

Nuclear energy – is it worth the risk?

On May 12th 2010 a debate entitled “**The core of the problem: nuclear power and sustainable development**”, organised by the Warsaw regional office of the Heinrich Böll Foundation, took place at the Kinoteka cinema in Warsaw as part of the VII Planete Doc Review Film Festival. Over 100 people took part, and a screening of Michael Madsen's film “Into Eternity”, dealing with nuclear power issues, preceded the discussion.

The event was introduced by **Agnieszka Rochon**, director of the Warsaw Office of the Heinrich Böll Foundation. She stressed that, while the Foundation opposes the development of nuclear power, it tries to initiate a discussion between the different sides. The debate was chaired by Edwin Bendyk, president of the jury for the Panasonic Green Award, commentator for the weekly “Polityka” and director of the Collegium Civitas Centre for Future Studies. Speaking after Agnieszka Rochon, he also pointed out the diversity of opinion among the guests.

Michael Madsen, director of “Into Eternity,” was the first panel member to speak. After thanking the debate organisers, he admitted that until recently he did not have a definite opinion about nuclear power. Having familiarised himself with the subject, however, he adopted a decidedly critical view of its development. He pointed out that the waste currently being produced by nuclear power stations will continue to exist for 100 thousand years and the effects of our actions will be felt by future generations. It is therefore worthwhile considering the future in advance, and taking specific actions to prevent negative outcomes. Previous generations were at a lower stage of technological development and did not therefore carry such a high responsibility for technological progress as we do. According to Madsen, an analogy can be made between the development of nuclear power and research into genetic engineering. In response to Bendyk's question about how the film was received in other countries, Madsen said that he had shown it in Switzerland, New York and Toronto among others, and that he was particularly pleased with the discussion about the film and nuclear issues in the Finnish parliament.

The director of the Department for Nuclear Energy at the Ministry of Economy, **Mirosław Lewiński**, spoke after Madsen, and was asked by Bendyk about the stage of nuclear power development at which Poland currently finds itself. Lewiński said that a final decision as to the development of nuclear power in Poland has not yet been reached, one of the reasons being that the legal context for such solutions has not been implemented. The government is preparing a first draft which should be presented in July of this year and which will become the subject of debates and analyses soon after. Government propositions will also take into account the effects of nuclear energy on the environment.

The programme being developed contains 22 chapters, including a section which will deal with nuclear waste. Currently, Poland does not dispose of sites in which highly enriched nuclear fuel could be neutralised. We do have a waste treatment centre, but it is insufficient. According to Lewiński, the government will decide precisely what to do with the waste before it approves the draft. He also pointed out that this problem will only appear in around 50 years. The draft plan will therefore probably only concern the next 50 - 100 years. The government will most likely choose the so-called closed fuel cycle, as this allows for the re-use of 465 kg of spent nuclear fuel out of every 500 kg. Over the an initial period of time, spent fuel is kept in containers at the plant and must first be cooled before being recycled or put into storage. Lewiński also pointed out that the activity of radioactive waste reduces with time. According to him, the critics of nuclear power fail to anticipate technological progress in waste reprocessing techniques, which will undoubtedly occur. We currently have 250 thousand tonnes of spent fuel in the world, but nuclear reactors continue to evolve. By 2040, fourth generation nuclear reactors will come into operation, which will produce waste with a much lower degree of radioactivity.

Lewiński's remarks were followed by a comment from **Madsen**. He pointed out that the 50 - 100 year time frame is very short compared to 100 thousand years, during which nuclear waste will continue to impact negatively on the environment. With time, the waste will certainly become less of a threat, but for the time being it is very dangerous. Experts are divided in their opinions, but we will probably never manage to neutralise the harmful effects of nuclear waste completely. Despite recycling, some of the waste always remains. We are waiting for a solution to the problem of waste since the 1950s, and progress has been slow so far.

The next speaker was **Jan Kozłowski**, MEP from the Group of the European People's Party, representing the Civic Platform party, and former marshal of the Pomorskie voivodeship (province). Kozłowski admitted he felt somewhat uncomfortable participating in the discussion as, in his role as marshal of the Pomorskie voivodeship, he had declared his province ready for the construction of a nuclear power plant. He considers this issue to be an important challenge for the province and for the whole country, as in as little as 5 - 10 years some parts of the country could face energy shortages and be forced to limit electricity use. In this context nuclear power, together with modern methods of using coal energy and renewable sources, has become one of the necessary directions of development. Energy from renewable sources is very much needed, but it can only provide 20 - 30% of total energy required. In Kozłowski's opinion it is not currently possible to use renewable energy on a large scale, and it is therefore necessary to invest in nuclear. The Chernobyl disaster should not be used to terrorise the public, as the catastrophe was caused by military experiments spinning out of

control. Meanwhile, France has 59 nuclear reactors which bring great benefits, including many new jobs, and what is more they are safe.

Bendyk asked Kozłowski if progress will also be made in the area of renewable energy. Kozłowski answered that we must base decisions on the current state of technological development. Research continues into various forms of energy, but it is still at an early stage.

The next person to speak was **professor Władysław Mielczarski** from the Institute of Power Engineering at the Technical University of Łódź and the European Energy Institute. According to him, nuclear power is the most expensive of all energy sources, with costs around 30% higher than renewables. Nuclear power stations were created in tandem with armament programmes financed by the state. They can easily be used to produce bombs, and this is why the governments of world powers invested heavily into their development. In this respect the situation is most clear-cut in the United States, where the government subsidises nuclear power and in this way lowers energy costs. In Poland there are private companies which could afford to construct nuclear power stations, but which do not want to take on this venture as it does not represent a worthwhile investment. Consequently it is society that will shoulder the costs of constructing nuclear power stations. Moreover there are plans to construct 2 or 3 power stations, which will only be able to cover around 8 - 10% of our energy needs, and will bring with them waste and operational problems. According to Mielczarski, it is not worth taking on such high risks for 2 power stations. Even in Great Britain investments into nuclear power are not paying off, even though the construction of power stations there was 40% cheaper than that planned for Poland. Concluding, Mielczarski commented on Kozłowski's remarks, saying that we do not live in the feudal era and energy is distributed wholesale rather than province by province.

The last panel member to speak was the president of the "Eco-union" Ecological Association **Radosław Gawlik**. He praised the film for its vision of sustainable development in relation to future generations. He pointed out that the concept of sustainable development (which includes the idea of responsibility towards future generations) is written into the Polish Constitution, although few people realise it and remember it. In his opinion the proponents of nuclear power base their arguments on myths. In particular they believe that we will soon solve the problem of waste, while nothing actually indicates that we will manage to do this. It could therefore even be assumed that the use of nuclear power is anti-constitutional. Furthermore, the planned power stations would only provide a small percentage of energy, much lower than that provided by renewable energy sources. Another important issue is that the Polish economy is very energy intensive, with energy use three times higher than in Western European countries. This is also why it would prove worthwhile to make

efforts in the area of energy saving. Gawlik also suggested that the period intended for debate will probably be dominated by propaganda. He considers the slogans promising new jobs in nuclear power production to be myths. In his view jobs will be created in countries from which we will buy nuclear technologies, such as the United States or France. What is more, the costs of constructing nuclear power stations will be very high and probably much higher than planned, as was the case in Finland. He also pointed out that Chernobyl was not the only case of a nuclear power station malfunctioning. France and Germany have also experienced incidents in recent years. Poland continues to focus on coal and nuclear power, while the world at large is moving away from them. Summing up, Gawlik said that nuclear technology cannot truly be improved and the waste problem will remain, with society ending up paying the bill. The potential for utilising renewable power sources is much higher.

After the other speakers had finished, **Lewiński** replied to the criticisms. He stated that the government wants to organise debates based on the exchange of figures rather than slogans. He also promised that an information campaign will be carried out, because Poles know little about nuclear energy. He did not agree with Mielczarski as to the high costs of nuclear energy, arguing that in France electricity is 30% cheaper than the EU average. He admitted that in Finland the budget has been exceeded by around 2 billion Euro, but noted that the Fins are realising a prototype project, and furthermore the undertaking will start to bring profits in 15 years' time. He also stated that all costs connected with introducing nuclear power to Poland, including the environmental effects, will be met by the private investor. According to Lewiński nuclear power is the most transparent of all energy sectors, as every investor is required to inform the authorities of all his actions. Lewiński also took up the issue raised by Bendyk of whether nuclear power stations will be financed by private companies and whether these companies will guarantee insurance. He asserted that local public investors will most likely have a 51% share in the construction of Polish nuclear power stations, and foreign investors – 49%. A similar system is in place in Romania, although negotiations regarding financing the future nuclear power station there lasted as long as 4 years. In Lewiński's opinion, commercial banks do not want to finance nuclear power because they are set on making a quick profit, and in this area profits are only possible after 15 years. He pointed out that 2 conventions are already in place regarding possible incidents at nuclear power stations. In his view, disasters like that in Chernobyl are practically impossible, as the reactors should self-extinguish in risk situations. In Poland the state is to bear responsibility for possible malfunction together with the investor, the investor covering up to 500 million Polish zloty, and the state paying the rest.

Kozłowski repeated that in his opinion renewables will not fill the gap in energy generation. He asserted that in Poland many regions would like to have nuclear power stations. His conversations

with local inhabitants indicate that around half of them back the construction of a nuclear power station. He also pointed out that in France public consultations preceding the construction of every nuclear power plants last a year and a half.

Madsen said that we have reason to worry about human error in the operation of nuclear power plants. He also noted that 4 main countries construct nuclear reactors, one of them being Russia. In his opinion, Poland could become dependent on Russia by investing in nuclear power.

Following the panel discussion, Bendyk opened the debate to members of the public, who questioned the panel members about the statements they had made. Michael Madsen took up a question on transparency and the availability of information regarding nuclear reactors. He had managed to gather a lot of information, but also met with obstacles while making his film.

Most questions were directed at **M. Lewiński**. He answered questions referring to the efficiency of renewable energy, asserting that it can only provide around 30% of total energy. The rest must come from gas, coal or nuclear. He took a question about the monopolization of the energy market, noting that in Poland there are 4 big energy companies. He also answered a question about public consultations on the introduction of nuclear power and about a possible referendum. The government has decided to undertake wide-ranging public consultations with the participation of both sides of the dispute, but it has no plans for a referendum. 28 proposed sites for a nuclear power station have emerged and they have been rated, but no final decision has yet been reached – it will be made by the investor. Lewiński said that statements for discussion will soon be available on the internet. He also took a question on the loosening of energy efficiency requirements for developers on the housing market, saying that Poland has adopted the EU buildings directive. In answer to a question about the eventuality of a power station malfunctioning and the impossibility of solving the waste problem, Lewiński repeated that around the year 2040 reactors of the fourth generation will come into operation. This, he continued, will mean that stocks will last a thousand years, uranium mining techniques will greatly improve, and methods for recycling and stocking waste will also be ameliorated. He also expressed the view that it would be best for nuclear [fission] power to constitute a transition on the way to fusion power.

Kozłowski answered a question about the energy market becoming monopolised, stating that a European energy union is being created which will prevent the monopolisation of the market. He also stressed that he backs the development of the power sector in three areas: nuclear power, renewables and energy efficiency.

Gawlik stressed that in Poland energy saving is not a common practice and that there is no act regulating this matter. We should be saving energy in accordance with EU directives, but we fail to do this. In his opinion, the use of nuclear energy is not transparent. In France its development served military goals, and energy is cheaper than in other countries because of state subsidies. He also referred to the issue of improving nuclear power stations. In his view, nuclear technologies are prone to defects and will never be completely safe. Gawlik also pointed out the danger of a terrorist attack on a nuclear power station, which would have tragic consequences.

Professor Mielczarski said that sustainable development is possible, especially if Poland starts saving energy in line with EU directives. Closing the debate, he concluded that it does not pay to invest in nuclear power and this is why no-one will build a nuclear power station in Poland.

Piotr Szumlewicz