

Chapter 10: Conclusion

The spurt of economic growth in the developing world, particularly in Asia, requires substantial augmentation of energy facilities. A large part of the enhanced energy demand in Asia can be provided by nuclear energy. The expansion of nuclear power in the context of nuclear safety and security requires an appropriate regulatory oversight framework. Stakeholders, including the Government, need to be assured that nuclear energy and associated technologies can be used safely and that society can repose its trust in the regulator. The Chernobyl accident of 1986 provided the trigger of international consensus on the need to effectively separate nuclear power development from nuclear safety oversight functions.

The performance audit of AERB was undertaken in the context of the criticality of issues relating to radiation risks and the effectiveness of the nuclear regulator in the exercise of its role. A determining characteristic of an independent regulator is that it should be created by law and have clarity of jurisdiction, powers and responsibilities. The regulator must also have the authority to take decisions including decisions on enforcement action. In the present framework, the legal status of AERB is one of a subordinate office, exercising delegated functions of the Central Government and not that of a regulator. It is notable that in countries with significant nuclear establishment like Australia, Canada, France, United States, etc. the regulators have been provided complete independence through legislation. In India, inadequate priority has been accorded by the Government towards bringing about necessary legislative changes to create an independent nuclear regulator. Consequently, AERB has no rule-making powers and neither does it have powers of enforcement and levy of penalties in the context of nuclear safety oversight. The contravention of rules under the Act, on safety and regulatory matter is subject to levies of as little as ₹ 500 and even its enforcement is not with AERB but with DAE. Failure to have an autonomous and empowered regulator is fraught with grave risks as the recent report of the Fukushima Nuclear Accident Independent Investigation Commission has confirmed.

At the policy level, AERB has not yet prepared a radiation safety policy even after three decades of its existence. Standard setting is an essential part of the functions of a regulatory authority. While AERB has identified the development of 168 Standards, Codes & Guides, 141 have been developed till date. Delays in development of these safety documents have also been observed in audit.

Regulation of nuclear and radiation utilities, which have varying degrees of hazard potential, involves an elaborate set of permissions. These are in the form of licences, authorisations, registrations and approvals. While in the case of nuclear power plants, the issuing of licences

and their renewals adhere to the laid down procedures, there are various types of radiation facilities which are operating without licences, some with a high radiation potential. Registration of a range of facilities revealed major shortcomings. About 91 *per cent* of the 57,443 medical X-ray facilities operating in the country have no registration. While the Supreme Court had directed the setting up of Directorates of Radiation Safety in all States in 2001 for regulating the use of medical diagnostic X-rays, such directorates have only been set up in Kerala and Mizoram. No rules have been framed to fix fees for recovery of the cost of services rendered by AERB as part of the powers of according licences, authorisations and registrations, even though the Atomic Energy Act, 1962 provides for making such rules. To enforce compliance, periodic inspections by a regulator is essential. While the regime of regulatory inspection has been found to be in conformity with the norms in respect of nuclear power plants, there is a deficiency of over 85 *per cent* in the case of inspection of units relating to industrial radiography and radiotherapy and as much as 97 *per cent* in the inspection of diagnostic radiology facilities like X-rays.

The performance audit revealed that in the area of radiation protection, AERB needs to strengthen its conduct of independent surveillance of exposure control and exposure investigations. There is also an acute shortage of Radiological Safety Officers, in different types of radiation facilities, thereby undermining the safety aspects that need to be adhered to by the licencees.

AERB does not have a detailed inventory of all radiation sources till date to ensure effective compliance for safe disposal of disused sources. A proper mechanism is not in place to verify whether the waste radioactive sources have actually been disposed off safely after their useful lives. There is also no effective mechanism in place to prevent radioactive sources getting out of regulatory control as the events in the case of Mayapuri incident testify. The regulatory response mechanism to trace lost and/or orphan radioactive sources in the country has also found to be ineffective.

With regard to garnering the benefits of international cooperation in the field of nuclear safety, it has been observed that AERB has, in a numbers of instances, not adopted international benchmarks with regard to key areas of nuclear oversight in respect of radiation facilities in the Indian context. It has also not availed of the opportunity of external peer review by IAEA till date, either of a specific activity or of the performance of the body as a whole.

It is evident that AERB is on a very tenuous ground if it has to be judged in terms of benchmarks of what is expected of an independent regulator viz. (a) enactment of appropriate, comprehensive regulations, (b) verification of compliance of such regulations

and (c) enforcement of regulations by imposing appropriate corrective action. There is an urgent need for the Government to bolster the status of AERB if it is to qualify as an independent regulator in a sector which is likely to become increasingly important in meeting India's energy needs, sustaining the growth trajectory and attaining its medium and long term goals.



(GEETALI TARE)
Principal Director of Audit,
Scientific Departments

New Delhi
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Countersigned



(VINOD RAI)
Comptroller and Auditor General of India

New Delhi
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