Following the health effects of Fukushima in Japan
A proposal to avoid another Chernobyl Cover-up by the UN:
The Fukushima 5000 study

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1. The past

The Chernobyl accident caused radioactive contamination of a large area of Belarus, the Ukraine and the Russian Republic. There was wider contamination in Europe. The cancer yield of the exposures has been variously calculated at upwards of 500,000 and as much as 1.5 million on the basis both of predictive risk modelling by the European Committee on Radiation Risk (www.euradcom.org) and also on the basis of several epidemiological studies published in the peer reviewed and also the grey literature.

But the mean calculated radiation dose to the population of Belarus in the first year after the accident was less than 2mSv. Other countries received less. The risk model employed by most governments is that of the International Commission on Radiological Protection, the ICRP. This is based on the external dose received by those exposed to the enormous gamma and neutron flux from the Hiroshima bomb extrapolated to zero dose. An external dose of 2mSv would not, according to this model, cause any measurable increase in cancer rates.

On the other hand, fifty years later on, this model is demonstrably and patently false. It is scientifically and philosophically false (since it does not compare similar events), it is theoretically falsified by new research (it is the same model that was developed in 1952, before the discovery of the double helix structure of DNA) and it is epidemiologically falsified by research into the effects of Chernobyl.

This state of affairs, and the increasing absurdity and monstrousness of the culture that permitted it, created a European law that allowed the nuclear industry to dispose of radioactive waste by recycling it into consumer goods (the Directive Euratom 96/29). This event, and its investigation by the Green Group in the European Parliament, led to the founding in 1997 in Brussels, of the European Committee on Radiation Risk, the ECRR. This group of more than 20 independent scientists published a new radiation risk model in 2003 (ECRR 2003). The model argued that chronic internal exposures to some radionuclides represents an enhanced hazard over that assessed by ICRP. The ICRP deals with all internal nuclides as if their decay energy was diluted into large volumes of tissue, rather than into the local cells or even the DNA. Weighting factors were developed by ECRR for certain internal nuclides based on biochemical and biophysical considerations and epidemiological assessment of areas differentially contaminated by radioactivity.

By 2010 the true effects of the Chernobyl accident exposures began to emerge in the peer review literature. It was clear that the ECRR model accurately explained and had previously predicted these effects. An updated model of the ECRR was published in 2010 (ECRR 2010) However, the UN agencies and the ICRP continued to ignore all this evidence: their publications failed to cite any study which did not fit in with their view of the world. They were able to do this and to ignore the clear evidence that the ICRP model was in error by a very large factor by media control, control of research agendas and in particular the control of cancer statistics. This included control of the World Health Organisation and its satellite cancer agencies like IARC in France. Why was this? It was probably a combination of factors including:

- Historic links with nuclear weapon development and the secrecy of the military in the Cold War

- The huge amounts of money invested in nuclear energy and in uranium mining, all totally lost if the true health risks were to be accepted
- The legal proceedings which would follow against organisations, nations and individuals.
- The loss of weapons and military capability if it were conceded that nuclear weapon testing and use (including depleted uranium) led to increased genetic damage to soldiers on both sides, civilians (and biota) across the earth.

The one way that the truth in this area can be discovered is through examining the cancer rates in the areas where the fallout from Fukushima was measured. We already know what these areas are. But how do we get hold of the cancer rates and other illness rates?

Cancer rates are not available for independent research in most countries of the world. Any study that does make it into the scientific literature and which shows serious health effects at low radiation doses is either ignored or marginalised or attacked (e.g. Tondel et al 2004). If cancer data in small areas were available, then it would be immediately clear that people living near nuclear sites suffered significant increased cancer rates, and this is why the data are not released. Nevertheless, there is a way around this. It involves small area citizen epidemiology. Since 2000, Green Audit has developed a local questionnaire method for determining cancer rates near nuclear sites or other local sources of risk. Most recently it was used in Fallujah Iraq to examine populations exposed to uranium weapons fallout (Busby et al 2010).

2. The Present

The Chernobyl accident exposure effects were covered up or denied by the International Atomic Energy Agency IAEA and the United Nations Scientific Committee on the Effects of Atomic Radiation, UNSCEAR. Their control of the World Health Organisation (WHO/OMS) was apparent in a statement made by the Director of the WHO, Mr H Nakajima in Kiev in 2000 where he stated (on camera, and recorded) that *in the area of public health from radionuclide exposures, the WHO is subservient to the atom*. This follows an agreement in 1959 which is still in force. ICRP takes its evidence from UNSCEAR. UNSCEAR leaves out any evidence that does not conform to the IRCP model. The cover up of the Chernobyl health effects by UNSCEAR is now being repeated at Fukushima. This week we have the new president of UNSCEAR, the German BfS director Wolfgang Weiss opening up the strategic cover-up process:

VIENNA —

The U.N. committee on atomic radiation said Monday it has so far expected no health effects of radiation released from the crippled Fukushima nuclear plant in Japan. ‘‘So far what we have seen in the population, what we have seen in children, what we have seen in workers…we would not expect to see health effects,’’ Wolfgang Weiss, chairman of the United Nations Scientific Committee on the Effects of Atomic Radiation, said at a press conference.

''We cannot identify and attribute health effects to these doses,'' he said, while adding that further and detailed data on the radiation doses is needed to say more about the probability of possible health effects.

In other words, Wiess says exactly what Norman Gentner of UNSCEAR and Abel Gonzalez of IAEA said in Kiev at the 2000 WHO conference on Chernobyl: *At the doses measured no cancers can be predicted*. Therefore no cancers that can be attributed to the exposures will be found. Just as when increases in cancer are found at nuclear sites, they will be attributed to some other cause. This is not, or course, science.

In contrast however, the ECRR model has predicted a 30% or greater increase in cancer over the ten years following the Fukushima exposures in those living within 100km of the site. I have predicted 100,000 extra cancer cases in this zone on the basis of a mean surface contamination of 300kBq/m^2 Cs-137 and a population of 3.3 million people (Busby 2011). It is thus a simple matter to look in the future and see which model is correct.

3. The future: a simple proposal

It is proposed that a case-control study of 1000 households is carried out in a town or small area just outside the 30 km radius from the Fukushima nuclear site. This will be carried out in the same way as the Fallujah study (Busby et al 2010). It will involve a team of local people defining an area of roughly 1000 houses identified from electoral records and visiting each house to obtain answers to a questionnaire. This questionnaire will ask who lives at the house, what their ages and sexes are, and what cancers or leukemias have been diagnosed in the previous 5 years including the type of cancer, age and sex of the person and year of diagnosis. In addition some questions about birth outcomes and miscarriages in the household will be asked. It will also obtain details of deaths from all causes.

Results will give a population of about 5000 people of all ages. The questionnaire will be coded to the householder or responder who will leave an identification number and details of how they can be contacted for a second questionnaire in 3 years and 5 years time. Thus a baseline health sample will be defined against which future health effects can be gauged. The sample questionnaire is attached as an appendix.

The ICRP argue that at cumulative doses below 20mSv i.e. in one year, no measurable cancer increases will occur. In a population of 10,000 people exposed at 1microSievert per hour, the annual dose is 0.00876 Sieverts (8.76 milliSv). The Japanese Government currently permit this. ICRP would expect such a dose to cause 2.2 additional cancers in a 5000 population in their lifetime. The normal cancer rate in Japan is about 460 per 100,000 per year so in 5000 we should normally expect 23, and in 10 years 230. So an extra 2.2 in the lifetime of these 5000 exposed people would give far fewer in a 10 year period and even if they did all appear in 10 years this would not be epidemiologically distinguishable from chance fluctuations. This is the position of Wolfgang Weiss for UNSCEAR.

But the dose rate of 1microSievert per hour which we are using as an estimate can be associated, using published data, with surface Cs-137 contamination of 300kBq/m^2. And this can be linked by the ECRR model to a 33% increase in cancer in ten years. ECRR would therefore predict an extra 75.9 cancers in this population due to their internal exposures to the inhaled and ingested fallout. In addition ECRR, by analogy with Chernobyl, would expect increased numbers of miscarriages, birth effects and other conditions listed in its 2010 report. Such an increase in cancer will occur in the first ten years and other morbidity might begin to be observed within 5 years. The existence of a defined group of exposed people will answer the question as to which risk model is more accurate.
In addition to epidemiology, given modest financial resources, measurements can be made of internal contamination using hair and other biological samples, and also blood samples could be used to examine chromosome damage for retrospective dosimetry.

4. The political dimension

In the last 5 years a number of attempts have been made by Green Audit carry out studies of groups living near cell phone base stations, the transmission antennas, which many people believe cause health problems. The idea was to monitor people through one questionnaire given before the start up of the antenna, and another one given one month after the start up. Thus we have a case control study where the cases and controls are the same people. This would be the situation also in the proposed Fukushima study. But the interesting thing about the cell phone studies is that every one of the mobile phone companies backed off and removed the base station either as soon as Green Audit wrote to them explaining the project, or as soon as the first questionnaire was distributed. To date this has happened more than 8 times. No completed studies have been carried out.

What does this have to do with the case of Fukushima? It shows that the people can take control of their own environment. In the case of Fukushima, it is predicted that the mere existence of the 5000 study will force a change in the approach which is proposed by Weiss, since the UN agencies will be aware that there is an independent check on their own analysis. It is predicted that the 5000 study would provide such a threat to the cover-up that it will be attacked from the beginning and attempts made, on any excuse, to prevent it going ahead. It will be attacked for being unethical, for being epidemiologically incorrect, for being open to bias — any reason to stop it going ahead. But one thing is certain: it cannot be stopped legally if the 5000 people all agree to take part.

5. Conclusions and recommendations

From the history of the responses to Chernobyl and other instances of public exposure it may be concluded that there will be an institutional cover up of serious health effects. This has already begun. It is therefore recommended that an independent health monitoring programme is carried out through simple questionnaire epidemiology which has been piloted in other areas.

References

Busby, Chris; Hamdan, Malak; Ariabi, Entesar. (2010) Cancer, Infant Mortality and Birth Sex-Ratio in Fallujah, Iraq 2005–2009. *Int. J. Environ. Res. Public Health* 7, no. 7: 2828-2837

Busby, Chris 2011 "The health outcome of the Fukushima catastrophe: Initial analysis from risk model of the European Committee on Radiation Risk, ECRR Green Audit Aberystwyth UK 30th March 2011
http://www.llrc.org/fukushima/subtopic/fukushimariskcalc.pdf

ECRR 2003 Recommendations of the ECRR "The Health Effects of Ionising Radiation Exposure at Low Doses and Low Dose Rates for Radiation Protection Purposes: Regulators' Edition" Edited by Chris Busby with Rosalie Bertell, Inge Schmitz-Feuerhake, Molly Scott Cato and Alexei Yablokov. Published on Behalf of the European Committee on Radiation Risk Comité Européen sur le Risque de l'Irradiation, Brussels by Green Audit, Aberystwyth 2010. ISBN: 1-897761-24-4

ECRR 2010 Recommendations of the ECRR "The Health Effects of Ionising Radiation Exposure at Low Doses and Low Dose Rates for Radiation Protection Purposes: Regulators' Edition" Edited by Chris Busby with Rosalie Bertell, Inge Schmitz-Feuerhake, Molly Scott Cato and Alexei Yablokov. Published on Behalf of the European Committee on Radiation Risk Comité Européen sur le Risque de l'Irradiation, Brussels by Green Audit, Aberystwyth 2010. ISBN: 978-1-897761-16-8 Also a free download from http://www.euradcom.org/2003/order.htm or in Japanese from http://www.jca.apc.org/mihama/ecrr/ecrr2010_dl.htm

Tondel M, Hjalmarsson P, Hardell L, Carisson G and Axelson A (2004) Increase in regional total cancer incidence in Northern Sweden. J Epidemiol. Community Health. 58 1011-10. This was attacked by the Swedish radiation protection agency SSI purely on the grounds of the ICRP model and the selective data on which it is based; see http://tech.groups.yahoo.com/group/Know_Nukes/message/19378 [retrieved June 4 2011]

Appendix

Basic questionnaire

Dear Citizens of Fukushima and nearby areas.

As a result of the releases of radioactivity from the nuclear site you will have been contaminated with substances which are believed by some scientists to carry significant harm to your health. You have been reassured by the Japanese government and international agencies that at the doses you have received there is NO chance of any measurable ill health occurring. But there are other scientists who believe that these exposures may be much more harmful than the Japanese government and their advisors believe. If it turns out that the government have been wrongly advised, or have not adequately investigated the scientific evidence, then your family would be in a position to obtain legal redress since the government will have failed in their duty of care.
The questionnaire below will enable scientists to discover if the radiation has harmed your health. This questionnaire defines a background for a range of health conditions associated with radiation. You will be asked to fill out another questionnaire in 3 years and 5 years time. Your answers are very important to the Japanese people and are also valuable for humanity in the assessment of risk from internal radiation exposures. They may also form the basis for future compensation cases against the Japanese government.
All personal details will be kept confidential. You will be told the results of the analysis.

Section A

Questionnaire No …….
Contact person 1……..
Contact person 2……

Address…….

How many males live at your address? Number? Ages?

How many females live at your address? Number? Ages?

Section B
Has anyone including yourself been diagnosed with cancer leukaemia or lymphoma in the last five years?
Yes/no

If yes, then Sex? Age at diagnosis? Year diagnosed?

Type of cancer/leukemia/lymphoma diagnosed?

How long has this person lived in the area?

Where did they live before?

Did/does the person receive treatment or surgery?

Name of GP or doctor?

Did/does the person smoke more than 10 cigarettes a day before the diagnosis?

Is the person still alive?

Has anyone in your household suffered:
A stillbirth / a serious birth defect / an infant death (if yes, how long after birth?)
If so, in what year did this/ these occur

Has anyone in the household had a miscarriage in the last 5 years
If so, in what year did this/ these occur?

Please list all the deaths which have occurred in your household in the last 5 years and give the cause of death and the age of the person at the time of their death.

Section C

Do any of the members of your household work at a nuclear site?
If so please identify which one(s).

Have any of the members of your household been involved in the cleanup/ work at a nuclear site?

Would you be prepared to help by answering further questions if necessary?
If Yes, please leave your name address and telephone below.

Please add anything you feel relevant to the information on the questionnaire.

Thank you for your time!
Someone will collect your completed survey within the next few days. If you have any queries please ring xxxxxxxxxxxxxxxxxxxxxxxx
Research by Green Audit - Commissioned by Citizens of Fukushima