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"ROLE AND IMPORTANCE OF UGC AND OTHER RESEARCH ORGANISATIONS WITH RESPECT TO SOCIETAL IMPACT OF RESEARCH IN INDIA"

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ABSTRACT

Ever since the development of research and Governing authorities in India viz UGC, MHRD, ICSSR, CDRI and others, the scope of research evaluations becomes broader as the societal products (outputs), societal use (societal references), and societal benefits (changes in society) of research come into prime focal point. With the day by day development of research activities, funded research projects and increase in no of research organizations, general public or society in return is expecting the outcome of these research studies in a way which can be beneficial for the society at large by are implementing results of these research assignments into marketable and consumable products (e.g., for medical purposes or advanced machines, and devices) or services.

Scientific community and funding agencies have been increasingly aware about the importance of evaluating and measuring the social impact research. The recent nature of this increased interest is shown in debates about procedures, tools and indicators most suitable for social impact assessment. Social Impact is neither the same than knowledge transfer, as it refers when the published and disseminated results are taken up by policymakers and/or social actors as the basis for they policies and/or actions regardless of whether they have evidences of social improvements or not.

In current research endeavor author highlighted an assortment of problems in measuring social impact such as:

- The attribution of specific social benefits to particular research projects' results and processes;
- The fact that many impacts of research projects are not directly addressed to social impact (i.e. increasing employment in a specific group)

This research paper intends to present existing research in India on and practices employed in the assessment of societal impact. The outcome is to serve as a basis for the development of robust and reliable methods of societal impact measurement. The assessment of societal impact is an additional method of scientific impact measurement to evaluate research, which further increases the administrative effort involved in evaluations. That is why we should seek above all to ensure that societal impact assessment can be undertaken with as little effort as possible for the scientists involved**.**

Key Words: *Assessment, Benefit, Impact, Research, Society, UGC*

1. INTRODUCTION

Impact of research is a worldwide phenomenon which took glimpse of light when a large crowd in India started to hoot in respect to gain wider knowledge of impact due to research and how to monitor it in short period of time. Innovation and knowledge on the other hand were the primary factors of economic growth and renewal which paved a way for research and its impact to be visible across the country. The need for effectiveness and accountability in the use of revenue invested by various Indian Government agencies empowered for Research & Developmental activities in India (MHRD, AICTE, UGC, DRDO, DST, etc) increased in all areas of society already before the economic downturn. ***(Ziman, J. 2000)***

According to the State of Scientific Research in India 2016 review there are a lot of sources through which research impact is generated; one of them is societal impact of research. There is a possibility of not covering whole topic of societal impact in one go, but one must have understandings on the impact of research on literature which includes both qualitative and quantitative methods. Thus, this paper is highlighting mirror on present research and the practices employed in the assessment of societal impact. To evaluate research impact of society, assessment of societal impact is used as an added tool which eventually directs the managerial efforts extended.

Externally inducted changes which try to affect communities or individuals are called social impacts. Interorganizational Committee on Principles and Guidelines for Social Impact Assessment (IOCGPSIA, 2003: 231) defines social impacts as "*the consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organize to meet their needs, and generally cope as members of society. The term also includes cultural impacts involving changes to the norms, values, and beliefs that guide and rationalize their cognition of themselves and their society."* Such changes may affect employment, income, production, way of life, cultural practices, community participation, political systems, environment, health and well-being, individual rights as well as property rights, fears and aspirations as well as change in ethnic composition. These impacts can be positive or negative or both. Some of them are mining, power and industrial plants affected due to workforce or pressure on infrastructure, dams and reservoirs getting affected due to relocation,

roads and linear projects affected due to dislocation of activity networks and landfill and hazardous waste disposal sites getting affected due to health risks ***(Macilwain, C. 2010).***

Types of Impacts

It is noteworthy that not all projects have similar impacts. For example, impacts that are commonly experienced in urban projects are different from those in hydropower, thermal power, mining and iron and steel projects. The common hydropower project impacts include the following:

• Submergence of vast areas, usually in hilly, sparsely populated regions, inhabited by agriculture-dependent rural and tribal communities

• Forced displacement (often resulting in impoverishment)

• Boomtowns (uncontrolled influx of construction workers, with negative social impacts, crime, HIV, etc.)

• Downstream adverse changes in agro-production systems

On the other hand, there is no submergence in urban projects. People are affected by loss of residential/commercial structures and jobs, not by loss of agricultural lands.

The following is an illustrative list of possible impacts:

• Loss of all land, commercial premises and housing structures

• Loss of all commercial premises or land, but not house

• Loss of house, no loss of land or commercial premise

• Loss of house, land or commercial premise left unviable

• Loss of house, land still viable

• Loss of house to the owner or occupant/tenant

• Loss of house, without adequate entitlement to lands or with customary rights to lands

• No loss of house, land or commercial premise left viable

• No loss of house, land or commercial premise unviable

• Loss of access to income generating activities (employment, etc.)

Recognizing the need for better appreciation of social consequences of policies, plans, programmes and projects (PPPPs) must be the first priority of planners and decision makers as this will help to track down societal impact assessment. It is now an obligation to find out such impacts due to the society ***(Leydesdorff, L. 2012).***

2. LITERATURE REVIEW

S. No.	Author	Year	Observation
1.	Salter, A.J., & Martin, B.R.	2001	• The author tried to explain the significance of topic importance in any research, that is hard to decide by many researchers • The study revealed that many of the researchers prefer to use qualitative methods to carry out their work rather than a quantitative method.
2.	Mansfield, E.	1991	• The author made various efforts to analyze greater impact of research in India through various studies and innovations. • The research evaluated higher studies in respect of its value and importance in the country. Many studies promoting research were kept in observation.
3.	Higher Education Funding Council for England	2009	• The current study examined the way research was carried out by universities. It acknowledged various aspects of faculties and the way they tried to help their students as guide. This showed a tremendous impact on research. • This research was widely acknowledged and was used for many future studies.
4.	Martin Mc et al.	2011	• The author showed value of science through research. The study mainly dominated the effect of society and people in research framework. • The research concluded that the use of societal references, its outputs and various changes in society directly affect a particular research as concerned.
5.	Van der Meulen, B., & Rip, A.	2000	• The study focused on benefits made out of researchers carried out by various researchers. It revealed that those research papers or journals that have more of attention and published by best publishers are never for society benefit but for individual one. • In short, the study paved a way to explain that those journals which never attract crowd are actually made for the society.

3. RESEARCH METHODOLOGY

Current research endeavor is explanatory in nature and based on secondary research methodology thus data for study was collected from various published journals, articles, newspapers and magazines. To furnish the objectives of research descriptive type research design has been adopted where in the accessible secondary data is intensively used for research study.

OBJECTIVES OF CURRENT RESEARCH STUDY

In current research endeavor main objectives assessed in measuring social impact of research such as:

- To study the attribution of specific social benefits to particular research projects' results and processes
- To assess the role and type of research funding agencies with special reference to UGC in India
- To analyze the fact that many impacts of research projects are not directly addressed to social impact (i.e. increasing employment in a specific group)

4. FINDINGS

On one hand, research fields vary fields vary significantly in terms of their quest for fundamental understanding on the other hand their consideration differences for its practical applications. Such differences are always shown up in every concept of basic and applied research. Also, the differences between the two need not to be productive in nature but can be frequently unclear.

Economy, technology and science altogether led to a basic analysis which figure out that research is basically a combination of fundamental understanding and practical use. Such type of research is called use-inspired basic research. A quadrant model was introduced by *Donald Stokes* which can be used for research objective illustrations. The model has two dimensions one is the vertical and other one is horizontal. The vertical dimension of the model stands for the advancement of humanity's collective knowledge and understanding, and the horizontal dimension stands for the advancement of practical applications.

It must be kept in mind that research impact can be more affected and can have way more impact beyond academia in terms of short or long term. Thus, having proper understanding and evidence on a particular research topic is necessary and need of an hour.

4.1 R&D FUNDING ORGANISATIONS IN INDIA

In India many people in academia and non academia look forward to perform a research project to various organizations which have societal impact to the following Government bodies:

(1) University Grants Commission (UGC)

UGC strives to promote teaching and research in emerging areas in Humanities, Social Sciences, Languages, Literature, Pure Sciences, Engineering & Technology, Pharmacy, Medical, Agricultural Sciences etc.

Name of scheme(s)

Major and Minor Research Projects

Objective(s)

- Excelling the performance of University and college teachers through helping them to succeed and promoting them in research.
- It is more or less clear that universities have been the centers of research. All the base of researchers' remains with universities, thus it is mandatory that universities must promote the research of teachers and their students.

(2) All India Council for Technical Education (AICTE)

The All India Council for Technical Education (AICTE) has been performing its regulatory, planning and promotional functions through its Bureaus, namely: Administration; Finance; Planning and Coordination; Under Graduate Studies; Post Graduate Education and Research; Faculty Development; Quality Assurance; and Research and Institutional Development Bureaus; and through its Regional Offices located in various parts of the country.

Name of scheme(s)

i) Research & Institutional Development Schemes

a) Modernization & Removal of Obsolescence Scheme (MODROBS)

- It helps in maintaining high end modern facilities in laboratories/Workshops etc to enhance functional efficiency for teaching, training and research purposes and around 15 lakhs are provided in 2 years gap as fund.

- The main aims of such developmental schemes are proper lab works, collection of relevant matter and an indirect benefit to their faculty or student.

b) Research Promotion Schemes (RPS)

- Research Promotion Schemes are established to promote research in technical disciplines and innovations in established and emerging technologies and to generate Masters and Doctoral degree candidates. The two research avenues within RPS are the following:
- RPS demands of each and every proof ncluded in the research and checks all the concepts on which research has been generated. It provides a limited grant for this purpose and that is around 5 to 10 lakhs.
- It aims to promote faculties who are motivated and self driven with patent technologies. It provides patentable technology to develop the faculty members and provides funding of 20 lakhs as one time grant.

ii) Industry-Institute Interaction Schemes

a) Industry Institute Partnership Cell (IIPC)

- To establish institute-industry liaison by encouraging:

(1) Conduct of industrial training programmes

(2) Facilitating exchange of resource personnel

(3) Carry out industrial R&D

(4) Conduct of industrial visits

(5) Developing appropriate curricula and (6) undertake consultancy services, etc.

b) Entrepreneurship Development Cells (EDC)

- To encourage students to consider self-employment as a career option and provide training in entrepreneurship.

(3)Council of Scientific and Industrial Research (CSIR)

CSIR plays a main role to promote, guide and coordinate scientific and industrial research in India. It also develops and assists institutions and departments handling research and provides fellowships, utilizes Council's of &D results for industrial development

The Human Resource Development (HRD) Group of Council of Scientific & Industrial Research (CSIR) has a mandate to develop and nurture S&T manpower at the national level. It also promotes, guides and co-ordinates scientific & industrial research through research grants to Scientists/Professors working in Universities/R&D Institutes of Higher learning.

Name of scheme(s) & Objective(s)

1. Research Schemes

Such schemes promote agriculture, engineering and medicine research that's mainly on field. Altogether, there are support granted from CSIR laboratories and main preference is given to schemes which have relevance to research programmes of CSIR laboratories.

2. Sponsored Schemes

The Directors of CSIR laboratories may invite applications for research grants in specific areas of interest to their respective laboratories. They will forward these to the CSIR HRD Group. The scheme enables the CSIR laboratories to interact with university system, so that the CSIR laboratory can take the help of the faculty there to undertake part of the work of its core programme, for which it either does not have the time and or expertise.

3. Emeritus Scientist Scheme

- Provides proper support to scientists to pursue their career in the field their interest are and smoothly looks upon having relevance to the programmes of CSIR.

4. Research Fellowships/Associateships

- Shyama Prasad Mukherjee Fellowship ? Recognition of Excellence
- Senior Research Associateship ? Shanti Swarup Bhatnagar Prize
- CSIR Young Scientist Award

5. Other Science and Technology Promotion Programmes

- CSIR Programme on Youth Leadership in Science
- CSIR Diamond Jubilee Research Interns Award Scheme□ □ □ Visiting Associateship Scheme
- Partial Financial Assistance for holding National/International Conferences/ symposium/Seminar/ Workshops in India
- Partial Travel Grants to Research Scholars
- Entrepreneurship Support to Research Scholars
- Faculty Training Programme and Adoption of Schools and Colleges by CSIR Laboratories

(4) Department of Atomic Energy (DAE)

The Department of Atomic Energy supports research programmes in Nuclear Science and Technology through the Board of Research in Nuclear Sciences (BRNS). BRNS support the following schemes.

Name of scheme(s)

1. R&D Project

Fostering research capabilities and manpower development in universities and similar institutions of higher learning and research.

2. Symposium/Conference/Workshop

To promote large scale interactions in various disciplines of science and technology those are of interest to DAE.

3. DAE Young Scientists Research Award

To support young scientist below the age of 35 years in their initial years of settling down in a career of R&D.

4. Dr. K.S. Krishnan Research Associateship

To support talented science and engineering research scholars

5. Raja Ramanna Fellowship

To utilize the services of active retired scientists/engineers and technologists, who have been involved in high quality research in their specialized discipline in the units of the DAE or any National Laboratory or University/Institute

6. Visiting Scientists

To promote close interactions on specialized scientific and technical topics between the scientists and technologists from DAE and Universities/IITs/IISc/ National Labs.

7. Homi Bhabha Chair Professorship

These Chairs are instituted in recognition of sustained record of excellence and creative contribution to research and / or teaching in the area of interest to DAE.

8. DAE Graduate Fellowships

To provide excellent career opportunity to students qualifying for admission to the M.Tech Course in Indian Institute of Technology at Mumbai, New Delhi, Kanpur, Kharagpur, Chennai or Roorkee.

9. DAE Graduate Fellowships for Ph.D.

Helps students attain the highest degree of qualification and paves way to achieve the basic objective of strengthening linkages between the grant -in-aid institutions and the research centers for the benefit of advancing the pace of research in nuclear sciences. Also, helps to accelerate the speed to translating R&D into technology products and their applications.

10. DAE-SRC Award

The objective is totally a support to researchers which includes high intended plans and proposals with all the possible areas to cover which eventually carries out advanced research.

Some other Indian Government Organisations/ bidies support specified research are enlisted as below:

- Department of Coal (DOC)
- Department of Ocean Development (DOD)
- Department of Science and Technology (DST)
- Department of Scientific and Industrial Research (DSIR)
- Indian Council of Medical Research (ICMR)
- India Meteorological Department (IMD)
- Indian Space Research Organisation (ISRO) - Department of Space
- Ministry of Communications & Information Technology (MOCIT)
- Department of Information Technology
- Ministry of Environment and Forests (MOEF)
- Ministry of Food Processing Industries (MFPI)
- Ministry of Non-Conventional Energy Sources (MNES)
- Ministry of Power, Central Power Research Institute (CPRI)
- Ministry of Water Resources (MOWR)
- Science and Technology Application for Rural Development (STARD)
- Science & Technology for Weaker Sections (STAWS).
- Indian National Science Academy (INSA)

INTERNATIONAL FUNDING AGENCIES

Some international funding agencies, fund for various asian including Indian Research projects are:

- International Foundation for Science
- Third World Academy of Sciences (TWAS)
- Third World Network of Scientific Organizations

4.2 ROUTES TO ACCESS SOCIETAL IMPACT OF RESEARCH

The reason behind societal impact is due to researchers taking up on a particular topic concerning environment, or any changes taking place in the society which affects the research paves way for it ***(Bornmann, L. 2012).***

Such research is conveyed beyond academia due to the new knowledge, technology, know-how, understanding or perspective produced by the research. This process can be understood as occurring through three main routes: the transfer of research results, cooperation and interaction, and proficient people. These routes are directly linked with the objectives and research topics of an individual thus, different combinations and their importance, time, scales etc may vary notably.

Science is part of society and thus constantly influenced by developments beyond academia. Open science paves way for a proper impact as it concerns all routes. But in case of humanities and social sciences, there may be interventions in the society since the way of research undertaking and communications are directly influenced.

The main routes to impact are illustrated in Table 1 by providing examples of their meaning in the different roles of science.

Research impact not only includes researchers or organization but also stakeholders and other factors are also involved. Thus, it is essential to understand and identify the potential users and beneficiaries of knowledge and understand the environment in which they operate.

Many research fields have established practices that support the exchange and utilisation of knowledge beyond academia ***(Erno-Kjolhede, E., & Hansson, F. 2011).***

There is a wide difference in the institutional mechanisms of generating and making use of new knowledge. The institutional factors and dynamics within academia – such as the specialization of disciplines and their mutual relationships; the professional accountability and responsibility of researchers; their international networks and mobility; and access to materials and methods – both enable and constrain the pursuit of impact.

5. CONCLUSION

The societal impact and its qualitative assessment must not be conquered by science or scientist. Experience from the field of grant peer review (discussed earlier) has shown that scientists often have trouble discerning the societal impact of research. There must be peer-review groups in which both scientist and stakeholders are included together to promote integrations for the future.

Moreover, the efforts that research institutions are expected to make in the area of societal impact in the coming years are bound to lead to the emergence of a new profession of administrative officials (as was the case with "scientific" research evaluations). Such efforts will organize and bring out personalized interactions between scientist and stakeholders which will simultaneously have a societal impact.

It is important to understand the effectiveness of the national innovation system as it provides useful steps towards making investment decisions and it must be kept in mind that "Research is something which a researcher is not yet known", so that the significance of its outputs are to a greater or lesser degree unpredictable—which is why serendipity is always important" ***(Rymer, 2011, p. 18).***

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This research paper intends to present existing research in India on and practices employed in the assessment of societal impact. The outcome is to serve as a basis for the development of robust and reliable methods of societal impact measurement ***(Walter, A.I., Helgenberger, S., Wiek, A., & Scholz, R.W. 2007).*** The assessment of societal impact is an additional method of scientific impact measurement to evaluate research, which further increases the administrative effort involved in evaluations. That is why we should seek above all to ensure that societal impact assessment can be undertaken with as little effort as possible for the scientists involved**.**

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