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[The interview was made by Simone Arnaldi during the RRI-Practice International Workshops held in Berlin on September 20-21, 2017. The Workshop gathered Research Conducting and Research Funding Organisations to discuss the implications of and the opportunities for RRI implementation in organisations.]

Question: Can you tell us something about your role in the Indian Ministry of Science and Technology?

Answer: I am heading a Division in the Department of Science and Technology, which is called National Science and Technology Management Information System. Since the creation of the Department in the early 1970s, we have been doing the assessment, and benchmarking the science and technology potential of the country, as well as the monitoring and evaluation of science and technology policies. The Division has the mandate to build an information base of science and technology indicators for enabling evidence-based policy planning.

One of the prime roles of the Department is science and technology policy formulation. For that, we need a backend information or database, which tells us from time to time where we are (assessment of S&T), where are we going (direction), and where we stand (benchmark), so that we can decide and prioritize our goals of science and technology for development and identify key information needs and possible shortcomings. The Division serves this purpose by conducting national STI surveys and a lot of analytical studies in the area of Science and Technological Studies (STS). These analytical studies are being undertaken as part of the outreach programme in sponsored mode with the help of researchers, experts, and various other stakeholders and they complement and supplement the development of national STI indicators. For the benefit of policymakers, planners, researchers and other stakeholders, we regularly publish national R&D indicators reports. Of late, we have done a unique first ever, national science and technology innovation survey benchmarking the innovation potentialities of the industrial firms (prime actor) at the state and federal level. This is what we do and I see the relevance of RRI when we talk of it as a concept for innovation in system perspective.

However, the context in the developing countries is completely different from the context in the developed ones. In the developing context, market forces are weak. When we say that market forces are weak, it means that basic research probably does not reach the market and you do not see the commercialization of research results as we anticipate. In the developed context, where the market forces are strong, industries are willing to take and pick up research results and bring them to the market. In the Indian context, industry partners are not very effective in this. They have improved over the years, but the Government is the dominant actor and it becomes, *de facto*, the player that support the transfer of research results in the market, with a mandate to support research for the public good.

Q: This situation opens opportunities, too.

A: Yes, it does, but the Government cannot be in the business, in the industry sector. It is industry itself that has to come forward. This is the challenge in India's context, to make science and technology the engine for development and growth. The first national innovative survey did reveal that there is a disconnection between public research, innovation infrastructure and infrastructures that you require for the production of new innovative products.

I see a very important role for RRI in filling this gap. Given the features of the Indian research and innovation systems, it is the Government that has the primary responsibility to face this challenge. With RRI, we now say that these research and innovation processes have to be ethical, have to be open access, have to engage the society and the media sector. This perspective implies a collective commitment and synergies between

the various actors. With RRI, this approach has been initiated in Europe because I see that today's meeting has gathered funders and research conducting organizations, but they are only public research organizations. Industry is missing, but industry is an essential player as they are the ones who bring innovations to the market, in the European context, too, or in other countries such as the US, China or Korea. In all these countries there are many industries that take research results and bring them to the market in the form of new products or processes.

Q: If I understand you correctly, you are saying that the involvement of industry is essential.

A: Yes, because industry is a key actor in the innovation system. Other stakeholders are important too, such as NGOs. Their involvement is good in the sense that it can make us understand the impact of the public perception of science and technology. It can act as a neutraliser for the kind of protests we have seen against GMOs or other fields. RRI is a very beautiful concept as it can bring science and technology closer to people and their expectations, supporting the ethical engagement of science with society.

From this perspective, the responsibility is not only on the Government, but also on the other stakeholders. Among them, industry is very important. Of course, the Government continues to drive policy at the national level. Along with governance, policy is the pillar of the innovation system and there is no actor other than Government that can implement policies. Central policies ensure uniform implementation. If you leave it up to the various actors, they may probably have their own ways for doing things.

Q: I have one last question. You mentioned that your unit is responsible for developing S&T indicators for India. Did you develop indicators that cover some of the societal areas mentioned by RRI?

A: This is why I am interested in RRI. I am thinking that the concept of responsibility could be integrated in the National Innovation Index we are developing. Perhaps, it is too early as the elaboration of the Index has to accommodate the existing regional disparities and we have found that innovation infrastructure diminishes as we go toward the interior of the country. So, the big challenge now is to include this kind of regional disparity in the mainstream. Responsibility is the next challenge. I was just thinking that if RRI indicators get perfected here [in the project], then somehow they can be easily assimilated in the Indian context. This is a step for the future.

Until now, we did not consider many society-related aspects in our surveys. We observed the impact of some kind of patent regimes and some kind of ICT. We have explored how the legal system is affecting patent filings and how ICT systems have allowed them to improve the legal and regulatory framework. Also, we considered the environmental impact associated with those regulations, assessing what organizational changes companies have made to be compliant with environmental standards.

So we have seen that if we are able to bring all that set of guidelines, industry and stakeholders will probably comply. So this is how even the RRI concept can be introduced and implemented. Many of us [in today's meeting] were talking about the impacts – how it will really be and who will practice RRI. It has to be through the policy, it has to be top-down, it cannot be bottom-up in order to have a systemic impact.