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BBAU Research Bulletin

BABASAHEB BHIMRAO AMBEDKAR UNIVERSITY
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Centre for Industry Institution Partnership
Babasaheb Bhimrao Ambedkar
(Central) University
Vidya Vihar, Raebareli Road, Lucknow- 226025

From the Vice Chancellor's Desk

It gives me an immense pleasure that Center for Industry Institution Partnership Program (CIIPP), is publishing a "**CIIPP News Bulletin** ", an emergent need for conveying message on the research works of the university to invite industries to collaborate and participate.

Universities and academic institutions are source for trained manpower, therefore, industries are largely dependent on these institutions for the most critical source- brain and intellectual input. Industry institutions partnership program with the support of the industries and experienced faculty will certainly have capability to change the traditional domain of the research and innovations.

I congratulate CIIPP for publishing such a news bulletin, which will provide a better insight to the readers towards industry oriented research being handled by a collaborative support of university and industry. I hope, this bulletin is going to be very beneficial to all stakeholders.

R C Sobti

In this issue

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Editorial

It gives us great opportunity to present the first News Bulletin of the University from Center for Industry Institution Partnership Program (CIIPP) of Babasaheb Bhimrao Ambedkar (Central) University. The various efforts of CIIPP have been full of various activities by the faculty, research students of the university and industry personal from industries which have been presented in this Bulletin at a glance. Our researchers are continuously giving new inputs, which can be refined by the industrial collaborations. This type of collaborations will help the researchers to put efforts to fulfil the research and innovation needs of the Industries and provide trained manpower to the industries, more suitable for their needs.

After establishment of this centre (CIIPP), the university has framed patent and consultancy rules for the faculty and students working in different research areas and brought the researches faculty, research students and industry representatives at common fora to share and understand each other's portentials and challanges. This has opened up imense possibilities to collaborate.

Rana Pratap Singh

Naveen Arora

The Center for Industry Institution Partnership Program (CIIPP)

A lot of innovative and Industry oriented research and knowledge can be contributed by the ignited minds of young researchers and faculties with the world class infrastructure getting developed in most of the reputed universities and institutes as a centre of higher learning. However, it needs an adequate atmosphere, supportive procedures, work friendly rules and proper executive frame work. This centre (CIIPP) has been established by our visionary Vice-Chancellor Prof. R.C. Sobti to inculcate and develop such competitive, excellent and globally acceptable research outputs from the campus of this central university involving the excellent human resource and infrastructure base of university academician, Industry representatives and reputed experts at the one forum for the outcome of common interest.

Efforts towards establishing a state of art in industry university partnership is being carried out by CIIPP and in its several departments and centres of the university. Various research projects have been initiated in collaboration with the prominent national funding agencies. Besides this industrial support has also been offered by some renowned industries.

Currently about 65 research projects are ongoing in the various departments and centres of the university.

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List of Research Projects (2009-2014) getting excuted at BBAU

Name of Department	Name of PI	Title of the Project	Funding Agency	Amount of Grant
DST Policy Research Centre				
	PI: Prof. R.C. Sobti Co-PIs: Prof. D.P. Singh (climate), Prof. R.P. Singh (Agriculture), Prof. Shubhini Saraf, Dr. Anand Prakash (Health), Dr. B.C. Yadav, Dr. Richa K. Tyagi (Energy), Dr. Venkatesh Dutta (Water)	Study of policies and mechanism that could facilitate delivery of STI output for social inclusion in Agriculture, Energy, Health, Climate and Water Sector.	DST, New Delhi	Rs. 5 crore
School for Ambedkar Studies				
Deptt. of Economics	Prof. N.M.P. Verma	Economic Miseries Among Social Groups	UGC , New Delhi	Rs.3,69,000/-
Dept. of Sociology	Prof Kameshvar Choudhary	Special Assistance Program (SAP) (DRS-1). (Coordinator: Prof Kameshwar Choudhary)	UGC , New Delhi	Rs. 51,00,000/-
	Dr. Manish Verma	Social, Ecological and Environmental Matrix in Rural-Urban UGC , New Delhi Interface: A Sociological Study of Peri-Urban Lucknow.	UGC , New Delhi	Rs. 6,57,200/-
	Dr. B.B. Malik	Poverty & Social Exclusion among Dalits: A Sociological Study of Varanasi (Eastern Uttar Pradesh).	UGC , New Delhi	Rs.6,81,800/-
Deptt. of Political Science	Dr. Sartik Bagh	Educational Status of Scheduled Cast in U.P.: Attainment and Challenges	Indian Council of Social Science Research, New Delhi	Rs. 53,00,000/-
School for Bio-Science and Bio-Technology				
Deptt. of Applied Animal Science	Dr. Abha Mishra	Identification and evaluation of reproductive traits and genetic structure of *Ompok bimaculatus* in India.	DBT, New Delhi	Rs. 17,03,000/-
		Teratogenic effects Hilban, an organic insecticide, on fresh water fish *Channa punctatus* (Bloch, 1793)	DST, New Delhi	Rs. 24,00,000/-
		Toxicological effect of Chlorpyrifos, an insecticide, on behavioral, physiological and biochemical aspect of fresh water fish *Channa punctatus* during its life span.	UP-CST, Lucknow	Rs. 8,40,000/-
	Dr. V. Elangovan	Chiropteran diversity and conservation in Uttar Pradesh.	Uttar Pradesh State Biodiversity Board, Lucknow	Rs.5,62,800/-

		Roost selection, roosting behavior and population dynamics of mouse – tailed bats (*Rhinopomatidae*) in Uttar Pradesh.	UGC , New Delhi	Rs.13,00,800/-
		Ultra structural and molecular characterization of guanophilic fungi of bats.	Science and Engineering Board, DST, New Delhi	Rs.12,00,000/-
Deptt. of Biotechnology	PI: Dr. Sangeeta Saxena Co-PI: Dr. G Sunil Babu	*In-silico* search for potential siRNA sequence to develop Gemini virus resistant papaya crop.	DBT, New Delhi	Rs. 24,82,000/-
		Developing one step multiplex PCR based diagnostic kit to detect viral disease and desired sex in juvenile papaya for improved production.	UGC, New Delhi	Rs. 10,84,339/-
	Dr. Anand Prakash	Role of Epigenetics in fear memory consolidation and extinction.	DBT, new Delhi	Rs. 63,07,012/-
		A Novel Role Of CREB and its target genes during Fear Memory Erasure leading to Extension.	DST, New Delhi	Rs. 26,20,000/-
Deptt. of Pharmaceutical Science	Dr. Sudipta Saha	Chemical investigation on anticancer bioactive substances from medicinal plants.	UGC-BSR Start-Up grant	Rs. 6,00,000/-
		Isolation, characterization and pharmacological screening of antidiabetic substances form medicinal plants.	UGC, New Delhi	Rs. 11,00,000/-
	Dr. Gaurav Kaithwas	Effect of Eicosapentanoic acid (EPA) and Docosahexanoic acid (DHA) on intestinal Mucosal Barrier Function against Methotrexate induced Toxicity in Albino Rats	UGC, New Delhi	Rs. 6,00,000/-
		Effect of α- Linolenic acid and γ-Linolenic acid on Breast Cancer Risk: Evaluation of Synergistic Efficacy with an Anticancer Drug.	DST, New Delhi	Rs. 46,14,000/-
Deptt. of Applied Plant Science	Dr. Sanjay Kumar	Collection, Evaluation, Conservation and Exploitation of Underutilized Vegetables of U.P.	Uttar Pradesh Council of Agricultural Research, Lucknow	Rs.9,96,300/-
	Dr. Santanu Maji	Standardization of low cost eco-friendly drying dehydration techniques for flowers, foliages and underutilized horticulture	UGC, New Delhi	Rs. 6,00,000/-
School for Environmental Science				
DES	DST-FIST (2007-2011)		DST, New Delhi	Rs. 5 lakh
Deptt. of Environmental Science	Prof. Rana Pratap Singh	Entrapment of Bio-fertilizers in an organic matrix to enhance its efficacy for wheat productivity.	UP-CST, Lucknow	Rs. 5,04,000/-

	Dr. Shikha	Improvement of strain and optimization of laccase production from microbes.	UP-CST, Lucknow	Rs. 6,30,857/-
	Dr. Narendra Kumar	Impact Assessment of Dissolve Heavy Metals in Ground Water on Health and Water Quality in Industrial, Agricultural and Urban Areas of Kanpur, Uttar Pradesh.	UGC, New Delhi	Rs. 7,29,100/-
	Dr. Venkatesh Dutta	Multi-criteria spatial system for evaluating Environmental impacts of land use change in urban and peri-urban limits using remote sensing and GIS.	Space Application Center (SAC), ISRO	Rs. 10,48,000/-
		Preparation of 5 Years Action Plan for Artificial Recharge Activities and Water Conservation Schemes in Critical Block Bheetaragaon of Kanpur Nagar.	Ground Water Department, Kanpur Division, Govt. of U.P.	Rs. 90,200/-
Dept. of Environmental Microbiology		DST FIST program Sanctioned for Department (2014)	DST, New Delhi	40,00,000/-
	Prof. Ram Chandra	Metabolites chacterization and detection of functional genome of melanoidin degrading enzyme involved during the decolourization of post methanated distillery effluent.	Department of Biotechnology, New Delhi, India	Rs.41,43,000/-
		Field scale demonstration of pulp paper mill effluent detoxification after secondary treatment of biostimulation and constructed wetland treatment process.	DST, New Delhi	Rs. 54,00,000/-
		Health hazards of pulp paper mill effluent detoxification after secondary treatment and characterization of Persistent Organic Pollutants and Microbial Communities.	MoEF, New delhi	Rs. 67,00,000/-
	Dr. Naveen Kumar Arora	Screening of sewage pollution in Ganga and assessment of its impact on ground water along the path of river flow in Kanpur.	UP-CST, Lucknow	Rs. 7,56,000/-
		Screening and identification of hot spots of sewage pollution containing multiple drug resistant *E.coli* in River Ganga at different location of Kanpur.	UGC, New Delhi	Rs. 6,83,700/-
		Designing multifaceted bioformulation technology utilizing fluorescent pseudomonas for cultivation and productivity enhancement of sunflower crop in arid and semi- arid regions infested with *Macrophomina phaseolina.*	CST, Lucknow	Rs. 8,50,000/-

		Revelation of mechanism and metabolites for biocontrol of deadly phytopathogens by plant growth promotory bacteria designing reliable technology for future bioformulations and sustainable agriculture.	CSIR, New Delhi	Rs. 24,00,000/-
		Developing broad spectrum biocontrol technology by utilizing and optimizing secondary metabolites from indigenous PGP Pseudomonads for controlling soil borne phytopathogens and ecofriendly agriculture.	Department of Biotechnology	Rs.17,00,000/-
	Dr. V.S. Baghel	Microbial Biodiversity and pollution Monitoring through indicator bacterial of Ganga River in Uttar Pradesh	CST UP	Rs. 9,00,000/-
	Dr. Jay Shankar Singh	PCR mediated detection of methane-oxidizing bacterial diversity from dry tropical forest soils.	UGC , New Delhi	Rs.6,00,000/-
	Dr. Ram Naresh Bhargava	Characterization of the recalcitrant organic pollutants (ROPs) and bacterial communities in tannery wastewater (TWW) after secondary treatment process and its toxicological effects in environment.	DST, New Delhi	Rs. 44,14,000/-
		Detection of persistent organic pollutants (POPs) and bacterial communities in distillery wastewater contaminated aquatic.	UGC, New Delhi	Rs. 6,00,000/-
School for Home Science				
Deptt. of Human Development and Family Studies	Prof.(Mrs) Sunita Mishra	Traditional locally available foods and associated Knowledge system relating to health and nutrition among adivasi women of Orissa (Kalahandi and Koraput district).	UGC , New Delhi	Rs.11,24,200/-
School for Information Science and Technology				
Deptt. of Information Technology	Dr. Raees Ahmad Khan	Quantifying Security in Early Stage Of Software Development Life Cycle: An Object Oriented Software Perspectives.	UGC , New Delhi	Rs.7,81,800/-

		Symptoms and Sensation due to Cellular Telephone Usage Among the Urban Rural Population of Uttar Pradesh: A Risk Assessment.	CST, UP (under Young Scientist Scheme)	Rs.6,36,000/-
		Integration, Analysis and Implementation of Prosodic & MFCC features for Automatic Speaker Recognition System using GMM.	CST, UP (under Young Scientist Scheme)	Rs.7,82,000/-
Dept. of computer Science	Dr. S.K. Dwivedi	Analysis and Design of Hindi Web Mining System for Improved Relevancy by Query	UGC, New Delhi	Rs. 8,79,800/-
	Dr. Manoj Kumar	3 D Reconstruction using Tomography & Shape from X-techniques.	UGC , New Delhi	Rs. 6,00,000/-
School for Physical Sciences				
Dept. of Applied Chemistry	Dr. Shailesh Kumar	Synthesis and Biological evaluation of novel 4-alkylaminoethoxy substituted indene derivatives.	S E R B, DST, New Delhiunder Fast Track Scheme for Young Scientists	Rs.18,12,000/-
Dept. of Applied Physics	Dr. Bal Chandra Yadav	To design and fabricate opto-electronic humidity sensor andother materials.	UP-CST, Lucknow	Rs.5,00,000/-
		Multimetallic nanoparticles In polymer matrix as precursorsof magnetic sensor materials.	DST, New Delhi INDORUSSAIN Project	Rs.26,84,000/-
		Synthesis and characterization of nanostructured metal oxides and their applications as liquefied Petroleum Gas (LPG) Sensors.	UGC, New Delhi	Rs.8,03,000/-
		Synthesis of semiconductor metaloxide based nanocomposites using Sol-Gel and Hydrothermal /solvothermal techniques for the developmentof humidity and CO2 gas sensors.	DST, New Delhi	Rs. 22,14,000/-
		Preparation and properties of nanosized spinel and Orthoferite Oxides and their Relevance as Gas Sensor.	Board of Research Nuclear Research (BRNS)	Rs.24,74,000/-
		Synthesis and characterization of Thin and Thick Film Opto-Electronic Humidity Sensor Based on Metal Oxide Nanocomposites.	DST, New Delhi under international Financial Support (Indo-Russian)	Rs.26,84,500/-
	Dr. Devesh Kumar	Molecular Property Diagnostic Suite (MPDS): An OSDD Chemoinformatics Portal under CSIR-OSDD Project.	CSIR	Rs.5,00,000/-

	Dr. Ramesh Chandra	Calculation of reliable nuclear transmission matrix elements ofneutrinoless double beta decay.	S E RB, (SERB) , DST	Rs.10,80,000/-
School for Legal Studies				
Dept. of Human Rights	Dr. Shashi Kumar	Caste Discrimination and Human Rights Violation Against Dalits: A Case Study of Unnao District (Uttar Pradesh).	Indian Council for Social Science Research, New Delhi	Rs. 4,00,000/-
Centre for the Study of Social Exclusion and Inclusive Policies				
	Dr. Prasamita Mohanty	Status and Problems of Primary Education of Muslim Minority Girls and Policy Implications-A Study in Selected Districts of Uttar Pradesh.	UGC, New Delhi	Rs. 7,47,600/-
	Shri Rudra Prasad Sahoo	Politics of Rights, Livelihood & Exclusion: A case Study of Unnao District of Uttar Pradesh.	UGC, New Delhi	Rs. 95,000/-
		Democratic Essence, Political Community Representation and Dialogic Subject: A Comparison of Western Philosophical Reflection With that of Dr. Ambedkar.	ICPR	Rs. 3,00,000/-
	Sri Bibekananda Nayak	Tribal Women's Livelihood Security through the MGNREGA: A Case Study of Kandhamal District, Odisha.	UGC, New Delhi	Rs.1,30,000/-
		Influence of NRHM on Health Status of Scheduled Cast and Scheduled Tribe Women: a Case Study in Odisha.	ICSSR	Rs. 8,00,000/-
	Dr. Sangeeta Krishna	Atrocities on Dalits in Uttar Pradesh: Nature Factor and Remedies.	UGC, New Delhi	Rs. 6,70,200/-
		Folklore, Oral Traditional and History Writing: A Case Study of Folk Songs of Marginalized Communities in India (1857-1947).	ICHR	Rs. 1,65,000/-
		Unraveling Folklore and Oral Tradition of Marginalized Communities and its Role in Democratic Social Order.	ICSSR	Rs. 5,57,925/-
			Total Grant	**Rs. 15,56,88,133/-**

Total Ammount Recieved : Rs. Fifteen crore fifty six lakhs eighty eight thousand one hundred thirty three

Patent Application

Nikilesh Kumar, Ram Naresh Bhargava, Gaurav Kaithwas (2013). Disinfection and cleansing composition of *L. usitattissimum* fixed oil. Application no.-1905/DEL/2013

Patent Rules for Intellectual Property Rights (IPRs) Cell

Centre for Industry Institution Partnership Programme (CIIPP) has been striving to act as a podium for development and transfer of Technical and Managerial competence in the area of research and academics to meet the changing needs of the corporate sector and society at large. On the initiative of our Vice-Chancellor Prof. R.C. Sobti, Padam Shree, Centre for Industry Institute Partnership Programme (CIIPP) in its recent initiative in this direction has created Intellectual Property Rights Cell (IPR Cell) in collaboration with National and State patent agencies. IPR Cell will provide information, orientation and facilities to faculties, scientists and research students and of BBAU for protecting the products of their intellectual capabilities. The Cell would also be able to guide and advise researchers on how to obtain and sustain patents, facilitate routing of patent searches to National and State patent agencies and university and getting the necessary clearances from the competent authorities in the university while filing provisional/complete patent specifications. This Cell would also workout various modalities on behalf of the University for Technology transfer/ commercialization of patented technologies.

Objective and Activities of the Patent Cell

1. To provide IPRs protection information, orientation and facilities to university researchers & scientists.
2. To guide and advise researchers on how to obtain and sustain patents and help them to approach National and State patent agencies.
3. To work as a link between National and State patent agencies and university.
4. To facilitate routing of patent searchers to National and State patent agencies.
5. To get necessary clearances from competent authorities while filing patents and other IPRs like copyright registration and design registration, etc. through National and State patent agencies.
6. To workout modalities on behalf of the universities for commercialization of patented technologies.
7. To organize various IPR awareness programmes in collaboration with National and State patent agencies, in its campus.
8. CIIPP/University will provide the financial support, if needed by the faculty, for preparation and submission of the patent application after a preliminary scrutiny.

Some informations of Patent related issues

1. Intellectual Property Rights (IPRs)

IPR is a general term covering patents, copyright, trademark, industrial designs, geographical indications, protection of layout design of integrated circuits and protection of undisclosed information (trade secrets) and protection of new plant variety.

2. The aspects of IPR, we have Legislation in India

Patents: In India legislations are available for Copyright, Geographical Indications, Plant Varieties, Design, and Semiconductor Integrated Circuit Layout Design.

3. Who are responsible for administration of IPRs in the country?

Patents, designs, trademarks and geographical indications are administrated by the Controller General of Patents, Designs and Trademarks which is under the control of the Department of Industrial Policy and Promotion, Ministry of Commerce and Industry. Copyright is under the charge of the Ministry of Human Resource Development.

4. What is a patent?

A patent is an exclusive right granted by a country to the owner of an invention to make, use manufacture and market the invention, provided the invention satisfies certain conditions stipulated in the law. A Letter Patent (a kind of certificate) is issued to the owner of the invention by the patent office of the country conferring this right. Exclusivity of right implies that no one else can make, use, manufacture or market the invention without the consent of the patent holder. This right is available to the owner of the invention only for a limited period of time.

5. What is expected from patentee as an obligation to the State?

A patentee must disclose the invention in a patent document for people to practice it after the expiry of the term of the patent or after the patent has lapsed due to nonpayment of maintenance free or practice it with the consent of the patent holder during the life of the patent. Disclosure of an invention is a legal requirement for obtaining patent.

6. How is invention defined in the Indian Patent Act which can qualify for grant of a patent?

Invention means a new product or process involving an inventive step and capable of industrial application. Capable of industrial application means that the invention is capable for being made or used in an industry.

7. How do you explain the term .a new product or a process.?

An invention is considered new or novel if it is not known to the public through publication or prior use anywhere in the world. Oral description of the invention in a seminar/conference can also spoil novelty. Novelty is always assessed in the global context.

8. How is inventiveness defined in the Indian Patent Act? Explain the meaning of the term.

Inventive step is defined as a feature of an invention that involves technical advance as compared to the existing knowledge or having economic significance or both and that makes the invention not obvious to a person skilled in the art.

In other words a very simple invention can qualify for a patent. A mere.scintilla. of invention is sufficient to found a valid patent.

9. What is considered as the date of patent?

The date of patent is the date of filing the application for patent (whether provisional or complete). The term of the patent is counted from this date.

10. What is the term of a patent in the Indian system?

Term of the patent is 20 years from the date of filing for all types of inventions

Rules for Consultancy Work by Academic and Technical Staff of Teaching Departments

1. The Academic/Technical staff (henceforth to be called as staff), who are Class A officers of the university, may undertake consultancy and or provide technical services to industry and other organizations, utilizing if necessary, facilities of the University.
2. The services/consultancy provided may be of the following types:

   I. Institutional Consultancy

   II. Individual Consultancy

   III. Technical Services

   2.1. Institutional Consultancy relates to advice render to an industry/organization, or work done for them, by a Department/group/individual on behalf of the University. The Principal consultant will be identified by the Vice-Chancellor, or the person of the Cell (Center for Industry Institution Partnership Program) authorized by them.

   2.2. Individual consultancy relates to consultancy or work undertaken by an academic staff member in his individual capacity.

   2.3. Technical services relate to providing of routine technical data/ information, analysis etc. and to fabrication of equipment, etc. and to fabrication of equipment, etc. which does not require interpretation of results or advice.
3. A request for consultancy services shall normally be received by the Vice -Chancellor or the Liaison Cell (CIIPP) on behalf of the University. It may, however, be received directly by a staff member and forwarded to the University for its Consideration.
4. Permission to undertake consultancy work upto 1 lakh rupees may be given by the Officer Incharge of the Liaison Cell (CIIPP) on the recommendation of the Head of the Department or by any another person authorized to do so Consultancy work of above 1 lakh of rupees shall be approved by the Vice-Chancellor.

   4.1 While approving of a consultancy proposal, the following will be taken into consideration:

   (a) The normal duty of the individual staff member and the interest of the Department do not suffer;

   (b) An individual staff member does not undertake consultancy work for more than 60 days (60 days in Calendar year, including holidays);

   (c) The total annual income of an individual from consultancy work shall not exceed his/her total emoluments for six months in the Calendar year.
5. While working out the cost of consultancy project, the following be taken into consideration:

   5.1 Cost of consultant's time, including intellectual fee.

   5.2 Cost of man days of the staff taking part in the project , excluding the consultant(s)

   5.3 TA and DA (as per agreement with the client).

   5.4 Cost of inputs (like chemicals, raw material and other types of consumables) and equipments.

   5.5 Usage charges on equipment (including deprecation and utilities, interalia)

   5.6 Payments to outside consultants.

   5.7 Cost of stationary.

   5.8 Computer charges.

   5.9 Miscellaneous.

   5.10 Administrative charges (10% of 5.2 to 5.9)
6. The client shall pay 50% of the total project cost or cost of the items 5.2 to 5.9 above, whichever is higher, to the University Consultancy. All payments will be received by the University under a separate budget head of 'Consultancy Services'

7. The consultancy Services may be categorized into three classes:
   7.1 Advisory Consultancy in which University facilities are not used.
   7.2 Service Consultancy in which University equipments is used, but consumable or other materials are not required.
   7.3 Service consultancy in which University equipments is used and materials and consumables are provided by the university.
8. Once the terms of consultancy have been approved, contract sign and advance received, it becomes the duty of the Principal Consultant to ensure the satisfactory progress and completion of the project in time. For this purpose, he may make temporary appointment of full-time or part-time staff for a period up to six months, draw advances and make expenditure in accordance with the requirements as the projects progresses. Vice-Chancellor's approval will be required for appointment of staff for period of more than six months.
9. The distribution of consultancy amount received will be as under:
   9.1 In case of advisory Consultancy (7.1 above), 50% of the amount received for item 5.1 (cost of consultants' time, including intellectual fee) will be paid to the consultant(s) and 50% will accrue to the University.
   9.2 Similarly in case of Service Consultancy (7.2 and 7.3 above), 50% of the amount received for item 5.1 above will be paid to the consultant(s) involve and 50% will accrue to the University.
10. In all cases (7.1, 7.2 and 7.3 above), the apportioning of consultancy amount will be as under:
   10.1 Out of total share of the University (i.e. 50% of the consultancy fee charged), 10% will be paid to the University as administrative charges, 20% will be paid to the 'Corpus Fund Foundation for Higher Education & Research' established by the University and 20% will be paid to the Consultant for TA/DA and other related expenditure of the consultant for visits/meetings etc. The rest 50% will be available to the department concerned for the purchase of equipment and/or material or for any academic activity and promotion of the industry participation.
   10.2 The amount to be distributed to the staff will be as per recommendation of the Principal Consultant approved by the Vice-Chancellor or any other person so authorized by him.

11.1 Examination duties, delivered special lectures, Participation University, College and Public Service Commission Selection Committees and membership of Board of Directors of Companies are not included in consultancy services.

11.2 The University may undertake outside work requiring services of the technical staff of the University which is part of their normal duty, on such terms and condition as may be approved by the Vice-Chancellor.

12. Out of the sales made for a patent emerging from consultancy work, an annual royalty (to be divided equally between the consultants and the University) of a fixed percentage (to be decided by Vice-Chancellor) will be paid to the University by the client.

13 On the completion of the consultancy project, a copy of the synopsis of the work, keeping in view the confidentiality clause of the project, and the audited statement of accounts will be submitted to the University / CIIPP for its records. Any unutilized amount will be transferred to the fund 'Higher Education & Research' of the University.

14. In case of any ambiguity, the decision taken by the Vice-Chancellor will be final.

Industry Institute Partnership: Scope and Promises

Industry and institutes are bound to play a central role in the nations' growth as the institutes are recognized as vital and important sources of knowledge whereas industries contribute in bringing high levels of employment, productivity and social evenness, by incorporating skill based knowledge in generating nations' development. In this era of globalization a mutual interaction of both is indeed crucial.

The institutions will have to play an increasing role to promote the industry in its technology upgradation and participate in the industrys' plan for management of technology, Institutions will have also to assure the industries demand and assist the industry in its endeavor to make the necessary technology changes as per the current requirements.

> *"With the rapid advancement of knowledge and rapidly changing technology base, it has become absolutely essential that the industry and academic institutions must work together as partners"*
>
> ***(Massey et al 1992)***

At global level where industries are modifying themselves according to technological advancement, we are still facing difficulties in bringing academia and industry closer together. According to annual survey of industries (ASI) in India total number of industries in operation were 158,877 in 2009-10 and the top five states in terms of employing persons in the industry sector were Tamil Nadu, Maharashtra, Gujarat, Andhra Pradesh and Karnataka, respectively, engaging about 18.9 lakh, 15.1 lakh, 11.6 lakh, 11.3 lakh and 8.9 lakh persons. These five states together had engaged more than half (55.8%) of total manpower engaged by the factory sector of the country. These five states were also the major ones in terms of their percentage share in aggregate Gross Value Added (GVA): Importantly the academic institutes of these states are also leading in bridging gap between industry and institutes. But for rest of the country more efforts are needed. Many surveys in India estimated that only 10% of MBA graduates are employable whereas for engineering students it is below 17%. It is also estimated that the required skill gap across industrial sector will be about 75-80% by 2020 (India Skill Report, 2014)

In developed countries various industries and institute are working in synergy which allows them to explore endless possibilities and also focusing to address socio-economic and technology-driven challenges. For example a three year study by Julio et al. (2010) aimed at determining best practices for industry-university collaboration collected data from 25 research intensive multinational companies from the aerospace, information technology, materials, consumer electronics, automotive, biomedical, mining, paper and petrochemical industries. These industries were associated with more than 100 universities and were involved in intensive funding of projects. Roughly 50% of the examined projects showed best outcomes i.e., produced new ideas or solutions to problems, developed new methods of analysis or generated new intellectual property of potential benefit for the company. The fact that almost half the projects had successful and consequential outcomes suggests that these companies along with universities have been successful in getting the required.

Lal et al. (2001) in their book "The R& D challenges before the Indian industry" suggested some key steps that universities should have to apply for the betterment of industry institute partnership and some of the initiatives are:

- Industries should permit Graduate and Post Graduate students to do project work relating to their problems, especially in the R & D region.
- The institute should have a list of areas in which they have capabilities for consultancy, testing and research and transmit the same to the leading industries.
- Members from industries periodically should visit institutions to assess for themselves the facilities available therein, which they can utilize. Discussion with the faculty has been effective way and culminated in projects wherein either staff or research scholars work on problems relating to the industry

> *"While many Indian institutions struggle to perform strongly across all of our rankings indicators, which are dominated by research performance indicators, they do have a strong and proven track record of working successfully with industry"*
>
> ***Phil Baty Editor-at-large Times Higher Education (Reply of a Mail)***

Reddy (2001) suggested that institutions need to be prepared for successful interactions with industry. Industries have ample of resources but these resources in most of the institutions are underutilized. He also addressed how to use these resources:

- Providing testing, analysis, consultancy and counseling services
- Carrying out sponsored research and developing newer technologies
- Assessing training requirements of industry and catering to them through extension education programs
- Evaluation and engineering analysis of technologies (many technologies may require evaluation and analysis prior to commercial scale implementation)

Technology executives believe that US, China and India are the top three countries with the potential to drive technology breakthroughs in the next few years (Technology Innovation Survey, 2013)

Slowly but surely an optimistic view is being developed by various industries towards such mutualistic interaction and many premier institutions have been trying to communicate with industry and outcome in the form of new invention, technology upgradation and skill development are nourishing to both and helping in nation development. Furthermore, India ranked second as an innovation centre, as the third most promising nation for disruptive breakthroughs, and the fourth friendliest technology innovation country. (Business World News, 2013) yet, India lags other key countries in research investment and output. Data suggests that global investments in sciences, technology and innovation were estimated at $1.2 trillion as of 2009. India's spending on research and development (R&D) is less than 2.5% of this, and under 1% of its gross domestic product (GDP) and experts predict that India requires, among many other policy-based actions, larger investments in R&D and more full-time equivalent professionals. This can be achieved by more academia-research-industry partnerships, promotion of inter-disciplinary research and create a national scientific temper in this direction.

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Efforts made for Industry Institution Partnership
1st National Workshop: Innovation and Technology Transfer to Industries Role of Universities

CIIPP, BBA University had organized a two day workshop **Innovation and Technology Transfer to Industries Role of Universities** on **10th** and **11th March 2014**. The workshop provided a forum for bringing industry closer to the academia and in the leadership of various academician and industry experts. Workshop targeted to bridge the gap between laboratory and fields and promoted the sharing and development of ideas from different institutions of India. More than 200 delegates from all over India participated and felt gracious by the talks delivered by key note speakers. Besides this, workshop paved a foundation stone in development of high-technology and knowledge based sectors where scientific inputs are of key importance in the innovation process.

"I am delighted to be a part of this workshop and I wish the organizers and participants of this program all success and congratulation for initiative. Last but not least I wish ITTI.2014 a grand success"

V.P. Kamboj
(Chairman, Biotech Consortium India Limited, New Delhi)

National Seminar on "University Industry Partnership: A March Towards Sustainable Growth" (AMTSG-2015)

In the series of reinforcement for establishing an industry institute interaction, CIIPP is organizing a national seminar on "University Industry Partnership: A March towards Sustainable Growth on 12-13th March, 2015.This seminar will provide an opportunity for industries as well as academia to cover the environmental, social and economic dimension of sustainability. Besides this, universities and professional training providers can help industry leaders to incorporate sustainability into their everyday industrial process so as to achieve development without adverse environmental impacts.

For enriching the seminar we have invited veteran academician and industry persons from whole country and they will give a comprehensive guideline to attain the target of sustainability

Besides this we have also created a technical session entitled "Industry Oriented Innovations" this will provide an open platform for students/research scholars/delegates, welcoming ideas related to industrial development and for this and further encouragement best three ideas best three idea will be awarded.



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