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Fukushima and the Future of Nuclear Power

A Green Cross International Perspective

April 11, 2011

The nuclear disaster resulting from the unprecedented earthquake and tsunami that hit Japan in early March has revived the debate over the future of nuclear power worldwide. Public opinion polls around the world reveal record anti-nuclear public attitudes. According to recent surveys, 87% of people in Switzerland (Le Matin,19.03.2011) and around 70% in the US want to move away from nuclear energy. A number of countries, such as Germany, Italy, China, India, Russia and Venezuela, have either put their plans for new plants on hold, called for reviews of their safety procedures, or called for upgraded security measures for new plants.

The disaster in Japan has highlighted the limits of human ability in keeping dangerous technologies free from catastrophic accidents. Natural disasters, combined with human error and negligence, have once again proven a potent force for undermining even the best-laid plans. The faith in human perfection reflects a hubris that has led to other major failures of dangerous technologies in the past, and will continue to do so in the future. Of course, what has occurred accidentally in Japan as a result of the confluence of natural disaster and human error could be triggered deliberately by an act of terrorism or war.

As Japan struggles to confront a nuclear disaster that could turn out to be the worst in history, it is vital that any discussion about the future of nuclear energy addresses the issue comprehensively and in all its complexity.

Nuclear power, despite numerous accidents in many countries, has been presented as a financially sound, economically efficient, clean and safe solution that will bring about energy security and drive economic growth. Recently, the so-called “nuclear renaissance” has hitched a free ride on the back of the need to find low-carbon solutions to the climate crisis.

One must note that Japan has a history of nuclear accidents dating back to 1978 when a malfunctioning nuclear reactor took seven hours to shut down. In 1995 the Monju fast-breeder reactor leaked sodium coolant and caught on fire; it did not reopen until 2010. In 2003 seventeen nuclear reactors were shut down after false inspection reports. And in 2007 a 6.8 earthquake

started a fire at a reactor in northwest Japan and led to a radioactive water leak.

Nuclear power is neither the answer to modern energy problems nor a panacea for addressing climate change. We should not overcome challenges by resorting to "solutions" that create even more problems. Nuclear energy does not add up economically, environmentally or socially. Of all the energy options, nuclear is the most capital intensive, decommissioning is prohibitively expensive and nuclear waste carries a multi-faceted burden that continues centuries after a plant is closed.

With all these shortcomings it is not surprising that global nuclear energy production has been declining since 2006. Its share of the world electricity mix has dropped even more rapidly as global energy demand has grown. Since its peak in 1986 at 16% of the total electricity mix globally, nuclear power's contribution has dropped down to 13-14% in 2009.

Despite multi-billion dollar direct and even larger indirect subsidies to the nuclear energy sector – all at the expense of the taxpayer - private capital continues to shy away from the industry. Investments in nuclear power are primarily industry lobbied and taxpayer financed. In the US, for instance, direct subsidies to nuclear energy amounted to $115 billion between 1947 and 1999, with a further $145 billion in indirect subsidies. Most recently, the Obama administration has promised some $55 billion in new subsidies to nuclear power. In contrast, subsidies to wind and solar combined during the same period totaled only $5.5 billion. Nuclear power plants are outrageously expensive. Their construction and maintenance are plagued by delays and massive cost overruns. One of the newest nuclear power plants now under construction, a European Pressurized Water Reactor (EPR) at Olkiluoto, Finland, being built by the French company, Areva, is now over four years behind schedule and some 50% over budget.

The decommissioning of ageing nuclear plants including deconstruction of the facility and long-term waste remains a drag on public finances and taxpayers long after a plant has closed. Power plants in the US have accumulated nearly 72,000 tons of nuclear waste across 31 states, reaching the capacity of temporary storage facilities with no permanent solution in sight. In the United Kingdom the cost of dismantling outdated plants amounted to £40.7 billion while the construction and lifetime costs of a deep geological disposal facility required a further £3.4 billion. The financial and safety liabilities of storage sites will be borne by many generations to come.

The bottom line on the economics of nuclear power is that it simply does not add up. That is why private investment is wisely focusing on better alternatives. In the US a dollar invested in energy efficiency can deliver five times more electricity than nuclear power while investments in wind energy can produce 100% more electricity. Renewable energy – wind, solar, and geothermal – comprised more then 90% of the increase in global electricity

production in 2007 and 2008. Some 50% of new generating capacity in 2008 and 2009 was renewable. And in 2010 renewables won $151 billion of private investment and added over 50 billion watts in electric generating capacity. Since 2007, nuclear energy growth has added less than solar power in annual output.

Nevertheless it would be a mistake to think that we can abandon nuclear power overnight. With 15 countries relying on nuclear for 25% or more of their electricity, we have to get to grips with the presence of nuclear plants for years to come. More than 440 nuclear reactors are operating in the world today. However, after what happened in Japan, we can anticipate growing calls for decommissioning older plants. 66 reactors are listed as “under construction”, although some have been in that status for decades and most of them still have no start date. Interestingly, 50 are in just four countries – China, India, Russia and South Korea, all of them state subsidized. It is unlikely that the nuclear power industry will reverse its downward trend in the wake of the Japan disaster.

Therefore, GCI believes that in order to exit the vicious circle of "poverty versus safe environment" the world must accelerate the transition to energy efficiency and renewables to bring about enormous economic, social and environmental benefits. After all, solar and wind energy have reached maturity and are already cost competitive in many markets, even with the direct and indirect subsidies and other “externalities” of fossil fuels and nuclear energy – costs not factored into market prices. Not to mention that these externalities often include negative and long-term impacts on public health - as dramatically shown by the Chernobyl and Fukushima accidents.

The world needs to create a new energy policy model that integrates demand with supply within the limits of sustainable development. This integration does not need to bring about a decline in quality of life; on the contrary, in the mid-term it will make it possible to extend decent living standards to the world's population.

The lowest hanging fruit is implementing cost-effective, readily available energy efficiency measures. Energy waste and misuse is an enormous economic and environmental burden for rich and poor countries alike. Estimates are that 20 to 30% of primary energy could readily be saved if governments and people applied the appropriate policies. Saved energy is the cheapest, safest and most readily available option for producing “new” energy supply.

The pursuit of energy efficiency and renewable energy is not only important for the environment; it is important for our world's security. It would reduce many of the current international tensions and security issues created by policies that destabilizing the climate and intensify international competition for finite and declining resources – threats largely created by the power of special interests in the fossil and nuclear industries.

It is imperative therefore that members of the international community work together to develop clean and renewable sources of energy and a realistic path to phase out nuclear power. We have an opportunity to reverse energy-related environmental degradation before it becomes irreversible and to help alleviate energy poverty for nearly 2 billion people. In the process, we will help ensure stability and security for the world at large and prevent the next Windscales (1957), Three Mile Islands (1979), Chernobyls (1986) and Fukushimas (2011).

About Green Cross International:

Green Cross International (GCI) is a leading environmental organisation. Founded by President Mikhail Gorbachev in 1993, this non-profit and non-governmental organisation relies on world-class experts and works to address the inter-connected global challenges of security, poverty and environmental degradation through a combination of high-level advocacy and local projects. GCI has been working in the Chernobyl affected areas helping the local population through its Social, Medical Care and Education programme. GCI is present in over 30 countries and has its headquarters in Geneva, Switzerland.

For more information about GCI, visit www.gcint.org and follow GCI on twitter @GreenCrossInt and Facebook

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