

**“Technological choice in a developing country:
A focus on nuclear power and genetically-modified foods”**

Dr David Fig

(independent environmental analyst and Chairperson of Biowatch South Africa)

Transcript of the discussion at the Harold Wolpe Memorial Trust open dialogue
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AnneMarie Wolpe (Chairperson): Seldom have I heard such dire comments made in such a non-emotional way. I am shocked at the information you have given us. How much do the various kinds of work contribute to the economy? How do we get renewable energy? Why do white elephants happen? I have heaps of questions.

David Lewis (active in environment lobby): I have two comments. I'm amazed that you mentioned high technology in the way you did -- your whole analysis was high tech and you made little mention of alternative technologies to solve the problems. I find it a sad indictment on the anti- nuclear lobby and Biowatch. I am sitting here and I feel I am back in the old white South Africa with very few people from townships or grassroots organisations and wondering why you are unable to mobilize the masses when this affects everyone.

A UCT academic: What are our actual possibilities of developing alternative technologies in South Africa, regarding its location and climate?

Chis Hensky: The three technological areas you mentioned for industry are all ones where you deal with huge allocations of money or where there are massive multinationals involved, such as GMOs. This raises the issue of whether this whole thing is one where possibilities have been sought for massive backhanders. You might feel inhibited about commenting on this, but can you draw attention to some evidence that emerged into the public sphere about associations of that kind and of corruption?

David Fig: I'm tempted to give you a whole programme on alternative technology but you'd have to invite me back for that. There are many alternatives to what we are seeing. We are not obliged to accept these technologies in our industry mix. Zambia's example is one. Take the nuclear industry. Do we absolutely need it? I can give you examples of many alternatives to consider but that would take up a lot of time.

With regard to why this audience is white, I think it is only one of the many audiences paying attention to these questions. I mentioned that Earthlife started off having mostly white members and, today in various parts of Gauteng, has mostly black members. It's not all like it was 10 or 20 years ago.

It's true that these issues need to become a national debate. There was a chance to do this on the anti-nuclear industry in February last year, hosted by parliamentarians, but they were persuaded to call it off.

The Western Cape will be holding a conference next month on sustainable development. Mention was made of technical errors in my talk: I would appreciate

knowing what you mean by this and I am happy to correct anything. With regard to the opportunity for backhanders, the source these days is Noseweek magazine, which for the past two issues has been very explicit about financial flows around the Pebble Bed reactor.

Another scandal it raised is the revolving door between industry and government. This includes the appointment of the new head of the national nuclear regulator, who was previously employed by the Pebble Bed reactor company. These are issues of questionable governance.

Question. What interested me is the money spent on the Pebble Bed reactor. If a similar amount had gone into solar panelling, how much could have been provided?

Andrew Kenny (UCT): The Pebble Bed will provide far more electricity than solar would for similar amounts of money. I have appeared on platforms with David Fig and I agree with him on lots of things. Recently, Mbeki said Earthlife's scare campaign was reckless and impermissible. There must be freedom of speech. David said the nuclear industry needs secrecy. Wrong. It needs openness so that, as it is safe, and clean and sustainable, the more people know about it the more they will like it. It is becoming more open. Go to Google and look up the website and there it all is.

On greenhouse emissions I have various sources, from cradle to grave, comparing nuclear energy with wind and solar energy, nuclear has the lowest emissions of carbon dioxide.

Nuclear waste is not a major problem. Every source of energy produces waste that lasts forever. Solar energy produces lead. Is it a great threat? No. The lead battery in a solar unit is not a threat to future generations, nor is nuclear waste. It is easy to look after it. It is useless for making weapons. The Pebble Bed reactor is a marvellous technology for South Africa, fitting in with our aims for development, and the export market potential is enormous because it is so simple and safe.

Question: You mentioned three models. The point is that the whole globalization of the world is driven by this neo-liberal consensus and how does a single country move against this? What is driving things is this amorphous mass of anonymous money. How do we stop this?

David Fig: We could have a one-to-one debate. I could wave my sources to counteract what Andrew (Kenny) has said. I think he is fundamentally wrong and is being selective, and hasn't looked at all the statistics, the whole range of renewable options and contributions to climate change. We haven't considered jobs and, in addition, renewables would help decentralise control over energy distribution.

Andrew mentioned that for the same amount of money, nuclear would provide more power, but I believe the Pebble Beds won't provide more than a tenth of the power of the Koeberg reactor, so we are not talking about huge power generation but about a different developmental path that would be less technically complex. To run nuclear reactors requires technical know-how as well as objective monitoring to ensure it's as safe as Andrew claims it is. There have been many questions about that. We need a decent regulator.

Who will we export to? It's not very clear from what the industry says who will be a likely customer. Is it African countries? Wouldn't it be better to have an industry based on more appropriate technology which is also more appropriate for African

development? One requiring a lower level of skills. We are not talking about energy only for the rich.

Josie's question was about options. There are many options besides the ones Andrew compared.

With regard to globalization and labour, there are other options. We have an array of options, from combined heat and power to energy conservation, which are the most important in reducing greenhouse gases. Wind compares favourably with nuclear and produces much less carbon throughout its life cycle.

We haven't begun to talk about energy conservation. We would then raise questions about the kinds of industries we are inviting to our shores.

We are not exempt from globalization and we need to understand the processes. It seems that a very dominant model emerged more strongly in the '70s and has consumed us all. Are there alternatives or are we saddled with globalisation? Are we powerless? Have examples of it succeeded?

One process that's very important is an agglomeration of civil society that's coming together to put forward alternatives. There have been experiments around the world, an opening up of processes rather than closing them down. Different experiments to understand how social economy can work on smaller scales and municipal budgeting can be opened up to the public.

Every year there's a process parallel to the one that takes place at Davos in Switzerland, where global civil society meets. This is the world social forum. It too has its websites and information flows and I urge you to look at some.

A speaker: I could say I want to support Andrew Kenny but we are giving an image of global companies telling everyone what not to do. The global environment movements are also well funded and there's an issue of trust here. Zambians were told Americans were using Africans as guinea pigs for poisoned food. Do we believe what this global environment business tells us? They had no qualms in Zambia.

A speaker: We've all heard of Nero fiddling while Rome burned -- and Nero was insane. Aren't we running out of time, cutting down trees which absorb carbon? Shouldn't we approach those issues as matters of extreme urgency? Does it matter which energy source costs more? We could have a nice balance sheet in 50 years' time and we'd all be dead.

A speaker: Apathy is not a local phenomena. If one looks at the war in Iraq and at British, Australian and US mindsets, there's a lack of social consciousness. Money is behind everything. Global warming was spoken of decades ago and, although people can say what they like, we haven't moved forward. We know the solutions. If we have to be competitive can we go that route of alternative energy sources in a global village? Viable solutions are needed. Politicians have to stay in power and won't make decisions that involve job losses.

Eugene Cairncross: In response to the statement that environmental organisations fed the Zambians a false picture, I get an image of poor, ignorant Africans being given misinformation and accepting it. Last night I saw a BBC programme interviewing the (Zambian) decision makers who decided they should not accept GMO food and they were highly qualified scientists who evaluated the data and

made the decision, so that image of environmental organisations feeding information to ignorant people is wrong.

Re the openness about the nuclear industry and the Pebble Bed reactor: in 2002, a draft environmental impact report was published and there was a series of documents, but no costs. There was only one figure in an appendix of an appendix and it was R3,2 billion. The current figure is R12 billion to R15 billion. That figure on costs had to be extracted from proponents of the reactor. Also, a safety report had been done which they refused to make public and they quoted selectively from it. It still hasn't been made public. Far from being a model of openness, it was a model of secrecy.

David Fig: The industry is shrouded in secrecy. Those figures were published on 13th May in a newspaper and were denied earlier. This was the first time I'd seen them publicly. Other aspects were also kept secret, not just the finances. It is very difficult to get the information from the industry itself.

I agree that in Zambia there were a couple of statements made about poisoning of food, but they were made by the president and the minister of agriculture and were not in response to pressures from the global environmental movement. A delegation was sent around the world to make sense of what the industry is doing. When scientists went to the US they were told there was not one instance of a health problem arising from the industry and the scientists asked for evidence. There weren't any -- no systematic study in the US of the impact. Remember, North Americans don't eat maize as a staple food as do Zambians. There are completely different implications.

Aren't we being petty about arguing while things are dire here? Yes, it is very late in the process. We need to do more than we are doing, especially about climate change, but the world only came together in 1992 to take action and the Kyoto protocol came into being only in February this year. We have also had the US and other countries turning their backs on Kyoto. Also, commitments by most of the biggest culprits of global emissions involve reducing down to only six percent of their 1990 levels while an inter-government panel says we need to be at 60 to 70 percent of 1990 levels. We are fiddling while the planet deteriorates.

John Walmsley. I am president of the Institute of Engineers in South Africa, so I can't go home without saying something. I agree with David Fig on the nuclear proliferation of weapons but this is the only substantial argument against nuclear energy. I would be happy to give information to anyone about waste. Secrecy is the last thing we want. Re renewables, we have to be much more penetrating when we talk about that. Everyone loves the idea of wind and solar power, but it is not practical to produce more than 10 percent of a country's output from that source. I would love to see 30 square kilometres of solar panels, but the cost would be enormous.

Solar panels have halved in price and in 2050 they may be cheap enough to use, but not yet -- maybe in 50 years. Wind power? If you are a small country like Denmark, which leads the world in this, and the wind doesn't blow, you can import power from your neighbours. We can't do that. Wind power isn't reliable. 1 000 windmills get maybe 15 or 20 percent of the power you expect. To replace Koeberg you would need 7 000 windmills even when the wind *is* blowing. We only get 20 percent and need a standby for the lost 80 percent. It doesn't work.

Denmark has a 50 percent target. We might get 20 percent. You are stuck with either nuclear or coal. Nuclear is better than putting 30 000 tons of carbon dioxide into the atmosphere from a big coal mine.

David Cooper (UCT): This debate is terrifying for me. George and David have had a debate on nuclear and how am I to make my mind up on all the political and ethical judgments and cost benefits? It's the same regarding GMOs. We have reached a level of irrationality. We don't know what decision to make. Even the experts don't know. We need a debate on how to make decisions in human society when ordinary people don't judge the experts. We can't judge. (Applause).

A speaker: This is the first time I've heard you advocate an anti-nuclear approach. My comment is to Andrew Kenny. There are two issues regarding safety. Would you be prepared to consume a tablespoon of uranium waste product, then go onto a tablespoon of coal tar from coal-fired power stations or something from a lead battery? The whole argument is like asbestos which was said to be clean and safe and something every home needed. Andrew put up a huge smokescreen: don't worry about nuclear bombs because the technology is safe, forgetting there is such a thing as a dirty nuclear weapon. You can distribute nuclear waste over a city using ordinary explosives. John's argument wins hands down.

Paul Malherbe: David didn't mention unemployment, which is our biggest problem. The only net product of the former homelands is people producing people and the problem will get worse. We are arranging deck chairs on the Titanic. The rest of the world regards us as a shining example for Africa. David is not mentioning success stories that occur elsewhere in the world, where they have their populations under control and can make an impact on employment, whereas our unemployment has increased. The picture of the future given was Utopian because he didn't give us an example of any country that has that. This whole discussion has been irrelevant.

David Fig: Paul, I did speak about unemployment. I mentioned jobs. It's not the amount of money but the amount the State is putting forward for an industry that has special pleading and not rescuing a sector such as textiles, where there have been huge job losses. Technology choices include jobs. I was talking about alternative technologies that are more job intensive. It's a central issue for me. Development is about jobs.

There have been comments about "ordinary people" who don't understand the debate. If you don't understand the technology you shouldn't employ it. We build the precautionary principle into our lives. It is already enshrined in our legislation. I appreciate John Walmsley's saying there are flaws in the nuclear industry. I haven't heard him say that before. But allow me to be slightly irreverent here: I think we cannot accept the views of a nuclear engineer on renewables without calling on an expert on renewables to refute his arguments.

AnneMarie Wolpe: I share David Cooper's point about experts.

Alan Mitchell: I am an Eskom pensioner. You used the word development. I wonder, does this nation have an idea of which way it wants to go with development? Are we aiming to go back to grass huts and no wheels, or the other way, with too many people in the palaces and no one in the fields like the Mayas and Aztecs?

A speaker: There's an absence of information around what you get for your money: R15 billion! How can one compare an alternative to current energy when it's not a

true reflection of what it costs? Is there information about this? It all comes down to money.

Gail: Those studies have been done. Earthlife has studies that show rand for rand and job for job, comparing wind, solar and nuclear on its website. I don't think anyone is talking about solar panels being cost effective. Concentrated solar is much more cost effective. No one has talked about boring old solar heaters. We use 40 percent of energy on heating our water. A solar heater on the roof saves half your electricity bill. We don't need so much energy if we conserve energy.

David Fig: Are there ways of evaluating things? Each of us has to go on a quest to find what one finds credible. If you are in the industry you are likely to have a perspective. South Africa is not famed for its body of independent scientists who don't side with any camp and produce objective facts. These questions are around conflicts of interests. One has to make one's mind up whether or not the technology is good for us.

My journey started with nuclear, worrying how South Africa in a climate of sanctions obtained nuclear reactors in the '70s and '80s when there was a risk of proliferation. From that I tried to make sense of the industry and how it obtained its political power. The secrecy is part of that, part of not having all the facts available. Why should a small NGO be doing the work Gail is talking about. What about our universities and institutions? Shouldn't they be doing this work.

Allow me a small promo! I have a book coming out, *Uranium Road*, which is part of my questioning of the industry.

Can we have a common view of development? No, because there are many different interests. But we need a framework in which we can evaluate those options. What is the most appropriate way forward. Let's have those debates and not be nervous of them.

AnneMarie Wolpe: I welcome the fact that you, John, and people who have worked in an opposing way, have come here tonight so we can hear your views. I do hope new visitors will come to other forum meetings.