This policy brief discusses

➔ The concept of Responsible Research and Innovation (RRI)
➔ The Relevance of RRI in India
➔ The RRI-Practice Project

RRI: Responsible Research and Innovation is a concept that has become popular, particularly in Europe in science, technology and innovation policy and practice. It envisages aligning research and innovation with societal needs in such a way that research and innovation are conducted with sensitivity to ethics, making the results available to larger public, women's participation and contribution are enhanced and publics are engaged as responsible actors in science and innovation.

The Indian case study has included, Department of Science and Technology (DST) as funding and policy making department and Jawaharlal Nehru University (JNU) as research institution.

The European Commission has identified ethics, gender, open access, societal engagement and science education as five policy keys in RRI. See https://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-researchinnovation for details.

The RRI-Practice Project is a three year (2016-2019) project funded by European Commission (under Grant Agreement No 709637) with the key objective of examining RRI related discourses, practices, and, pathways and barriers and drivers in research funding and research conducting organizations. Another key objective is to identify, understand, analyze and promote best practices in implementing RRI and scale them up in Europe and elsewhere.

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Research and Information System for Developing Countries (RIS), the partner institution in India for the Project conducted the National Workshop in April 2017 in association with DST, Government of India. This workshop brought together policy makers, scientists, academics and representatives of stakeholders to deliberate on RRI and what it does mean in the context of India. A report on the Workshop is available at (https://www.rri-practice.eu/wp-content/uploads/2017/09/India_National_Workshop_Report_FINAL.pdf). It was clear from the Workshop while the idea of RRI is new to India, many of the topics discussed under the rubric of RRI are not new to India and many policy initiatives have been taken to address issues in ethics, open access, gender and science education.

Studies done under the project showed that RRI is very new to India and this novelty is its strength as well as weakness. The interviews, Focus Group Discussions showed that although concerns were expressed on ethics, gender and science, and, open access, there were divergences in approaches and suggested solutions. People tried to understand and situate RRI, based on their experiences and ideas they were familiar with. For example, the importance of ethics as a key in RRI was widely accepted although there was no consensus on what should be done to address issues in ethics in S&T or research integrity. Another key point was that policy makers and institutions have addressed these issues on their own terms, taking into account the reality in India. Hence it was easy to understand and relate to keys of RRI and objectives of RRI through them. The research for this project had made it clear that significant initiatives and policy changes have taken place with respect to ethics, gender and science, open access and science education while in societal engagement more needs to be done. For example, programs like INSPIRE and Atal Innovation Mission (AIM) are incentivizing access to science education and innovation, to school children. The guidelines on stem cell, norms for ethical practices in clinical trials and the revised guidelines of ICMR for research involving human subjects show that ethical concerns are getting addressed. Similarly, open access policies, despite issues in implementation have resulted in massive increase in number of repositories and publications/documents available in open access. The sharp increase in enrolment in education at all levels, with more and more women taking up science education is a welcome trend.

Such developments are useful in taking the concept and practice of RRI forward in India. The consensus among government and Science Academies on increasing participation of women in S&T can result in policies that incentivize further women's participation in S&T and access to science education.

Thus the drivers are already there and building up synergy among them is important. The major barrier is that RRI is unknown in India and hence awareness has to be created. RRI will be better adopted only if it is contextualized for India.

Indian National Workshop (28 April 2017)

Focus Group Discussion (FGD) at DST was held on April 17, 2018. In the discussion, 12 participants from different sub-divisions, reflected upon the concept of RRI. The purpose of this endeavour was to understand the level of awareness about RRI among policy practitioners as well as to reflect on their perceptions and attitude towards responsible scientific research and development. The idea revolved around five keys of the RRI model as to how they are envisaged by different disciplines across the departments.

Focus Group Discussion (FGD) at JNU was organized on 16th March 2018. The aim of this FGD was to deliberate on various aspects of RRI, as well as to understand the perspectives of the academic community in JNU, on relevance of RRI in India . The 11 participants in the FGD were faculty members, affiliated with, science and social science schools/centres of the University. The deliberations helped us to understand what were the perceptions on responsibility in science and innovation.

Partners: Oslo Metropolitan University (NO), Karlsruhe Institute of Technology (DE), University of Bristol (UK), Commissariat a L'Energie Atomique et aux Energies Alternatives (FR), University of Padova (IT), Applied Research and Communications Fund (BG), Radboud Universiteit Nijmegen (NL), Wageningen University and Research (NL), Chinese Academy of Science and Technology for Development (CN), Research and Information System for Developing Countries (IN), Arizona State University (US), Fundacao de Desenvolvimento da UNICAMP (BR), The University of Queensland (AU)

Our studies have indicated that whether it is ethics or in gender and science or science education or open access, while global trends impact S&T in India, there are lessons for other countries to learn from India and India's experience in addressing these issues. The research showed that contextualizing RRI for India would need an approach that takes into account concepts/ideas/frameworks like Social Responsibility of Scientists, Scientific Temper and, Access, Equity and Inclusion (AEI). There are practices in India that could be adopted elsewhere and India can learn and adopt/adapt from policies and initiatives in other countries with respect to the keys. For example, the KIRAN Program of DST, the activities and outcomes under SEED Program of DST are examples of initiatives that are relevant elsewhere.

The findings indicate that although RRI is relevant for India, there are issues, conceptual and practical that have to be addressed to make it meaningful in India. They point out that 'responsible' and 'responsibility' have different understandings and in institutions and organizations, and, hence, the idea responsibility in research and innovation or responsible research and innovation can be interpreted in many ways. But these interpretations need not result in a set of incomplete or non-comparable policies/guidelines. Rather by using the RRI keys, and, the mandates/visions and the plans and programs, it is feasible to map as to what extent responsible research and innovation can be integrated in the vision and functioning of institutions in S&T and in policy making in general. What we anticipate is that synergies among, RRI keys on one hand and specific programs on the other hand can be built by proposing RRI keys as principles that are compatible with broad mandates of the programs and also with specific policies. For example, Gender and Diversity can be linked and contextualized with broad mandates and specific programs. If institutions and organizations find this convincing and feasible, they may relate to RRI better and will understand its relevance in their functioning.

To sum up, while our research shows that RRI is relevant for India, it also indicates that other countries can learn from policies and initiatives in India and India can contribute to theory and practice of RRI. This mutual learning and development of synergy between different concepts and practices and cross-fertilization among ideas can result in better theory and practice in RRI.

RRI-Practice Consortium