

REPORTS OF THE CHERNOBYL ACCIDENT CONSEQUENCES IN BRAZILIAN NEWSPAPERS

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ABSTRACT

The public perception of the risks associated with nuclear power plants was profoundly influenced by the accidents at Three Mile Island and Chernobyl Power Plants which also served to exacerbate in the last decades the growing mistrust on the 'nuclear industry'. Part of the mistrust had its origin in the arrogance of nuclear spokesmen and in the secretiveness of nuclear programs. However, press agencies have an important role in shaping and upsizing the public awareness against nuclear energy. In this paper we present the results of a survey in reports of some Brazilian popular newspapers on Chernobyl consequences, as measured by the total death toll of the accident, to show the up and down dance of large numbers without any serious judgment.

1. INTRODUCTION

Modernity brought inside a new dimension of perception of the world, environment and their processes by the emergence of new social phenomena born with technical development. Connections between development, technology and the modern society are the truly distinctive feature of modernity.

Pre-modern cultures were used to live and act according with their accumulated ancestors experiences. Danger was associated to natural hazards like earthquakes, cyclones, plagues or barbarian invasions. They were used to react guided by cumulative experiences learned from past. Possible threatens were seen as Gods will, fates.

Modern society witnessed a change in the kind of risk people are involved with. There is now a "human created environment" associated with the intensified usage and creation of technology and their consequent risks. There is an encouragement of advance on progress sciences, despite of the danger involved in. Modernism rejected the lingering certainty of enlightenment thinking, and also the existence of a compassionate, all-powerful designation.

What is called technology is the most obvious success of modernity. Mechanical and scientific inventions have changed human health and all aspects of human society: economic, religious, social and theoretical.

Modernity can be seen as a shorthand term for modern society or industrial civilization. Portrayed in more detail, it is associated with:

(1) a certain set of attitudes towards the world, the idea of the *world as open to transformation by human intervention*;

(2) a complex of economic institutions, especially industrial production and a market economy;

(3) a certain range of political institutions, including the nation -state and mass democracy. Largely as a result of these characteristics, modernity is vastly more dynamic than any previous type of social order. It is a society—more technically, a complex of institutions—which unlike any preceding culture lives in the future rather than the past. [1]

In this scenario, the risk concept has a changing in its meaning. The danger is not the one created by nature anymore. It comes from any technological process that can be done in any place by anyone, anytime. The ordinary people generally don't have any known control over the processes. The fate concept admitted new boundaries, new dimensions. To the social perception of risk, it was included the concept of vulnerability.

Particularly from the 60's, layman acquired an imminent consciousness about the resulting technology development risks. They became more and more diligent about this.

The mid 1960's saw the rapid rise of nuclear technologies and the promise of clean and safe energy. However, public perception shifted against this new technology fearing of both, longitudinal dangers to the environment as well as immediate disasters creating radioactive wastelands. The scientific and governmental communities asked why public perception was against the use of nuclear energy when all of the scientific experts were declaring how safe it really was.

The problem, from the perspectives of the experts, was a difference between scientific facts and an exaggerated public perception of the dangers. Besides, a key early paper written in 1969 by Chauncey Starr revealed preference approach to find out what risks are considered reasonable by society. He assumed the society had reached equilibrium in its judgment of risks: whatever risk levels actually existed in society they were acceptable. His major finding was that people will accept risks, say 1,000 greater, if they are voluntary (e.g. driving a car) than if they are involuntary (e.g. a mayor industrial disaster) [2].

Individuals have exaggerated fears due to *inadequate* or *incorrect data*. Implied in this assumption additional information can help people to understand true risks and hence lessen their opinion of danger [3].

The public perception of the risks associated with nuclear power plants was profoundly influenced by the accidents at Three Mile Island and Chernobyl which also served to exacerbate the growing mistrust on the 'nuclear industry' in the last decades. It must be recognized that part of the mistrust had its origin in the arrogance of nuclear spokesmen and in the secretiveness of nuclear power programs. However, the newspapers had an important role in shaping and upsizing the awareness of most people against nuclear energy.

Just like in the pre-modern times, the symbolic basis of our uncertainties is the anxiety created by the disorder, the lack of control over our own bodies, our relationship with others, our life styles and the way we exert our quotidian autonomy [4].

Newspaper's role is important and critical in shaping citizen's opinions. Newspaper media influences what intellectuals, policymakers and think-tanks think. Unfortunately, assessing major daily newspaper editorials covering nuclear issues, misinterpretation over the theme or completely equivocated information is what one can usually find. This results in formatting public understanding of science and technology, in the present case nuclear power plant safety, in a mislead picture. The images shown in Figures 1 are some few examples of how the newspapers convey messages on nuclear issues to the public.



Figure 1. Jornal da Tarde (26/04/90): “Radiation, a silent and insidious threat”;
Jornal do Brasil (15/08/89): “Chernobyl’s flora and fauna are suffering mutations”;
Folha de São Paulo (23/03/89): “Calves from Chernobyl region born without heads”.

Even when there are good news, daily newspapers material on nuclear technologies brings together, as if it was ‘the other side’, caveats pointing out the accident risks, contrary views of environmentalists, a link of the technology with weapons, proliferation threats, the Chernobyl consequences.

The current role of the newspapers in respect to the education of the public is controversial. As put by Mr.J.W.Anderson, a former Washington Post editorial writer and journalist-in-residence at Resources for the Future, an environmental think-tank in Washington: *“The newspaper’s role as the public educator has been diminishing. Its role is becoming more as that of entertainer like television. Education belongs to schools and colleges.”* [6]

However, Figure 2 shows that the messages efficiently disseminated by the press turn into concepts that become part of our culture. Hardly the number of nuclear power plants in operation in the world would have been reported in any context other than that, one more ailment of the world, like in this excerpt from a section aimed at teenager readers of the newspaper with the largest circulation in Brazil. Nuclear power stations are a plague, an evil as famine, the AIDS or deforestation.



Figure 2. Folhateen – Folha de São Paulo (25/11/1996): “We’ve never been so punks: Michael Jackson records music video in slum; 20% of the population in developing countries are starving; 40 million infected with AIDS virus is forecast for 2000; there are over 400 nuclear power plants operating in the world; 300 species become extinct daily in the planet; only 5% of the Atlantic Forest remains.”

The next step to successfully complete the education process is illustrated in Figure 3. Those ideas become a ‘scientific truth’, when they are incorporated into textbooks of the primary and secondary education.



Figure 3. Samples of images from textbooks presenting ‘applications of nuclear technology’ to secondary education students: only weapons, bombs, “...the Earth can be destroyed many times.”. About radiation, “The enemy may be well on your side, but it is invisible”. [5]

Thus, it is not surprising that reports of the Chernobyl accident in the newspapers list the randomly large numbers of deaths shown in Figure 4. It became part of a well established ‘truth’ that tens of thousands or even hundreds of thousands died as a consequence of the accident. Figure 4 shows some excerpts from reports on Chernobyl in the decade following the accident. It is worth noting that larger and larger numbers are not a function of time, as one would expect if the number were growing as more people died or resisted a long sickness. A more detailed survey of these reports is presented in the next chapter.

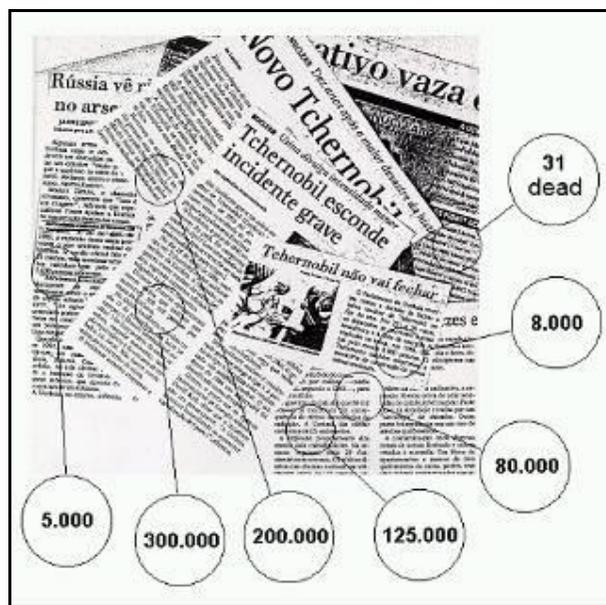


Fig.4: Number of deaths caused by the radiation as reported in various newspapers in a period of years after the accident.

One could argue that the nuclear ‘community’ should try to restore the truth by means of letters to newspapers, for instance. On this respect we must remember the words of Margaret Ryan that seems to fit well to this question: *“Scientists are at a particular disadvantage. Their world is one of hard facts, painstakingly discovered, continuously tested, and only cautiously and provisionally accepted. In the disorderly democratic debate, facts, in essence, don’t matter. Perception does. Belief does. What prevails as political truth is not what is scientifically, demonstrably true but what a majority of people believe to be true.”* [7]

2. THE CONSEQUENCES OF THE CHERNOBYL ACCIDENT

The published literature on the consequences of the Chernobyl accident has been reviewed by the Committee on the Effects of Atomic Radiati on [8], the World Health Organization [9], and by the International Atomic Energy Agency [10] among others. Some data from their reports are summarized below to establish the baseline for comparison with daily newspapers’ reports.

Large areas of Europe were affected to some degree by the radioactive gases, condensed aerosols and fuel particles released during the ten days following the Chernobyl Unit -4 core meltdown.

Total release of radioactivity included about 7 EBq of noble gases, 1.8 EBq of iodine, 85 PBq of caesium and 3 PBq of plutonium radioisotopes. Much of the release comprised radionuclides with short physical half-lives, ^{131}I (8 days) being the most radiologically relevant immediately after the accident. In the years following the accident, ^{134}Cs was the most significant and now, two decades later, ^{137}Cs is the nuclide of greatest radiological importance. Concentrations are above 40 kBq/m^2 , in an area of about $140,000\text{ km}^2$ in Belarus, the Russian Federation and in Ukraine. Over the longer term, the radionuclides of interest are ^{241}Am and plutonium isotopes.

Yet, according to those UN organizations, the about five million residents in the 40 kBq/m^2 contaminated areas received $40,000\text{ man.Sv}$ collective effective dose during the period 1986 – 1995, about $9,000\text{ man.Sv}$ in the period 1996–2006, and a small increase is projected in the long term. The main pathways leading to human exposure were exposure to the radiation field of the deposited radionuclides in the ground and ingestion of contaminated terrestrial food products. Inhalation of, and external exposure to, radionuclides in the passing radioactive cloud, and ingestion of drinking water were generally minor pathways. Highly radiologically significant, the ingestion of fresh milk contaminated with ^{131}I resulted in individual thyroid doses varying between 0.1 and 10 Gy and a collective dose of about 2 million man.Gy, accumulated in few weeks after the accident.

No matter how accurate are those measurements of radioactive contamination, their meaning is completely elusive to most people, who is not educated on the hard physics, chemistry, biology and other disciplines that govern the behavior of the radioactive substances in the environment and their interactions with the living organisms, which ultimately can tell us what the effects of the accident actually are.

Also, few people understand what doses or collective dose mean in terms of impact on the health of the present and future generations. Are the people irradiated in the accident doomed to an early death, to an increased incidence of cancer, and to high rates of genetic disorders in their descent?

One form of expressing the consequences is easily understood by the laymen – the number of casualties in the affected population. This number, together with the number of cancer cases, already diagnosed or expected in the future, makes sense to them as a means to figure out the magnitude of the accident. In this case, cancer cases can be equated as fatalities because cancer is perceived as a fatal disease or because the burden of cancer cases is as high as deaths. This is a strong perception in people. The increase in the incidence of thyroid cancer, for instance, that clearly resulted from the exposure to the released radioiodine, is sometimes reported as if it were fatalities, the press omitting, or ignoring the fact, that it is highly treatable and recover is nearly 100%.

Ironically, the death toll seems to be the most controversial output of the reports on the impact of the accident. The afore mentioned studies reported of 31 immediate deaths and plus two dozen more fatalities that are attributable to the accident among the 600,000 liquidators cohort and in the thyroid cancer affected group, up to recent years.

The numbers reported by the Brazilian press, not differently from the rest of the world, are in the range 31 to many hundred thousand deaths. In between, any figure with many zeros can be recurrently found in newspapers. What could it be the sources of such enormous disagreement? What are the sources of the reporters and news agencies?

A survey in the issues of the largest daily newspapers of São Paulo and Rio de Janeiro, since 1986, resulted in a sample of about 150 articles in which sources are frequently omitted or indicated by terms that are unverifiable, for instance ‘authorities’, ‘scientists’, ‘physicians’, etc.

It is certain that anti-nuclear NGO’s play a role in this controversy because they frequently press release ‘studies’ with numbers that are systematically larger than official figures by many orders of magnitude. Reports from anti-nuclear NGO’s on the Chernobyl accident are consistent with their agenda and their criticism on official reports. “...the WHO’s estimates are so much lower than every other estimate that it is difficult to take them seriously.” [11] This statement about the WHO’s report on the consequences of the accident made by Nuclear Information Resource Service illustrates how official reports are perceived.

However, it seems also plausible that newsmen have their own ideas about those numbers, considering that most articles do not quote any source.

The about 150 reports included in this survey come from three newspapers from São Paulo – Gazeta Mercantil, Folha de São Paulo, and O Estado de São Paulo – and two from Rio de Janeiro – Jornal do Brasil, and O Globo. In about one hundred, there are reports on ‘immediate, early and late deaths already accounted for’. The ‘expected number of deaths’ was not included in the survey. Figures 5 through 8 show the numbers reported by Folha de São Paulo, O Estado de São Paulo, O Globo and Jornal do Brasil.

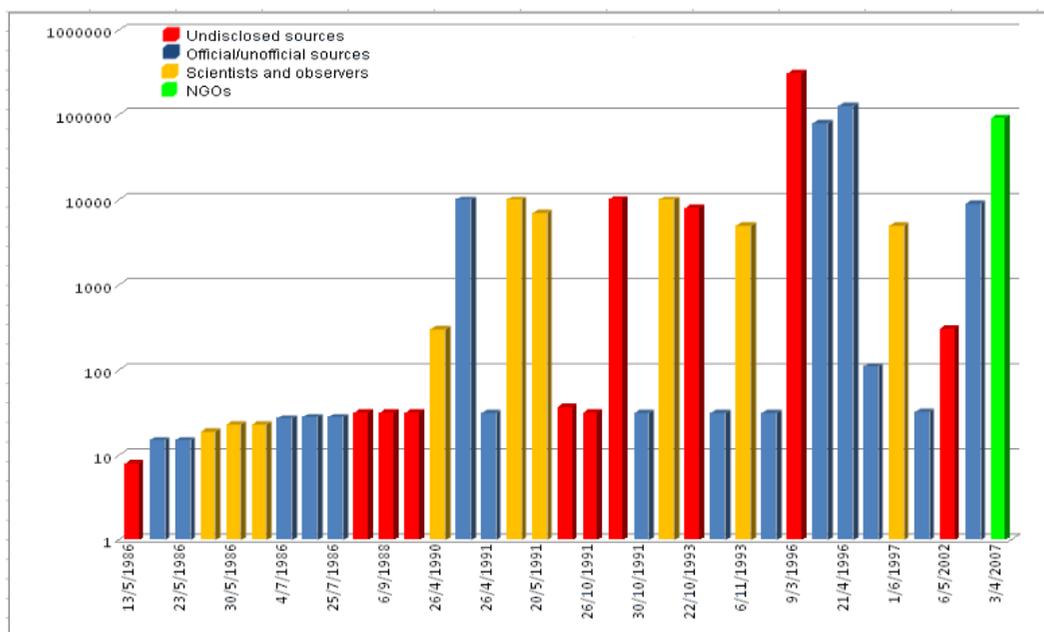


Figure 5. Number of deaths incurred as direct consequence of Chernobyl accident, reported by Folha de São Paulo.

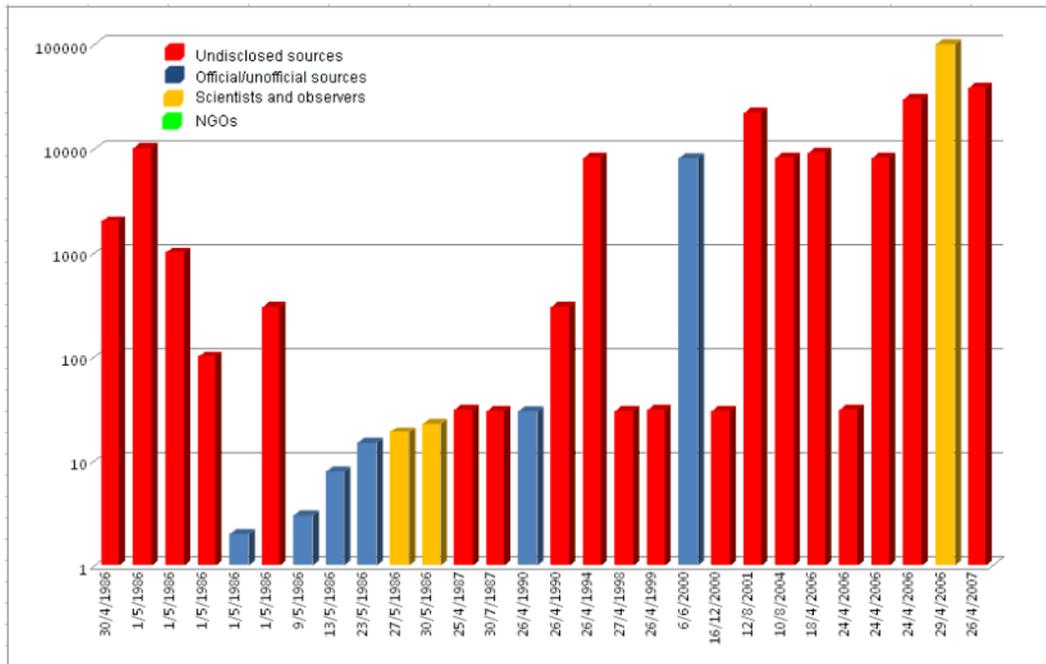


Figure 6. Number of deaths incurred as direct consequence of Chernobyl accident, reported by O Estado de São Paulo.

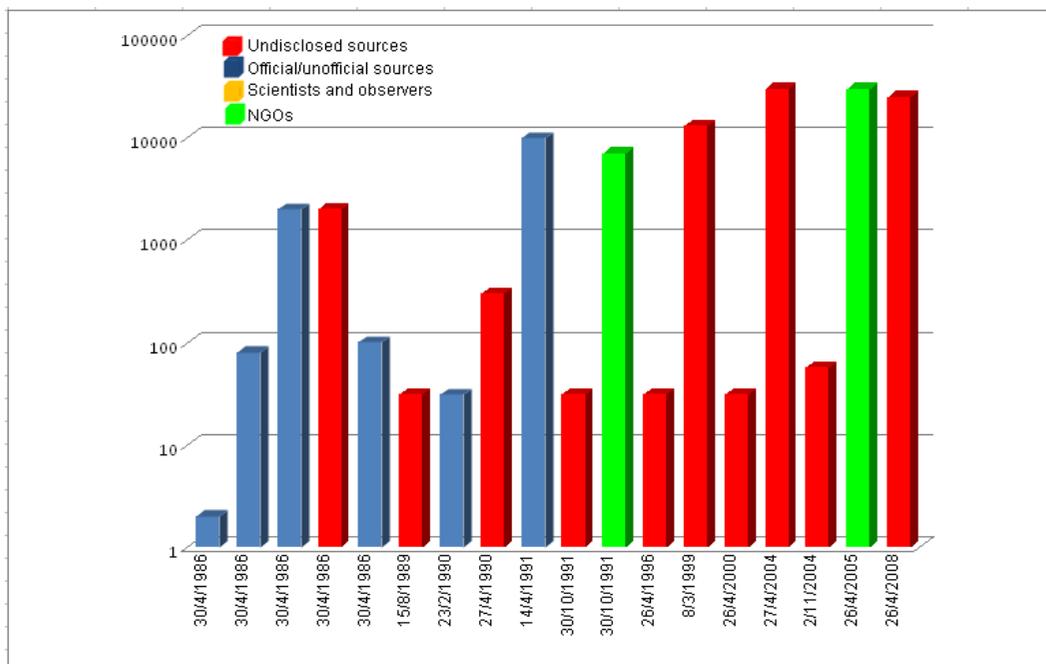


Figure 7. Number of deaths incurred as direct consequence of Chernobyl accident, reported by Jornal do Brasil.

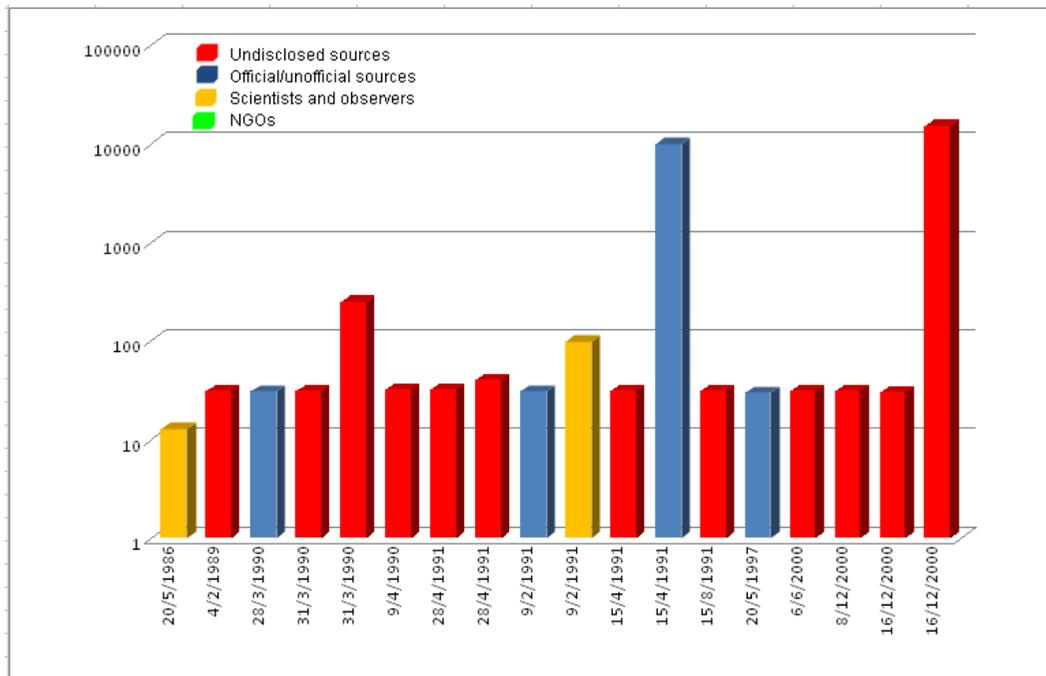


Figure 8. Number of deaths incurred as direct consequence of Chernobyl accident, reported by O Globo.

These results represent a preliminary report of the current research we undertake on the subject. From 31 to 300.000 or more, any number can be found in the accounts. It is expected that the more careful and complete survey on published material that will be done next reveals even more disparate figures.

It must be argued, however, that on radiological protection grounds, the radiation doses incurred as a consequence of the accident were not enough to result in so many killings as these charts show, and that the numbers reported by the World Health Organization and by the International Atomic Energy Agency are reliable. It seems that newsmen do prefer large numbers.

2. CONCLUSION

The present paper discusses the role of newspaper in shaping public opinion about nuclear technology.

Newspaper media seems to have a double role: to mirror and to shape society's opinions and views. It is also certain, that newspaper follows market economy principles, to choose what will draw the attention of readers. An informed reading of material that is being published on nuclear technology issues leads to the conclusion that newspapers positions are biased.

People acquire knowledge on current issues of their society, nation and the world through newspapers. If people have no previous knowledge on a particular matter to filter what are

being brought as new pieces of information, their understanding of evolving issues can be misleading.

Below, are some questions that are being investigated in our research and that may be of interest to the discussion addressed in this paper: What do daily newspapers editors consider relevant material about nuclear technology to bring to the attention of their readers that are not bad news? Why do the editors think it is necessary to present the opinions and views of antinuclear groups when publishing news about recent developments on nuclear technology? Why do absolutely irrelevant incidents from the point of view of damages or health hazards in nuclear power plants make the headlines of respected newspapers? Why are editors more confident to publish the results of 'studies' press released by antinuclear groups, than they are prone to publish news about abduction by extraterrestrials, UFO sightings, and UFO-related facts, of which ufologist groups are so plenty of extraordinary findings?

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