability of natural ingredients gives India an edge it can utilise to its benefit. Bhatnagar also cited a number of other examples of Indian pharmaceutical companies which are renowned for their work throughout the world.

While concluding the session, Bhatnagar emphasised that the challenge has to be taken up by diplomats and young scientists to explore available arenas. He also encouraged the young scientists to enrol for government training programmes and hone their research skills.

## **Session 6: Overview of Intellectual Property Rights and Its Role in Technology Diplomacy**

*Atul Kaushik, Advisor (Projects), CUTS International*

In this session, Atul Kaushik gave an introduction to general Intellectual Property Rights (IPRs) Laws and the World Trade Organisation’s (WTO) Trade Related Aspect of Intellectual Property Rights (TRIPS) Agreement as well as various practical aspects of technology

diplomacy in the context of TRIPS negotiations. He defined IPR as legally enforceable power to exclude others from using the information created, or to set the terms on which it can be used. The TRIPS Agreement prescribes uniform minimum standards at the global level and minimum period for which protection should be granted to different intellectual property rights. He proceeded to explain the seven different IPRs in the TRIPS universe, which are: patents, copyright and related rights, trademarks, industrial designs, layout designs of integrated circuits, undisclosed information, including trade secrets, and geographical indications, including appellation of origin.

Kaushik explained that the TRIPS Agreement prescribes the institutional mechanism, procedures and remedies that Member countries should adopt:

- to enable IPR holders to obtain redress under civil law;
- to prevent release by customs authorities of counterfeit, pirated and other goods that infringe IPRs; and
- prosecution of counterfeiters and pirates under criminal laws.

Using examples, Kaushik elucidated the nature and content of standard technology agreements and the negotiation process involved in framing such agreements. He explained the stages involved in technology transfer, viz., (i) Discovery of Technology, (ii) Technology Selection and Demand Evaluation, (iii) Negotiation, (iv) Contracting, (v) Packaging and (vi) Technology Transfer and Marketing Activities. While explaining each of these stages in detail, he pointed out that the negotiation process involves the following:

- Understanding the value of the technology and the needs and expectations on both sides is the key to 'win-win' agreement.
- Understanding the Long-term technical, commercial and personal relationship which is bound to result therefore the necessity to be firm.
- Three phases: preparatory discussion, proposals and bargaining.

Kaushik concluded by providing the participants with negotiating tips and highlighted the importance of certain aspects of diplomatic approach such as maintaining positive attitude, finding synergies in interests, listening and communicating, usage of facts and figures to support arguments, focusing on relevant issues without unnecessary digressions, following best practices and keeping tabs on timelines involved in the negotiations. The session ended with an interactive discussion during which Kaushik answered many queries raised by the participants with respect to technical aspects of TRIPS as well as common practical difficulties faced by negotiators while negotiating technology deals.

## **Session 7: Technology Sourcing and Assessment**

*Vinay Kumar, Former Advisor & Head, Technology Management Division, DSIR and Visiting Faculty at IIT Delhi*

The session focused on issues confronting management of technology and innovation in the current environment of globalisation, with particular emphasis on technology sourcing and assessment. Vinay Kumar started the session by stressing the importance of optimal management of technology along with its development, keeping in view the economic viability. Major subjects in technology management are: (i) developing technology strategy, (ii) technology life cycles, (iii) technology acquisition, (iv) technology transfer and contracting, (v) technology pricing, (vi) R&D management, and (vii) innovation and creativity. Technology forecasting, managing IPRs and technology financing are also important in this context. He explained these topics and their importance, using examples.

Kumar pointed out that the major issues involved in technology sourcing are identifying sources of technology, evaluation of technology and its supplier, examining the status of intellectual property rights, consideration of price and forming appropriate strategies for negotiations. He said that these evaluations must also consider the longevity of the technology and longevity depends on external factors like product development by competitors, etc. It is a common practice in recent times for technology-oriented companies to avail the services of ‘technology gatekeepers’, who monitor the recent developments in the market and forecast and predict emerging threats that may affect the longevity of a particular technology in use.

Pricing is one of the most important factors in technology sourcing and estimating price is a complex issue. This is owing to the fact that technology is not a physical entity and technology licensing is not a one-time transaction, but a long term relationship. In addition, pricing is difficult because of many components of technology package, difficulty in assessing key features of technology and unknown future changes in technology preferences.

R&D management was the next topic explained by Kumar. Stressing on the fact that time and cost of R&D are important, he mentioned that R&D is getting more interdisciplinary and it is important to have cohesiveness and proper coordination between research team members having diverse skills. The crucial requirements for this area of technology management include systematic, disciplined and accountable approach towards assessing the threats and opportunities arising from the impact of all exogenous factors. He dealt with the following management aspects one by one: (i) developing corporate strategy on IPR, (ii) formulating research proposals, (iii) identifying potential zones, (iv) mapping prior knowledge, (v) monitoring competitors’ areas of operation, (vi) cross-licensing of patents, (vii) technology forecasting, (viii) identifying opportunities and threats, and (ix) identifying possible collaborators, business mergers and strategic alliances.

Although the session was interactive, in the concluding part of the session, Vinay Kumar opened the floor for discussions and the participants shared their views on technology management and experiences of their respective institutions. Some of the participants raised questions on the nuances of sublicensing of technology and the pricing issues therein. Kumar answered the questions using real world examples and stressed on the bottom-line that there are many subjective areas in technology management and the broad topics discussed in the session can only serve as guiding signs.

## **Session 8: Technology Acquisition with a Case Study**

*Vinay Kumar, Former Advisor and Head, Technology Management Division, DSIR and Visiting Faculty at IIT Delhi*

In this session, Vinay Kumar further elaborated on the formal technology management concepts introduced to the participants in Session 7 through examples and cases. He started the session by discussing the case involving Polaroid and Kodak. In 1948, a camera was developed by Polaroid which would develop a picture immediately after it was taken. Kodak had an agreement to produce colour films for Polaroid camera till 1969 and decided to produce cameras working around Polaroid patents in 1976, against which Polaroid filed a suit and won. The interesting point here is that Kodak ended up paying a lot more than what is normally applicable to infringement because of strategic planning by Polaroid in delaying the filing of suit. This case and its merits were discussed in detail.

Kumar circulated a second case study on the Osborne Computer Company. This company decided to package all the PC components together to form the first truly portable personal computer. Though the company initially made profits, it went bankrupt soon, because of several reasons relating to poor technology management. The first of its strategic defects was

that product design failed to cater to the market demands. The company was late in recognising the shortfall in its product design and rectifying it. Secondly, the company made a fatal mistake in identifying the right time for upgrading its technology. Recognising that its competitors are taking advantage of its product design, the company announced that it would introduce new technology that would meet consumers' demand. Many potential customers decided not to buy from the current stock, knowing that a better model was about to be launched.

Kumar asked the participants to analyse this case and discuss the real reasons behind the closure of Osborne Computers. It was found that in this case, several aspects of technology management were neglected. Firstly, lack of demand forecasting was evident in the design stage itself. Secondly, the company's lack of R&D and financial planning was identified. Finally, monitoring of competitive technologies and disregard for proper timing and management of the technology's life cycle contributed to its failure. These points were discussed and Kumar stressed on the need for developing an action plan for the management of any technology by taking into account the steps and stages explained in Session 7.

### **Session 9: Simulation Exercise**

*Vinay Kumar, Former Advisor and Head, Technology Management Division, DSIR and Visiting Faculty at IIT Delhi*

In his final session, Vinay Kumar presented a case for further discussion and also conducted an exercise in order to give the participants hands on experience on drafting of technology agreements. This first case was on the real world example of Hydraulic Equipment and Systems Ltd. Kumar gave a preliminary introduction to the case and asked the participants to review the challenges faced by the company and write down suggestions for, (i) creating a system for regular interaction with customers as well as suppliers, (ii) a system for regular horizontal communication between various departments of the company, (iii) a revision of the vision statement, (iv) creating an incentive scheme for R&D personnel, (v) a system for undertaking contract research and (vi) development of strategic alliances for the company.

The second exercise was a case study on technology licensing, in which a model technology licensing agreement between a technology acquirer in India and a technology supplier abroad was circulated amongst the participants. The participants were then asked to go through the model agreement and list down the deficiencies and gaps existing in the agreement that may lead to unnecessary misunderstandings between the contracting parties and consequently to disputes. They were also asked to provide suggestions to remedy such deficiencies. The participants worked on both these cases and their responses were discussed in detail towards the end of the session. Kumar also commented upon the improvement in the level of understanding of the participants on the subject by judging the merits and demerits of their responses.

### **Session 10 Negotiations of Technology Transfer**

*Ashok Jain, Vice President, Research and Academic Development EMPI School*

Ashok Jain began the session by stating that a key term 'win-win' should be kept in mind when involved in negotiations. Negotiations are held at the macro-level (which is the national level) and the micro-level (which is the individual organisation/industry level). Negotiators should keep in mind both the interests of the nation as well as the individual organisation. Negotiating a win-win game involving different actors can bridge the macro and micro divide. It is important to note that at different levels, different actors are involved. For scientists, institutions and laboratories negotiations are at micro-level and macro level, the likes of external affairs ministries are involved.

Jain said that in negotiations there are several elements that need to be linked with each other in order to have successful negotiations and these linkages are known as the national innovation system. The top segment is the manufacturing industry, where the technology is and where the scientists are at work; the middle segment (science research) is important as it connects R&D with manufacturing; and innovation falls between these two segments. Negotiations at each level involve different actors and it is important to know what is being negotiated – industry, innovation, science research or infrastructure. Linkages between these segments need to be strong in order to serve the national interest. Jain quoted the Japanese technology negotiators as having a solid understanding of these linkages, as compared to their Indian counterparts. He stressed that if there is an internal mismatch in these linkages, negotiations are bound to fail. He depicted these linkages through a diagram.

Jain also explained the kind of negotiations held in each segment of the diagram. In the lower segment, (infrastructure and human resources) negotiations take place on improved support for technical education, internship programmes and exchange programmes, visa restrictions and free flow of professional services. In the middle segment, R&D is negotiated taking into consideration national interest issues as well as issues of interest of individual organisation. For example, in pursuit of national interest, negotiations can take place for public sector R&D and for global public good (agriculture, health, environment etc.); and in pursuit of organisational interest, negotiations may primarily be about patents.

Jain highlighted some emerging issues which have not been addressed in negotiations. Some of these were how the presence of foreign R&D firms in India have benefited R&D in India; whether there should be regulation for putting restrictions on staff movement to prevent transfer of intimate organisational knowledge; and restrictions on reverse engineering. He also mentioned the need to know the extent of development in the country which is negotiating with other country/ies. In this context, the role of the Indian missions is crucial. For example, in the 1960s, R&D in Japan was weak, while its manufacturing was its strength and the Japanese missions abroad made use of this fact to promote their strength.

Jain mentioned the existence of five ‘Ms’ that go into production: machine know-how (M1), material and energy (M2), manpower/management (M3), money (M4), and market/users (M5). He stressed the importance of the need for synchronisation between these Ms by the corporate unit, because the best combination of Ms leads to successful negotiations. The corporate unit has to negotiate in India and overseas with know-how suppliers (M1), material suppliers (M2), manpower suppliers (M3), financiers (M4) and marketing and servicing agents (M5). Jain said that each of these has related TRIPS regulations which need to be taken into consideration while negotiating.

## **Session 11: Sectoral Case Study: Pharmaceutical Sector**

*Ashok Jain, Vice President, Research and Academic Development EMPI School*

The case study dealt with the issue of ways in which Indian biotechnology has to not only address significant health needs but also has assumed a profitable position in the global market. The aim of the case study was “to make participants understand the product development capabilities of India's nascent biotech sector and the strategies used by private firms to survive and grow amid a myriad of challenges related to operating in a developing world context”. It involved four major categories namely, affordable vaccines, non-vaccine therapeutics, innovative product development and contract services.

The participants were given a case study on the Indian pharmaceutical sector to read and understand the issues. The participants were then divided into five groups and each group was

given a set of questions. They were asked to delve into the Indian pharmaceutical set-up through the case study and use the framework discussed earlier to assess the situation, if possible by using their own experiences. Each group discussed their respective parts for an hour before taking turns to present their findings and views. Jain concluded the session by providing his analysis and suggestions on the presentations done by each of the group. The simulation exercise was proved to be beneficial to the participants as it provided not only understanding of the issue but also helped them in using the five M's mentioned above.

## **Session 12 Competitive Intelligence Gathering and Analysis**

*Dr Sunita Sreedharan, SKS Law Associates*

Dr Sunita, in her session, dealt with various issues of Competitive Intelligence (CI) and its need in the modern time. She highlighted that the objective of competitive intelligence is not to steal competitor's trade secrets or other proprietary property, but to gather in a systematic and legal manner a wide range of information that, when collated and analysed, provides a full understanding of the competitor firm's structure, culture, behaviour, capabilities and weaknesses.

Competitive analysis is critical for managers formulating corporate or divisional strategies, she said. Executive and planner must be aware of the levels and trend in performance of their competitors to determine the best direction for their divisions and parent corporations. They also must be critically assessing their own organisation's performance, over time, relative to its competitive peers.

The CI has following role to play while serving the corporate objectives:

1. The first concrete evidence of a new product, drug or industrial process is usually published patent documents. Patents and other forms of Intellectual Property are often good indicators of what competitors are involved in.
2. Intellectual property usually has three broad functions within a corporation, they act:
  - i. As a tool to protect price and market share by exclusion (patents) and as a guarantee of channels to market and goodwill (trademarks);
  - ii. As insurance against legal action by other patent holders, operating to mitigate risk of infringement; and
  - iii. As a financial asset in the high-stake game of strategic alliances, in which technology is licensed, swapped, assigned, mortgaged or held as a blocking strategy.

There are four components of CI and these include, competition perception, effectiveness of current operations, competitor capabilities and long-term market prospects, she added.

The CI performs various functions for the companies. Following are the three types of CI:

### **Strategic Intelligence**

- ⦿ It is concerned mainly with competitor analysis or gaining an understanding of a competitor's future goals, current strategy, assumptions held about itself and the industry and capabilities. Intelligence about the firm's major customers, suppliers and partners (in marketing or R&D alliances) is often also of strategic value.

### **Tactical Intelligence**

- ⦿ It is generally operational on a smaller-scale and not so focused on being predictive. Tactical issues include competitors' terms of sale, their price policies and the plans to change the way in which they differentiate one or more of their products from others.

Middle-level marketing and sales managers are among some of the main users of tactical intelligence.

### **Counter-Intelligence**

- ⊙ It is defending company secrets. This area of endeavour involves security and information technology, but others are often overlooked, such as hiring and firing strategies, to contain competitor opportunities within the firm and so on.

CI, to be effective, requires strict adherence to main objectives of good CI, including right information, right time, right person, right place, right contact and right way of delivery.

Sreedharan cited various examples of CI, highlighting that corporations in Japan and others such as AT&T and Wal-Mart have taken various initiatives to gather and use CI to gain over their competitors. This helped companies in Japan to produce high quality and fuel efficient cars.

However, there are various challenges in implementation of CI and, therefore, one must be cautious. The main challenges that remain are:

- ⊙ It is not enough to manufacture/produce or sell;
- ⊙ One needs to manage and utilise technology and IP assets in conjunction with all other assets of the organisation; and
- ⊙ To better control, one needs to control growth and strategy.

### **Session 13 Simulation Exercise on patent drafting**

*Atul Kaushik, Adviser (Projects), CUTS International*

The session conducted by Kaushik was interactive in nature. The session mainly focused on developing an understanding of *Drafting a Patent*. The presentation first defined patents and the criterion of granting one on the basis of novelty, inventive step and industrial applicability. Then the focus was directed towards drafting process of a patent application, and discussed in detail the various parts of an application like title, field of invention, background, prior art, objects of invention, detailed description of invention, drawings and claims. This entire process of drafting the patent application was explained through various examples and participants were engaged in the related simulation exercises.

Kaushik explained each part of patent application by way of examples and explained various aspects while drafting a patent application such as whether it satisfies written description requirement; allows skilled person to practice the invention; shows that inventors had possession of the claimed invention; and patents reward disclosure, rather than secrecy.

A patent application can be divided into various, parts such as title; field of invention; background of invention; prior art; objects of invention; detailed description of invention; drawings; and claims. All of these must be described appropriately in the filing document, Kaushik asserted.

Further, there are three primary criteria for granting a patent, he said. These include: novelty; inventive step; and industrial applicability. Steps required to file a patent application include: identifying invention; assessing patentability; drafting application; and patent filing and prosecution –grant.

Once the patent document is ready, the contents need to re-ascertain with a check list. The check list should have the following elements:

- Conduct search;
- Is the invention patentable?
- Has it been published?
- Ascertain whether complete or provisional is to be filed;
- Enlist problems in prior art;
- What is the problem sought to be solved by the invention?
- Is the solution obvious?
- Non-patentable items.

In addition to the delivering the mentioned documented information on patent application, the presentation also provided certain tips for filing patents. Also, with a view to ensure that the participants learn actual drafting of the patent application, various practical examples such as a wooden box with walls and a base was discussed and so on were discussed at length in the session, which clarified the whole process further to the participants. The queries of the participants reflected that the exercise was well-received and the members of the workshop gained from it.

### **Session 14: IP Asset Valuation and IP Audit**

*R K Gupta, Head Intellectual Property Management Division, Council of Scientific and Industrial Research*

This session covered IP valuation and the key definitions like assets, IP assets, value and IP valuation. The session further explained the differences between various methods deployed to value IP assets. Participants were given introduction to IP Audit and its growing importance as an indispensable tool for successfully managing knowledge-driven activities in an institution and the preparations, procedures and results of an IP Audit were also briefly discussed. Gupta discussed different types of intellectual assets such as patents, designs, know-how trademarks, copyright, brand value, trade secrets etc. He further highlighted different strategies that are involved in managing IP and protecting it.

He further discussed the post-WTO scenario, its impact on IP Assets and IP Audit. Gupta opined that today's firms have started developing core competence in certain areas through integration of IP strategy and business. A sense of competitiveness has arrived in the company's mindset for competing in terms of recognition, credibility and recognition. He drew the attention of the participants on the spectacular growth in R&D and increase in patents in India. Participants raised a few questions regarding IP management and its organisational structure. Further, the basic considerations which are very important to manage IP assets were also discussed. He concluded by saying that it is extremely important for an organisation to develop proper IP management system.

### **Session 15: Analytical Presentation**

*Atul Kaushik, Adviser (Projects), CUTS International*

A fictitious case study was used for the purpose of this session which used and applied the knowledge imparted in previous days of the programme about negotiations. For the session, the participants were divided into two groups (teams), Indico Company Limited (Indico), an inventor firm based in Mumbai, India, and Chemical Formulations Incorporated of Florida, US (Chemical), leading pharmaceutical firm which is trying to buy out Indico's recently invented method of coating microscopic components. The aim of this simulation exercise was that these two groups discuss within their groups and negotiate with the other group and exchange language which can be put together as an agreement. By the end of a one-and-a-half hour



discussion, they should have a mutually agreed upon deal. The case study was distributed to the two teams in advance so as to decide their strategy while negotiating with the other team.

Before starting the negotiation process, the teams took around 20 minutes to discuss within their groups to finalise their strategies. Indico focused on the money deal to be agreed upon by the two parties, whereas Chemical persisted with deciding the framework of the module being patented.

Each team nominated their leaders who represented each group in the negotiation process, together with the Chief Finance Officers and MDs supporting the negotiation.

The session proved to be beneficial to the participants as they were able to understand not only the nuances of negotiations but also learnt about the various clauses that are required to be considered while entering into agreement.

### **Session 16 and 17: Excursion Trip**

These two sessions consisted of an excursion tour to local tourist places in Jaipur. The tour enabled the participants to understand nuances of old and new technology. Thus it was a useful exercise and the efforts of the organisers were well appreciated by the participants.

### **Session 18: Values and Vision**

*Dr. Vandana Sharma, Soft Skill Trainer*

Vandana Sharma began her very interactive session by stating that as an employee of an organisation it is important to know about the organisation's values and visions so that the objectives are achieved. She discussed the importance of values such as responsibility, integrity, commitment and the relationship of ethics and values with diplomacy, in general, and technology diplomacy, in particular. The participants were individually asked about their understanding of the terms "Values" and "Vision" in their life.

She stressed on the need of having a good knowledge among the employee's about the organisation values and visions. She highlighted an important fact that it is the values and vision that act as a motivating and guiding force for an organisation. Vision also gives a lot of scope for defining realms. It is not restricted to specific aspects of development or any one aspect of the organisation. It operates at multiple levels. And, within an organisation, every employee must define and align his vision to the overall organisational vision and continue his pursuit for perfection.

Further, participants were engaged in various types of stress (distress) exercises to help them in understanding how to deal better with stress. Thereafter, the participants were provided with a test on personal values which helped them to understand the personal values and their importance in their lives. The exercise further required participants to rate each of the values in terms of its importance on a scale of 0 to 100. This exercise helped the participants in developing better understanding of the values and visions to be followed in professional as well as personal lives.

## **Session 19: Stress Management**

*Dr. Vandana Sharma, Soft Skill Trainer*

In the session, Vandana Sharma stressed on general awareness required to manage stress, such as understanding stress, symptoms and internal and external sources of stress and so on. The major approach to handle stress includes and can be categorised into three approaches: i) action-oriented, ii) emotion-oriented, and iii) acceptance-oriented.

Stress causes emotional disturbance (depression, tearfulness, fits of rage, etc.), disruption of thought processes (memory lapses, confusion and disorientation, etc.), physical discomfort (nausea, dizziness, palpitations, etc.) and behavioural changes (loss of appetite, nail-biting, increased intake of alcohol, nicotine, etc.). To tackle stress, she suggested regular physical exercise, healthy eating, drinking and relaxation techniques and accepting real circumstances.

She showed a video depicting the case of Dan, a Housing Officer. Dan is interviewed about his causes of stress at the work place. In the documentary film, Dan is asked about his comfort level with the job and the working environment in the company. He then narrates his stress level and says that the working environment has become really stressful and is no longer a joy to work in his office. When the interviewer asked him about reasons behind his stress, he pointed out three major reasons. Firstly lot of his colleagues who were very close to him had left office. Secondly, the new manager who came had hardly any knowledge of the housing industry and the recent changes he made in the office were not liked by Dan. Thirdly, the new manager no longer allowed anyone to take any decision on his own. As a result of these factors, Dan no longer felt comfortable working in the office. He mentioned that, day-by-day, his stress level is increasing and has resulted in an adverse impact on professional and personal life.

For three months no action was taken in Dan's case. As a result, his condition deteriorated from bad to worse. He was signed off as 'sick' from his office. The irony of the whole matter was that nobody in the office cared about his stress level; no efforts were made on behalf of the management to understand why he was stressed. When his manager David was asked what steps he took to help Dan, he stated that he was unaware of the fact that problems faced by Dan in his work could worsen to such a situation.

But, when his manager realised the problem faced by Dan, steps were taken to bring Dan back to work. David consulted the HR department of the company regarding his job role and the causes of his stress. As a result of this, Dan's responsibility in the job was changed. He was given more powers to take decisions of his own in the job. This improved his situation drastically. He was happy to get back to work and also started enjoying his new job responsibilities. Later, his manager agreed that the case of Dan has taught a lesson that it is extremely important for a company to understand and monitor the stress level of each employee and to take every possible step to reduce stress in the work place.

The documentary film on stress experienced by Dan and subsequent steps by company management provided a good example of how badly stress can spread and negatively affect the employee's productivity. So, it's imperative that every company has employee-friendly HR policies in place. The session was useful to de-stress the participants and to discuss openly their difficulties/stress on the jobs and to tackle the same.

## **Evaluation of Program and Suggestions**

*Atul Kaushik and Archana Jatkar, CUTS International*

In the closing session, the importance of technology diplomacy and the necessity for organising such training programmes was reiterated, especially in developing countries like India. During the five-day programme, it was felt that, in spite of developments in this field, there is still room for further development, especially in India, and, therefore, this field offers great opportunities for promoting our growth and development. Further, the participants were requested to provide the feedback on the training programme. They opined that the training programme provided them with a better understanding and exposure to technology diplomacy and related issues.

Participants also requested involving some entrepreneurs in future programmes and more case studies. They also suggested including a session on the WTO and allotting more time to case studies and simulation exercises in the programme. They appreciated and acknowledged the rich experience and expertise of resource persons, the quality of resource material and overall administration of the training programme.

Most of the participants expressed their interest in attending similar training programmes of longer duration in the future. At the end of the training programme, Atul Kaushik and Archana Jatkar thanked all the participants and resource persons for their valued participation and contribution to the success of the training programme. They thanked the Department of Science and Technology for assigning CUTS this training programme and assured that the future programmes will take into account the suggestions. They also thanked their colleagues in CUTS for their diligent support.