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Taiwan's Anti-Nuclear Movement A Brief History

TAIWAN now boasts a mature anti-nuclear movement. Several organizations hold hundreds of protest activities each year, including petitions, marches, press conferences, hunger strikes, demonstrations, etc. Within its ranks are professors, students, journalists, politicians, and many other people who are concerned about the effects that Taiwan's pro-nuclear policy has had on the environment and on people. This article is about how this movement started, what it has accomplished so far, and how it has changed. First, however, we need a little background on the nuclear establishment and general political setting.

Going Nuclear

Why did Taiwan chose to pursue nuclear power in the first place? It is clear that the government had the option in mind for some time. Taipower, the state-run utility, started laying the educational and research foundations for a commercial nuclear power program all the way back in 1955 by establishing the forerunner of the AEC. Later, rapid industrialization from the 60s onward and the oil shocks of the early 70s pushed Taiwan further towards nuclearization. Taiwan's close ties to America during this period certainly encouraged the trend.

Taipower was responsible for all the early initiatives in education and training. It established the Graduate School of Atomic Science at Tsing Hua University in 1959, and in 1959 and 1972 acquired research reactors from the US under the US-ROC Peaceful Use of Atomic Power Agreement. Of course, students also went abroad to study nuclear physics and engineering.

By 1964 nuclear power had become a formal part of Taipower's long term power development plans; that is to say, the government was committed to nuclearization. Preparations

for nuclear plant Number One began in 1969, and within promoter of nuclear development. It has from the beginning voiced its support for Number Four, and has twisted the environmental impact assessment process to ensure a favorable outcome; after making a special point of drawing ten percent of the committee members from outside the nuclear establishment (ANCT president Lin Jun-yi was a member), it relegated their views on the project to a thin appendix buried in the back of the report.

The Beginnings of Protest

In this pro-nuclear climate, it is not surprising that protest against nuclear power got off to a slow start in Taiwan. Until martial law was lifted in 1987, activism was mostly limited to occasional articles in certain left-leaning media. This process had begun after the March 1979 Three Mile Island accident, when China Magazine ran an article on safety incidents at Number One (plants Two and Three had not yet been built), prompting Provincial Assemblyman Chiou Lan-Huei to bring the issue up for review in the Assembly. The next month the same magazine published an article by ANCT's Lin Jun-yi, writing under a pen name, which for the first time boldly challenged the government's pro-nuclear stance. This time another politician, Huang Shuenn-hsing, brought up plant safety in the Legislative Yuan.

At this stage, only a few scientists and university professors were really concerned about nuclear issues. It took the rise of a general environmental protection movement during the 1980s to bring nuclear issues to the attention of the public. In 1986 residents in Lukang on the west coast mounted such fierce opposition to DuPont's plans to build a titanium oxide plant there that the company had to abandon the idea.

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Not Playing Fair

How the AEC and Taipower Deceive the Public

WHEN THE Atomic Energy Commission began the environmental impact assessment for Number Four in 1991, I was asked to serve on the committee, and I got to see firsthand how Taipower and the AEC twist the regulatory process to suit their needs, and generally mislead the public on nuclear issues. Since then I have watched the media, especially the big three network TV stations, continually treat anti-nuclear protest as if it is purely a political game rather than a serious attempt to question the country's energy policy. After a half-year of struggling with my conscience, I want to stand up and show how the AEC and Taipower have pulled the wool over the public's eyes.

The environmental impact assessment for Number Four, which the AEC touted as fair and open, was really nothing but a sham. Three main problems stick out as particularly worthy of note.

First, the process failed to address the most basic issue of environmental impact assessment, namely, are there any other options besides building a fourth nuclear plant? It stands to reason that if environmental effects are truly of concern then all available options for electricity generation should be considered. Even some of the committee members who were not considered "anti-nuclear" expressed this concern. AEC General Secretary Liu Kuang-chi, who presided over the committee, refused to entertain any questions along these lines, maintaining that they fell outside the scope of the committee's mission. Apparently, the AEC only wanted us for our expertise in our respective technical areas; it was completely unwilling to accept the idea that the committee should look at other options for generation.

A second concern shared by the committee was what would happen in the unlikely event of a meltdown, which would be a nuclear reactor's most serious conceivable impact on the environment. When this point was brought up, high level Taipower officials immediately assured us that a meltdown was simply impossible, and refused to discuss contingency plans for such a scenario.

The final issue is how the committee decided on its recommendations. In our first meeting we agreed on a basic principle: that at the end of the review process we would vote on whether or not we agreed with the construction of Number

Four. Since only five of the twenty-one committee members were considered by the AEC to belong to the "anti-nuclear" camp, the idea of voting did not seem problematic. When it came time to review the report we found it was so incompetent that many of the committee members raised sensitive objections which the AEC and Taipower could not ward off. Suddenly, at our fourth meeting, Liou announced that the committee would not be meeting again, and would not vote on the report. We were simply unceremoniously kicked out, and the report was eventually written by stooge experts hired by the AEC and passed off as having been approved by us.

Another example of the way Taipower and the AEC play games with the regulatory process can be seen in their alteration of the generating capacity of the reactors from 1000Mw to 1300Mw. Taipower made this change on January 23, 1992, but managed to keep it secret for two years, until legislators found out about it early this year. Taipower not only had the audacity to claim that the extra capacity will have little effect on the plant's environmental impact, but also changed the bid specifications to a so-called "advanced reactor." The original bid had been for a pressurized water reactor (PWR), with the reserve bid for a boiling water reactor (BWR). No mention had ever before been made of an "advanced reactor." In terms of environmental impact, such a reactor would have two main differences with previous designs; the containment vessel is excavated deep into the ground, and it is the first commercial reactor in the world to exceed 1000Mw capacity. To say that it will not affect the environment differently than the older designs is simply a lie.

Looking at the deficiencies in the nuclear program--the safety problems at the existing reactors, the deformed fish at Number Two, the irradiated apartment buildings--how can our country seriously consider building yet another nuclear plant? With radioactive waste piling up at the plant sites in inadequate temporary shelters, how can we be comfortable with the legacy we are leaving our children? For those of us who wish to live in a healthy and safe Formosa, there is no choice but to stand up together and fight against plans to continue down the nuclear road. ♡

(translated from editorial by Dr. Wang Rung-teh in the *China Times*, 22 May 1994)

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| Editorial Board | Prof. Lin Pi-yao Prof. Lin Jun-yi Mr. Chang Jun-yan | |
| Address | Box 843 Tunghai University Taichung, Taiwan 40704 | |
| Telephone & Fax | 886-4-359-5622 | |
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Dangerous Liasons

The AEC--Taipower Relationship

THE CLOSE relationship between the Atomic Energy Council (AEC) and the Taiwan Power Corporation (Taipower) has been of concern in many quarters. Lawmakers and anti-nuclear activists have often accused the AEC of promoting rather than regulating nuclear power. Judging from the way it has handled certain issues, such as the radioactive apartments case and the Number Four environmental impact assessment process, the AEC certainly seems like a paper tiger. Looking at the history of the AEC and the factors which influenced its development can reveal why.

Connections

The AEC and Taipower have had a series of unseemly connections. To begin with, from 1966 to 1984, the AEC's head position of General Secretary was filled by a Taipower official named Cheng Jeun-hwa. This meant that for the same eighteen years that Taipower was building the country's three nuclear power plants, the AEC had no effective regulatory control over Taipower's nuclear program.

The connections between the AEC and Taipower are not limited to organizational structure, but also extend to financial matters. When the AEC was making plans to build the low and mid level nuclear waste repository on Orchid Island in 1981, it needed between US\$26 and \$30 million for the project, which at that time was an astronomical amount of

capital for the AEC. Taipower loaned the money to the AEC out of its own budget, and the AEC was to pay it back in installments. In 1990 the AEC turned the entire project over to Taipower, and it is still not clear what ever happened to the utility's original loan.

Another connection of note is the way the AEC used to handle environmental monitoring around the nuclear plants. In the past the regulatee (Taipower) paid the regulator (the AEC) to hire supposedly independent consultants to perform the monitoring research. Only after strenuous outside criticism did the AEC budget its own funds to cover this program.

These examples are merely the more visible ones. Smaller-scale connections also exist, such as educational exchanges between the two organizations. These kinds of everyday connections are just as disturbing; they reveal a web of sometimes inappropriately close ties between the regulator and the regulatee.

Regulatory Problems

There are several major factors which explain why the AEC has not been an effective regulator. For one thing, although the AEC was founded back in 1955, it was a latecomer on the nuclear scene compared to Taipower. In the late 1960's, when Taipower was spending large sums of money and engaging hundreds of personnel in planning the first

(See DANGEROUS, page 7)

Number Four Plebiscite

Over 96% Of Voters Oppose Construction

ON MAY 22 the anti-nuclear movement took the first step in what may be the direction of future anti-nuclear protest. The little township of Kung Liao in Taipei County held a plebiscite on whether or not to support the construction of Number Four, which would radically change the community's way of life. Although one other such plebiscite has been held in Taiwan, in opposition to a China Petroleum Corporation naphtha cracking plant in the southern industrial city of Kaohsiung, this is the first plebiscite to enjoy the sponsorship of the local government.

Kung Liao is one of the most important fishing ports in Taipei County, and residents have been fearful for years that if Number Four is constructed their way of life will be disrupted just as it was for residents of Jin Shan around Number Two. The discovery of deformed fish in the waters around Number Two convinced many that nuclear power is not for them.

Because the township mayor, Chao Kuo-tung, is a member of the strongly pro-nuclear KuoMinTang (KMT), it seems strange at first glance that he would support a plebiscite on Number Four. Actually, his motives for supporting it were mostly political; during the November 1993 elections for local office, Chao's Democratic Progressive Party (DPP) opponent Liao Ping-liang took a strong anti-nuclear stance, forcing Chao

to tag along. Similar situations have arisen in other townships around all the nuclear plants. It was Liao who conceived the plebiscite idea; Chao merely inherited the public's expectation for such a plebiscite after he defeated Liao in the election.

This plebiscite has brought the residents and other anti-nuclear activists together with the Democratic Progressive Party (DPP) to rally support for the anti-nuclear cause. DPP National Chairman Shih Ming-teh personally led door-to-door and telephone canvassing by the Yan Liao Self-Rescue Association during the week leading up to the vote. (Yan Liao is the small village in Kung Liao Township where Taipower is planning to build the plant.)

Voting took place on Sunday May 22 at several locations around the township. Special vehicles were available to transport the disabled as well as those who lived on the outskirts. The ballots were marked with two choices "Yes, I support Number Four," and "No, I do not support Number Four." By evening the results were in, and at a press conference Chao Kuo-tung announced that of the sixty percent of the voting age population who went to the polls, ninety-six percent voted "No." Organizers of the plebiscite expressed strong satisfaction with the results. Taiwan University Professor Chang Kuo-lung, Chairman of the TEPU, stated that

(See PLEBISCITE, page 7)

History (cont'd from front page)

Beginning with the lifting of martial law in 1987, environmental groups began springing up in all parts of the country, quickly forming connections with each other and pooling resources. Several of the new organizations, such as New Environment, the Taiwan Environmental Protection Union (TEPU), Greenpeace Workshop, and the Homemakers' Union have become leaders in the anti-nuclear movement.

Taking it to the Streets

Grass roots protest began seriously in 1987, with the TEPU putting anti-nuclear activities at the top of its list. The period beginning with the anniversary of Three Mile Island on March 28 and running through the anniversary of the April 26 1986 Chernobyl disaster and up until the end of May, became an annual period of anti-nuclear protest. In 1987, residents around Number Three in the south and Number Four

Anti-nuclear sentiment in Taiwan grew rapidly, fueled by the growing concern of the people for protecting their environment.

(proposed) in the north joined with the TEPU and other groups to hold demonstrations at the plant sites. 1988 saw the establishment of a march in Taipei in early May which has been held every year since. Attendance at this march has grown from only several thousand in 1988, when West German Green Party parliament member Hannilore Saibold came to give her support, to over 20,000 people in 1991. It is important to note that student participation increased dramatically over this five year period. During these five years anti-nuclear sentiment in Taiwan grew rapidly, fueled by the memory of Chernobyl and by the growing concern of the people for protecting their environment.

In addition to highly visible national protests such as the Taipei march, local protest activities have formed an important part of the general movement. Unlike residents around Japanese nuclear plants, who have either been bought off with free electricity or genuinely convinced of reactors' safety by the utilities' excellent on-plant educational centers, residents around Taiwanese reactors have been among the most vocal of Taipower's critics. Residents around Number One and Number Two in the north have both organized activist groups, which are supported by local chapters of the TEPU. Local politicians in districts around the plants, whether from the ruling KuoMinTang or from the opposition Democratic Progressive Party, almost invariably take anti-nuclear positions. Taipei County Mayor Yu Ching, of the DPP, led a brigade of earthmoving equipment to the Number Four site in 1991 to demolish temporary structures erected by Taipower.

An important event occurred on October 3, 1991 which was to prove a turning point in the anti-nuclear movement. Police protecting the proposed construction site for Number Four violated an agreement with local residents by taking down anti-nuclear signs and a temporary structure,

The Yami's Fight to Save Orchid Island from Nuclear Waste

In 1974 the government selected Orchid Island, off the southeast coast of Taiwan, as the country's "temporary" storage facility for low and mid level radwaste. Work started in 1976 on a special harbor facility, and by May 1982 the first phase of the facility started taking drums of concretized waste. The site was to be developed in several phases, with the first phase to store 90,000 barrels. The facility turned out not to be very temporary; according to the original plan, the site could take waste for the next fifty years and store a total of almost 340,000 barrels. All this time, the indigenous inhabitants called the Yami were led to believe that the government was building a fish cannery to stimulate the island's economy.

Serious Yami protest began in spring 1988 when Yami representatives Chang Hai-yu and Kuo Chian-ping visited the Taipei offices of both the AEC and Taipower to submit letters of protest at the building of the Orchid Island radwaste site, and demanding the development of a timetable for closing the site. At the 1990 Earth Day celebration in Taipei, Yami elders performed a traditional "Dance of Indignation" to publicly express their anger at having been cheated by the government.

A big step came in February 1991 when four hundred Yami marched on Orchid Island with TEPU and Greenpeace Taiwan members and requested that the government halt the waste shipments and begin planning to move the waste off Orchid Island. On May 30 1993 a major anti-nuclear protest was held in Taipei, and this time the Yami had prepared a special treat; over thirty of the tribal elders dressed in traditional battle gear marched at the head of the protesters. When the marchers stopped outside the National Legislature, the elders again performed their "Dance of Indignation." The demonstrations paid off; in July the Legislative Yuan cut Taipower's funding for the second phase of construction at the Orchid Island site. That budget remains frozen today.

inciting a large protest. Protesters crowded near the gate, trying to gain entrance, and one protester smashed the gate with his truck, which was quickly cut off from the other protesters by a crowd of police. In the ensuing confusion, one policeman died, and the other police started indiscriminately beating protesters with truncheons. Over forty protesters were injured, and the leaders arrested and sentenced to jail terms ranging from three months to ten years.

The official police story was that the driver of the truck had deliberately struck and killed the policeman, and the police provided photographs of the aftermath as "proof." This may not correspond to actual fact, however, since the protesters could not see into the crowd of police to determine what actually happened. Protesters suspect that they were cleverly trapped into providing the government with an unfavorable incident which would sour public opinion toward the anti-nuclear movement.

(See HISTORY, page 8)

On Again, Off Again

The Story Behind Number Four's Delays

WITH THE Legislative Yuan gearing up for a major struggle in June over the budget for the proposed fourth nuclear plant, it is appropriate to sketch out the background of the project in order to better understand the current debate. Frustrated for over ten years in its plans to build Number Four, Taipower and the government would have the public believe that nuclear activists and opposition legislators have been responsible for the delays, but as we will see, the real picture is not so simple.

The story of Number Four goes all the way back to 1980, when the project was first proposed during the heyday of nuclear development in Taiwan. The project received approval from the Executive Yuan in 1980, but was shelved in 1982 due to "decrease in electricity demand." The government evidently did not want to go a step further to give the reason for the decrease--namely the recession of the early 80s.

In May of 1984 Taipower applied again to start the project and received the agreement of the Council for Economic Planning and Development, but President Chiang Ching-kuo put the project on hold the next year, saying, "In view of the people's doubts about nuclear power, plans for Number Four will not be rushed." This again was only partly true; the government was worried about deeper problems. Number

Three was facing serious operational difficulties, with scrams every other week (total for the year for both reactors was 33 scrams), and in July a fire broke out in the generating room at Unit One when turbine blades sheared off and shattered a turbine. Added to these troubles at home was the general loss of world confidence in nuclear power following the Three Mile Island accident in 1979. All in all, it didn't seem like a good time to push nuclear power.

Taipower, not ready to give up on Number Four, applied again in 1988 for permission to start the project, but the Economic Ministry refused, again citing "public doubts" While it was certainly true that in the wake of Chernobyl people had serious doubts about nuclear power, the real reason for again delaying the project was the political instability caused by President Chiang's death.

In early 1991 Taipower made a fourth try at getting the project started, and with the help of the AEC and the Commission of National Corporations they managed to finally obtain the agreement of the Economic Ministry on January 10, 1992. In an interview the same day with the China Times, a high-level Economic Ministry official stated that "this project

(See DELAYS, page 6)

Living With Radiation

Min Sheng Villa Residents Speak Out

SINCE THE Min Sheng Villa case came to light over a year and a half ago, the residents of that building and others like it have had a lot to worry about. Consider the following complaints. "My assets are completely gone." "My children are afraid to go to school because their classmates make fun of them and refuse to play with them." "I don't know how much longer I can expect to live." "The bank won't give me a loan because my house is worthless as collateral."

Living in a radioactive housing unit has brought major changes to all the families affected by this problem. The luckier families with money have been able to move out, but those without means are left to see what fate has in store.

These families, like the rest of us, used to see their homes as safe havens from the stress of daily responsibilities. Now, since discovering the radiation emanating from their walls, they don't even know whether they want to go home after a long day at work or school. Added to their lists of worries is the question of where to stand or sit within each room; they wonder whether being too close to the wrong beam or pillar might take a few years off their lives.

Their fears are given new weight by the findings of British epidemiologist and radiation expert Edward Radford, who visited Taiwan in early April. At a meeting with the residents Radford criticized the AEC's methods of measuring radiation levels and estimating the cancer risk, saying that some residents could have been exposed to over 40 REMs over the ten years since the buildings were constructed. He estimated the cancer rate for these people whose exposure has exceeded

the International Commission on Radiation Protection's "authorized intervention level" could be as high as 45%, astronomically higher than the AEC's best guess of .03%. A former resident of Min Sheng Villa had the following to say: "We lived in Min Sheng Villa for ten years. According to the medical reports the latent period for radiation-induced cancer is between 10 and 20 years. So we might start seeing symptoms even this year. Sometimes I wonder how long I'll actually live."

Radiation contamination has also hurt families financially. Real estate agents won't touch a radioactive house with a ten foot pole, and banks won't accept a radioactive house as loan collateral. Of the 261 radioactive housing units known, only 47 meet the compensation standard set by the AEC. Where does this leave the others?

One of the most heartbreaking stories is a of a married couple living in Taipei's wealthy suburb Tien Mu who wanted to sell their house before emigrating abroad. They had found a buyer and agreed on terms. The buyer was going to come to the house on March 8 at 7 p.m. to pay the deposit. Unfortunately, just before he was about to leave for Tien Mu, the buyer saw a report on the 7 o'clock news saying that several houses in the Kwei-lin area of Tien Mu were found to be radioactive. He immediately canceled the agreement and never went to pay the deposit. Even though their house was deemed "within safe limits," the couple couldn't find another buyer, and for financial reasons were forced to cancel their

(See MIN SHENG VILLA, page 6)

US NRC Chief Visits Taiwan

US NUCLEAR Regulatory Commission Chairman Ivan Selin visited Taiwan during the last week of May, scarcely one month before Taipower is to announce the winning bidder for Number Four's US\$2 billion reactor contract. Three companies are currently competing for the reactor contract: Westinghouse (US), ABB-Combustion Engineering (Sweden-US), and Framatome (France).

Responding to questions about the timing of his visit at a May 27 press conference, Selin stressed that the purpose of his visit had nothing to do with the bidding, but was to advise the Atomic Energy Council on safety and regulatory issues related to Number Four. Selin spoke at the American Institute in Taiwan, the US's informal "consulate" in Taipei.

Selin had only glowing praise for the reactor specifications Taipower drafted as guidelines for the bidders. "Given these high specifications, I have very high confidence this would be one of the safest reactors in the world," he said. "I certainly hope the selection is made according to the specifications, even though such specifications will lead to a fairly expensive reactor, because the safety standard is so high," Selin continued. Of course, writing rigorous specifications is one thing, and maintaining top quality personnel to run a plant properly is another.

Speaking on regulation, Selin said that Taipower should be treated like a private corporation rather than a government organization. He maintained that it is crucial for

Taiwan to establish an independent regulatory body to oversee the nuclear program. "It is the public...who ultimately ensure the safety of its nation's nuclear program by demanding a strong and independent regulatory program," said Selin. This sounds like a crafty way of saying that the people are going to have to fight like hell to make sure the regulatory body does what it's supposed to be doing.

"Given these high specifications, I have very high confidence this would be one of the safest reactors in the world."

--Ivan Selin, Chairman, US NRC

Before Selin's press conference, more than twenty students from local universities protested in front of the AIT building, wearing radiation protection clothing and carrying banners decrying the US government's attempt to push Taiwan into buying US nuclear technology. The students submitted a (See NRC, page 8)

Delays (cont'd from page 5)

has been delayed for ten years by anti-nuclear opinion." The government wanted to give the impression that Number Four had been held back by anti-nuclear activism, but this actually had very little to do with Number Four's troubles; Taiwan did not even have formal anti-nuclear groups until late 1987, and in the early 80s when the country was still under martial law nobody dared to speak out against the nuclear program. At that time the "opposition" consisted of a few brave scientists such as ANCT's Edgar Lin writing articles under assumed names.

During the summer of 1992 an initial budget to allow planning to go ahead passed the legislature, postponing further debate until the next round of budget reviews in 1993. Despite fierce opposition from the Democratic Progressive Party, the Legislative Yuan voted to pass Taipower's proposed budget for fiscal year 1994-95 by a 76-57 margin. Except for three renegade KMT legislators who sided with the DPP, the vote followed party lines, due to President Lee Tung-hui's threats of reprisals against KMT members who voted against the measure.

From this short history of Number Four's ups and downs, it should be clear that the project's ups and downs have had little to do with the anti-nuclear movement. This situation is changing, however, as anti-nuclear sentiment in Taiwan gains momentum. The debate is now highly visible in the media, with the record-breaking march in Taipei on May 29, and the plebiscite in Kung Liao on May 22. In the Legislative Yuan, more KMT lawmakers are likely to vote with the DPP this time, some out of pressure from their home districts and others because they have vested interests in the coal market which will be harmed by further nuclearization. The vote looks to be

much closer than last year. If Taipower doesn't win this year, it may finally be because the people's voice on nuclear power will be heard.

Min Sheng (cont'd from page 5)

emigration plans. They still live in their house. The irony is that they never knew their house was radioactive until their projective buyer told them.

Children who live in the housing units have it particularly hard. Faced with the cruel taunts of their classmates, who yell "radiation kid" at them, many refuse to go to school. Perhaps the worst off, however, are the young couples who live in the Hwa Hsia apartment complex. Six months after they had moved in, they discovered that their apartments were contaminated. Some of the women had already gotten pregnant, and feared for the health of their babies. They found out later that the landlord had known all along that the building was radioactive.

The AEC's plan for dealing with the radioactive housing problem has already gone through the Executive Yuan twice, but the proposals for compensation, government buyback and medical exams are still unsatisfactory. For the residents, these measures seem like a classic case of too little, too late. More radioactive buildings are being discovered, with their stories of human tragedy, and public dissatisfaction continues to mount, but the problem remains unsolved. ♣

(translation from the *Liberty Times*, April 17, 1994)

Plebiscite (cont'd from page 3)

for this plebiscite, free from the vote-buying and problems of personal influence which sometimes plague elections in Taiwan, sixty percent is a respectable voting rate.

Taipower had a different interpretation of the results. Nuclear Power Public Relations Center head Liao Chao-tsung said after the vote that compared to numerous opinion polls conducted by Taipower which have placed opposition to Number Four at seventy to eighty percent, a sixty percent turnout is not impressive. When one considers that 76 percent of all households sent at least one member to the polls and that the plebiscite did not enjoy the advantage of national holiday status as do election days, Taipower's objections seem disingenuous.

"There's no way Taipower is going to give up Number Four just because of this plebiscite."

--Liao Chao-tsung, Head of Taipower's Nuclear Power Public Relations Center

Although a bill governing the conduct of plebiscites has yet to pass the Legislative Yuan, which means this plebiscite has no binding power, Mayor Chao intends it to have a larger effect. Several days after the vote, at a meeting of the Taipei County Council, he put pressure on County Mayor Yu Ching to hold a county-wide plebiscite, saying that Yu would be "incompetent" if he did not do so. The novelty of a KMT politician exhorting a DPP county mayor to anti-nuclear action is proof of the strong opinions the struggle over Number Four has created.

A county-wide plebiscite is the last thing Taipower wants to see. Taipower's Liao Chao-tsung stated, "There's no way Taipower is going to give up on Number Four just because of this plebiscite. If we give up here, what will happen to future thermal or hydro power projects?" The utility may well have cause for concern, since it is likely that Yu Ching will hold a county-wide plebiscite, and anti-nuclear activists are talking about a national plebiscite on the issue.

Taipower was so fearful of effects of a plebiscite in Kung Liao that the company commissioned the Gallup Taiwan corporation to do a poll. Gallup conducted over 5,000 telephone interviews and of the just over 2,300 "valid" responses received, 57 percent indicated support for the construction of Number Four. Taipower quickly capitalized on the propaganda potential of the poll, running half-page newspaper ads cautioning readers not to "ignore 12,000,000 people's expectations."

Gallup sued Taipower about one week later on May 31, because it turned out that Taipower had unscrupulously obtained a copy of Gallup's preliminary poll results in order to score a public relations coup by releasing the results before the Kung Liao vote. Also, Gallup accused the utility of "seriously misrepresenting the facts." Gallup had polled only people over twenty, representing around 13,540,000 people.

(See PLEBISCITE, page 8)

Dangerous (cont'd from page 3)

nuclear plant, the AEC was still a small, unnoticed bureau nominally under the control of the Education Ministry. Understaffed and underfunded, it was in no position to keep watch on a monstrous agency such as Taipower.

Another crucial factor was that for students graduating from the nuclear engineering graduate school at Ching Hwa University, or for those returning from similar programs abroad, the first choice of employment was Taipower, with its prestige and high salaries. In the heyday of nuclear plant construction good jobs were there for the taking, and graduates had absolutely no incentive to join the AEC. As one AEC employee said, "At that time the only people who wanted to come to the AEC were students preparing to go abroad for nuclear engineering training." As a result, AEC personnel turnover was high, and efficiency was low. It wasn't until the AEC's salaries and benefits improved around 1983 that it was able to attract top people.

A related problem is that in Taiwan's small nuclear scene everyone knows each other. An AEC nuclear plant inspector commented that fellow students in graduate school now find themselves on opposite sides of the fence inside the plants, with inspectors having to go over the work of former classmates who now occupy positions of authority at Taipower. Everybody knows each other's academic records, and if an inspector lacks academic clout, then he isn't taken seriously. This introduction of personal factors is of course destructive to the effectiveness of regulation.

Yet another factor is political, and has nothing to do with Taipower. Japanese and American nuclear plants are run by private power utilities who are answerable to a separate government regulatory body. This separation tends to give regulatory measures the teeth they need to ensure safety and efficiency. In Taiwan, however, Taipower and the AEC are both part of the Executive Yuan, which not only brings the two

"The only people who wanted to come to the AEC were students preparing to go abroad for nuclear engineering training."

--AEC official

organizations closer together, but also makes the AEC more vulnerable to pressures from other governmental forces. During the period of Taiwan's rapid industrial expansion from the late 1960's through the 80's, for example, the decision to meet the sharp increase in electricity demand with nuclear plants was best served by a weak regulatory body.

Examining the AEC's internal composition gives a final clue to its troubles as a regulator. The AEC is headed by a committee made up of around thirteen members from different government ministries, including Public Health, Communications, Education, Economics, International Relations, and others. This arrangement was modeled on the American Nuclear Regulatory Commission (NRC), which is

(See DANGEROUS, page 8)

History (cont'd from page 4)

Challenges

That is, in fact, exactly what happened. Corresponding to a general diminishment of interest in social protest, the street protest component of the anti-nuclear movement seemed to falter in succeeding years, with attendance at the annual Taipei marches dropping off sharply in 1992. In 1993 and 1994, only a few thousand people hit the streets in protest. By this time, the freshness of anti-nuclear protest had worn off, and the media were hungry for other stories.

Although the repercussions of the 1003 incident, as it came to be called, definitely played a part here, another phenomenon was also at work. The anti-nuclear movement used to receive substantial support from the DPP on the street, but since the reorganization of the Legislative Yuan in 1992, their anti-nuclear fight has shifted into the legislature, where they have been working to keep Number Four's budget frozen.

The movement has faced other obstacles besides the negative opinion generated by the 1003 incident. In the Legislative Yuan, the traditionally pro-nuclear KMT enjoys a two to one advantage over the DPP, so if voting follows party lines the anti-nuclear cause loses out. This is what happened in the summer of 1993, when the Legislature voted to free up the budget for Number Four, which had been frozen for seven years.

Government pressure on the media forms another important challenge. In 1992, fasting by protesters in front of the Legislative Yuan hardly received any media coverage at all. The anti-nuclear movement has faced this problem before and since; at key points in the development of protest activities, newspapers sometimes suddenly cease publication of related stories, or pull sympathetic reporters off a story.

Making Progress

One of the most encouraging signs has been the recent plebiscite in Kung Liao Township, the site of the proposed fourth nuclear plant. Despite the fact that legislation recognizing the validity of local referendums has not yet passed the Legislative Yuan, Township Mayor Chao Kuo-tung went ahead with plans to hold a referendum to determine where the residents stood on the issue. The vote, held on May 22, revealed that over 96 percent of the voters were opposed to the plant. Chao Kuo-tung, who is a KMT member, lost no time in demanding that Taipei County Mayor Yu Ching hold a similar county-wide referendum. Providing that Mayor Yu can allocate sufficient funds, it seems likely that he will indeed hold such a referendum in the near future.

The Kung Liao referendum marks a turning point in the movement, the start of a trend which will finally involve the people directly in public policy decisions. A referendum in Taipei County could be very damaging to Taipower, not only because of the practical difficulties it would create for going ahead with construction, but because of the publicity it would give to the entire pro-nuclear/anti-nuclear debate.

The anti-nuclear movement has come a long way in fifteen years, from the months after Three Mile Island when only a few people were writing about the dangers of nuclear power, to today, when citizens can participate in formal local referendums and thousands of people take to the streets in protest. The Kung Liao referendum may prove to be key a turning point for anti-nuclear activism, bringing it from the fringes of protest into the political process. ♡

Plebiscite (cont'd from page 7)

Fifty-seven percent of this population would come to 7,830,000. Taipower had taken fifty-seven percent of Taiwan's total population!

Taipower had also reported only those results which reflected well on the plans for Number Four. One of the questions on the poll was, "Should the government first obtain the agreement of area residents before building Number Four?" Eighty-three percent of the respondents said "Yes" to this question, but Taipower did not see fit to report this.

All things considered, the results from Kung Liao are more reliable than Taipower's propaganda. The people who will be most directly affected by the construction of Number Four have made their opinion clear, and in the process have opened up a promising new forum for anti-nuclear debate in Taiwan. If the bill governing the conduct of plebiscites passes the Legislative Yuan, then an even wider public may be able to have an effect on the future of nuclear power here. ♡

Dangerous (cont'd from page 7)

headed by a similar committee. Unfortunately, like so many other aspects of nuclear regulation which the AEC has based on the American model, this committee bears little resemblance to the original ideal. The committee is actually mostly symbolic; the members, who are all burdened with the responsibilities of their own jobs, rarely attend the meetings in person, sending representatives in their place. Compare this to the NRC's committee, composed of five full time members drawn from engineering, business, law, government, etc., who meet regularly to discuss regulatory issues. An anonymous AEC official, when asked to compare the AEC to the NRC, sighed wistfully as he said, "the US NRC is an organization that can really get things done!"

Of course, the NRC has received its share of criticism for being too soft on the US nuclear industry, and for promoting US nuclear power technology abroad. It is therefore ironic that during a visit to Taiwan in late May, NRC Chairman Ivan Selin told reporters that he felt Taiwan needed a fully independent regulatory body which would treat Taipower as a private corporation rather than as a government bureau. If even the NRC questions the nature of the Taipower-AEC relationship, then something must really need fixing indeed. ♡

NRC (cont'd from page 6)

statement to AIT which questioned how the US could talk about human rights while US industry and the NRC are busy pushing Taiwan into buying another nuclear plant. The students further demanded that nuclear waste which had come from US-supplied reactor fuel should all be shipped back to the US for disposal.

Here is an interesting footnote to the bidding for the reactor. ABB-Combustion Engineering's bid is to build a so-called Advanced Pressurized Reactor known as SYSTEM 80+. The NRC apparently licensed this design in February, after only six months of review. Usually the NRC takes around eighteen months to license a new reactor design. Did the NRC speed things up so that the Swedish-US consortium could stay in the game? ♡

In the News

Protest at Min Sheng Villa

On May 7, students at Chung Hsing University joined forces with the Radiation Victims Association to march in protest at the AEC's continuing mishandling of the radioactive apartments case.

The march started off from Chung Hsing University, which is practically right around the corner from Min Sheng Villa. The School sits directly behind Min Sheng Villa, the world's most radioactive apartment building, and the students have declared the area a "radiation danger area." Over 100 students, residents, and members of various environmental groups (including the TEPU) marched from the university gate to Min Sheng Villa, shouting slogans like, "Step down, Hsu Yi-yun!" Hsu is the chairman of the AEC.

Although the route was quite short, the march was very lively. Min Sheng Villa resident representative Wang Yu-lin spoke from a sound truck about the problem and how the AEC has been stalling on solutions.

When the sound truck and marchers stopped in front of Min Sheng Villa, things began to heat up. Several protesters donned radiation protection clothing and began using Geiger counters to measure radiation, using yellow banners to mark the danger areas. Other protesters used cardboard boxes and tape to cover two public telephones across a narrow alley from Min Sheng Villa. Reporters and cameramen rushed madly about, trying to cover the action. Protesters told reporters that due to the proximity of the phones to the Min Sheng Villa building, having a 90-minute conversation on either of the two phones would be equivalent to one chest X-ray.

Annual Protest Draws Almost 30,000

A record number of people turned out for the annual anti-nuclear march this year in Taipei, making it the most successful march in the history of the movement.

The march started off at Taiwan University and wound its way through the city, past the informal American "consulate" and the Presidential Palace, and ending up at the Chiang Kai-shek Memorial Hall. There were so many marchers that they stretched out for three kilometers.

Such an unprecedented participation in the annual march may end up putting more pressure on Taipei County Mayor Yu Ching to hold a county-wide plebiscite on whether or not to build Number Four.

Taiwan Radwaste Dump Choices Leaked

ANCT has learned that after primary assessment of fifteen potential sites for permanent radwaste storage, Taipower and the AEC have chosen the southeastern region of Taitung and the small island group the Pescadores as the two most likely choices.

This news was revealed by Professor K. K. Li of the Ta Yeh Institute of Technology at an NRC-sponsored conference on high-level radwaste management held in Las Vegas in the U.S. on May 22-26. Li was sent by Taipower as a delegate to the conference.

According to an ANCT source present at the conference, Li's talk included a map which he drew on an overhead projection to show the delegates the location of Taitung and the Pescadores. His written report, which is available in Taiwan, included no mention that these two sites

are essentially the final choices. In a process which requires openness to gain the support of the public, it is certainly paradoxical and frustrating that this information is only available overseas.

Orchid Island Update

The general manager of the Taiwan Power Corporation (Taipower), Chang Chung-chien, visited Orchid Island with his wife on June 13 and 14, staying overnight near Taipower's radwaste storage site. This was the first visit to Orchid Island by any high-level Taipower official. Chang's visit comes right on the heels of the Number Four plebiscite in Kung Liao Township, where over 96% of the voters voted "No" to Number Four. Chang evidently wants to send goodwill signs to Orchid Island to try to head off further protest.

The Yami people still have a lot to protest about. They oppose any further construction of radwaste disposal facilities, but Taipower is set to go ahead with expanding the present six trenches. Originally, the utility had planned to construct six "phases" in its grand plan for a "temporary" storage site on the island. In conversation with Orchid Island Township Mayor Liao Pan-chia, Chang guaranteed that Taipower would not proceed with "phase two," but maintained that extending the existing trenches within the limits of the "first phase" was certainly within the utility's rights.

The Yami's position is that since Taipower has given up plans to build "phase two," the utility should give the 27 hectare site back to them. The land is owned by the Defense Department. In a meeting organized by independent Legislator Chi Kwei-tung between Taipower, Defense Department, and Taitung County officials on June 16, the Defense Department agreed in principle to return the land. The Yami voiced two other demands at the meeting, which took place after General Manager Chang had left. One was that Taipower must not extend the existing storage trenches, and the other was that Taipower must move all the waste off Orchid Island and pay U.S.\$580,000 per year until removal is completed.

On the question of a permanent radwaste storage site, which Taipower and the AEC will select probably by the end of next year, Chang promised the Yami that it would not be Orchid Island. It is difficult to believe, however, that Taipower has the political skill or muscle to build such a facility anywhere else in Taiwan. Orchid Island has all the advantages-requisite infrastructure, personnel, and most importantly, comparative political weakness. Chances are that the Yami will have a lot more fighting to do.

Source of Irradiated Rebar Found

While performing a survey of an abandoned steel mill in northwest Taiwan, technicians from the AEC's Nuclear Research Institute found traces of cobalt 60, confirming the mill as one of the more than twenty suspected sources of irradiated reinforcing bar.

Technicians found abnormally high levels of radiation in a slag pile, as well as in a water tank which had been constructed between 1982-83 with rebar produced by the company. Readings of the tank's surface showed a radiation

(cont'd on next page)

In the News

level of $24\mu\text{Sv}/\text{hour}$ (2milirems/hour).

AEC officials suspect that at least one 60 ton batch of contaminated rebar was produced by the Hsin Rung mill. Much of this rebar may have been used in the surrounding area, worrying residents and prompting the city government to begin radiation checks.

Nuclear Diplomacy Plans Scuttled

The Ministry of Foreign Affairs has poured cold water on the AEC's plans to enter the International Atomic Energy Agency as an NGO member. The Ministry sent a letter to the AEC on June 7 stating that this is "not an appropriate time" to try for entry into the IAEA and demanding that the AEC cease all application procedures.

During the last few months, the AEC has been using all the means at its disposal to rally countries friendly to Taiwan to support their bid for IAEA membership. It was when the Ministry of Foreign Affairs got wind of these efforts that they drafted the letter to the AEC. The letter stated that in view of the present international environment the AEC's application would have had only a small chance of success, and that the AEC had overstepped its bounds by aggressively lobbying foreign governments. Apparently, the letter's tone was rather indignant and seemed to suggest that an apology and explanation to the Ministry should be forthcoming.

An AEC official who wished to remain anonymous told the press that since trying to gain admission into international organizations is one of the principle missions of all bodies in the Taiwanese government these days, it does not make sense for the Ministry to block the application. The official pointed out that membership would be an extremely important step for the nuclear establishment, allowing access to all kinds of information and opportunities. He also said that many IAEA member nations had agreed to pouch Taiwan's application, and that giving up now would mean losing the best chance of application that Taiwan might get in a long time.

Mothers Against Nukes

"Celebrating Mothers' Day: Mothers Fighting For A Nuclear-Free Home" This was one of the slogans at this year's most unique Mothers' Day activity—a petition drive held in front of the Legislative Yuan by the Homemakers' Alliance on May 3. Over fifty busy moms turned out to let the legislature know that mothers believe that nuclear power plants are a threat to the health and safety of their children, and that plan for Number Four should be halted. They said they want their children to have a chance to grow up happily in clean and healthy environment, free from the threat of nuclear contamination.

The mothers' petition also gave some convincing common sense reasons not to build Number Four. The petition emphasized that since no one can fully guarantee the safety of nuclear power plants, and that all the experts have not been able to explain why things like the Q-fish and radioactive apartment cases could happen, it would be a terrible mistake to build yet another plant. The group also condemned the AEC's abuse of the environmental impact process, and maintained that the country must institute programs in solar energy, cogeneration, and conservation to give the next generation a clean and safe environment. While the group's influence may

not be as wide as some of the other anti-nuclear organizations, their voice adds an important dimension to the anti-nuclear movement.

Taiwan-Russia Waste Connection

A Taipower delegation headed by Chairman Chang Chung-chien visited Russia in late May in preparation for signing an agreement which would permit Taiwan to ship high-level nuclear waste to the former Soviet Union for storage. Upon the delegation's return Chang announced that a deal would "shortly" be signed with an unnamed research institute.

It now looks as if the Russian option may be a dead end. Vladislav Kotlov, section chief in the Russian Atomic Energy Ministry's Information Department, said in an interview that public opinion and legal restrictions would make a deal unlikely. "Article 50 of the Law on the Protection of the Environment states that no nuclear waste can be brought into Russia from abroad. Furthermore, President Yeltsin signed Special Decree Number 452 in 1992, which explicitly bans this kind of toxic material from entering the country," Kotlov said.

Taipower's initial optimistic announcement of progress on talks with the Russian research institute now seems premature at best, and disingenuous at worst. Following the Russian Atomic Energy Ministry's response, Taiwan Environmental Protection Union Chairman Chang Kuo-lung said that Taipower lied to the people about the chance of shipping radwaste to Russia.

Professors Say "No" to Nukes

The Taiwan Association of University Professors presented an anti-Number Four petition signed by over 1000 college and university professors at a press conference on May 26. The petition urged the government to cancel plans to construct a fourth nuclear power plant in northern Taiwan, and to move quickly to improve safety in the nuclear program. Signatories to the petition included a prominent member of the Academy of Sciences, Li Jen-yuan, and president of Taiwan University Chen Wei-chao.

Taiwan Association of University Professors President Lin Feng-ching said that Taipower has relied for too long on the position that "the people don't understand nuclear power," and that the petition represents the professors' attempt to break Taipower's stranglehold on national energy policy. He condemned the state utility's unwillingness to investigate alternatives to nuclear power, such as increased efficiency, cogeneration, and renewable energy sources.

Engineering Physics?!

The Nuclear Engineering Department at Tsing Hua University announced on May 22 that in response to the public's misperception that its students all study to become nuclear power plant engineers, it will change its name to The Department of Nuclear Engineering and Engineering Physics. The department has been the major source of nuclear engineers for Taipower since its founding in 1964. Officials at the department stressed that graduates also pursue other fields, such as electrical engineering and materials science.

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