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Japan Can be Revived and Save Humankind and the Earth With Low Dose-Rate Radiation Medical Science

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Introduction

My hope is that this essay will prove useful for the genuine revival of Japan, survival of humankind, and regeneration and continuation of the earth.

Thanks to perpetual, strenuous efforts by the persons involved, Japan is in the midst of reconstruction after the Great East Japan Earthquake of March 11, 2011, which involved a major earthquake and tsunami so large that they only occur once every thousand years. At the same time, the issues resulting from the accident at the Fukushima Daiichi Nuclear Power Station ("Fukushima nuclear accident") are extremely difficult to resolve.

Why are the resolutions to these challenges lagging even though Japan has devoted an enormous amount of funds – of a whole different order of magnitude than the past – including national expenditures and taxes paid by citizens? This essay will discuss this topic, a fundamental issue for Japan's restoration, based on specific scientific facts and from the viewpoint of radiological medicine (particularly low dose-rate radiation medical science).

Global environmental issues

Many human lives across the world are continually lost due to global environmental issues, which are growing more severe in recent years. Today, the lives of all people are at risk.

These issues include abnormal atmospheric temperature rises stemming from an abnormal increase of carbon dioxide in the atmosphere across the world. This has led to an abnormal increase of water vapor content in the atmosphere and significantly upset the balance of this substance. These factors are causing extreme weather events like major droughts, violent wind and rain, tornados, large floods, and serious heat and cold waves. Major earthquakes are caused by sudden pressure changes on the earth's crust, resulting in gigantic tsunamis. Global food crises and famine are occurring.

Right now, our only choice is to immediately make worldwide intensive-care efforts for the normal, continued existence of humans and living things on this planet.

The tragedy of radiation

For more than a century, radiation has been the target of extraordinary fear across the world. It has been erroneously discussed using mistaken words and knowledge and has been taught incorrectly.

There are many areas of high background radiation across the world with clearly lower levels of death by cancer and other diseases compared to other regions.

We must never repeat the tragedy of the nuclear accident in Chernobyl in the former Soviet Union. There, people died because of radiation and radioactive materials spread after the nuclear reactor core exploded, including the atomic fuel. At the same time, I hope we will never forget the more than 100,000 healthy babies tragically aborted in regions with background radiation of a range that poses no concern; the more than 270,000 people who were forcibly moved, resulting in the loss of their long-held traditional cultures; and the 20 million people who experienced psychosomatic disorders from the fear of radiation. These numbers may be even higher than we know.

For more than 100 years, radiation has been viewed as absolutely unhealthy – something that must be unhealthy – even in miniscule amounts of the level found in the natural world. This is just like the fear of witchcraft and the way the heliocentric system

was opposed by people who adhered to the geocentric one during the Middle Ages.

Human energy security

According to research by the World Health Organization (WHO), more than three million people across the world die each year due to air pollution from burning fossil fuels (among which there are more than one million annual deaths in China).

Meanwhile, the United Nations (UN), American Census Bureau, and other institutions estimate that the total global population currently numbers approximately 7.5 billion. Roughly 27% of this – approximately two billion, or one in four people – currently live without electricity. The UN's *2012 Revision* of *World Population Prospects* released in 2013 predicts that the worldwide population will hit approximately 8.1 billion in 2025, 9.6 billion in 2050, and 10.9 billion in 2100.

Considering these global circumstances, we humans must devote earnest, scientific thought to resolving energy issues.

Nuclear fission energy

Nuclear fission can produce vast quantities of energy (thermal energy). Through nuclear fission, one gram of uranium-235 can produce energy equivalent to three tons of coal or 2,000 liters of petroleum. As demonstrated by this example, much more energy can be created with uranium fuel (nuclear fuel) than fossil fuel.

Essential, fundamental knowledge

"Radiation dose-rate" is a derivative denoting radiation strength during irradiation or exposure. This term, containing the word "rate," is the most important in radiological medicine. "Dose-rate" refers to exposure time, such as microsieverts per hour or millisieverts per year.

Correctly understanding the meaning of "rate" confers the ability to solve all issues related to radiation, radioactivity, and radioactive materials.

"Radiation dose" is merely a number showing the total amount (integration value) of accumulated radiation at the time of irradiation or exposure.

For instance, even with the same dose value, the dose-rate for radiation exposure of one second is roughly 31.536 million times larger than that for exposure of one year. The dose-rate for exposure of one second is roughly 3.1536 billion times larger than that for exposure of 100 years. Naturally, this also has entirely different effects on human bodies and other living things.

Radiation exists throughout space

There are no locations with zero radiation or radioactivity in space or on earth. Radioactive materials are in human bodies and all living things on this planet, as well as in our daily food and excrement. Human bodies contain background radioactivity from hundreds to thousands of becquerels, from fetuses in their mothers' wombs right after conception to the extremely elderly, depending on their size (a large adult has more than 10,000 becquerels).

One human weighing 60 kilograms has roughly 7,040 becquerels of radioactivity (approximately 4,000 becquerels of potassium-40, approximately 2,500 becquerels of carbon-14, approximately 500 becquerels of rubidium-87, and approximately 20 becquerels each of lead-210 and polonium-210). Humans are exposed throughout their entire lives, including external exposure to radiation from space and the earth and constant, internal, whole-body exposure to radioactive materials that always exist inside their bodies. Radioactivity and radioactive materials remain in the body after death, as well as in remains and ashes after cremation.

The LNT hypothesis is the most unscientific information in human history

For nearly a century, including the time of its parent organization, the International Commission on Radiological Protection (ICRP) has used as its basis the linear no-threshold (LNT) hypothesis. This hypothesis is related to the impacts of radiation on the human body and living things (it says that radiation is absolutely harmful and that even infinitesimal amounts of radiation, of the level found in the natural world, damages genes and can cause cancer). It is an unscientific, fictional hypothesis with no scientific basis according to the accepted wisdom of recent radiological medicine.

The LNT hypothesis is based on research conducted in the 1920s by Dr. Hermann Joseph Muller, an American geneticist who was given the 1946 Nobel Prize in Physiology or Medicine as an individual. This research was on the effects of high dose-rate X-ray exposure on the mature sperm cells of fruit flies after the loss of gene repair abilities (the dose-rate was from roughly 100 million to one billion times higher than Fukushima Prefecture after the Fukushima nuclear accident). This common wisdom is also based on the emotional stereotype that all radiation is scary and dangerous, stemming from when the U.S. Armed Forces dropped atomic bombs on Hiroshima and Nagasaki in August 1945, when many people were actually killed by shock waves and heat rays reaching thousands of degrees.

People were aware of intracellular chromosomes when Dr. Muller was doing these experiments, but no one yet knew of the existence of deoxyribonucleic acid (DNA), which makes up genes.

Despite this, Dr. Muller was the first person in the world to succeed at inducing artificial mutation. It was only natural that the

Nobel Committee for Physiology or Medicine decided to award the prize to Dr. Muller as an individual for these great achievements.

An unscientific criterion survives based on the ICRP's LNT hypothesis, which is entirely wrong from the standpoint of contemporary radiological medicine. The LNT hypothesis says that only carcinogenesis and other types of damage increase in proportion to the radiation exposure dose (accumulated dose) for all living things, even if the radiation is just slightly above zero. As described previously, it is based on data of artificial mutations resulting from artificial genetic damage that occurred in the mature sperm cells of male fruit flies after the loss of gene repair abilities (in which no cell division occurs, so there is absolutely no carcinogenesis) with exposure to high dose-rate, artificial X-rays – roughly 100 million times stronger than the "difficult-to-return zones" in Fukushima.

Even the immature sperm cells and somatic cells of fruit flies have gene repair abilities. Other living creatures, including humans, also have the ability to repair genes, which has been clearly indicated by many radiological medicine and radiobiology research results since then.

Nations with nuclear weapons use the unscientific LNT hypothesis

Even today, nations that possess nuclear weapons use this LNT hypothesis to maintain their political superiority via nuclear deterrence. They continually instigate the unscientific, erroneous fear of radiation (particularly of low dose-rate radiation).

"Radioactive contamination" and "decontamination" are unscientific terms based on the LNT hypothesis

So-called "decontamination" (which has been thoroughly implemented in Japan after the Fukushima nuclear accident) and so-called "radioactive contamination" are both unscientific terms based on the LNT hypothesis. Scientifically, the correct terms for so-called "decontamination" are "removal of radioactive materials" and "removal of soil containing radioactive materials."

No radiation issues in Japan

Since my first statement, alone and unassisted, directly after the Fukushima nuclear accident, I have consistently stated from a medical and scientific standpoint that the radiation, radioactivity, and radioactive materials from this accident will not cause any adverse impacts to humans or other living things in Fukushima, Tohoku, and Japan as a whole.

The UN Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) and ICRP – which are composed of international experts in radiological medicine, molecular pathology, immunology, and other fields – completed an official academic report, based on the results of extensive international academic research spanning more than 25 years near Chernobyl. This report's conclusion stated the same scientific opinion as myself and was voted on and approved at the UN General Assembly in 2012 (the year following my first statement).

No radiation issues in Fukushima

Twenty-four hours a day, more than six quintillion genetic lesions occur in roughly 60 trillion cells – hundreds of thousands of lesions per cell in the human body. This damage is immediately repaired and is caused by regular life, not by nuclear tests, nuclear power plant accidents, accidents in which radioactive materials are spread, or the like.

Moreover, nearly 10,000 cancer cells occur in the body every day, 24 hours a day, but they are thoroughly eliminated via apoptosis (the programmed death of abnormal cells) and by powerful, multiple immune systems, including cells that could lead to cancer.

Even with an excessive range of safety, anyone with even a little knowledge of radiological medicine knows that, in an environment with very low-level radioactivity – extremely low dose-rate radiation at or below the background radiation level of 100 microsieverts per hour – there is no genetic damage in terms of both internal and external exposure. There are absolutely no harmful effects on human bodies or other living things, merely a slight increase in reactive oxygen, which is always produced in the body while breathing, eating, or moving. In fact, the only effects are beneficial ones.

The radioactive materials released from the Fukushima nuclear accident do not remain inside the body. This is because the small amount of radioactive materials entering the body is far exceeded by the body's metabolic and excretory functions.

The people of Fukushima Prefecture are experiencing various types of ailments, including impaired growth and development among infants and young children as well as psychoneurosis from young children to the elderly. This is caused by anxiety regarding daily life, stress from being apart from family members and friends, poor nutrition caused by unbalanced diets, and physical issues due to insufficient exercise and activity.

The tragedy visited upon residents of Fukushima Prefecture

The mandatory evacuation of Fukushima Prefecture citizens, although there was absolutely no scientific need to do so, is cause of all the tragedies since then.

In these forced evacuations and moves, hundreds of elderly and other people have died during or directly after evacuation. More than 2,000 people have already committed suicide at the places where they evacuated, when they returned to their homes in

Fukushima, and other locations.

Because of efforts to stir up unscientific fear about radiation in Fukushima, suicides keep increasing each year at an accelerated rate that is unprecedented across the world.

Fukushima's agricultural, forestry, and fishery products are of the highest quality in the world

Speaking scientifically, the Fukushima nuclear accident has absolutely no negative impacts on Japanese agricultural, forestry, and fishery products.

After the accident, there have been abundant harvests of many products including rice, vegetables, fruits such as peaches and pears, Pacific saury, and other marine products.

Japan's agricultural, forestry, and fishery products are truly of the top level in the world and there are certainly no issues with them from a scientific standpoint.

Japanese people must not be defeated in information warfare

Japan is constantly beaten in information warfare from inside and outside the country.

The Japanese character is good-natured and amiable, making us an easy target of deception. This is constantly taken advantage of by malicious people around the world for the sake of their interests or those of their country.

Information warfare from across the world is unceasing, 24 hours a day. We absolutely must be victorious in this fight.

Japan should be powerfully revived based on scientific facts

Japanese people have taken hot-spring cures by bathing in and consuming water from natural radioactive springs since ancient times. The various types of radioactive materials in this water emit alpha-rays, beta-rays, and gamma-rays. This results in external exposure of the whole body, as well as internal exposure through general circulation. These are beneficial to the body thanks to low dose-rate radiation and low-level radioactivity.

The radiation emitted from soil produced when making tap water at water purification facilities, sewage treatment facility sludge, radioactive debris and soil in various locations, and other objects containing radioactive materials released from Fukushima Daiichi is of an extremely low level that will not adversely impact the human body or other living things. In fact, these can be recycled and effectively utilized by applying the latest knowledge and technologies of low dose-rate radiation medical science.

Furthermore, by modifying the radioactivity level of items such as radioactive debris and waste inside the Fukushima Daiichi premises, we can re-use these as valuable resources. With these scientific technologies – the first of their kind in the world – we can achieve massive national income for Japan and secure abundant funding for genuine citizen health, welfare, national defense, national security, energy security, and other fields.

Even high-level radioactive materials in nuclear weapons, for example, can all be effectively used to the maximum degree to save human lives.

Gigantic interim storage facilities are being built in the difficult-to-return zones of Fukushima to store designated waste (such as soil containing radioactive materials from so-called "decontamination") from the Fukushima nuclear accident. However, only these facilities just for storing waste are not enough. They will not solve anything on a near-eternal basis – this is the same mistaken thinking and actions from 100 years ago.

Now is the perfect time for Japan to use this nuclear waste to build a low dose-rate radiation medical science center – the first facility in human history to use nuclear waste to exhaustively confirm and share scientific facts about the impacts of low dose-rate radiation on the human body and living things with the world – as well as a low dose-rate radiation medical treatment center to help the people of the world live long, healthy lives. This is likely our last chance to become a world leader – a golden opportunity that comes only once every thousand years.

All radioactive waste processing issues across the world could be resolved, and the global environment could be restored, if only Japan had a correct comprehension of the scientific facts described above and took calm actions based on this understanding.

Japan, the only country in human history that has been hit with atomic bombs during war and suffered radiation exposure from them, can be revived and restored as the world's most affluent country and its peaceful leader without taking measures such as increasing taxes and issuing additional government bonds.