**Annexure-II**

**Minutes of the Meeting**

***of***

**2nd Advisory Committee (IPR) of DST-CPR at PU, Chandigarh**

The 1st Advisory Committee meeting was held on Saturday, July 15, 2017, at, Seminar Hall, Department of SAIF/CIL, Panjab University, Chandigarh.

**Agenda:** Identification and promotion of areas for generation of IP, based on factual evidence.

**Members Present:**

1. **Dr K. S. Kardam**, Senior Joint Controller of Patents & Designs, Indian Patent Office, New Delhi.
2. **Dr Rajesh Dixit**, Deputy Controller of Patents & Designs, Indian Patent Office,

New Delhi.

1. **Shri Avinash Kumar,** Addl. Director (IPR), DRDO (HQ),  **New Delhi**
2. **Mr Yashawant Dev Panwar**, Scientist- E, TIFAC, New Delhi
3. **Dr H. Purushotham,** CMD, NRDC, New Delhi
4. **Mr Jatin Talwar,** Attorney, Patent Agent, Founder, TT Consultants, Mohali
5. **Siddhant Chouksey,** CIPAM, New Delhi
6. **Prof. Rupinder Tewari**, Coordinator, DST-CPR at PU, Chd. ***(Convenor).***

**Members who could not attend:**

**Dr Malthi Lakshmikumaran**, Director & Practice Head Lakshmikumaran & Shridharan Attorneys, New Delhi

**Special Invitees:**

1. **Dr Manu Chaudhary,** J.M.D., Venus Remedies Ltd., Panchkula, Haryana
2. **Mr Gurharminder Singh**, In charge (PIC & IPFC), Punjab State Council for Science & Technology, Chandigarh
3. **Dr Rohit Sharma**, Chairperson, Department of Microbial Biotechnology, Panjab University, Chandigarh
4. **Ms Komal Sharma Talwar**, Chairperson, TT Consultants, Mohali

At the onset, Prof. Rupinder Tewari, Coordinator, DST-CPR at PU, Chd. welcomed the members and introduced all the special invitees. Prof. Tewari made a PPT presentation about the activities being carried out by the centre and also briefed about the reports submitted to DST, GoI. This was followed by presenting glimpses of the activities accomplished so far by DST-CPR at PU, Chd. The activities pertained to I-A Meets, R&D incentivisation by private sector, public private partnerships (PPP), IPR ecosystem in India, reports submitted by the centre and about the book published by centre entitled **“Industry- Academia R&D Ecosystem in India......*an evidence based study*” in January 2017.**

Afterwards, Prof Tewari also displayed I-A web portal (iacrikc.dstcpr.in) designed by the centre to facilitate the interaction of industry people with the academia. Prof. Tewari also introduced the concept of Chandigarh Region Innovation and Knowledge Cluster (CRIKC) society and what further modifications Centre is going to make to improve this web portal. After introducing members and invitees with the activities of the centre, all experts and special invitees introduced themselves and briefed about their respective organisations and institutions. Experts also briefed about the activities they are carrying out in their respective organisations for the propagation of patent regime and technology commercialization in India and abroad. They also proposed to help and guide Centre for executing its objectives and promised to give every possible sort of support regarding aforesaid objective. The introduction by all the invitees was followed by the healthy discussion on the existing IPR ecosystem in India and importance of IPR in Indian universities, technical institutes and R&D units. They also stressed upon the enhancement of industry-academia (I-A) ecosystem in India and also harped upon the limitations of Indian HEIs and R&D units, what are the main factors, hampering them to enhance their IPR regime.

After introductory session and discussions on IPR and IPR ecosystem, Prof. Tewari briefly talked about 3rd objective and asked Ms Mamta Bhardwaj, the in charge of the objective apprise members with activities executed by the centre. The gist of the presentation is attached as Annexure-I.

DST- CPR has analysed more than 900 institutions pertaining to HEIs, universities and R&D units under various ministries. The data of institutions has been analysed on the basis of research publications and patents filed and granted to the respective institutes for the period 2010-16. The presentation was followed by a healthy discussion on suggestions and recommendations for the improvement in the work done by the centre to achieve objective “Adopt evidence based approach for identifying and promoting areas for generation of intellectual property”. The discussion continued for two hours. The inputs/ comments/ suggestions put forward by the experts are as mentioned below:

1. **Dr K. S. Kardam**

* IP cells in higher education and R&D institutions are very - very crucial and these cells should be fully supported by institute’s administration.
* The attitude of heads of the institutes should be supportive towards every researchers and scientists.
* Study the IPR policies of other developed and developing nations.
* As the study carried out by DST-CPR is based on patent data of individual institutions. The patents of a few R&D organisations such as CSIR, ICMR, ICAR should be categorised on the basis of individual R&D institutes.
* Fields of the patents should be classified as per the IPC code from WIPO data base. This will give a better picture of the field wise data analysis.
* In the sources of the analysis, the link of the search engine InPASS should be mentioned.
* The patent information from WIPO data centre should also be considered.
* After analysing the data on the basis of publications and patents filed and granted, the Centre should undertake next study on patents granted and technology commercialised/patents licensed. The data pertaining to this can be accessed by using e-register from InPASS.
* Conduct case studies on institutes, which are having a good patenting profile.

1. **Dr Rajesh Dixit**

* The Centre should also carry out analysis of the institutes and R&D units, which comes under the state governments. This will give a picture of the patent regime in states and work on I-A collaborations in the state institutes and existing industries within the state.
* The industry-academia interaction is a very important factor for patent commercialization. Whatever research is being undertaken in the labs, should be communicated to the industry and should concentrate on industry based research. If a patent is not commercialised there is no use of patenting. In most of the developed economies, I-A interactions are the main parameter for IP commercialization.
* The Centre should conduct an exhaustive study on the basis of various fields and should take patents description from WIPO.
* The justified reason should be mentioned for institutes which are publishing very well but have a low profile in patent regime. The Centre should study Atomic Energy Act.
* Use IPO Annual Reports (last 10 years) to find out the institutes doing reasonably well in the domain of patents.
* Researcher or scientist should submit patent application pertaining to research carried out by researchers as soon as possible. This will increase the patents filing rate and the bottlenecks for the institute will be reduced.

1. **Shri Avinash Kumar**

* Shri Avinash Kumar highly appreciated the activities of the Centre and particulary highlihted the relevance of the **Industry- Academia R&D Ecosystem in India......*an evidence based study*”** with respect to the objectives of the National IPR Policy. The results of the study are very eloquent and may help the Policy Makers in deciding future course of action for promotion of IPR culture and enhancing overall national IPR filings.
* He also hoped that Centre may work as some kind of Think Tank of the country for IPR Activities .
* The role of IP cells in any R&D /Acedemic Institutes is extremely important for promotion of IPR culture as well as for increasing IPR Filings.
* There ought to be mechanism in every educational institution and R&D units that every research publication being carried out in institute should first go to the IP cell before publication to check for patentability of the research work. This screening before publication will surely increase the IPR filing rates.
* In any research partnership, there should be an emphasis on product development /deliverables from the very beginning of the research activites .
* One of the reason institutes like IISc., Bangalore and IIT, Mumbai have very good record of both publications and patents is that they have IP setup within the institute premises. So, other universities should also set up IP cells to match up publication and patenting numbers.
* While carrying out data mining/analysis, one must be careful in reaching any conclusion with respect to IPR filings from any particular organisation. The exact nomniclature for Applicant may vary with the passage of time due to variety of reasons.

1. **Mr. Yashawant Dev Panwar**

* The centre should analyse all the patents from various fields and institute and should put the data on centre’s website so that industry people can see and access those patents. This will enhance technology commercialization and I-A interactions as well.
* Compare number of publications with the number of Ph.D scholars for all the institutes. Centre should start this exercise for institutes falling under CRIKC society.
* Centre should link its patents data on various websites. TIFAC can also provide the access to the data on its link.
* Analyse the patents data on the basis of inventors’ address and IPC codes manually, by which we can get the actual status of patent ecosystem in respective institutes.
* Students should be made aware about importance of patents filing during their course work. Institutes should devise incentivisation schemes for promotion of patenting by research scholars and scientists.
* The centre should study the thesis submitted on the patenting activities done till now. It will help in making necessary changes as many parameters have been identified by doing surveys on institutes/universities.
* Examine Lombard Agreement and action points by TIFAC in National IPR Policy-2016.

1. **Dr. H. Purushotham**

* There must be university innovation facilitation centre in every educational institute as NRDC has done in 6 educational institutes.
* NRDC can facilitate in IPR policy designing. Such exercise has already been carried out for three institutes in India.
* AICTE is coming out with the start-up policy with NRDC for students for AICTE recognised engineering institutes.
* NRDC organises the IPR awareness programmes in universities. Universities can seek NRDC’s help for IPR awareness programmes.
* Enough work has been done for IPR dissemination. There should be dedicated awareness programmes on IPR filing and commercialization.
* NRDC is helping educational institutions/universities in commercializing their innovations, so institutes can contact directly NRDC for patents commercialization.
* A condition must be incorporated for Ph. D. Students, that they should have at least one patent filed to their credit to complete their Ph. D.
* There are gaps in prototype development and field testing of the prototype. This is the major gap existing in the academic and R&D units.

1. **Mr. Jitin Talwar**

* Every HEI and R&D units must have a robust IPR Policy in place to guide and educate researchers.
* IPR cells and technology transfer cells should be clubbed since they need to work in close association.
* Each patent should be mapped based on fields and subfields covered by the respective patent.
* Many institutes like PGIMER are publishing research articles heavily but do not patent their researchers due to lack of awareness and existence of IPR Cell in institutes.
* The centre should also identify the promising areas of technology for future to achieve generation of intellectual properties.
* There should be knowledge sharing between academia and industry, so that they can exploit each other’s innovation and knowledge.
* Each institute should not only concentrate on IPR cells within the institutes, but also promote technology transfer and business incubator simultaneously.
* IPR cell, technology transfer cells and business incubators should work in tandom. This model has been implemented by many developed countries and need to be adopted in India as well.

1. **Dr. Manu Chaudhary**

* For making students IPR savvy, there should be at least introductory chapter at school level so that they have knowledge about IPR and get to know how to exploit there ideas and innovations.
* Usually a particular institute is good in a few specified areas and mostly the industry in that zone is also focused mainly on such speciality.So it will be easy to facilitate IP exchange if the focus is kept on a few specialities which cane be zone specific. For example, PU has a strong pharma unit and industry in this region including Baddi is also a hub of Pharma, hence facilitation of pharma relatedpatents in PU will benefit both institute and industry. Similarly, being PEC a premier engineering institute, region also has so many engineering ancilliray units around. A close knit networkingbetween such type of expertise at Institue and Industry level will definitely help.
* In IPR facilitation centres of intitutes like PU, active participation from identified specialityunit team should be made mandatory so that it does not remain a discretionary aspect.
* There should be a separate IP commerciliazation cell along with IP protection cell which can reach out to industry with available technologies/patents for commercialization. It should be considered as an independent business unit with sufficient autonomy to take decision. Reaching out to industry will not only enable relation development, faster commercialization, avoidance of duplication but will also be helpful in need based research in academia.
* There is another suggestion. Every industry does not focus on each specialitye.g., Sun Pharma is specialized in Neuro and Psychotroipic drugs, Venus is specialized in Antibiotics, Anticancer and Pain management drugs. So even if a technology is very good for diabetes control, it may not be of interest to these two companies due to lack of focus on diabetic segment. Therefore, reaching out to focused customer is essential for effective technology transfers or out licensing of IP.

1. **Mr. Siddhant Chouksey**

* A chapter IPR should be included in NCERT books to make students aware. CIPAM has already contacted MHRD for this.
* Patent Information Centres can play a crucial role in IPR cells in HEIs and R&D units.
* Include students also in IPR related activities; it will inculcate the IPR knowledge to students and make them IPR savvy.
* The students of the Institute for Electronics and Electrical Engineers (IEEE) have established a patent club and this should be adopted by other institutes as well.

1. **Ms. Komal Sharma Talwar**

* Some Universities are filing patents just for the sake of its reputation or brand building, whereas, their grant rate is zero. So technologies and innovations must be evaluated before filing patent. By doing this other processes such as examination will befaster.

1. **Mr. Gurharminder Singh**

* PSCST will provide the patents data for the institutions in Punjab and Chandigarh to DST-CPR for analysis purpose, if desired.
* Informed about the establishment of WIPO sponsored Technology and Innovation Support Centre (TISC) in PSCST.

1. **Dr. Rohit Sharma**

* If a researcher is getting funds from some other central government funding agency and doing his research in a particular university, the IP should belong to the innovation fellow, not to the university. The existing mechanism of IPR policies in institutions should be redrafted.
* The incentivisation set up in HEIs and R&D labs except IITs is very weak so there is a scope of improvement in rest of the institutions.

1. **Future Activities to be Undertaken**

* Patents classification on the basis of International Patents Classification (IPC) codes from WIPO and also classification of the patents information on the basis of institutes.
* Analyse the research publications viz-a-viz a number of Ph.D scholars for all institutes.
* Analysis of institutes on the basis of patents granted/filed and patents licensed.
* Cunduct Case studied on the institutes which, are having strong hold on both parameters i.e. publications and patents.
* Designing of the questionnaires with the consultation of ‘Advisory Committee’ for case studies on these institutes.
* Study the correlation between funding amount given by public funding agencies to HEIs and R&D labs and revenues they are getting in return by commercializing technologies**.**
* Upload the classified patents data on centre’s website.
* For IPR generation or dissemination, link the website or sources of all schemes, facilities and programmes of ministries and other public and private agencies on centre’s webpage.
* Collaborative research/ technology transfer/ IP commercialization data by classifying the patents list available with the centre.
* Data collection of SMEs pertaining to IPR which can be find from 32 IPFCs and also technologies transferred to them by academia.
* Patents landscaping for industries and analysis of data on the basis of collaborative research by industry and academia.
* **Study IPR Policies of**

1. Developed Countries: UK, USA, Germany etc
2. Asian Countries: S. Korea, China and Japan etc

* **Case Studies on:**
* Top 5 Scientists in filing patents
* Top 5 industries in PCT applications
* Top 5 R&D units
* Top 5 HEIs

**Gist of Presentation by Ms. Mamta Bhardwaj**

* Publications and patents profile of 914 HEIs and R&D Units. The categorization of these HEIs and R&D units are as follows:
* 585 R&D units in India are carrying out core research in various fields of science and technology. These R&D units fall under the 27 ministries of GoI. The majority of labs (420) fall under these five ministries i.e. Ministry of Health and Family Welfare, Ministry of Agriculture and Farmer’s welfare, Ministry of Science and Technology, Ministry of Defence and Department of Space.
* 80 Institutions of National Importance (INI) in India.
* Top 100 NIRF Universities in India ranked by MHRD.
* Top 100 NIRF Engineering Institutes in India ranked by MHRD.
* Top 50 NIRF Pharma Institutes in India ranked by MHRD.
* Top 50 Private Universities in India ranked by Career 360 (http://www.university.careers360.com)
* 914 institutions were analysed holistically on the basis of publications & patents. These institutes are also analysed based on six fields which are Physics, Pharma/Drug, Medical Science, Biotechnology/Food/Agriculture, Chemical Sciences, and Engineering.
* On the basis of publications, top 10 institutes are Delhi University, IISc. Bangalore, IIT Kharagpur, BHU Varanasi, BARC Mumbai, Hyderabad University, IIT Delhi, AIIMs Delhi, IIT Madras, IIT Mumbai respectively.
* On the basis of patents filed top 10 institutes are IIT Mumbai, IISc. Bangalore, Amity University NOIDA, IIT Madras, IIT Kanpur, IIT New Delhi, IIT Kharagpur, Jawaharlal Nehru Centre for Advanced Scientific Research Bangalore, NII New Delhi, Bharath University Chennai respectively.
* On the basis of patents granted top 10 institutes are IISc. Bangalore, IIT Bombay, IIT New Delhi, IIT Madras, IIT Kanpur, Jawaharlal Nehru Centre for Advanced Scientific Research Bangalore, ICT Mumbai, NII New Delhi, Indian Institute of Chemical Technology Hyderabad, AIIMS New Delhi respectively.
* Recommendations for those institutes which are lagging behind in the conversion of their research into patents.

In the field of Physics, the four institutes which are leading in both publications as well as patenting (filing/granted) are IISc. Bangalore, IIT Chennai, IIT Kanpur and IIT New Delhi, whereas, the institutes which are only doing well in publications but do not have impressive profile in patenting are University of Delhi, IIT Kharagpur, Saha Institute of Nuclear Physics Kolkata, Panjab University Chandigarh**.** Although there are two other institutes which are publishing good number of research articles but do not have much patents to their credits are BARC Mumbai and TIFR Mumbai. The reason behind this may be under the Atomic Energy Act, they cannot file Patent for invention related to atomic energy for the security purpose but as per their technology transferred record they must have so much innovations and processed for which they can seek protection under Indian Patent Act.

In the field of Chemical Sciences the institutes which are doing equally good in both parameters are IISc. Bangalore, Indian Institute of Chemical Technology Hyderabad, IIT Chennai, IIT New Delhi, IIT Bombay, University Of Delhi. The institutes which need improvement are Bhabha Atomic Research Centre, Mumbai (the reason may be same as mentioned above for physics), IIT Kharagpur, IIT Hyderabad and University of Hyderabad.

The institutes which are performing impressive in publications as well as patenting in the field of Pharma/Drug are University of Delhi and Indian Institute of Chemical Technology Hyderabad (CSIR). On the other hand the institutes like IIT Hyderabad, Gujarat University, University of Hyderabad, VIT University Vellore, Annamalai University, Tamilnadu, Bharath University, Chennai, Manipal University and Jamia Hamdard, New Delhi are just publishing their research but have a lot of scope of improvement in converting their research into patents.

In the case of Medical Sciences the institutes which can act as role models for other institutes are AIIMS New Delhi and IISc.Bangalore. Rest of the institutes in to 10 institutes like PGIMER Chandigarh, University of Delhi, Manipal University, Banaras Hindu University Varanasi, National Institute of Mental Health & Neuro Sciences Bangalore, University of Hyderabad, BARC, Mumbai and Aligarh Muslim University, Aligarh are publishing their medical research but performing poorly in converting their research into patent. The justified reason for the same may be because processes are not patentable in these fields.

In the field of Engineering, IITs are dominating the list of top 10 institutes in this field. The institutes which are performing impressive in Engineering are IIT Kharagpur, IISc, Bangalore, IIT New Delhi, IIT Chennai, VIT University Vellore, IIT Mumbai, IIT Kanpur. On the other hand IIT Roorkee, University of Delhi and Sathyabama University Chennai are lagging behind in the patenting profile. Out of these top 10 institutes IISc. Bangalore and IIT Mumbai are doing magnificent in both the parameters as both institutes have huge number of patents filed and granted to their credit for last seven years (2010-16), considered for the study.

In the field of Biotechnology/Food/Agriculture only two institutes vis-a-vis University of Delhi and IISc. Bangalore are front runners. Except the institutes like IARI New Delhi, Banaras Hindu University Varanasi, University of Hyderabad, Annamalai University, Tamilnadu, Gujarat University, IIT Hyderabad, BARC Mumbai and IIT Kharagpur need a lot of improvement.After this analysis we found that, IISc. Bangalore and IITs are performing exceptionally well in research publications and patenting. They can act as role models for rest of the institutes. The Centre will study their system and will do case studied on institutes like them and will draft recommendations for other institutes which, are lagging behind and not been able to convert their research into patents but have excellent research publications records.