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Landscape of IP Ownership and Revenue Sharing Policies in India and their Benchmarking with Policies in the West

By Dr. Suchita Markan

Abstract- Innovation is the key to sustainable ecosystem in Science and Technology (S&T). Robust Intellectual property (IP) policies and revenue sharing models to incentivise innovators are imperative to boost creativity and innovation by them. This paper assesses the current IP ownership and revenue sharing policies in India deployed by key autonomous public research institutes (PRIs) under Ministry of S&T (DBT, CSIR, ICMR, ICAR), Ministry of Defence (DRDO), and Ministry of Agriculture and Farmers Welfare (ICAR), Government of India (GOI) with 345 institutes under their purview and top 100 universities as per National Institutional Ranking Framework (NIRF)-2017 issued by GOI. Pertinent IP policy typologies studied included presence/absence of IP policies, IP ownership policies, type of revenue sharing models, benefit sharing policies, payout frequency, start-up policies etc. and its bench marking with successful models being followed by leading universities in west in USA, UK and Canada. The findings of this study will be of relevance to policy makers for understanding policy typology, to practitioners for drafting suitable policies and to innovators as key beneficiary of such policies.

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I. Introduction

Creativity and innovation are the key components of any modern knowledge society. Never before in the history of mankind, so much energy, time and resources have been channelized in giving expression to this creative impulse. Universities/Public Research Institutions (PRIs) all over the world have become a powerhouse of innovations. In India, Council of Scientific and Industrial Research (CSIR), an autonomous organisation under Ministry of Science and Technology (S&T), Government of India (GOI) leads the innovations space and IP filings[1]in the areas as varied as genetic inventions to software. But do these universities/PRI's have proper Intellectual Property (IP) policies to provide guidelines for IP ownership, collaborations and benefit sharing etc. to facilitate licensing and commercialisation of these IPs leading to Return on Investment and socio-economic growth?

An IP policy is the cornerstone of innovation and creativity for universities and the way it is crafted has a direct and deep impact on the sustainability of innovation ecosystem. It creates an environment that encourages and expedites the dissemination of new knowledge for the greatest public benefit, while protecting the traditional rights of scholars to control the products of their scholarly work[2]. It also ensures that the financial or other benefits of commercialization are distributed in a fair and equitable manner as it lays guidelines to recognise the contributions of the inventors, institutions as well as other stake holders[2,3].

A well-defined revenue sharing model as a part of the IP policy of the university motivates the students/researchers to innovate and commercialise their technologies[4]. A student or a university employee is the first owner of any invention made by him. However, there are other stakeholders such as employers, sponsors and departments who can make a claim that such patent rights should be assigned to them. IP policies of the universities/ PRI, among others, deal with issues of IP ownership, revenue sharing etc., of the IP generated through universities thus facilitating commercialisation of technologies, which if not addressed, are impendent to technology-transfer and commercialisation[3]. Although, numerous attempts have been made and surveys conducted to study IP policies and revenue sharing models of universities in the west including universities in USA, Canada, UK etc[3-6], no detailed study has been done to understand the IP policy framework and revenue sharing models being followed by autonomous PRIs and universities in India[7-8]. The existing literature has also not comprehensively catalogued the policies typology and diversity in India[7-8].

In the present study, IP policies for benefit sharing being adopted by key autonomous PRIs/Departments of S&T and top institutes/universities of India were studied to understand and throw light on the IP ownership and revenue sharing models being adopted by them. These policies were also studied to understand the pertinent issues/policies regarding revenue sharing models being followed in India and its bench marking with successful models being followed in the west with additional focus on the following aspects:

- What is the policy on the ownership of Intellectual Property?
- What is university/institute policy regarding commercial revenue split?
- How are the royalties split between the Inventors and the university?

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- Are there other parties involved, and if so, what portion do they receive?
- What is the payout frequency of the revenues to the inventor(s)?
- Does the IP policy specify start-up policy for its faculty/student?

II. Methodology

For brevity, the term "university" is employed and refers to both university and research institute and may be used interchangeably as the context demands. Likewise, autonomous public research institutes or departments under the Government of India, have been hereinafter referred to as 'PRIs'or 'PRI'.

In the present study, IP policies/revenue sharing policies being followed by top hundred Universities/Institutes listed by Ministry of Human Resource Development (MHRD), Government of India as per the National Institutional Ranking Framework (NIRF) released in April 2017[9] were studied to evaluate the IP ownership and revenue sharing policies followed by these universities.

The IP policies/guidelines issued by the key autonomous PRIs/Departments under the Ministry of S&T, Ministry of Defence and Ministry of Agriculture and Farmers Welfare, Government of India (GOI) including policies laid down by Indian Council of Medical Research (ICMR)[10], Department of Biotechnology (DBT)[11], Indian Council of Agricultural Research (ICAR)[12], Council of Scientific and Industrial Research (CSIR)[13], Indian Agriculture Research Institute (IARI)[12], Defence Research Development Organisation (DRDO)[14] were also studied to evaluate the IP guidelines/benefit sharing policies being followed by them. Only data available in the public domain with open access was used and relied upon for the present study.

The autonomous PRIs/departments in India have universities supported by them through intramural funding and therefore, the policies/guidelines laid down by them are generally applicable to all universities supported by them. In case, the universities under these PRIs/Govt. departments develop their own IP policies, being fully supported, it is assumed that their IP policies will be based on the IP Policy/guidelines followed by their parent institute.

CSIR has a dynamic network of 38 national laboratories, 39 outreach centres, 3 innovation complexes and 5 units[1]. CSIR's R&D expertise and experience is embodied in about 4600 active scientists supported by about 8000 scientific and technical personnel[1]. ICMR has 26 national laboratories/Institutes under its umbrella[17], DBT has 14 autonomous institutes and centres under its purview[15]. ICAR has 99 ICAR institutes and 53 agricultural universities spread across the country and it is one of the largest national agricultural systems in the world[16]. There are 60 Laboratories/units functioning under Defence Research and Development Organisation (DRDO) under Ministry of Defence, GOI[18]. IP policies/guidelines being followed/adopted by these scientific departments were studied to understand the IP policy guidelines being given by these organisations and adopted by their universities and research centres.

As the western world has achieved excellence in science, technology, innovation and commercialisation, the IP ownership and revenue sharing policies being followed by leading universities in USA, UK and Canada were also studied and compared with Indian models to benchmark and draw inferences. This will be of relevance to policy makers and practitioners for drafting and adopting suitable policies for their institutions.

III. Results and Discussions

Fig. (1a)
Presence/Absence of IP Policy/guidelines in Autonomous Public Research Institutes

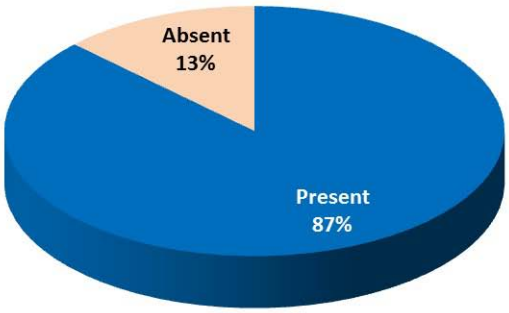

Fig. (1b)
Presence/Absence of IP Policy in top 100 Universities as per MHRD Ranking

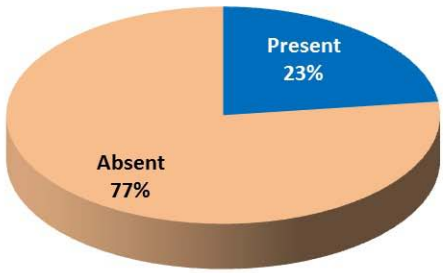

Figure 1: Status of presence of intellectual property policies in universities in India

The autonomous PRIs in India have been promoting new areas of S&T and playing key role as nodal organisation for organising, coordinating and promoting S&T activities in the country[19]. They have PAN India presence and have a dynamic network of national laboratories, innovation complexes and units covering a wide spectrum of science and technology sectors including from environment, health, drinking water, food, housing, energy, farm, non-farm, defence and agriculture sectors[19]. When the IP policies/guidelines being adopted by these PRIs were studied, it was found that CSIR as a pioneer of India's intellectual property movement has laid down clear IP policy with revenue sharing mechanism to incentivise its institute (s), inventor (s) and departments[13].

With the responsibility of steering R&D in the country, majority of the autonomous PRIs in India have laid down clear IP policies with revenue distribution mechanisms to incentivise and promote their institutes and inventors to pursue scientific pursuits. Such IP policies with clear revenue sharing mechanism were present in 87% of such central bodies (Fig. 1a). Ministry of Finance, Department of Expenditure, GOI in the year 2000 issued guidelines/ instructions for technology transfer and intellectual property rights[11]. DBT is following these guidelines for defining revenue sharing policy for its institutes. While ICAR[12], CSIR[13] and DRDO[14] have clear IP policies on benefit sharing, such policies need to be more clearly defined by ICMR[10] and DBT[11].

When presence of IP policy in top 100 Indian Universities as per MHRD ranking was studied[9], it was observed that in 77% of these universities, no formal IP policy was present (Fig. 1b). Only 23 out of 100 such universities had formal IP policies indicating that majority of the universities in India have strategic focus on basic R&D and publications (Fig.1b). They don't have a formal document such as an IP policy document which sets out rules of the universities on how to accurately identify, evaluate, protect and manage its IP for development and commercialisation. It shows that these universities don't have an IP perspective and the lack of IP vision is taking its direct toll on the structure and quality of education imparted and research done therein.

Table 1: Table showing policies regarding ownership of IP adopted by Universities and Autonomous PRIs in India

Sr. No.	University/PRI	IP generated by Intramural funding	Extramural or Grant-in-aid funding	Collaborative Research	Sponsored Research	Work-for-Hire/ Consultancy to outside Institute	Any other
1.	ICMR[10]	ICMR	Generally owned by ICMR (Negotiable)	Joint IP [i]	N/A	N/A	N/A
2.	ICAR[12]	ICAR	ICAR[ii]	Joint IP	Joint IP[i]	N/A	N/A
3.	CSIR[13]	CSIR[iii]	CSIR	Joint IP[iv]	Joint IP[iv]	N/A	N/A
4.	DBT[11]	Institute[v]	Joint IP	Joint IP	N/A	N/A	N/A
5.	DRDO[14]	DRDO	N/A	N/A	N/A	N/A	N/A
6.	IISc, Bangalore [20]	Institute	N/A	Joint IP[vi] Or Institute IP[vii]	Joint IP[vi] Or Institute IP[vii]	N/A	N/A
7.	AIIMS Delhi[21]	Institute	N/A	Joint IP[viii] or As per MoU	Joint IP[viii] or As per MoU	N/A	N/A
8.	IIT Delhi[22]	Institute	Institute[ix] or Joint IP[x]	Institute[ix] or Joint IP[x]	Institute[ix] or Joint IP[x]	Institute[ix] or Joint IP[x,i]	Inventor[xi]
9.	IIT Kharagpur[23]	Institute	N/A	N/A	Institute[xii]	Institute[xiii]	
10.	Bharathiar University, Coimbatore[24]	University	N/A	N/A	N/A	N/A	Inventor[xiv]
11.	Pondicherry University, Puducherry[25]	University	N/A	N/A	Joint IP	N/A	Negotiate d with external agency[xv]
12.	SRM University, Chennai [26]	Joint IP[xvi]	N/A	N/A	Joint IP[xvii]	N/A	Inventor[xviii]
13.	JamiaHamdard University, Delhi [27]	University	University[xix]		University[xix]	N/A	N/A
14.	Panjab University, Chandigarh[28]	University	N/A	Joint IP [xx]	University[xix] Or Joint IP[xx]	N/A	University[xxi]
15.	NIPER University, Mohali[29]	University Or Mutually decided	University [xxii] Or Joint IP[xxiii]	Joint IP	Joint IP	N/A	N/A
16.	IIT Kanpur[30]	Institute	N/A	As per MoU	As per MoU	N/A	Institute[xxiv] (fully or partially, on a case-to-case basis)
17.	IIT Roorkee[31]	Institute	N/A	N/A	Institute[xix]	N/A	N/A
18.	Guru Jambheshwar University, Hisar[32]	University	N/A	Joint IP[xxv]	Joint IP[xxv]	N/A	N/A
19.	Goa University, Goa[33]	Joint IP[xvi]	N/A	As per MoU	As per MoU	As per MoU	Inventor[xxvi]
20.	Amrita VishwaVidyapeetha, Coimbatore[34]	University	N/A	N/A	N/A	N/A	N/A
21.	IIT Indore[35]	Institute	As per MoU	As per MoU	As per MoU	Institute	Inventor[xviii]
22.	Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru[36]	Intellectual Property Management Committee decides on a case to case basis	N/A	N/A	N/A	N/A	N/A

23.	Vellore Institute of Technology, Tamil Nadu[37]	Institute	N/A	Joint IP [xxvii] or Institute [xxviii] Or as per MoU[xxix]	Joint IP [xxvii] or Institute [xxviii] Or as perMoU[xxix]	N/A	N/A
24.	IIT, Madras[38]	Institute	N/A	As per MoU	As per MoU	N/A	N/A
25.	National Institute of Technology Surathkal[39]	Institute	N/A	Joint IP [xxvii] Or Institute [xxviii]	Joint IP [xxvii] Or Institute	N/A	As per MoU[xxiv] or Joint IP [xxvii] or Institute[xxviii]
26.	Kerala University, Kerala[40]	Institute or Inventor [xviii]	N/A	N/A	N/A	N/A	N/A
27.	National Institute of Technology, Tiruchirappalli[41]	Institute or Inventor[xviii]	N/A	As per MoU	As per MoU	N/A	N/A

i. Joint IP in Collaborative Research or Sponsored research or Work-for-hire shall mean IP jointly owned by host Institute/University and the Sponsor/Collaborator/Employer in case of work-for-hire.
ii. Using External Funds but IP assigned to ICAR.
iii. IP created by CSIR Institutes including all.
iv. Collaboration, sponsored work with MoU/Contract/Agreement with agreed Joint IP.
v. IP generated by all DBT supported Institutes.
vi. If sponsoring agency is forthcoming in filing IP and bears the cost of filing and maintaining IPR equally.
vii. If sponsoring agency is not forthcoming and does not bear the cost of filing and maintaining IPR equally.
viii. Joint IP or as per terms of the MoU/Agreement executed between the Parties.
ix. IP generated by /through joint funding/ facilities of IIT Delhi and external agency or consultancy or sponsored research or work-for-hire without any Agreement.
x. IP generated by /through joint funding/ facilities of IIT Delhi and external agency or consultancy or sponsored research or work-for-hire with formal associated Agreement.
xi. None of the situations as defined in IP policy of IIT, Delhi or Third party ownership applies, and the IP is unrelated to the inventor's engagement with IITD, OR is generated outside the normal working hours of IIT Delhi.
xii. IP is owned by the Institute where the sponsor does not claim intellectual property rights.
xiii: IP rights to be assigned to the Institute in a written contract to be executed between the parties.
xiv: The Creator/Inventor at his option may retain ownership when the IP is developed without use of University resources.
xv: IP created without using PU resources by PU personnel, on sabbatical or long leave, or who is permitted by the PU to be engaged in an outside organization to be negotiated by PU Personnel with external organisation.
xvi: IP generated through Intramural Funding is jointly owned by University and Inventor.
xvii: In case of External Funding amounting to Rupees Ten Lakhs or more, IP is jointly owned by Inventor, University and External agency.
xiii. IP developed without substantial use of University resources/facilities.
xiv. IP created through sponsored research where the sponsoring agency does not claim IP rights.
xv. IP shall be jointly owned between University and sponsor/collaborator, if the later claims IP rights.
xvi. In case of Work-for-hire, IP shall be owned by the University.
xvii. University IP: Fully Govt. Funded Research.
xviii. Joint IP: Fully or Partially Non-Govt. Funded Research.
xix. IP created during deputation, official leave, or sabbatical
xx. If Collaborator/Sponsor has provided Funding of Rs. 10/- lakhs or more.
xxi. IP created without the use of any University/College resources after due approval of University/College.
xxii. If the sponsoring agency bears the cost of securing and maintaining the IPR registration equally.
xxiii. If the sponsoring agency is not forthcoming in filing a joint IPR application.
xxiv. In case of multiple sponsors

Figure 2: Ownership of Intellectual Property in different cases

In the absence of a law similar to Bayh Dole Act in India, the ownership of IP arising from research through intramural funding is owned by the Government/autonomous PRIs. The universities pursuing research and generating IP through intramural funding don't own the IP. In the present study, in 93% of universities, IP is owned by the PRI under the GOI (Fig.2a, Table-1). Only 21 out of 361 universities own the IP, which is only 6% of the total such universities included in the study. This is unlike IP ownership policies of universities in developed countries such as USA, UK, Singapore, China, Germany, Denmark, Malaysia etc. wherein IP generated through public funding is owned by the university[41]. IP is jointly owned by university and the inventor as per IP policy of two universities viz. SRM University and Goa University. Ownership in IP is decided on a case-to-case basis in only two universities viz. Jawaharlal Nehru Centre for Advanced Scientific Research and NIPER University. Similarly, in 74% of the cases i.e. in 276 universities, IP generated through extramural or grant-in-aid funding is owned by the Government/autonomous PRI (Fig.2b, Table-1). The IP is jointly owned by DBT and the university in case of extramural funding support provided by DBT. In 77 universities i.e. in about 20% cases, the ownership of IP generated through extramural funding has not been specified. As per the IP policies of the Universities in Canada and Sweden, in majority of the cases, inventor owns the IP rights to their invention, fully or at least in part. These countries have developed such policies to motivate inventors to invent and commercialise the IP, thereby leading to the overall economic growth of their country[43]. The ownership of IP in US universities is governed by the provisions of the Bayh Dole Act 1980. The Act allows transfer of exclusive control and ownership over government funded inventions to universities and businesses operating with federal contracts for commercialisation. The federally funded universities are permitted to exclusively license the inventions to other parties[44].

However, in India, in absence of an Act similar to Bayh Dole, ownership in IP vests with Government/autonomous PRIs. The universities are also mandated to license the IP arising from public funding on non-exclusive basis, thus impeding high-value strategic technology-transfers. Inspired by the Bayh Dole Act, GOI in 2008 had introduced 'The Protection and Utilisation of Public Funded Intellectual Property Bill', which is still under discussion and has not been enacted so far in the country[45].

The IP policy of about 70% of the universities in India included in the present study indicate that the IP

generated through collaborative or sponsored research shall be jointly owned by the university and the collaborator/sponsor (Fig.2c,2d, Table-1). Universities in developed countries such as USA, Europe have huge experience of academia-industry partnerships and have clear IP ownership policies in collaborative research[6,7]. Thus, universities in the west often have more experience in interacting with industries. They also have policies and legal frameworks to manage consultancy, contract research or sponsored research as an integral component of their IP policies. However, such interactions in India have not been very prominent. India is recently witnessing industry-academia partnerships for availing funding support through public-private-partnership (PPP) schemes of the GOI. Although majority of the leading universities in India have realised the need and have addressed the IP ownership matters in their policies, however, such matters have not been clearly specified in about 27% of the universities included in this study (Fig.2b, Table-1).

About 99% of the universities in the present study did not specify about the ownership of IP arising out from work-for-hire or consultancy assignments (Fig.2e, Table-1). In a few universities, IP ownership rights with third parties in case of collaborative/sponsored research is negotiated on a case-to-case-basis and is agreed upon as a part of the MoU between the parties (Fig.2c,2d,Table-1)

Table 2: IP Ownership policies in Copyrights followed by Universities/Institutes in India

Sr. No.	Name of the University /Institute	Thesis, Books Publications, Presentations, Speeches	Software	Teaching Material- Lectures, Laboratory records and other documents	Produced by Staff using Institute Resources	Copyrights in All Forms of Copyrightable Material	Sponsored Research	Work-for-hire or by outside professionals
1.	ICAR[12]	Creator[i]	N/A	Institute	Institute	Institute	Institute Or Joint IP[vi]	N/A
2.	DRDO[14]	N/A	N/A	N/A	N/A	Institute	N/A	N/A
3.	IIT, Kharagpur[23]	Creator	Institute	Creator	Institute	N/A	N/A	Institute
4.	IIT Delhi[22]	Creator	Creator[ii] Or Institute[3]Or Joint IP[4] Or Third Party[4]	Creator	Institute	N/A	Institute[iii] Or Joint IP[iv] Or Third Party[v]	N/A
5.	SRM University, Chennai[26]	N/A	N/A	N/A	N/A	Creator	N/A	N/A
6.	Panjab University, Chandigarh[28]	Creator	Institute	Institute	N/A	N/A	Institute[vi]Or Joint IP[vi]	N/A
7.	NIPER University, Mohali[29]	Institute	Creator[vii]OrInstitute[viii]	Institute Or Creator[ix]	Institute Or Creator[ix]	N/A	N/A	Institute
8.	IIT, Kanpur[30]	Creator Or Institute[x]	Institute[xi]	Creator	Institute[xi]	N/A	N/A	N/A
9.	IIT, Roorkee[31]	Creator	Institute[xii] Or Author [xiii]	Author	Institute	N/A	Author, Institute or Joint IP[vi]	N/A
10.	Goa University, Goa[33]	Creator	Institute[xii]	Author	Institute	N/A	Author, Institute or Joint IP[vi]	N/A
11.	IIT, Indore[35]	N/A	N/A	N/A	N/A	Author	N/A	N/A
12.	Vellore Institute of Technology, Tamil Nadu[37]	Creator	Institute[xii] Or Joint IP[xii]	Institute	Institute Or Joint IP	N/A	N/A	Institute
13.	IIT, Madras[38]	Creator	Creator Or Institute[xii]	Institute	N/A	N/A	N/A	N/A
14.	Pondicherry University,	Creator	Creator Or Institute[xii]	N/A	Institute	N/A	Author[vi]OrInstitute[vi]Or	Institute

15.	Puducherry[25] (Draft policy)						Joint IP[vi]	
16.	Guru Jambheshwar University, Hisar[32]	Creator	Institute	Creator	N/A	Institute	Author[vi]OrInstitute[vi]Or Joint IP[vi]	N/A
17.	National Institute of Technology Surathkal[39]	Creator	Institute	Institute	N/A	N/A	As per MoU	N/A
18.	National Institute of Technology, Tiruchirappalli[41]	Creator	Institute	N/A	Institute	N/A	N/A	N/A
19.	Ownership matter in Copyrights not specified	ICMR, CSIR, DBT, Ministry of Aayush, AIIMS, University of Delhi, Delhi, Bharathiar University, Coimbatore, Jamia Handard University, Delhi, JNU, Amrita Vishwa Vidyapeetha, Coimbatore, Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru, Kerala University, Kerala						

i. Creator can claim their individual copyright, whether registered or not, over their creations/work published by them as per ICAR rules
ii. IP is unrelated to the inventor's engagement with IITD or is created outside the normal working hours of IITD.
iii. Institute owns the IP in copyrights, if it is developed using funds / facilities provided by IITD or by sponsored research and consultancy projects without any associated agreement or work-for-hire.
iv. If material is developed through external funding and agreed as per MoU executed between the parties or has been created by IITD faculty/student/project staff/supporting staff during their visit to a Third party Institution/organization.
v. As per terms of the MoU/Contract
vi. Provided the Institute gets a due portion of the benefit form Copyright commercialization.
vii. Copyrightable works created with the use of Institute-supported resources which Institute feels is commercialsable, author assigns such IP to the Institute.
viii. IP owned by Institute can be assigned to Creator in whole or in part based on depending on the degree of institute-supported resources used in producing the copyrightable work.
ix. Books and reports created using funds specifically provided for this purpose by IITK.
x. All copyrights, including copyrighted software will be owned by IITK when it is created as a part of any of the academic programs of IITK
xi. If created by significant use of Institute Resources
xii. Software created without significant use of the Institute resources and not connected with the profession for which he/she is employed at the Institute.

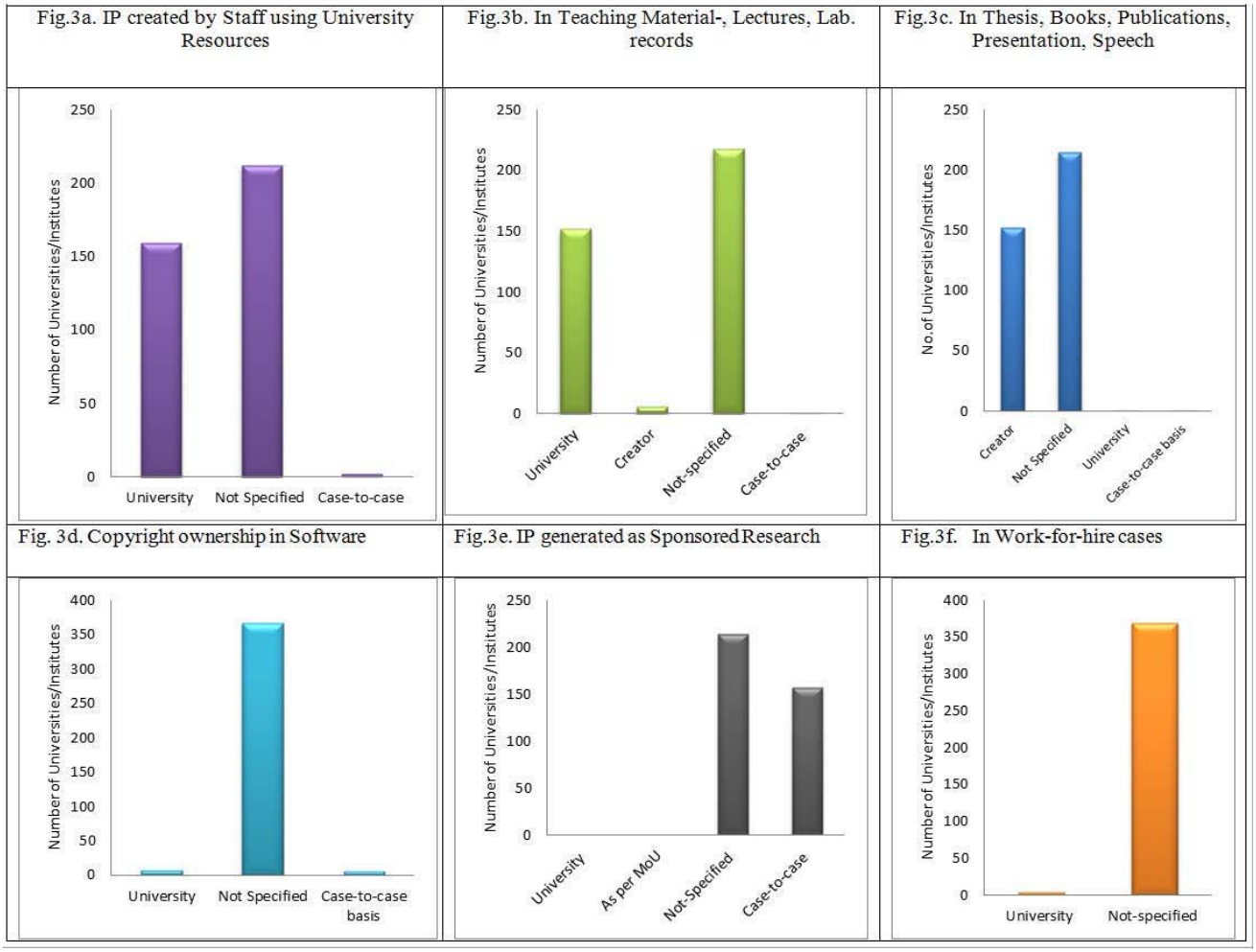

Figure 3: IP Ownership policies in copyrights

When the policies regarding ownership of IP in copyrights were studied, it was observed that most of the universities in India have broadly laid down policies for IP ownership for all forms of IP. They have not specifically defined IP ownership in copyrights and its clarity in different forms of copyright assets.

Most of the universities and central autonomous PRIs such as ICMR, CSIR, DBT and other universities including University of Delhi, JNU, Jamia Hamdard University to name a few, have not specified IP ownership in copyrights created by their faculty or students during the course of their engagement with the universities.

Universities wherein the ownership of copyrights in the IP policy has been addressed, generally implement the principle that university shall own the IP rights in the copyrighted material which its faculty/student creates at the University by using substantial aid of its facilities or financial support. Such principles are globally accepted and are also being followed by leading universities of the west such as Stanford University, Harward, Duke University, Columbia University etc.[6]This principle also holds true for the IP ownership in copyrights in Indian universities included in the present study (Fig.3a, Table-2).

Similarly, the copyright ownership in teaching material, lectures, lab records, thesis etc. which are created by faculty/student as a part of their responsibilities within the university is also owned by the university (Fig.3b, Table-2).

The Indian universities, in line with the global policies, reaffirm and recognise that the copyright ownership in literary and artistic works such as books, publications, presentations, speeches shall be owned by the creator (Fig.3c, Table-2).

IP ownership matters in case of software programs, work-for-hire and sponsored research have not been specified in majority of the IP policies in India (Table-2, Fig.3d,3e,3f). Some of the universities have kept the matter regarding IP ownership of copyrights created as a part of the sponsored research and software programs open ended, with a provision to decide such matters on a case-to-case basis (Fig.3d,3e, Table-2).

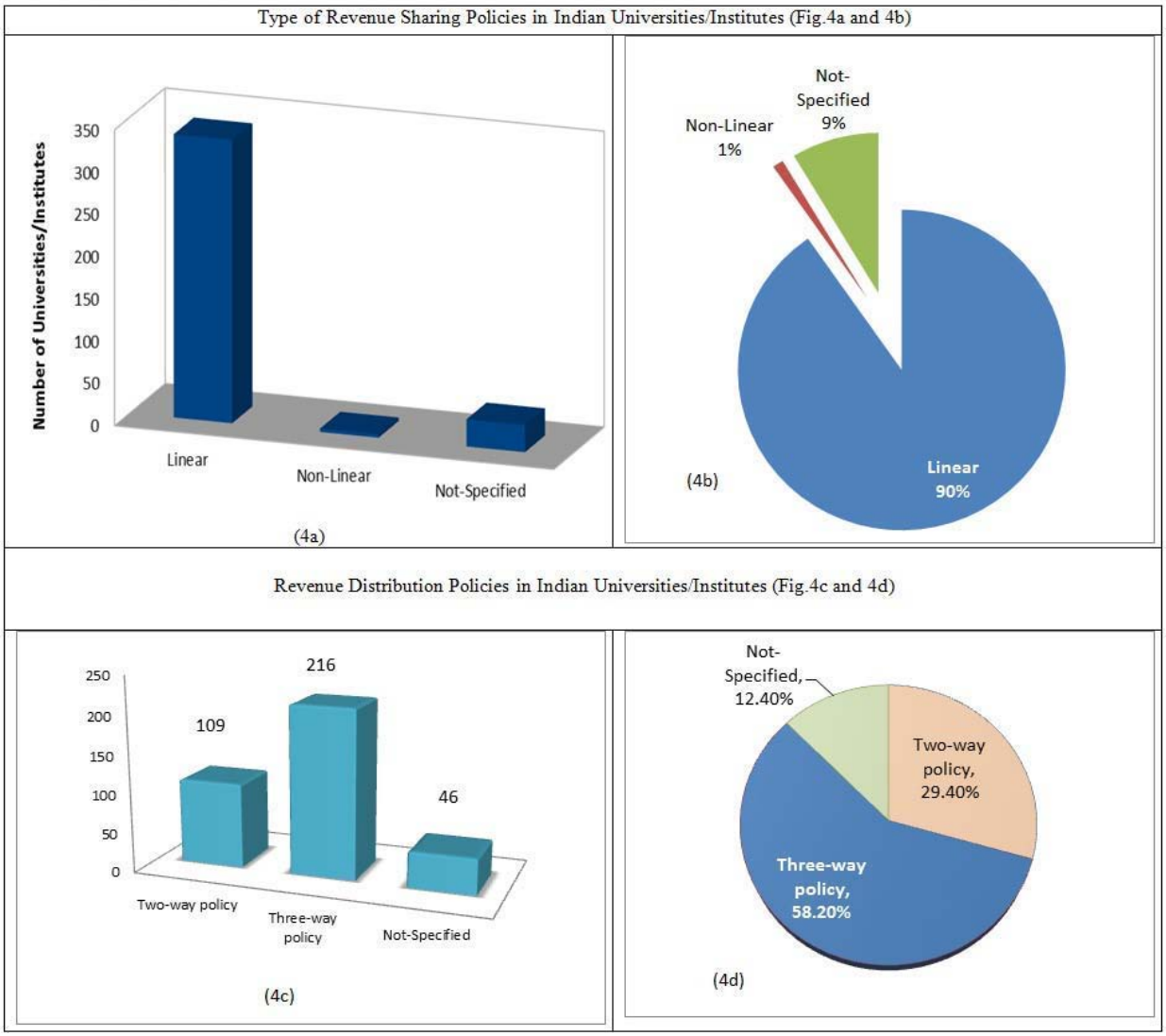

Figure 4: Type of Revenue Sharing Policies adopted by Universities/Institutes in India

The revenue sharing policies could be based on linear model when the share of revenue for inventors, institutes and other parties is set as a fixed percentage of revenue generated by an invention. It is referred to as the non-linear model when the revenue share to the stake-holders (inventors, institute, department etc.) varies with the level of licensing income. The non-linear model is generally a regressive scheme from inventors perspective as the higher the revenue generated, this model imparts lesser revenue share to the inventors.

Table 3: Revenue Sharing Policies of Key Autonomous Public Research Institutes in S&T in India

Revenue Sharing Policies of Key Government Organisations in S&T and Defence in India					
Name of PRIs	Number of Institutes supported through Intramural Funding	Headquarter share (%)	Institute share (%)	Inventor share (%)	Any other party share (%)
ICMR[10]	31	Not specified	Not specified	Negotiable	
ICAR[12]	99 Institutes, 53 Universities	15	25	60	
CSIR[13]	17 Research Institutes and Centres, 37 Laboratories, 39 Field Stations or Extension Centres	No	60	40	
CSIR[13] (Through NRDC)		No	30	40	30 by NRDC

DBT[11]	14 Autonomous Institutes and centres	No	As per the Institutes Policy	1/3rd	
DRDO[14] (Though NRDC)	60 Laboratories / units	Yes 35 (ARMREB) Armament Research Board.	35		30 by NRDC
DRDO[14] (Independently by Institute)		50	50		

Table 4: Universities/Institutes following Linear Model with Fixed Revenue Sharing Mechanism

Universities/Institutes following Linear Model with Fixed Revenue Sharing Mechanism				
Organisation	Institute's share (%)	Inventor share (%)	Department share (%)	Any other party share (%)
IISc, Bangalore[20]	40	60	N/A	N/A
AIIMS, New Delhi[21]	60	40	N/A	N/A
IIT Delhi[22]	20	60	N/A	10-FITT, 10-IRD
IIT, Kharagpur[23]	50	50	N/A	N/A
University of Delhi, Delhi[53]	20	60	20	N/A
Bharathiar University, Coimbatore[24]	40	60	N/A	N/A
Pondicherry University, Puducherry (Draft policy)[25]	40	60	N/A	N/A
Banaras Hindu University, Varanasi[54]	60	35	N/A	5- Support staff
Panjab University, Chandigarh[28]	30	70	40% of University's share	N/A
Anna University, Chennai[55]	40	60	N/A	N/A
	25	75	N/A	N/A
NIPER University,Mohali[29]	60	40	N/A	N/A
National Institute of Technology Surathkal[39]	30	70	N/A	N/A
National Institute of Technology, Tiruchirappalli[41]	30	70	N/A	N/A
Vellore Institute of Technology, Tamil Nadu[37]	40	60	N/A	N/A

Table 5: Universities/Institutes following Linear Model with Variable Revenue Sharing Mechanism

Universities/Institutes following Linear Model with Variable Revenue Distribution Mechanism					
Organisation	Condition	Institute share (%)	Inventor share (%)	Department share (%)	Any other party share (%)
IIIT, Hyderabad[56]	Indian Patent where cost of filing < 1Lakh (First three years of commercialisation)	50	50	N/A	N/A
	Indian Patent where cost of filing < 1Lakh (After three years of commercialisation)	70	30	N/A	N/A
	International patent / US patent where cost of filing > 1 lakh (Till cost of filing is recovered)	80	20	N/A	N/A
	International patent / US patent where cost of filing > 1 lakh (After cost of filing is recovered)	70	30	N/A	N/A
	International patent / US patent where cost of filing > 1 lakh Indian/International patent	10	90	N/A	N/A
Guru Jambheshwar University, Hisar[32]	When University is the Creator of IP	60	35	N/A	5 Support Staff
	When the individual researcher/ team of researchers is the Creator and has used substantial University resources	60	35	N/A	5 Support staff
	Funded/Sponsored research, distribution among University and inventors as per terms of the MoU	60	35	N/A	5 Support staff
	Company, Industry or Commercial Undertaking is economic user	24	14	N/A	2 Support Staff, 60 Commercial Entity
Goa University, Goa[33]	In-House Research Funded by University /College	50	50	10*	The Department gets 10% share from University's share
	Collaborative /Sponsored Research	30	70	N/A	
	University /College Consultancy	30	70	N/A	
	Individual Research	10	90	N/A	
	Patent obtained under SA -39.6	10	90	N/A	

Amrita VishwaVidyapeethamCoimbatore[57]	Student, Faculty	Approved Royalty Rate decided on a case-to-case basis, based on approval of the Vice Chancellor	
Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru[36]	Intellectual Property Management Committee addresses all issues concerned with securing, maintaining, protecting and valorizing the Intellectual Property Rights.		
IITMadras[58]	Decided as per the prevailing IPR Revenue Sharing norms of the Institute		

The present study observed that 90% of the universities in India follow linear revenue sharing model with fixed revenue share allocated for the inventors. Linear policies are also adopted by leading universities of the west such as Stanford University and Harvard University, USA. Although, linear model of revenue sharing is a preferred model followed in US universities, UK universities preferably follow non-linear revenue sharing model [46].

As per study by Lach and Schankerman, 57% of the US universities follow linear model of revenue sharing while in UK, linear model is less prevalent with only 20% of such UK Universities following linear model[47].In the present study, it was observed that Linear revenue sharing policies adopted by majority of Indian universities/PRIs defined fixed revenue sharing policy for different stakeholders (Table-4), while few universities had linear revenue sharing policy wherein the revenue share defined for different stakeholders varied based on different conditions/cases (Tabel-5). The conditions based on which the revenue sharing in such linear policies varied included amount of patent expenses, source of funding for IP generation, type of association for R&D with university etc.

Non-Linear model of revenue sharing is followed in India by some leading institutes, primarily IIT's such as IIT, Kanpur, IIT Roorkee, IIT Mumbai, IIT Indore, JNU, Delhi etc.

Table 6: Universities/Institutes following Non-Linear Revenue Sharing Model

Universities/Institutes with Non- Linear Revenue Sharing Policies					
Organisation		Institute (%)	Inventor (%)	Department (%)	Any other party (%)
IIT Kanpur[30]	For the First amount Q*	25	65	N/A	Service Account(10)
	For the next amount Q	45	45	N/A	10
	For amounts more than 2Q	65	25	N/A	10
IIT Roorkee[31]	For the first slab of amount "X*"	20	60	20	N/A
	For the slab of next amount "X	25	50	25	N/A
	For amounts more than "2X"	30	40	30	N/A
	Up to twice the costs incurred by Institute for protection, marketing and other associated costs (A)	50	50	N/A	N/A
	Beyond A	0	100	N/A	N/A
JNU Delhi[59]	Money received upto 30% of the gross salary (Basic+DA+CCA)	100	0	N/A	N/A
	Money received beyond 30% and upto the gross salary	30	70	N/A	N/A
	Money received beyond gross salary	50	50	N/A	N/A
IITBombay[61]	For the first amount Q*	30	70	N/A	N/A
	For the next amount Q*	50	50	N/A	N/A
	For amounts more than 2Q	70	30	N/A	N/A
IIT Indore[35]	For cases, where IP Rights are re-assigned to the Inventor			N/A	N/A

	For the first amount Q (Q=INR 100 Lakhs)	30	70	N/A	N/A
	For the next amount Q	50	50	N/A	N/A
	For amounts more than 2Q	70	30	N/A	N/A
	If IITI re-assigns IP Rights to Inventor			N/A	N/A
	A. Upto twice the costs incurred by IITI for protection, marketing and other associated costs.	50	50	N/A	N/A
	B. Beyond A	0	100	N/A	N/A
JamiaHamdard University Delhi[27]	if Proceeds received > 30% of basic pay of inventor	70%	Retain upto 30% of their basic pay per year	10	10- Welfare Fund 2-IP Management Cell
	if Proceeds received < 30% of basic pay of inventor	75%,	25%		

**Q/X/A = INR 100 Lakhs*

The most generous non-linear revenue sharing policies in India provide 70% revenue to the inventors, while the least generous provide 25% share from net proceeds to inventors. The non-linear revenue sharing models in India are also regressive models wherein revenue share of the inventor decreases with increase in receipt of commercialisation proceeds/revenues.

The revenue intervals for non-linear policies followed in India is nearly uniform with revenue intervals of INR 100 Lakhs in most of the non-linear policies. This is unlike the revenue intervals of non-linear revenue sharing policies being followed in US and UK Universities, wherein the revenue intervals varies widely eg. in some UK University policies, the first interval ranged from £ 1 to £5000 of the net revenues whereas others ranged from £ 1 to £50,000. In general, the non-linear schemes being adopted in UK are also regressive from inventors' perspective in line with European Union Directive EC/4798a[46]. This is similar to non-linear policies being regressive in their approach in Indian universities also.

Three-way revenue sharing policies are more widely followed in Indian universities with revenue distribution among three parties viz. university, department and inventor. About 58% of the universities in India follow three-way revenue sharing policy and around 29% two-way revenue sharing policy with revenue share allocated for institute and inventor only (Fig.4c,4d; Table 4,5,6). The three-way revenue sharing model is also more popular in UK.[46]

This type of two-way sharing mechanism, despite being less popular than the three-way mechanism, would better reflect the observation of Friedman and Silberman (2003) who suggested that sharing revenue with the inventor's department does not increase the overall level of licensing income at an institution[48]. It is suggestive that inventors at universities with two-way policies generally receive a higher share of revenue than those at universities with three-way policies, although when studied, the values were not significantly different in a study for UK University policies[46]. Such analysis with possible correlation between type of revenue sharing model and licensing revenue can be evaluated for Indian universities to draw inferences and arrive at similar conclusions.

Entrepreneurship and spin-off company creation from universities is very common in US and UK, with Silicon Valley providing all the key ingredients for nurturing entrepreneurs[49]. However, IP policies of universities in India have not laid down clear policies for their scientists to pursue entrepreneurial pursuits.

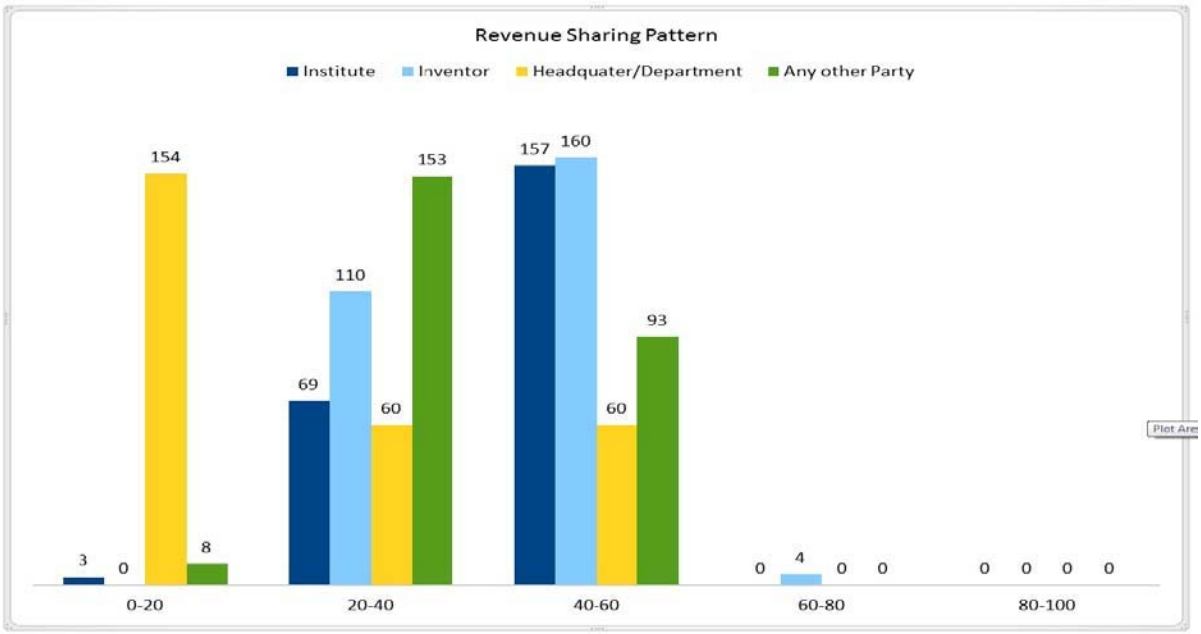

Figure 5: Revenue Sharing pattern among Indian Universities/Institutes

The analysis of the revenue sharing policies being adopted by Indian universities indicated that majority of the universities have very favourable revenue sharing policies with 160 Institutes providing 40-60% of the revenue from the commercialisation proceeds to the inventors (Fig.5). Similar number of universities retain 40-60% of the revenue from commercialisation proceeds as a part of the universities share. The most generous revenue sharing linear policies provide Indian inventors 80% of the share in revenues and the least generous provide 25% share (Table 4,5). The average inventor's share for India's linear revenue sharing policies was 54%. This is much higher than the 45% average inventor's share followed in UK linear policies and 41% in US university policies[46].

Four universities in India have very friendly inventor favouring policies with revenue share in the range of 60-80% arising from commercialisation of each IP allocated as inventor's share namely Panjab University, Chandigarh, Anna University, Chennai, National Institute of Technology, Surathkal and National Institute of Technology, Tiruchirapalli (Table 4,5).

About 154 universities in the present study, set aside a minor revenue share ranging from 0-20% for headquarter/department wherein the IP was created within the university (Fig.5).

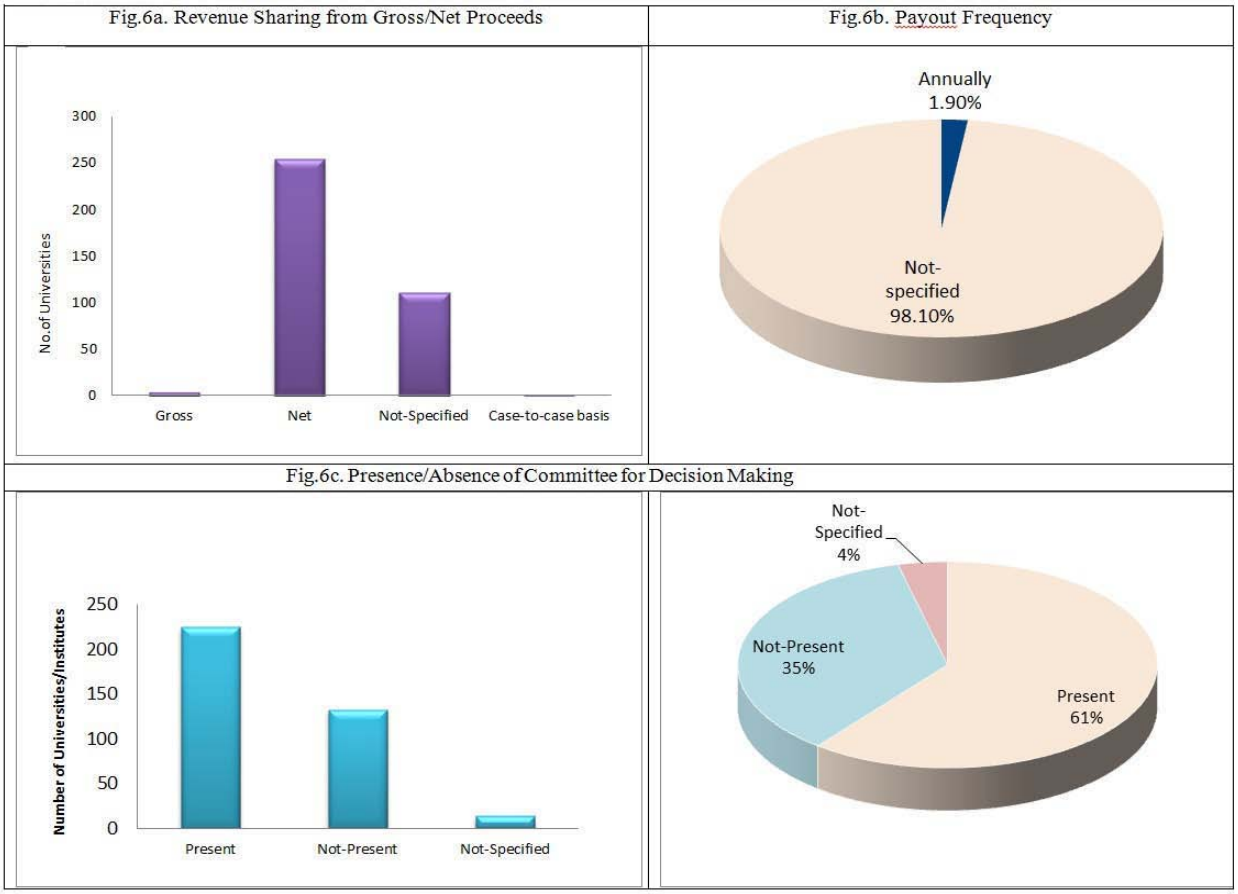

Figure 6: Revenue Sharing policies regarding Disbursement Mechanism, Payout Frequency and Decision making in Indian Universities/Institutes

Table-7: Table showing revenue sharing policy typology of Indian Universities

Organisation	Linear/Non-Linear policy	Two Way/Three Way policy	Gross/Net	Payout Frequency
ICMR[10]	Linear	Two-way	Not specified	Not specified
ICAR[12]	Linear	Not specified	Net	Not specified
CSIR[13]	Linear	Two-way	Net	Not specified
DBT[11]	Linear	Not specified	Not specified	Not specified
IISc Bangalore[20]	Linear	Two-way	Not specified	Not specified
AIIMS New Delhi[21]	Linear	Two-way	NET	Not specified
IIT Delhi[22]	Linear	Three-way	Not specified	Not specified
IITKharagpur[23]	Linear	Two-way	Gross, if no Third party involved	Not specified
			Third Party share deducted, prior to Inventor\Institute distribution	Not specified
University of Delhi, Delhi[53]	Linear	Three-way	Gross	Not specified
Bharathiar University, Coimbatore[24]	Linear	Two-way	Gross	Not specified
Pondicherry University,Puducherry (Draft policy)[25]	Linear	Two-way	Net	Not specified

Banaras Hindu University,Varanasi[54]	Linear	Two-way	Net	Annually
JamiaHamdard University, Delhi[27]	Linear	Three-way	Net	Not specified
Panjab University, Chandigarh[28]	Linear	Two-way	Net	Annually
Anna University, Chennai[55]	Linear	Two-way	Gross	Not specified
NIPER University Mohali[29]	Linear	Two-way	Not specified	Annually
IIT Kanpur[30]	Non-Linear	Two-way	Net	Annually
IIT Roorkee[31]	Non-Linear	Three-way	Net	Annually
	Non-Linear	Two-way	Not mentioned	Not specified
JNU Delhi[59]	Non-Linear	Two-way	Not mentioned	Not specified
IIT Bombay[61]	Non-Linear	Two-way	Net	Annually
Guru Jambheshwar University,Hisar[32]	Linear	Two-way	Net	Annually
Goa University,Goa[33]	Linear	Three-way	Net	Not specified
Amrita VishwaVidyapeetham, Coimbatore[34]	Not specified	Not specified	Net	Not specified
IIT Indore[35]	Non Linear	Two-Way	Net	Annually
Vellore Institute of Technology, Tamil Nadu[37]	Linear	Two-way	Not specified	Not specified
IIT Madras[58]	Not specified	Not specified	Not specified	Not specified
National Institute of Technology,Surathkal[39]	Linear	Two-Way	Not specified	Not specified
National Institute of Technology,Tiruchirappalli[41]	Linear	Two-way	Net	Annually

255 out of 371 universities i.e. 68% universities in India have IP policies for revenue disbursement from net proceeds (Fig.6a, Table-7). The expenses under various heads such as patent expenses, advertising, marketing etc. to be included for deduction as out-of-pocket expenses varies among different universities. As IP policies and revenue sharing mechanisms are sensitive matters which need to be updated from time-to-time and sometimes need decisions on a case-to-case basis, IP policies of majority of universities (60%) in India have provision of internal committees for decision making with mandate for decision making on different aspects of IP including IP filing, maintenance, licensing, revenue disbursement etc. (Fig.6c)

Although Indian universities have defined revenue sharing models but most of these Universities have not laid emphasis on the pay-out frequency of the revenues received from licensing/commercialisation of the IP. This is a critical issue which needs to be addressed in a revenue sharing policy to provide certainty and motivation to the inventor. There are many ways of dealing with the issue of when to pay the inventor his/her share of the revenues i.e. paying the revenues annually, biannually or quarterly etc. Only 7 Universities in India, included in the present study specified pay-out frequency of revenue disbursal as annually. 98% of the universities did not specify the pay-out frequency in their IP policies (Fig.6b, Table-7). Paying the revenues annually to inventors is also a common practice being adopted by universities in the west including in Canada[4]. The issue of defining a clear payout frequency needs to be addressed in IP policies of Indian universities for imbibing more confidence in the inventors for a predictable royalty receipt.

IV. Conclusions

In 1999, *The New York Times* described IP as having "transformed from a sleepy area of law and business to one of the driving engines of a high-technology economy[50]." Realising the importance of innovation and IP, Government of India in 2013 launched Science, Technology and Innovation policy

with innovation as an integral component of its policy[51]. Although the autonomous PRIs in India with the responsibility of steering S&T innovations in the country have laid down IP policies/guidelines, however, majority of the universities in India with basic R&D focus don't have a well defined IP policy. To keep pace with the global economy, the universities in India need to shift their strategic focus from basic R&D to translational research and develop IP policies to effectively identify, evaluate, protect and manage IP for facilitating its commercialisation.

India had released its National Intellectual Property Rights Policy in May 2016 as a giant leap to spur creativity and stimulate innovation in the country[52]. National IP policy of India expresses its intent to use the IP system in a defined manner to achieve innovation driven economy. Considering the launch of National IP Policy by the government to spur innovation and creativity in the country, it is imperative for the universities to develop a high quality institutional policy to motivate the inventors and ensure that knowledge transfer takes place effectively. The university IP policy so drafted should comply with the national IP policy and strategy requirements.

As an act similar to Bayh Dole Act adopted by USA does not exist in India which emphasizes ownership of IP by the University, Government bodies in India still have a big role to play regarding policies on IP ownership, revenue sharing etc. India needs to adopt an Act similar to Bayh Dole Act to implement Institutional IP ownership or imbibe more radical IP ownership policies like the Sweden policies wherein the IP is owned by the Inventor. The adoption of Bayh Dole act in USA radically changed the innovation and commercialisation landscape of USA with tenfold increase in patents, increased annual Universities IP filings to 4000 patent applications, and about 3500 licenses & options annually. Implementation of similar Act in India could also boost the innovation profile of the country.

Majority of universities in India do not have a well-defined IP policy which leads to conflict of interest among various stakeholders on matters such as IP ownership etc. The Universities and PRIs need to develop well defined IP ownership and revenue sharing models to harmonize conflicting interests of the various stakeholders and motivate inventors for innovation. 90% of the universities in India follow linear revenue sharing model with fixed revenue share allocated for the inventors and university, unlike UK universities with dominant non-linear model which implies that universities/scientists in India are not risk averse and are inclined to have a predictable and fixed revenue sharing policy.

The most generous non-linear revenue sharing policies in India provide 70% revenue to the inventors while the least generous provide 25% share from net proceeds to inventors. Likewise, linear policies provide maximum 80% of the share in revenues to Inventors and the least generous provide 25% share which is much higher than the maximum revenue share allocated to inventors in USA and UK. The generous revenue sharing models for incentivising inventors in India have been developed to spur indigenous innovation and commercialisation leading to economic development in the country. These have also been developed to encourage the inventors to disclose, protect and exploit their invention. The mechanism of invention disclosure, protection and commercialisation are established paths in developed countries such as US, UK, Canada. However, in India, such systematic mechanisms still need to be established. It may be noted that the average inventor's share for India's linear revenue sharing policies is 54% which is much higher than the 45% average inventor's share followed in UK linear policies and 41% in US University policies. Most Indian universities have generous, inventor friendly benefit sharing policy. However, such policies have not defined pay-out frequency of the revenues received from licensing/commercialisation, leading to uncertainity in royalty receipts. Although the universities in India have developed policies with generous revenue share allocated for inventors, there seems to be lack of awareness of such policies at the inventor level. Further, scientists have inclination towards basic R&D and publications with not much knowledge of IP. Extensive capacity building, training programs and boot camps are required to educate and motivate the scientists in Indian universities to innovate and protect their IP. This will also help them to develop skills and institutional capacity to administer, manage and use IP for their own benefit and benefit of the society at large. Such policies will also encourage the scientists to shift focus from frugal or incremental innovation to path breaking disruptive innovations. The issue of defining the payout frequency also needs to be addressed in such policies.

The IP policy/guidelines adopted by universities/PRIs should ensure that both institutions and individual researchers are incentivized to disclose, protect and exploit their inventions. Incentives can include "*sticks*" such as legal or administrative requirements for researchers to disclose inventions to the university or PRIs that employs them, but also "*carrots*" such as royalty-sharing agreements or equity participation in academic start-ups. Recognition of patent activity in the evaluation and recruitment of faculty can also be included as an Institutional policy to provide incentives to young researchers for motivating them to innovate and commercialise their IP. An IP policy document with revenue sharing model which incentivises innovators is a key to drive disruptive innovations and facilitating technology-transfers. Clarity of such policies in universities in India will go a long way in developing sustainable innovation ecosystem in the country.

Disclaimer: This document has been prepared on the basis of publicly available information and other sources believed to be reliable including the information available on universities/PRIs websites. The information contained herein is for information purposes only. The opinion provided herein presents author's view-point on the issue and does not have any legal binding attached to it. The IP policy typology included in this study may vary with time as the policies adopted by universities are generally updated periodically. The IP policy and revenue sharing data included in this paper is based on policies available in public domain only up to July 1, 2017.

References Références Referencias

1. India Skills Report 2016, POWERED BY Wheebox, Measuring World's Talent. https://wheebox.com /logo/ISR-2016-small.pdf
2. Council of Scientific and Industrial Research: About CSIR http://www.csir.res.in/about-us/about-csir
3. WIPO: Intellectual Property Policies for Universities http://www.wipo.int/about-ip/en/universities_resea-rch/ip_policies/
4. Intellectual property Ownership Model in Academia: An analysis. Journal of Intellectual Property Rights. Vol 19, May 2014, pp 177-188. http://nopr.niscair.res.in/bitstream/123456789/28924/1/JIPR%2019%283%29%20177-188.pdf
5. Survey Report on Royalty Rates and Policies Resulting from the Commercialization of Technology: A Compilation/Comparison of Universities and Technological Institutions in Canada, December 2006 By Miranda Schmidt Co-operative Education Student TRIUMF Technology Transfer Office https://www.triumf.info/public/repository/ttb/ttsr200612.pdf
6. Intellectual Property Policies at Canadian Universities, Centre for Policy Research on Science and Technology (CPROST), Simon Fraser University by May Hen, January 3, 2010. http://www. sfu.ca/sfublogs-archive/departments/cprost/uploads/2012/10/IP-Policy-Introduction-January-2010FINALCom-bined.pdf
7. MIT: Intellectual Property and Conflict of Commitment: Intellectual Property and Conflict of Commitment Policies, Comparison of peer institutional policies, January 2001 http://web.mit.edu/committees/ip/policies.html
8. Intellectual Property and Industrial Development in India - Shodhganga. *shodhganga.inflibnet.ac.in/.../intellectual%20property%20and%20industrial%20devel...*
9. Technology-Transfer: What India can learn from the United States. Journal of Intellectual property Rights. Vol10, September 2005, pp 399-405. http://www.nbpgr.ernet.in/pgs-503/015_tech_transfer_learn_from_USA.pdf
10. National Institutional Ranking Framework, Ministry of Human Resource Development Government of India, Ranking of Higher Educational Institutions on Performance-2017. https://www.nirfindia.org/ranking 2017.html
11. Intellectual Property Rights Policy: ICMR. http://icmr.nic.in/icmrnews/ipr/ipr_policy.pdf
12. Guidelines/Instructions for Technology Transfer and Intellectual Property Rights, issued by Ministry of Finance, Government of India. http://www.mnre.gov.in/file-manager/rd-formats/rnd-gtt-a15.pdf
13. ICAR Guidelines for Intellectual Property Management and Technology Transfer/ Commercialisation. Indian Council of Agricultural Research, Krishi Bhavan, New Delhi http://www.cazri.res.in/itmu/pdf/icar-ipmttcguide.pdf
14. (29.1.5) Sub: Guidelines/procedures for sharing or monies realised from licensing of Intellectual Property, and fees from contract R&D and S& T Services with CSIR Staff. http://14.139.47.50/External/Heads/aboutcsir/governance/rules/volume1/29/29_5.htm
15. DRDO- LIfeSciences Research Board: Norms for Transfer of Technology. https://drdo.gov.in/drdo/boards/lsrb/norms.html
16. DBT, Ministry of Science and Technology-Autonomous Institutions http://www.dbtindia.nic.in/autonomous-institutions/
17. Indian Council of Agricultural Research, Ministry of Agriculture and Farmers Welfare http://icar.org.in/content/about-us
18. Press Information Bureau, Government of India, Ministry of Defence, Laboratories of DRDO, 19-December-2014. http://pib.nic.in/newsite/PrintRelease.aspx?relid=113748
19. Department of Science and Technology, Government of India–Introduction http://www.dst.gov.in/about-us/introduction
20. Indian Institute of Science-Intellectual Property Policy-2005 to present http://www.iisc.ac.in/wp-content/uploads/2016/06/Intellectual-Property.pdf
21. All India Institute of Medical Sciences, Patent Cell, Guidelines for Patent-Minutes of the meeting of the patent committee, constituted to discuss and formulate guidelines for patent cell, held on 11th November 2008.
22. Intellectual Property Right Policy-2013, http://ird.iitd.ac.in/policy/IPRPolicy-IITD.pdf
23. Intellectual Property Policy- Indian Institute of Technology, Kharagpur http://www.sric.iitkgp.ac.in/docss/ippolicy.pdf
24. IP Policy http://ipr.b-u.ac.in/ippolicy.html

25. Intellectual Property Rights (IPR) Policy of Pondicherry University -2016 (Draft) http://www.pondiuni.edu.in/IPR_Centre/Links/View%20Here.pdf
26. SRM Institute of Science IP Guidelines.
27. Intellectual Property Policy Of The Jamia Hamdard http://www.jamiahamdard.ac.in/pdf/mcell/2.%20IPR%20Policy%20of%20Jamia%20Hamdard.pdf
28. Intellectual Property Right Policy 2015, Panjab University, Chandigarh http://ciipp.puchd.ac.in/IPR-Policy-of-pu.pdf
29. Intellectual Property (IP) Policy National Institute of Pharmaceutical Education and Research Mohali (SAS Nagar), http://www.niper.ac.in/ipr_policy 2014.pdf
30. Patent and Copyright Ownership Policy Statement. http://www.iitk.ac.in/dord/data/IP_policy.pdf
31. Intellectual Property Rights Policy of IIT, Roorkee. https://www.iitr.ac.in/ipr/policies/IPR_Policy.pdf
32. The IPR Policy Intellectual Property Rights Policy (IPR-POLICY) of Guru Jambheshwar University of Science & Technology, Hisar. http://www.gjust.ac.in/CIIP/CIIP_Website/IPR/IPR_Policy.PDF
33. Statutes - Goa University https://www.unigoa.ac.in/uploads/content/Statutes.pdf
34. Amrita Vishwa Vidyapeetham Patent Policy https://www.amrita.edu/sites/default/files/patent-policy-current.pdf
35. Industrial Research and Consultancy Rules, IIT Indore, IRC Document Version 4.1 http://www.iiti.ac.in/docs/downloads/Administration/Industrial%20Research%20and%20Consultancy%20%20Rules%20IIT%20Indore.pdf
36. Jawaharlal Nehru Centre for Advanced Scientific Research, R&D, IPR http://www.jncasr.ac.in/main_page.php/R&D,-IPR/37/1/
37. VIT University, Intellectual Property Policy and Guidelines http://chennai.vit.ac.in/files/IPR/VIT%20IPR%20POLICY.pdf
38. Intellectual Property Rights Policy of IIT Madras https://icandsr.iitm.ac.in/sites/default/files/IPR%20policy.pdf
39. The Institute Intellectual Proprty Rights Policy. http://www.nitk.ac.in/news-announcments-tenders/intellectual-property-right-policy
40. Central University of Kerala IPR Cell. http://www.cukerala.ac.in/index.php?option=com_content&view=article&id=1583&Itemid=779&lang=en
41. Intellectual Property Policy Document https://www.nitt.edu/home/NITT-IP-Policy.pdf
42. IP Ownership, Benefit Sharing and Incentive for Researchers-PPT WIPO http://www.wipo.int/export/sites/www/about-wipo/en/offices/singapore/archive/2012Jul1213/Topic_6_IP_Ownership_Benefit_Sharing_and_Incentives_for_Researchers.pdf
43. Survey Report on Royalty Rates and Policies Resulting from the Commercialization of Technology: A Compilation/Comparison of Universities and Technological Institutions in Canada, December 2006 https://www.triumf.info/public/repository/ttb/ttsr200612.pdf
44. Bayh-Dole Act, Landmark Law Helped Universities Lead the Way. https://www.autm.net/advocacy-topics/government-issues/bayh-dole-act/
45. The Protection and Utilisation of Public Funded Intellectual Property Bill, 2008, Bill No. LXVI of 2008 http://www.prsindia.org/uploads/media/1229425658/1229425658_The_Protection_and_Utilisation_of_Public_Funded_Intellectual_Property_Bill__2008.pdf
46. Revenue Sharing: An Assessment of Current Policies at UK Universities, Vol 26, Issue 1, 2012.
47. James Gazzard, Sarah A. Brown, May 2011. http://journals.sagepub.com/doi/abs/10.5367/ihe.2012.0077?journalCode=ihea
48. Royalty Sharing and Technology Licensing in Universities Saul Lach, Mark Schankerman, Journal of the European Economic Association.
49. Friedman, J. and Silberman, J., 2003. University Technology Transfer: Do Incentives, Management, and Location Matter? *Journal of Technology Transfer*, 28(1), pp. 17-30.
50. University Technology Transfer: Do Incentives, Management, and Location Matter? The Journal of Technology Transfer, January 2003, Volume 28, Issue 1, pp 17–30.
51. Patents; A Federal agency, in transition, reaches out to independent inventors with a new department. The New York Times by SABRA CHARTRANDAPRIL 5, 1999.
52. Science, Technology and Innovation policy 2013 http://www.dst.gov.in/sites/default/files/STI%20Policy%202013-English.pdf
53. National IPR Policy http://dipp.nic.in/policies-rules-and-acts/policies/national-ipr-policy
54. Recommendation of the Committee on Guidelines for distribution and utilization of royality received by the University for technologies developed by the University Teachers, APPENDIX – XXXI, Resolution No. 110, E.C. (2)-15-7-1999.
55. Banaras Hindu University, Varanasi, Ordinances Governing Intellectual Property Policy http://www.bhu.ac.in/ipr/ipr.pdf
56. Anna University, Intellectual Property Policy. https://www.annauniv.edu/pdf/iprpolicy.pdf
57. All the information of Academic & Administration Rules and Regulations book, July 2013 https://cdn.iiit.ac.in/cdn/www.iiit.ac.in/files/iiit/Annexure-2forGeneraldisclosureunderRTIAct.pdf
58. Amrita VishwaVidyapeetham Patent Policy https://www.amrita.edu/sites/default/files/patent-policy-current.pdf
59. Technology Transfer - IPR - IIT Madras https://icsris.iitm.ac.in/ipr/
60. Academic Rules And Regulations ETC Jawaharlal Nehru University, New Delhi https://www.jnu.ac.in

/sites/default/files/ACADEMIC_RULES_REGULATIONS.pdf
61. Document on Intellectual Property Policy for Indian Institute of Technology Bombay, Last modified on: Wed Feb 01, 2012 http://www.ircc.iitb.ac.in/IRCC-Webpage/ip-policy.jsp