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The Fukushima Fallout:
A Right to Health Perspective

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Introduction

On 11 March 2011, the Daiichi Nuclear Power Plant in Fukushima became the epicentre of the worst nuclear accident since Chernobyl in 1986. It revealed, once again, the widespread and severe immediate and long-term consequences of a nuclear fallout. It has brought out limitations in the current scientific and technical knowledge applied to nuclear power plants. It has also acted as a wakeup call for governments to ensure a stringent system of regulations and checks and balances to prevent collusion between government agencies and the nuclear power industry. This can compromise the safety of nuclear plants to the detriment of people's health, livelihood and life, amongst other short- and long-term losses and consequences, such as loss of economic capacity and breakdown in family and community structures.

Part I of this paper explains experiences from previous nuclear accidents and science that guided the government of Japan in its disaster management strategy. This section will also mention some of the limitations of such an approach. Part II makes an inquiry into the disaster management efforts of the government, from its emergency response to the government's decontamination policy, and their impact on the ability of the affected population to fully enjoy the highest attainable standard of physical and mental health.

* Lecture delivered by Mr. Anand Grover at the India International Centre on 8 February 2013.

Part I

It should be noted that the Fukushima nuclear accident is not one of its kind. The nuclear accidents in Chernobyl in 1986 and Three Mile Island in 1979 suffered similar issues. All three accidents were man-made and were the result of poor technological understanding of nuclear reactors and a lack of attention to the safety of the plant. Poor coordination between relevant authorities created confusion and delayed the issue of warnings and evacuation orders. A common factor in the Chernobyl and Fukushima nuclear accidents was that the government delayed prompt dissemination of crucial information regarding the accident. Timely warnings may have led to early evacuation of affected people, thus reducing the extent of damage to people and the numbers harmed due to the fallout. Had the government of Japan incorporated lessons from previous accidents in its policy and practice, it is possible that not only would the damage be less severe, but the accident could have been averted altogether.

Certain lessons were, however, applied in the aftermath of the Fukushima accident in the government's disaster management measures. For instance, the government acknowledged and monitored the prevalence of thyroid cancer among the affected population. Similar to the Three Mile Island and Chernobyl accidents, the government instituted surveys to monitor the extent and the health effects of the fallout on the affected population.

Nonetheless, the government should take into account the fact that crucial and complete information regarding the Chernobyl accident was not made public until 1990. Thus, studies on Chernobyl may not fully recognise the effects of contamination and radiation exposure. In this context, monitoring the prevalence of only thyroid cancer is of concern. The government has relied on reports by the World Health Organisation and United Nations Scientific Committee on the Effects of Atomic Radiation with respect to the health effects of radiation exposure after the Chernobyl accident to gauge the potential impact of the Fukushima accident. These Reports have characterised evidence of other health anomalies as inconclusive. This regrettably disregards other health effects of radiation

exposure such as chromosomal aberrations, and increased childhood and adult morbidity, impairment and leukaemia, which may also require monitoring.

Another matter of concern is the government's reliance on the recommendations of the International Commission on Radiological Protection (ICRP). In the resettlement of people in contaminated areas, the ICRP recommends a reference level of 1 mSv/year¹ to 20 mSv/year of radiation dose, which are considered to be low levels. However, life span epidemiological studies of survivors of Hiroshima and Nagasaki point to causal links between long-term exposure to low doses of radiation and the increased incidence of cancer (National Research Council, 2006 : 30; Osaza, et al., 2012 : 229-43;229,236). Disregarding these findings diminishes the understanding of, and increases vulnerability to, health effects of long-term exposure to low-dose ionising radiation.²

Part II

The right to health in international law is, inter alia, contained in Article 12 of the International Covenant on Economic Social and Cultural Rights (ICESCR). It recognises the right of everyone to the enjoyment of the highest attainable standard of mental and physical health. The right to health framework is set forth in General Comment No. 14 of the Committee on Economic, Social and Cultural Rights, which elaborates upon and interprets the right to health.

The nuclear accident in Japan has affected the right to health of evacuees and residents alike and has had an impact on their physical and mental health, particularly of pregnant women, older persons and children. The precise health implications of radiation exposure are still not clear, as long-term health effects of low-dose ionising radiation are still being studied. The evacuation has caused the breakdown of families and communities, giving rise to mental health concerns, especially among first responders, older persons, mothers and children.

The enjoyment of the right to health is dependent on underlying determinants such as safe and nutritious food, access to safe and potable water, a healthy environment and housing. However, one of the immediate consequences of the fallout was the contamination of water, milk products and agricultural produce in certain areas.

Under the right to health framework, people have the right to receive, seek and impart accurate information to enable them to make informed decisions with respect to their health. The ability to take decisions with complete, scientific and accurate information is integral to the right to health, as it is closely linked with the right to autonomy, dignity and consent—rights which form the foundation of the right to health framework.

The right to health framework also requires the State to ensure availability and accessibility of quality health facilities, goods and services, and information. Monitoring the health of people for adverse effects of radiation and providing timely healthcare is an important aspect of fulfilment of the right to health. The State is also required to have in place evidence-based policies for the decontamination of affected areas to restore the life and health of people at the earliest. Finally, transparency and accountability in governance, access to remedies, and participation of affected population in decision-making processes are necessary for the enjoyment of the right to health.

Emergency Response

Throughout its emergency response, the government failed to provide consistent, coherent and accurate information to the affected population, preventing them from exercising their right to health in the process. For instance, the government failed to issue timely warning and information regarding the accident to the affected population. As a result, only around 20 per cent of the population living near the plant were aware of the nuclear accident on the day it occurred. One of the reasons attributed to this delay was the inefficient use, by the authorities, of the System for Prediction of Environment Emergency Dose Information (SPEEDI), a computer-based system for estimating potential radiation contamination based on real-time information.

The government was unable to issue evacuation orders in an organised manner as a result of which evacuation zones were repeatedly changed in quick succession, causing confusion among the population. Additionally, evacuation orders for certain areas with high radiation doses were not issued until a month

after the accident. The government designated evacuation zones depending on their proximity to the plant. Designating evacuation zones based on scientific data indicating areas likely to be contaminated due to radioactive plume, and imparting this information to the public would have prevented people from long periods of exposure to radiation.

Distribution of Iodine Prophylaxis

The obligation to fulfil the right to health requires the State to take measures that assist individuals in realising their right to health when they are unable to do so. This is especially significant in cases of emergencies where the effect on the health of people is immense and long-term, such as in the case of a nuclear emergency.

As in Chernobyl, radioactive iodine was one of the main components of the fallout in the Fukushima nuclear accident. Radioactive iodine can cause thyroid cancer, especially among children and adolescents. Exposure to radioactive iodine resulted in more than 4,000 documented cases of thyroid cancer in Belarus, Russian Federation and Ukraine from 1992 to 2002.

The standard practice, according to the World Health Organisation, to block or reduce the accumulation of radioactive iodine in the thyroid gland is to administer stable iodine before or soon after the possible intake of radioactive iodine.

Unfortunately, the government failed to issue orders to distribute and administer stable iodine prophylaxis after the nuclear accident. This omission not only disregarded the experience from Chernobyl, but failed to adhere to a standard and accepted practice to prevent the vulnerability, especially of children and adolescents, to thyroid cancer.

Monitoring the Health Effects of the Accident

In the immediate and long-term aftermath of a nuclear accident, the right to health necessitates timely, rigorous and prolonged monitoring of individual health, as the health effects of radiation exposure are not always immediately known or treatable. The right to health extends not only to provision of medical health

facilities, goods and services, but also to facilitating an environment within which the affected population is enabled to enjoy the right. The State is therefore under a proactive obligation to minimise the effect of the accident on the mental health of people by, among other things, reducing stress and anxiety related to radiation exposure and separation from families.

The State has a continuous obligation to realise its obligations in order to achieve the highest possible standard of physical and mental health. This obligation is not only towards people who were present during the accident, but also to progeny.

The government of Japan instituted the basic survey to estimate levels of external irradiation among residents. It put in place detailed surveys for thyroid ultrasound examination for all children in Fukushima aged upto 18 years, a comprehensive health check for all residents from the evacuation zones, an assessment of mental health and lifestyles of all residents from the evacuation zones, and recording of all pregnancies and births among all women in the prefecture who were pregnant on 11 March 2011.

Basic Survey

The basic survey took almost three months to reach the residents of Fukushima and the response rates to all surveys were low. Additionally, the survey was limited only to the residents of the Fukushima prefecture, even though the fallout affected people in other prefectures. The survey did not include some standard questions relevant to determining possible health effects of the fallout. For instance, questions regarding injuries—conventional/radiation induced/combined—around the time of the accident was absent from the survey.

Survey for Thyroid Cancer

One of the biggest problems with the surveys was the inspection of children, from 0-18 years for thyroid cancer. The examination will be conducted every two years till the person is 20 years and every five years thereafter. The results of the survey are divided into categories A1, A2, B and C. Those in A1 and A2 are not eligible for secondary screening, so although one may have a nodule or a cyst,

they are not entitled to a secondary examination because it's not a particular category. The restrictions on secondary screenings, before two years, are barriers which prevent people from ensuring access to second opinions and secondary health examinations, as required under the right to health. Further, apart from thyroid cancer, other cancerous conditions which have reportedly shown up following Chernobyl have been completely ruled out.

Comprehensive Health Survey

The comprehensive survey measures internal irradiation for people who lived in the evacuation zone up to 20 km from the plant. Though a large number of people in the 20 to 50 km area from the plant were affected by the fallout, the survey has not been extended to them. The survey is not comprehensive in its scope as it does not test urine samples of children under 16 years, even though other independent surveys have found the presence of radioactive cesium in urine samples of children as young as 8 years old. Further, there has been evidence regarding contamination by other radioactive chemicals such as strontium, of soil, water and foodstuffs, including marine life. Unfortunately, the comprehensive health survey has no provision to test irradiation caused by their ingestion.

Mental Health Survey

The Fukushima nuclear accident resulted in the breakdown of families and communities and feelings of isolation. Anxiety and stress have been observed among evacuees, residents and their families, which were related to the effect of radiation leakage on health, especially of children. The cost of evacuation, loss of livelihoods, as well as uncertain future and delays in receiving compensation has hindered their efforts to rebuild their lives. However, the mental health survey of the government is not extended to people who voluntarily evacuated areas affected by the fallout.

Pregnancy and Birth Survey

It is commendable that the Japanese government has instituted a survey to monitor the health of women who were pregnant at the time of the survey, as they are also susceptible to the health effects of radiation. However, the survey

omits to provide for monitoring possible effects of the fallout on the foetus. As a result, foetal deaths, and in-utero leukemia and disabilities in newborn children is not recorded. This is important as the effects of radiation on fetuses has not been conclusively proved.

Health of Nuclear Power Plant Workers

During the Fukushima accident, an estimated 167 workers were exposed to more than 100 mSv of radiation, a dose level unequivocally recognised to increase the risk of cancer. Two operators received doses above 600 mSv. In addition, first responders face a high prevalence of post-traumatic stress disorder in man-made disasters.

Many workers employed in the nuclear power industry are poor and some even homeless, increasing their vulnerability. Even though the law requires compulsory medical check-ups for workers when they are hired, a significant number of workers employed through layers of sub-contractors for short periods of time are not provided with proper and effective monitoring of their health.

Policy Decisions and Information on Dose Limits

Evacuation and Rehabilitation Areas

Immediately after the nuclear accident, the government imposed evacuation zones around the plant. In high radiation doses of 50 mSv/year, entry has been restricted for five years. Entry has been restricted to areas with a radiation dose between 20 mSv/year to 50 mSv/year. People are returning to areas where radiation exposure is below 20 mSv/year.

Domestic law in Japan requires that areas where radiation doses exceed 1.3 mSv/quarterly be designated as controlled zones, and the recommended limit of radiation exposure for the general public is 1 mSv/year. In Ukraine, after the Chernobyl accident, the recommended limit for people to work and live without limitations is 1 mSv/year.

In recommending the safe dose limit of 20 mSv/year, the government has taken support from a letter issued to it by the ICRP recommending a reference level of

1 mSv/year to 20 mSv/year for determining an area as inhabitable after the nuclear accident.

However, the ICRP recommendations are based on the principle of optimisation and justification, according to which all actions of the government should be based on maximising good over harm (ICRP, 2009 : 26;2007). Such a risk-benefit analysis is not in consonance with the right to health framework, as it gives precedence to collective interests over individual rights. Under the right to health, the right of every individual has to be protected. Moreover, such decisions, which have a long-term impact on the physical and mental health of people, should be taken with their active, direct and effective participation.

The government believes that there is no excess risk of cancer below 100 mSv. However, even the ICRP acknowledges the scientific possibility that the incidence of cancer or hereditary disorders will increase in direct proportion to an increase in radiation doses below about 100 mSv. There is also epidemiological evidence from life-span studies on survivors of Hiroshima and Nagasaki which show that there is no safe limit of radiation. The risk of increasing cancers has a linear dose-response relationship with radiation dose, i.e., as the dose increases, the risk of cancer will also increase.

Information in School Textbooks

The State should ensure that accurate and scientifically sound information on radiation and radioactivity is provided to children and, where appropriate, their parents should facilitate informed decision-making regarding their health. Additionally, respecting the right to health requires the State to refrain from misrepresenting information in health-related matters. Contrary to the above findings, school textbooks published by the government mention that there is no clear evidence of excess risk of diseases, including cancer, when exposed for a short time to radiation levels of 100 mSv and below. This gives the impression that doses below 100 mSv are safe and could potentially expose children to radiation.

Monitoring Stations

To provide real-time information to people, the government has installed monitoring stations throughout the prefecture. However, the air dose measured by these fixed stations only reflects the radiation dose in the immediate vicinity of the instrument. It does not reflect the actual and varied dosage levels in nearby areas, such as in radiation hot spots, which may be higher than those at the monitoring station. Reliance on unrepresentative information unwittingly exposes people, especially vulnerable groups such as children, to higher radiation levels.

Decontamination Policy

To protect the right to health of people, the State should ensure that third parties, like nuclear power plant operators, do not interfere with this right. An aspect of this obligation is that the State should ensure strategies which reduce any harm caused due to the activities of the third party. Thus, decontamination policies should have already formed part of the regulatory framework for the nuclear power industry. However, the actual implementing provisions of the Act regarding decontamination were not formulated until almost a year after the accident.

By August 2013, the aim is to reduce by 50 per cent the exposure in areas with radiation levels of less than 20 mSv/year for the general public, and by 60 per cent for children. The exposure dose is to be reduced to less than 20 mSv/year by March 2014 in areas with radiation between 20 to 50 mSv/year. Demonstration projects were established to secure the safety of workers in areas with radiation above 50 mSv/year. The long-term goal is to reduce radiation levels below 1 mSv/year.

In implementing its decontamination policy, the government has prioritised areas which are frequented by children, such as schools and playgrounds, as they are most vulnerable to the ill effects of radiation. However, isolated decontamination of schools and playgrounds may not achieve much, as winds can deposit radiation from surrounding areas on already decontaminated sites. Decontamination of

schools and playgrounds should therefore include surrounding areas such as roads, ditches and fields, which can be radiation hot-spots.

Although the right to health is progressively realisable, the obligation to formulate and implement deliberate, concrete and targeted steps is an immediate obligation of the State. However, there are neither specific measures nor a timeline for decontamination beyond 2014 and to levels less than 1 mSv/year.

The standard practice for decontamination, which the government has adopted, is to remove 5 to 10 cm of the contaminated topsoil. Unfortunately, the government has been burying the contaminated debris underground, including under playgrounds without proper warning to children of the dangerous surrounding materials. Contaminated soil, protected by sandbags and covered by plastic, is also being stored in residential areas in violation of the right to health. There are no warning signs informing residents of the potential hazards associated with the contaminated debris in case of leakage. The government has yet to finalise a concrete plan for the storage of the contaminated debris. Storing hazardous debris in residential areas and under playgrounds is a threat to the health of the people, especially children.

The government has been encouraging untrained community members to take up decontamination activity. However, it is essential that in line with the right to health, the government provide them with proper information and equipment to prevent exposure to radiation.

Transparency and Accountability

Proper implementation of the right to health framework necessitates transparency and accountability in policies affecting the enjoyment of the right to health of people. Before the nuclear accident, there was a close association between the nuclear regulatory bodies and the Federation of Electric Power Companies in Japan, which greatly reduced the independence of the regulatory bodies. As a result, the regulatory bodies failed to hold TEPCO accountable for non-compliance with domestic and international safety standards, compromising the safety of

the Daiichi plant. However, since the accident, the government has replaced the previous regulatory regime with what seems to be a more transparent body, the Nuclear Regulation Authority. However, whether the NRA can continue to maintain and strengthen transparency is to be seen.

Nuclear power plant operators, in accordance with the right to health, can be held strictly and absolutely liable for injury resulting from nuclear operations in Japan. Unfortunately, the government's takeover of TEPCO after the accident has helped TEPCO avoid accountability and liability, as the compensation would now have to be paid by the government. Under the current arrangement, the taxpayers may have to continue bearing the liability of the nuclear damage, for which TEPCO should solely be liable.

Compensation

Where a violation of the right to health occurs, victims should have access to effective remedies, including adequate reparation and compensation. The provision of compensation and other forms of relief are also essential to the recovery of individuals affected by the nuclear accident.

The government has passed the Statute on Protection and Support for the Children and other Victims of Tokyo Electric Power Company Nuclear Power Plant Disaster (Victims Protection Law), which recognises and supports the victim's choice to evacuate. However, the Act's implementing provisions have yet to be passed. As the exact health effects of long-term exposure to low-dose ionising radiation cannot be accurately predicted, the implementing measures should also expressly provide free, life-long health screening and medical treatment relating to radiation exposure for all affected persons.

Participation of Vulnerable Groups and Affected Communities

The right to health requires the State to pay special attention to the needs of vulnerable groups. The State is also under an immediate obligation to prevent discrimination, especially against vulnerable groups, in its policies or practice, even during times of resource constraint.

Participation of the population at all stages of decision-making at the national and community levels is a critical feature of the right to health framework. Health-related laws and policies should be instituted only with the direct, active and effective involvement of communities since they are most impacted by these decisions. Community participation would also help the government to address the concerns of the people more effectively, thereby creating a more efficient health system. The government should continue facilitating broad-based participation and effective engagement of affected communities with a view to addressing their concerns. Participation of affected communities also encourages community-led awareness raising and initiatives. Community participation should include participation of vulnerable groups as it is crucial for their empowerment and for creating an inclusive society. Though the Victims Protection Law does provide for community participation, its implementing provisions have not yet been adopted by the government.

Conclusion

It must be remembered that Japan is a highly developed country. About 10 per cent of its GDP is spent on health services, among the highest in the world. It has the best technical facilities in terms of health to deal with disasters, its management and relief. If Japan was unable to respond effectively to a disaster like the Fukushima nuclear disaster, hope for other countries is dim. In countries like India, the impact of a nuclear accident would be immense, especially due to its dense population. The Fukushima nuclear accident and the disaster management by the Japanese government must be reflected upon. It provides important lessons with respect to the feasibility of a nuclear power plant and the risks associated with it. A rigorous, transparent and accountable regulatory framework mechanism must be ensured. Rehabilitation and decontamination plans must be a necessary pre-requisite to allow the operation of nuclear power plants. It must be incumbent on the State and power plant operators to design appropriate and effective evacuation plans and strategies. Compensation, without any caps, and medical treatment must be ensured to restore the lives of survivors

of a nuclear accident. Most importantly, no policies, plans and strategies with respect to the operation of nuclear power plants should be formulated without the effective participation of people who are likely to be affected. Even the slightest risk of an accident should be taken with seriousness, because if an accident occurs, the rights to life, health and livelihood of whole communities will be violated.

Notes:

- 1) The unit for measurement of radiation dose is Sievert which represents the stochastic biological effects of ionizing radiation.
- 2) Exposure to ionizing radiation causes damage to living tissue, and can result in mutation, radiation sickness and cancer. Exposure to high levels of ionizing radiation can cause death.

References:

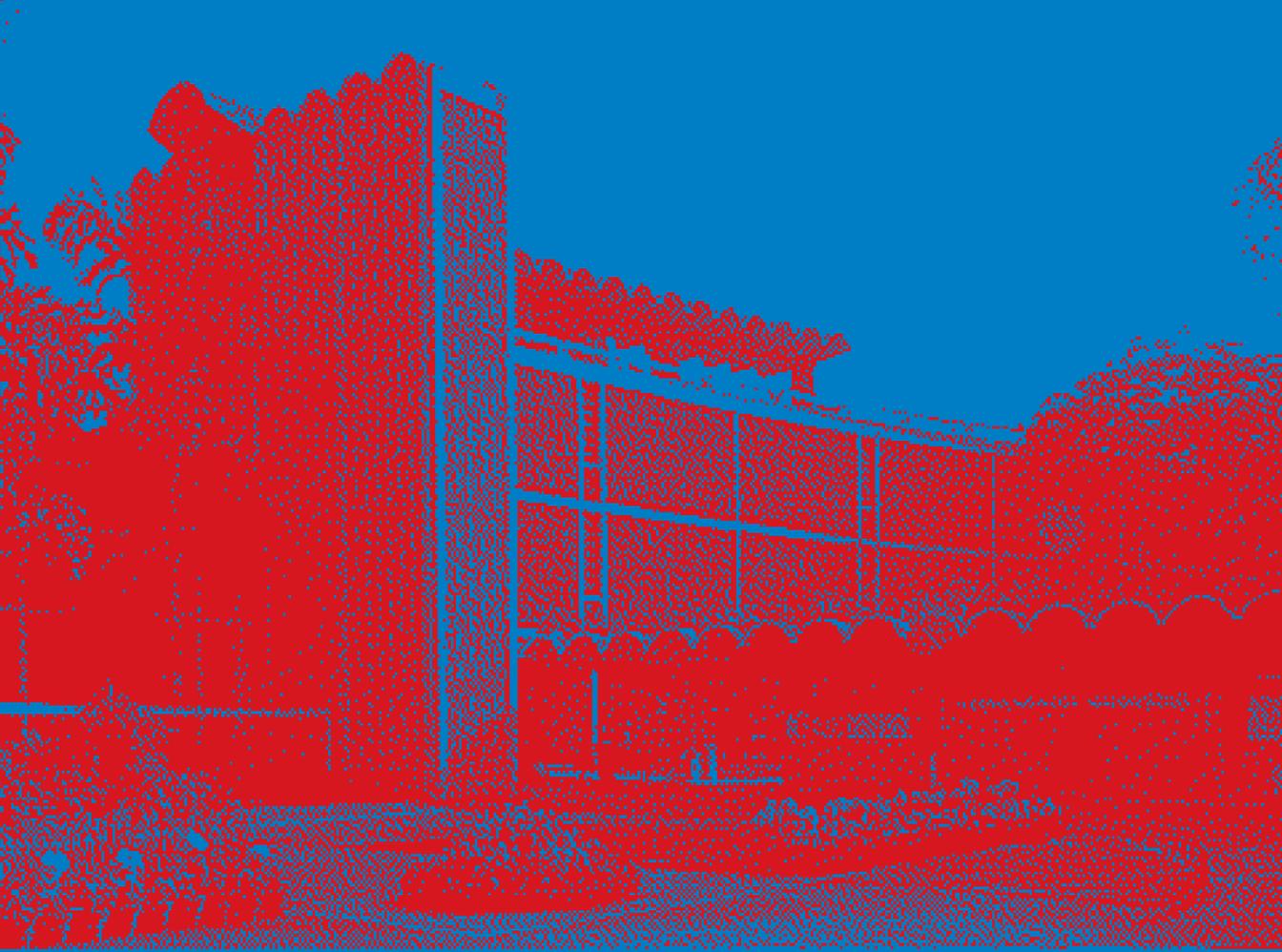
ICRP, 2007. Recommendations of the International Commission on Radiological Protection, Publication 103.

ICRP, 2009b. Application of the Commission's Recommendations to the Protection of People Living in Long-Term Contaminated Areas After a Nuclear Accident or a Radiation Emergency, p.26.

National Research Council, 2006. Health Risks from Exposure to Low Levels of Ionizing Radiation: BE1R VII Phase 2 (Washington, D.C.; The National Academies Press, p.30).

Ozasa, Katoro et al. 2012. Studies on the Mortality of Atomic Bomb Survivors, Report 14, 1950–2003. An Overview of Cancer and Non-Cancer Diseases, Radiation Research (Vol. 177, No.3, pp.229-43, pp.229, 236).

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