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1. Managing the aftermath of the March 11th earthquake and the crisis in Fukushima: the difficulties confronting the Kan administration.
- Arnaud Grivaud

Since March 11th, the government under Kan Naoto has been far from enjoying universal approval for its handling of the crisis. Firstly, the opposition is critical of the Prime Minister for his slow reaction in the hours immediately following the earthquake. For example, he only declared a nuclear alert two and a half hours two hours and a half? After being informed that the cooling systems for the main number 1 and 2 reactors were no longer working[1]. The Prime Minister was also sharply criticised for his helicopter flight over the site on March 12th, with some people asserting that his decision delayed the operations for cooling the reactors and releasing radioactive steam[2].

Certain failings have also been noted in his response to offers of international help. For example, apart from the rumour of its initial refusal of American aid[3], Japan turned down offers from Thailand and the Philippines to send search and rescue teams with sniffer dogs. Yet, at the same time, Japan authorised the deployment of 59 English firemen. For its part, Singapore had to wait eight days for authorisation (finally received on March 19th) and had to rely on private Japanese companies to get food and bottled water through to the victims[4]. The French robot detectors offered by AREVA and EDF were considered "unsuitable" by Japan. The paucity of requests from the Japanese government, and the imprecise wording of those that were made, were largely responsible for this confusion[5].

The government has also been criticised for concealing information, particularly on radiation levels, in order to avoid spreading panic. Whereas the figures were made available between March 14th and 16th (thanks to the SPEEDI system), it was only

1 *Yomiuri*, April 19th 2011.
2 *Yomiuri*, April 2nd 2011, editorial.
3 *Sankei*, March 18th 2011.
4 *Yomiuri*, March 28th 2011.
5 *Yomiuri*, March 28th 2011.

by April 12th that the danger level of the accident was raised to 7 (the same as at Chernobyl)[6]. The step-by-step extension of the evacuation zones around the plant likewise convinced several observers that the government had underestimated the danger[7]. Of course, the government has denied any cover-up, and has pointed the finger of blame at TEPCO (Tokyo Electric Power Company). On March 15th, convinced that the latter company had not transmitted certain information to the Cabinet office in time[8], the Prime Minister even decided to set up a joint "control centre" in the main company office, to include members of the government and TEPCO officials.

The crisis of confidence has been exacerbated by the way several former high officials at the Ministry of Economy, Trade, and Industry (METI) seem to have been "shuffled" (*amakudari*) across to TEPCO[9]. This practice, which has been widely criticised by the Japanese Democratic Party (JDP), is by no means restricted to the field of energy, and it is all the more serious in the present instance because 11 of the top officials re-appointed by TEPCO came from the Natural Resources and Energy Agency, as well as from the Industrial and Nuclear Safety Agency (the sub-section of METI mainly in charge of ensuring compliance with safety rules in the generating plants)[10]. The suspicion is that this collusion earned TEPCO a great deal of indulgence. In fact, on April 18th, Chief Cabinet Secretary Edano Yukio announced that the current measures aimed at prohibiting the practice of such "shuffling" would be strengthened. In addition, in its report on June 7th to the International Atomic Energy Agency (IAEA), the government confirmed its intention to make the Industrial and Nuclear Safety Agency independent of METI.

In addition to attacking these dubious practices, the JDP policy had already emphasised the need to keep its distance from the civil service (*Datsu kanryô izon*)[11]: over the last fifty years the latter has arrogated to itself some important powers in the decision-making process. Throughout this crisis, the pursuit of effective political leadership by the Cabinet (*Seiji shudô*) has taken the form of concentrating certain *ad hoc* agencies around the Prime Minister while dismissing the personnel from those same agencies. In this connection, the opposition has sharply criticised the absence of top civil servants from the Committee in charge of drawing up the plans for reconstruction (*Fukkô kôsô kaigi*)[12]. In order to avoid relying on experts from TEPCO or the administration, the Prime Minister engaged 6 additional advisors (*Kanbô sanyo*),

6 *Yomiuri*, April 13th 2011.

7 *Yomiuri*, April 13th 2011.

8 A recent report concerned a unilateral decision on the introduction of seawater into the reactors on March 12 2011. After being widely reported in the press, this information turned out to be inaccurate, showing a large amount of confusion in communications between TEPCO and the government.

9 During the last 50 years, 68 leading officials from this ministry have been re-appointed to decision-making posts in the 12 national electricity companies. Out of this number, 13 joined TEPCO, where 3 were vice-Chairmen. Sources: *Kyodo News*, May 4th 2011, and *Yomiuri*, April 19th.

10 117th session of the Chamber of Representatives, Cabinet committee no. 12, May 25th 2011. Moreover, Ishida Tooru, a former member of the Natural Resources and Energy Agency, was re-appointed as an advisor to TEPCO last January, when the JDP was in power. The opposition did not miss this chance to criticise the government.

11 *Minshutô no seiken seisaku - manifesuto*, political programme of the JDP, 2009.

12 *Yomiuri*, April 15th 2011. The latter argued in effect that the presence of bureaucrats, who are often more closely informed of the realities on the ground, could have lessened the risk of unrealistic proposals being put forward.

including 5 nuclear experts[13]. On March 17th he appointed Sengoku Yoshito, the former Chief Cabinet Secretary, to the position of assistant general secretary, and entrusted him with the task of negotiating with the opposition to form a coalition. Refusing to delegate certain issues to the civil service, the Prime Minister rapidly concluded that he had to strengthen his own team. So on April 4th he proposed a revision to the Cabinet regulations (*Naikakuhô*) allowing an increase in the support staff for three new ministers (whose number rose from 17 to 20), for 5 assistants (*Hosakan*), for 6 vice-ministers (*Fuku daijin*) and for 6 political vice-ministers (*Seimukan*)[14].

Nonetheless, on March 22nd an Inter-ministerial Committee, consisting of top civil servants from the different ministries involved, was established to provide aid to the affected parts of the population. The *Yomiuri* daily saw that as both an emergency measure and an admission by the Cabinet of the failure of its anti-civil service policy[15]. But Edano Yukio specified that the main task of this body was to confirm that the government's decisions were effectively implemented by the various ministries[16]. Nonetheless, the mutual mistrust between the civil service and the Cabinet has undoubtedly put considerable restraints upon the degree of co-operation between the Cabinet, the civil service, and the private sector throughout the crisis[17].

Despite the concentration of decision-making powers onto the team around the Prime Minister, the proliferation in the number of agencies being established (over twenty in all)[18] and the lack of clarity in specifying their respective roles, brought confusion into the chain of command, and occasionally led to disjointedness and delays (*See insert*). In fact it was only on April 27th that the various agencies were organised around three main planks (earthquake and tsunami issues, the nuclear accident, and reconstruction). But the delay in adopting an overall law on reconstruction (*Fukkô kihonhô*) which could establish the different agencies in charge of taking the required measures, is particularly worrying, and unfortunately quite typical.[19]

After numerous skirmishes, the JDP had to accept the textual inclusion of the objections from the main opposition parties (particularly with regard to the establishment of an Agency for Reconstruction). The second additional budget for reconstruction also seems to have been delayed, so that it was not likely to see the light of day in June, as was the earlier intention.[20]

Criticisms of the Prime Minister are not restricted solely to the opposition parties and the media. The relative solidarity within the JDP in the early stages appears not to have withstood the painful setbacks inflicted on the party in multiple local elections in mid-April. Many voices were quickly raised within the party calling for the resignation of the Prime Minister and his team. It is hardly surprising that the main body of this protest movement is made up of parliamentarians close to Ozawa Ichirô and the former Prime Minister Hatoyama Yukio.[21] But even the

13 On April 29th the radiation expert Kosako Toshisô resigned. Believing that he was being ignored, he accused the government of only taking «short term measures», thus causing delays. *Yomiuri*, April 30th 2011.

14 *Yomiuri*, April 4th 2011.

15 *Yomiuri*, March 23rd 2011.

16 *Yomiuri*, March 23rd 2011.

17 *Yomiuri*, April 19th 2011.

18 *Sankei*, May 11th 2011.

19 It was due to be passed on June 17th, i.e. three months after the earthquake. This caan be compared with a similar measure approved by the Diet one month after the Kôbe earthquake.

20 *Sankei*, March 11th 2011.

21 A meeting of «anti-Kan» parliamentarians (*Sôchôwa no kai*) was held on April 26th. *Sankei*

chairman of the Chamber of Councillors (the upper chamber), Nishioka Takeo[22], wrote to the Prime Minister inviting him to resign[23]. The opposition within the JDP was such that on June 2nd a motion by three opposition parties censuring the Prime Minister failed to get adopted[24]. It was rejected by 293 votes against 152 and 15 abstentions by JDP members[25]. Despite this rejection, there has been no lessening in the criticisms of the Prime Minister and his cabinet. Several names have already been brought up to become his successor.

But these political intrigues have not been well received by public opinion, which is broadly in favour of co-operation between the parties[26]. The glaring gap between the concerns of the politicians and the real needs of the suffering population is only serving to strengthen the mistrust and exasperation which the latter feel towards the self-centredness of the political class[27].

April 25th 2011.

22 In a public declaration on August 23rd 2010, Nishioka Takeo had opposed Ozawa Ichirô's candidacy for the 2010 primaries.

23 This letter was published by the *Yomiuri* newspaper on April 18th 2011.

24 At the last minute the Prime Minister managed to convince his followers to reject the motion by saying that he was willing to resign «as soon as the problems relating to the earthquake and the generating plants are partly overcome». When he announced a little later that he had August in mind whereas others were thinking of June, Hatoyama called him a «cheat» (*Petenshi*)! *Tôkyô Shimbun*, June 3rd.

25 However, 2 JDP members voted for the censure motion. They were due to be summoned to appear before a party ethics committee on June 20th. *Mainichi*, June 15th 2011.

26 *Yomiuri*, April 4th 2011, when an opinion poll showed that 67% expressed a preference for the establishment of a coalition between the majority and the opposition.

27 *Tôkyô Shimbun*, June 3rd 2011.

Main agencies set up following the catastrophe					
Agency name	**Agency name in Japanese****	**Affiliation**	**Membership**	**Principal Tasks**	**Date when set upHQ**
Command Centre for measures against exceptional catastrophes	Kinkyû sagai taisaku honbu	Cabinet	Cabinet members and others	To take all necessary measures in the event of exceptional calamities of major proportions	March 11th
Command Centre for measures against nuclear catastrophes	Genshiryoku saigai taisaku honbu	Cabinet	Cabinet members and others	To take the necessary measures in the event of a nuclear alert being declared	March 11th
United TEPCO* and government Command Centre	Seifu tôkyô denryoku tô gô taisakushitsu	Command Centre in charge of measures against nuclear catastrophes	Members of the Diet and TEPCO officials	To facilitate the exchange of information between the government and TEPCO in making decisions concerning the nuclear accident	March 15th
Joint government and opposition Assembly for measures to overcome the catastrophe	Kakutô-seifu shinsai taisaku gôdô kaigi	Independent agency	Members of the Diet and officials from the various parties	To consult jointly with the opposition on the measures to be taken with regard to handling the catastrophe and the reconstruction	March 16th
Team in charge of aid to the affected populations*	Hisaisha seikatsu shien chîmu	Command Centre for measures against exceptional catastrophes	Cabinet members and others	To aid the affected populations in their daily lives (particularly in providing emergency aid)	March 17th
Inter-ministerial Assembly to aid the affected populations	Hisaisha seikatsu shien kakufushô renraku kaigi	Team in charge of aid to the affected populations	Top civil servants	To check that the decisions taken by the team in charge of aid to the affected populations are properly implemented by the different ministries	March 22nd

Team in charge of aid to the populations affected by the nuclear accident*	Genshiryoku hisaisha seikatsu shien chîmu	Command Centre in charge of measures against nuclear catastrophes	Cabinet members and others	To assist the affected population living within the 30 km evacuation area around the plant	March 29th
Committee in charge of drawing up reconstruction plans	Fukkô kôsô kaigi	Prime Ministerial staff	Intellectuals and academics	To draw up proposals to be presented to the Prime Minister with regard to reconstruction	April 11th
Team in charge of economic setbacks due to the nuclear accident*	Genpatsu jiko keizai higai taiô chîmu	Command Centre in charge of measures against nuclear catastrophes	Cabinet members and others	To consider compensation for those affected (fishermen, farmers etc.)	April 11th
Special committee for reconstruction	Shûin fukkô tokubetsu i.inkai	Chamber of Representatatives	Members of the Chamber	To consider and draft laws relating to reconstruction (particularly the basic law)	May 19th
Main pre-existing agencies					
The Nuclear and Industrial Safety Agency (NISA)	Genshiryoku anzen-hoan. in	Ministry of Industry	Top officials of the Ministry of Industry	To ensure that the safety measures are observed by the firms running the nuclear power statiions	2001
The Nuclear Safety Commission (NSC)	Genshiryoku anzen i.inkai	Cabinet	Academics and researchers	To consider appropriate safety measures and to provide technical advice to the ministries concerned	1956
Agencies set up under the basic law for reconstruction					
Command Centre for reconstruction	Fukkô taisaku honbu	Cabinet	Members of the Cabinet and the opposition	To draft and implement reconstruction projects and ensure co-ordination between the different agencies	June 17th (?)
Reconstruction Agency	Fukkô-chô (temporary)	Independent Agency	To be decided	To continue the work of the Command Centre for reconstruction (but with more decision-making powers)	(?)

2. Reconstruction and risk management: some Japanese experiences
- Adrienne Sala

Although Japan is not the only country to have experienced crises arising from natural catastrophes, the extent of the destruction in its northwest area (*Tôhoku*) demonstrates the complex nature of prevention and risk management on the one hand, and of the adoption and implementation of reconstruction projects on the other. The intensity of the earthquake preceding the tsunami, and the consequent nuclear crisis created a combination of risks of a type not easily foreseeable by public bodies and experts alike. In addition, Japan has been undergoing a period of economic stagnation for nearly 20 years, with its public debt (calculated at 210% of GDP for 2012) being by far the highest among all the members of the OECD. Thus, despite the extent of the damage and the crisis management it requires, governmental intervention is limited by several factors: financial constraints, a lack of human resources, and a shortfall in expertise which is easily explained by the absence of any previous experience of this kind of catastrophe. Nonetheless the restrictions on the room for manoeuvre by the public authorities were compensated by the reconstruction efforts undertaken within the stricken communities themselves, and by the actions on the part of civil society to provide aid and support to the victims. This illustrates how reconstruction requires co-ordinated efforts by society as a whole, at the political, social, and economic levels.

Foreseeing the various forms of catastrophe

Japanese experience has shown that whenever there is a natural disaster on the scale of the earthquakes which struck Kobe in 1995, Niigata in 2007, or the more recent one in Tôhoku on March 11th 2011, the efficiency and speed of the public authorities' response depends on the risk management and prevention plans already established by the government's strategic planning. For example, the eastern coastal area of Tokai, the south-eastern coastal area of Tonankai, and the southern coastal area of Nankai are all classified as comprising one high-risk seismic region. According to Japanese governmental estimates, if there were two simultaneous earthquakes within this overall region, casualties could be as high as 250,000 fatalities, in addition to considerable economic damage.

Being aware of the constant risk facing this central region, the Japanese government has been busily drawing up strategic plans to implement directives aimed at forestalling the risks posed by the possibility of earthquakes occurring there, either simultaneously or consecutively. In general, government reports set out the basic measures to be implemented in cases of emergency, such as the establishment of an information system, an emergency operations unit, the restoration of transport links to bring in food and water, the establishment of an evacuation centre for refugees, measures for medical aid and the treatment of dead bodies, preventive measures in case of a second disaster, the means for receiving and distributing voluntary aid etc. However, researchers have shown that while these reports are certainly adequate for establishing basic measures, they do not pay sufficient attention to the demographic, social, industrial, and economic differences specific to each of the areas in the overall zone at risk[28].

28 Norio Maki, Hai-Li Chen, and Shingo Suzuki (2009) «Response to Possible Earthquake Disasters in the Tokai, Tonanki, and Nankai Areas, and Their Restoration/Reconstruction Strategies», Journal of Disaster Research Vol. 4 No. 2, 2009.

For example, the demographics of the city of Osaka are different from those of Nabari in the Mie prefecture, which is facing the problem of an ageing and declining population. Or again, the Nagoya region is exposed to a heavy risk of flooding whereas the Wakayama region is mountainous, which makes access for aid difficult. The industrial sectors also vary according to city and region: for example, activity in the Osaka region depends largely on the wholesale and retail trade whereas economic activity in the Nagoya region is heavily dependent on the manufacturing sector. So, all these differences have to be considered jointly, in order to make plans for the prevention and risk management best suited to meet the needs of those affected by any disaster. As things stand, if an earthquake were to strike one of these regions, the risks of a further natural disaster (earthquake, tsunami, typhoon, fire etc.), whether simultaneously or over an extended period, have not been sufficiently assessed by the authorities, owing to the lack of any precise analysis of the characteristics of each region. Consequently, the extent of the potential damage has certainly been under-estimated.

Furthermore, according to the white paper on health, the size of the Japanese population by 2035 is reckoned to be no more than 110 million, of which 37% will consist of people over 65 years old. Depopulation has a major impact on regional economic performance. Not only is the Tôhoku region confronted by the problem of an ageing population, but also by shrinking employment opportunities, falling investments, and the difficulty of attracting new industries. So the earthquake and tsunami on March 11th struck a region of Japan which was already weakened by many social and economic problems. This means that the situation which the authorities have to manage is quite different from the aftermath of the 1995 earthquake in the Kobe area (Hanshin-Awaji), a key economic area for Japan which was relatively stable at the time.

Despite the preventive efforts of certain local administrations, the reality on March 11th far outstripped all expectations. According to an opinion poll conducted by NHK[29] covering 42 townships in the prefectures of Iwate, Miyagi, and Fukushima, 60% of the respondents believed that the complete rebuilding of their town would not be possible. Although 80% acknowledged that considerable progress had been made in rebuilding temporary housing and infrastructure, 90% replied that they had little hope for the restoration of industry and the employment market. Also, although there are good grounds for thinking that Japan has the necessary resources, skills, and social cohesion, the reconstruction efforts and the planning required are set to cover a period of over five years. This country which already has a considerable burden of public debt, has to rebuild at a rate not seen since the end of the second world war.

However, although the economic situation following the 1995 Kobe earthquake was more favourable to the implementation of reconstruction planning, the authorities' actual management of the crisis revealed a quite different reality. The fact is that reconstruction plans and social programmes require a competent social organisation capable of taking exceptional measures. The experience of 1995 showed up the weakness of the Japanese authorities in this respect.

Implementing plans for the rebuilding of public housing

Kenji Koshiyama has compared various national governments' ability to react

29 http://www3.nhk.or.jp/daily/english/13_05.html

effectively and implement reconstruction plans, in the framework of housing policies aimed at helping the victims to resume a normal life, following the earthquakes in Kobe (January 1995), Mexico City (September 1985), and two cities in Turkey where there were two earthquakes separated by an interval of three months, namely Kocaeli (August 1999) and Bolu (November 1999)[30]. Formulating policies for reconstruction poses three major questions: which location should be chosen, how many housing units should be built, and finally what are the objectives guiding the implementation of the plans for reconstruction. Reconstruction strategies are generally based on two main principles: material compensation and financial aid.

For example in their rebuilding programmes for Mexico City, the authorities grasped a problem which pre-existed the earthquake itself, namely the fact that the lower classes were living in outdated crumbling dwellings in the central area of the city. So a system of low interest credits was devised to enable the affected low income families to buy their own housing. In Turkey, by contrast, the earthquakes destroyed housing in the city centre areas largely inhabited by the middle class. By building the new housing on the outskirts of the city centre area, the Turkish government opted for urban development based on residential suburbs. A system of long term credit helped families who were already property owners to buy their new housing. Koshiyama shows how the capacity to react and organise administratively enabled the Mexican and the Turkish authorities to implement their respective exceptional rebuilding measures.

Unlike Mexico and Turkey, the Japanese government has followed the same housing policies that were in force before the earthquake[31]. The government has financed the building of new housing in the suburbs and on the seafront, but unlike the cases of Mexico and Turkey, these dwellings are exclusively rental property. By giving priority to material compensation rather than to financial aid for the victims, the Japanese government has been criticised for its poor social management on behalf of the earthquake victims. In addition, the relocation of the latter into housing far from their former living areas raises the problem of maintaining their social links, in both Japan and Turkey.

The implementation of the rebuilding plans raises the need to rethink the public housing policies applied in normal times. The actions of the Japanese authorities testify to a lack of willingness to undertake the rebuilding of the affected areas on the basis of a new public housing policy which could improve the daily lives and the security of the citizenry, for example by devising new building standards for earthquake protection. The Japanese experience shows that an effective reconstruction policy does not depend solely on the availability of financial resources but also on the government's ability to plan for emergencies and the political will to re-establish the daily lives of the victims over the long term.

The authorities are becoming increasingly aware that urbanisation is adding greatly to the risks arising from natural disasters. If a quake on the scale of the one which affected Tôhoku were to strike a major

30 Kenji Koshiyama (2011), «Comparison of International and Domestic Methods of Providing Housing After Disasters», Journal of Disaster Research Vol. 6 No. 2, 2011.

31 Y. Hirayama *et al.*, "SHINSAIHUKKO TO JUUTAKUSEISAKU", Proposal Housing and Machidukuri [sic] learned from the big earthquake, Study group of Hanshin-Awaji Earthquake Support Institute, Toho Shuppan, pp. 9-26, 1999 (in Japanese).

conurbation, the loss in terms of human lives and the economic consequences would be considerable, and this risk is growing on a global scale because of the expansion of cities located in high earthquake risk areas. In order to face this danger more effectively, the Japanese government is investing in different research programmes, including among the more recent ones the "*Strategic plan for earthquake disaster reduction*" (2005) which aims at reducing the risk of human and economic losses by 2015. A law has been passed recently to encourage local authorities to promote the construction of earthquake-resistant buildings, and every prefecture now has to draw up action plans to reduce the numbers of casualties. However, the Tôhoku incident shows that the earthquake and the tsunami mainly devastated coastal areas where the daily existence of hundreds of thousands of people was heavily dependent on social bonds. Community organisation and the activities of civil society have borne witness to the ability of the citizens themselves to make up for the authorities' limited ability to intervene in the event of a crisis like that of March 11th.

Lessons which have been learnt since the Kobe earthquake

After March 11th, there was some criticism that the government and the private sector, despite a degree of co-ordination, did not react swiftly enough to provide help to the victims. Of course, aid on the part of public bodies, especially the armed forces, is aimed primarily at the immediate victims and those who have lost their housing, through the provision of refugee centres where nearly 100,000 people are still living. While the dire state of available employment threatens to cause a migration of the youth and those who have lost everything to other parts of Japan, the efforts on the part of the inhabitants to rebuild their homes testify to a strong contrary desire to remain where the earthquake has carried off a large part of their wealth, and to hand down a symbolic inheritance to future generations.

Following the Kobe earthquake a great number of voluntary centres were set up. This was a time considered to be Year 1 in volunteering because these centres altered the perception of benevolent organisations in Japan. The basic idea of civil society and of voluntary activity is that it gives support to the afflicted when public bodies are too slow or fail to deliver the necessary help. Before 1995, the term "volonteer" had negative connotations linked to the idea of sacrifice. Such activities were rare and only carried out by a minority. Volunteering gained a more positive image as soon as citizens discovered a real meaning in those activities whose non-compulsory nature gives a feeling of personal accomplishment directed at helping the victims. Such a shift in social meaning has also favoured the creation of structures which encourage spontaneous activities on the part of private citizens, and this shift enabled a law to be passed in 2001 to promote non-profit making activities (the *Non profit activities promotion Law*).

Moreover, victims who have received help from voluntary workers feel the need to pay back their debt to society, often by choosing to provide help to future victims. The relationship between an afflicted area and an area afflicted later is defined by the term "reciprocity"[32], and it allows the sharing of know-how and experiences. Following a disaster, citizens come to recognise the importance of collective action in building a better society. A. H. Burton has defined this as a "disaster utopia" (1969), in which the

32 Y. Yamashita, and M. Suga, «The Sociology of Post-earthquake Volunteers», Minerva Publishing, 2002.

survivors are able to regain control over their lives, display feelings of brotherhood, and help each other through rescue activities motivated by altruism.

The need for flexibility in setting up social emergency systems

The formation of a system for temporary mutual co-ordination is known as a "social emergency system" within whose framework the actions of volunteers can be co-ordinated with the public bodies. The flexibility of these unofficial agents helps the public organisations to confront the rapid development of new situations. For example, after the Kobe earthquake, the public authorities experienced difficulties in co-ordinating their help to the victims, whereas the volunteer centres organised themselves swiftly and spontaneously. This system enabled the volunteers to choose exactly where to intervene, which speeded up decision-making and the actual provision of assistance to the victims[33].

Although the kind of aid required varies according to the nature of the disaster, the management structures of the emergency services have a common basis. This encourages the sharing of experience in order to improve the handling of future disasters, and the creation of volunteer networks at the national level (*Nationwide networks connected via disasters, Nation-wide network for disaster relief volunteers etc.*). In 2004, an exceptional year for the number of natural catastrophes, 87 volunteer centres grew up throughout the country, thus demonstrating the growing popularity of volunteering. Over the ten years following the Kobe quake, relationships of mutual trust were established between the various governmental agencies and the private organisations, in the field of health and social affairs, thus reinforcing co-operation between the public and private sectors. Voluntary organisations have a great strength in their flexibility of action and management on the one hand, and in their proximity to the victims on the other, which allows them to plan according to the point of view of the victims. When there is a lasting relationship between victims and voluntary helpers, this creates a degree of social capital which helps to improve the quality of the aid, thanks to the effects of the main determining factor which is the trust between the volunteer centres and the victims.

33 N. Hayase, «Volunteer theory: Citizens' participation; a new actor of the public sector,» Japan Association of Local Government Policy Studies, Editorial. Re-evaluating city planning; disaster prevention and local governance: Local Government Policy StudiRyosho-Fukyukai, 9, pp. 79-93, 1996.

POINTS OF NEWS

Itô Hisao, "How to get out of nuclear dependency: considerations on independent local development" [Genpatsu izon kara dô dakkyaku suruka – Jiritsu shita machizukuri wo kangaeru], *Sekai*, n°812, January 2011, pp.176-184. *(translated from Japanese by Paul Noeuvéglise).*

Itô Hisao is a former official at Tôkyô City Hall and is currently a researcher at the research centre on the autonomy of Tôkyô. He is a member of the executive committee of the NGO "Machi Potto" which devotes its efforts towards strengthening civil society. His article emphasises the high cost involved in locating nuclear plants in small towns.

1. Autonomous country communities which host nuclear plants become impoverished.

The economic collapse and structural impoverishment of autonomous country communities

The autonomous country communities are finding themselves in a situation of structural collapse. Since the economic meltdown of the town of Yûbari[34], the question of the administrative and financial autonomy of country communities has been increasingly a matter of discussion. However, their impoverishment and the incidents of bankruptcy cannot be attributed solely to their financial administration. Other factors are the increased ageing of the population [...], the increasing numbers of elderly people of unknown residential origin and

34 Yûbari is a townsip in Hokkaïdo whose economic activity was based on coalmining until the mines were closed in the 1980s. The town hall authorities attempted to redirect this activity into tourism by means of massive investment in attractions with funds borrowed from the State. For lack of tourists, Yûbari went bankrupt in the face of the State's refusal to bail them out. Its fate was widely covered by the media in 2008.

their deaths in isolation, the worsening rates of childhood abuse and the annual suicide rates rising above thirty thousand per year, poverty and unemployment, the widening gap of social inequality, the concentration of the population and industry in the Tôkyô region at the expense of the other regions, and the rapid increase in regional disparities ... all of these problems combine to eradicate co-operation between communities at the national level. The situation could be summed up as a deterioration in the quality of public and community services provided by the autonomous country communities, and by the various groups at the regional level. It could be argued that awareness of these problems and the need for change is no longer just a national preoccupation but has become an experience shared by all the autonomous country communities and their local populations while, strangely enough, the central government does not seem to be bothered by this debacle. The concept of a "limited community" [*genkai shûraku*], which has already been in use for about a decade, is the most suitable one to convey the situation of bankruptcies and long-term impoverishment facing the autonomous communities, particularly those in mountainous regions. However, the concept of a "limited community" is now rapidly giving way to that of a "disappeared community" [*shûraku shômetsu*]. The term "limited community" is also tending to be used to describe large residential areas in the big cities [...]. The impoverishment of a region is directly related to the economic failure of the autonomous communities. We are already in the midst of an emergency which demands immediate action.

The fate of regional management of tax revenues: the shock of 2010

If we turn our attention to the funds made available to the local communities, we note that they have been greatly affected by the declaration on July 23rd 2010 by the Ministry of the Interior concerning the plan for 2010 concerning the local communities' control over tax revenue. In one blow, 75 communities saw the management of this revenue put under the control of the State - a change which the media have called "ruinous".

What is so surprising about this affair? Firstly, five of the communities of over 500,000 inhabitants enjoying the status of "designated commune" [or regional metropolis, *seirei shitei toshi*], which grants them autonomous management of their finances in relation to the departments, suffered this change of regime with its consequent loss of autonomy. Such were the cases of Saitama, Chiba, Yokohama, Sagammihara, and Nagoya [....]

Secondly, by 2010 several years of continuing financial problems in the regions had led to a reduction of the number of countryside communities to a mere 74 (significantly, the 23 districts of Tôkyô are autonomous communities). At the departmental and regional level, after Aichi department lost its autonomous status in 2009, only the Tôkyô region retains its autonomous status. The reduction of the number of autonomous communities from 2007 to 2010 was as follows (including the reductions due to the merging of communities):

- 2007: 186 autonomous communities
- 2008: 177 autonomous communities
- 2009: 151 autonomous communities
- 2010: 74 autonomous communities

This table shows a particularly drastic reduction for 2010.

The failure of the system for sharing regional tax incomes

[...] The system for sharing tax income sets a fixed rate for sharing the five national taxes among the regions (income tax, company tax, alcohol tax, taxes on consumption, and tobacco). Its aim is to rebalance the inequalities between the different communities and to guarantee that every citizen will benefit from the same services in every region.

[...] Nonetheless, the current system is not working. How has this arisen? There are two separate explanations. The first concerns the effects of the so-called tri-partite reforms.[35] This set of reforms, established by the Koizumi government enforced a reduction in the subsidies and the tax share allocated to the regions, but the transfer of funds turned out to be very insufficient. The second explanation quite obviously lies with the economic climate since the collapse of Lehman Brothers. This crisis had a sharp effect on the communities' finances, particularly on the share of tax funds for financing the local associations, which fell considerably.

A larger transfer of central funds is currently being sought. The present government's strategy for decentralising power includes the apparently clear objective of a "guarantee to top up the finances arising from local taxation". However, the debate around these issues has not yet led to concrete proposals. Moreover the question of redistributing tax income and the transfer of special funds has been relegated to the third rank in the priorities of the government's programme. In this new assessment, financial adjustments and funding guarantees have been addressed as separate issues. Among other things, this has meant reconsidering the redistribution of tax income among the regions as a matter of adjustment, which would include a guarantee on the financing of necessary and irreducible expenditure based on a national minimum. Within this approach, it is difficult to detect any element of response which would allow the reform of the current situation, in which the countryside communities can no longer make ends meet.

The fiscal structure in townships which host nuclear installations

The fiscal structure in communities which have nuclear plants on their land reflects in every way the current financial management of the autonomous communities. Everything clearly depends on whether the communities in question enjoy autonomous status or not within the overall fiscal distribution arrangements.

One of the financial indicators available to the autonomous communities is the "financial index". This is defined as the ratio between the basic income of a community and the demand for the allocation of tax revenues which it presents to the State. When this falls below parity, always within the framework of State's redistribution of tax revenues to the regions, the community concerned is non-autonomous; when it rises above parity, the community concerned is clearly autonomous [...]. The lower the financial index, the lower is that community's capacity to benefit from taxation, and therefore the greater its dependence on the redistribution system.

Among all the communities with nuclear plants on their land there are only seven autonomous ones, including Tomarimura, Rokkoshamura, Onagawachô, Tôkaimura,

35 This refers to the triple reform undertaken by the Koizumi government dealing with the relationship between the State and the local communities in financial affairs.

Kariwamura, and Genkaimashi [...]. It might be supposed that communities hosting nuclear plants would receive higher tax income from them than communities without them, but then why are there so many non-autonomous communities in the former category? In order to understand this, it is necessary to take a closer look at the specific nature of these communities' fiscal structure.

Of course, the "financial index" is not the only reliable guide to understanding. In addition, I have attempted to compare the autonomous communities with the non-autonomous ones by recourse to several other indicators [....].

The question of the non-autonomous communities

It is difficult to compare the financial structures of communities with nuclear installations because they differ from each other in many respects. The nuclear plants differ in size, their number of reactors, the physical condition of their location, and the length of time they have been in service. The communities themselves differ in the size of their population, their industrial structure, and the area covered by the autonomous zone. Consideration could also be given to the opinions of the officials in charge of the finances of these diverse communities. By referring to the comparative tables on public finances distributed by the Ministry of the Interior, the typical viewpoints of the officials in charge of the finances of the autonomous communities can be summed up as follows:

1. In order to compare these communities, an indicator of their financial situation needs to be used. One such indicator might be the property taxes levied on the nuclear sites [...]. The communities are grouped by the Ministry of the Interior on the basis of their similarity in terms of their population and their industrial structure. In this way they have defined 35 groups by taking into consideration all the townships in the country as a whole.
2. Property taxes fall with the passage of time. Taxation on depreciating resources is such an important point that attention should be given to this trend. Although improvements and large-scale rebuilding on nuclear sites bring about increased tax revenues, this increase is only temporary.
3. All the maintenance and operating costs of these publicly owned installations have until now been a burden on the communities' finances.

To make a clearer analysis of this situation, I propose to take a closer look at the nuclear plant and its finances in the town of Kashiwazaki.

2. The nuclear plant and its finances in the town of Kashiwazaki

The municipal finances and the financial resources related to the nuclear plant

[...] Firstly, dividing into ten-year sections the average costs of the nuclear plant from its construction up to the present day allows us to calculate its overall cost for the 31 years of its existence. The funding from the State was distributed according to its policies for the regions where nuclear plants are located. Several points stand out:

1. The amount earmarked by the State, or by the department for nuclear installations, was at its highest in 2007, the year of the

Niigata earthquake. There followed a reduction in 2008, and although there was an increase in 2009, the trend towards an average rate of reduction was firmly set in 2010.

2. Because of the earthquake in 2007, and the subsequent shutdown of the reactors, the community tax on all taxable entities, including the nuclear plant therefore, could not be properly levied, so that this tax income only increased very slightly in 2009.
3. The real problem arises from the taxation on property. In the 1980s and 1990s this tax income was at its highest. In the five years between 1994 and 1998, income from property taxes was above 10 billion yen per year. In 1995 it peaked at 12.7 billion yen. After that, the returns went into constant decline [falling as low as 4 billion yen in 2009]. And there is nothing to suggest any rise in income from property taxes in the future.
4. As a result, the finances of the town of Kashiwazaki will continue to depend on the tax income distributed by the State, along with the funds allocated to the regions hosting nuclear installations.

Spending the funds allocated for the nuclear plant

The sums of money related to the nuclear installations, like for instance the funds distributed to the regions which produce electricity, is not only a matter decided by annual receipts. Previously I have mentioned the pressure exercised on municipal finances by the costs of maintenance and administration, which fall to those communities with nuclear plants on their land. Now I must consider the way in which the funds accruing to the nuclear plants are spent.

The townships playing host to nuclear facilities receive governmental funds in accordance with the three laws on electricity[36]. The greater part of the aid received by the town of Kashiwazaki is intended among others for regions where there are electricity generating plants and their grids within the overall context of projects for renovating publicly owned services. Moreover, since 2003 this manna from heaven has been made available to more ambitious projects, henceforth extended to include newly favoured projects for regional revitalisation. The following is a list of such projects deemed to be pertinent:

- Projects for renovating public utilities: roads and pathways, harbours, public parks, sports facilities, facilities for environmental protection like rubbish disposal, medical institutions, social services, cultural and educational institutions, infrastructures to preserve the landscape (river preservation, sustaining walls), road safety equipment, equipment connected with the primary sector (agriculture, fisheries, forestry); tourist attractions.
- Projects for regional revitalisation: support for local industrial

36 This generic term, the «three laws on electricity» [*dengen sanpô*] covers the following:
- The tax law on the promotion and development of electrical energy [*dengen kaihatsu sokushin zeihou*] whose first version became law in 1974;
- the regulations covering special accounts [*tokubetsu kaikei ni kansuru horitsu*], particularly those designated for the implementation of energy policies which include support for communities hosting nuclear installations;
- the law on support for outlying regions hosting electricity generating plants [*hatsudenyô shisetsu shûhenchiiki seibi hou*].

development; increasing the use of local resources; supply of social services; management, protection, and improved use of the environment; daily amenities; training and qualifications.

In all the above cases the funds may be drawn on, even for projects said to be difficult like administration and the upkeep of public facilities. It might be said that the financial resources linked to the nuclear power plant are indispensable for the management and upkeep of highly important equipment set up under the funding for nuclear power. But the current situation is more easily grasped by focusing on projects which invest in human capital. For example, these funds can be used for managing schools, kindergartens, or school meals even. If there is any dependency on finances arising from the nuclear plant, the funds can be used to enable the implementation of all these local projects.

The future development of municipal finances

Financial planning for the town of Kashiwazaki was revised in 2010 [...], when it was specifically stated that it is "possible to ensure a budget surplus until 2017". Although it clearly speaks of "a budget surplus", this revision actually emphasises the seriousness of the situation, particularly with regard to the following two points:

Firstly, although the provisional budget for the town was greatly increased on account of the earthquake in 2007, it was only set to return to its pre-catastrophe level gradually from 2013 onwards. Yet its annual make-up has greatly changed. As I have already explained, it is possible to envisage the situation of complete dependence on the nuclear financial arrangements and the system for sharing tax income being perpetuated.

Secondly, even though the share of real public borrowing is already over 20%, I believe that we should be prepared for an increase in the share of borrowing to over 25%, because 2010 will see the beginning of repayments of significant amounts of the debt incurred to finance repairs to the damage caused by the earthquake. As a community which hosts nuclear installations on its land, like the town of Futaba[37], the community will be forced to regularise its provisional budget in accordance with the law on balancing public finances.

To sum up, it is clear that the town of Kashiwazaki's financial dependence on the funds related to nuclear installations and on the distribution of tax revenues is set to increase. If an equitable system for sharing tax revenues among the different communities is not set up under the present government, and if the failings of the system for distribution to the local communities are perpetuated, there is the fearful possibility of its increased dependence on funds allocated for hosting nuclear plants.

37 In 1998, the budget of the town of Futaba [*Futaba-chô*] in the department of Fukushima overshot the level of 25 million in public borrowing, and was therefore designated as being in urgent need of regularising its finances. It was this town which was almost entirely (90%) destroyed in the March 2011 earthquake, while its proximity to the Fukushima plant put it in the exclusion zone.

Son Masayoshi, "Towards a solar belt in Eastern Japan: Japan will rise again thanks to solar and wind sources", [Higashi Nihon ni sôrâ beruto chitai o – taiyô no minato, kaze no minato de nihon wa yomigaeru], *Sekai*, June 2011, p. 44-51. *(translated from Japanese by Amélie Corbel).*

Son Masayoshi is a successful entrepreneur in Japan. He is chairman of the Softbank group which he set up himself in 1981, which makes him a member of the economic elite in the country. Since March 11th he has been personally committed to providing aid to the victims of the earthquake and the tsunami, having donated 10 billion yen (about 85 million euros). In addition Softbank has established a range of measures to help the victims, particularly in the provision of mobile telecommunications. He has also taken a lead in arguing for abandoning the country's reliance on nuclear energy and in making concrete proposals to bring this about. Finally, as a graduate in economics from the university of Berkeley in the US, Son Masayoshi's career provides an atypical international model, with its charismatic appeal to Japanese seeking a new type of leader.

Without electricity, telecommunications are impossible. While the prospects of a nuclear accident are very worrying, without nuclear power plants there can be no more electricity. At least, that is what I still thought until quite recently [...].

In his response to the nuclear accident at Fukushima, Prime Minister Naoto Kan gave clear expression to the following points:

- With regard to the existing generating stations: "*the need to reinforce the security rules in use up to the present*";
- With regard to the plans for building new power stations: "*a complete reconsideration of the whole issue*";
- "*while pursuing plans to increase nuclear security, an active re-engagement with green energy*".
- I am in complete agreement with these three points, and in order to pursue these reflections further I would like to make some concrete proposals.

As you probably know already, Japan's energy production consists of 30% nuclear energy, 9% renewable energy sources (mostly hydroelectric), and 61% thermal energy. Without the nuclear plants, there would be an energy gap. This was shown by the need for planned power cuts, mainly in the Kantô region, which caused an outcry.

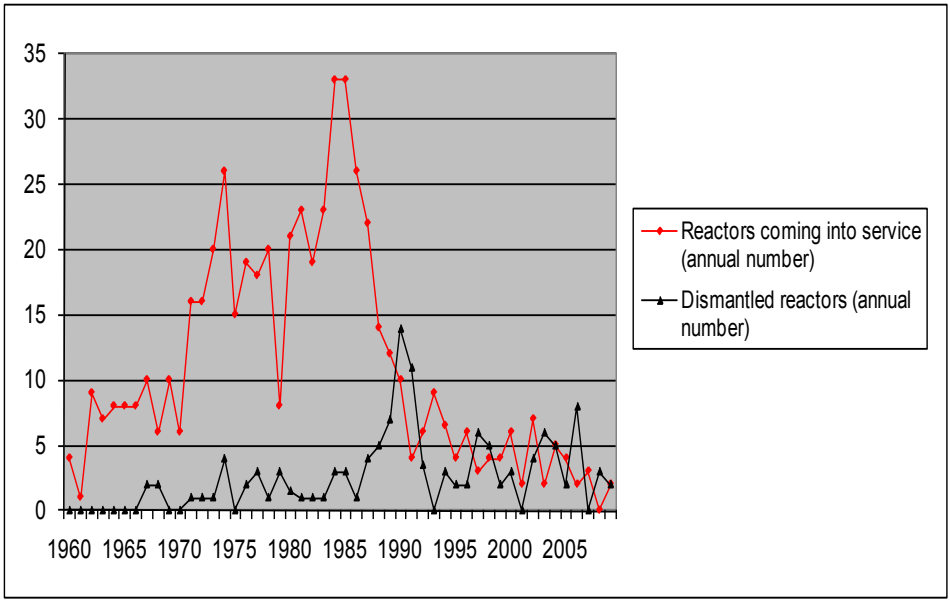
For several days now, opinions have been expressed to the effect that even if the nuclear plants were to be shut down, an increase in thermal energy would allow the problem to be solved.

But, what is the life-span of a nuclear plant? As time goes by, the collision of the neutrons in the pressurised vessel make it less resistant to heat and seismic shocks. By observing the number of years required to dismantle a nuclear reactor elsewhere in the world, we can conclude that the life expectancy of a nuclear power plant is 22 years. I myself was very surprised to learn that it was very rare to keep a nuclear power station operational for more than 40 years.

Even if you believe that nuclear power plants are dangerous, shutting them down overnight will prove difficult in practice. But if you plan for a shutdown of nuclear energy generation over 40 years, and if new reactors are not built, the productive capacity of the generating plants will naturally decrease.

Nuclear energy production is a world-wide activity: everywhere new generating plants are being built in order to reduce carbon dioxide emissions. That was my conviction until as recently as a month ago. Yet the boom in nuclear production took place in the mid-1980s; since then, the number of new reactors being built has fallen. That too surprised me.

Graph showing the numbers of reactors put into operation and decommissioned world-wide 1960-2009. Source: IAEA-PRIS, 2010. Designed by S. Buhnik, after Son Masayoshi's article, *Sekai*, June 2011, page 47.



It seems impossible to sustain the amount of electricity produced until now by nuclear power stations, unless new stations are built at the same hectic pace as during the peak years of the 1980s. Yet, in the light of the experience of the Fukushima accident, could there be a movement in favour of building new generating stations in the world while their rate of construction falls? I think that we must start a new democratic debate on this topic.

In any case, as the Prime Minister has said, we will have to improve the safety measures in the generating stations already in place. For my part I would make several proposals:

- The programmed shutdown of reactors whose life-span has already been extended;
- The prohibition of all shuffling of personnel between the Ministry of the Economy, Trade, and Industry (METI), the Security Commission, the Nuclear and Industrial Safety Agency (NISA), and the electricity generating companies;
- Increased stringency in safety inspections when abnormal phenomena such as cracks are reported;
- Absolute transparency in the communication of information in abnormal situations;
- The simultaneous publication of data along the lines established internationally by the IAEA;
- Finally, a review of the [power generating] operations in regions with high earthquake risks.

Is nuclear energy cheap? Are renewable energy sources expensive?

At first sight, renewable energy sources like solar power seem expensive. Nuclear energy, by contrast, is considered the cheapest form, with 1 kilowatt hour costing 5-6 yen. Consequently we could not do without it and must even build more reactors. Until recently, I shared in this rhetoric, and it is quite likely that many people still subscribe to it.

Yet, what is the reality of the situation? The unit price per kilowatt hour written into the requests for permission to build the power stations is between 15 and 20 yen. Those figures are the real data, and what is more, the true costs *before* the accident which we now know about.

If you then add the costs of the accident, what happens? It goes without saying that TEPCO has to bear the costs of the accident, but in the event that those costs exceed its financial ability to bear them, it is the State, and therefore our taxes which will have to cover them. If you take into account the compensation payments linked to the accident, it is very possible that nuclear energy would be the most expensive in comparison with others.

Likewise, calculations of the true cost of nuclear power must take on board the regional subsidies, the costs of treating the waste, as well as the costs incurred in accidents. I think we must therefore note how false the old publicity slogan of 5 to 6 yen per kilowatt hour is in reality.

Moreover, the figure of 15 yen per kWh indicated above is based on prices that are 30 years old. So what is the kWh unit cost in the newly built power stations? Let me take the example of the Finnish station at Olkiluoto. The construction of its third reactor was initially supposed to cost 350 billion yen (i.e. about 3 billion euros at current

exchange rates), but the security measures were gradually increased, so that the construction delays led to the costs rising to nearly 1,500 billion yen (12 billion euros) but even that is not final ... Before even including the costs of the fuel and maintenance, the investments in the on-site construction of the power station must be taken into account: this gives us a figure of 14 yen per kWh. To this, of course, must be added the cost of the fuel, maintenance etc. This then gives an enormous figure, which partly explains why new such power plants are no longer built in the world.

[...] In 2010, the cost of nuclear energy in the United States overtook the cost of solar power. I myself used to think that renewable energy sources, although ideal, were still expensive, and that sunshine could not be used on rainy days or at night, while nuclear energy could be generated in great quantities and was still cheap. However, even taking into consideration rainy days and the night, last year the costs of producing nuclear energy outstripped the costs of solar. In the light of this example, is it not right to say that the time has come to change our energy policies, and to make our way towards a society in which everyone can feel safe?

Renewable energy policies will change society

Nowadays in Europe, the United States and China, the amount of energy from renewable resources is rapidly expanding. The key to this is certainly a matter of public policy. In Germany, for example, a fixed purchase price system was introduced in 2002: the electricity companies offer individuals producing electricity about 61 yen (appr. 0.52 euros) per kWh produced, over a time-span of 20 to 25 years. Moreover a revised plan in 2004 raised the sell-back price to 65 yen (approx. 0.56 euros). This government policy cleared the way for competition between the private companies, and for a spectacular increase in electricity produced for the grid on the basis of solar power.

In Europe, several countries like Germany, France, and Spain have set themselves a target of 20% to 30% renewable energy in their energy mix by 2020. This target may be met sooner than planned. According to recent data these countries, starting with Germany, have all introduced policies to ensure that the overall energy produced will cost between 40 to 60 yen per kWh over a period of 20 to 25 years. Current debates in Japan concern the buy-back of surplus energy over a period of 10 years. In my view, it is crucial that we establish a system, like that of Europe and the United States, for purchasing every type of electricity at about 40 yen per kWh over a period of 20 years, in order to create a market in which the private companies can compete. Without that, initial investments cannot be covered, making private companies' enthusiasm for "green" energy production rather unlikely.

By the end of the next 10 to 20 years [...], fossil fuels will have become increasingly expensive. But in the meanwhile, as the American example shows, sources of renewable energy will have become less and less expensive, thanks to mass production and technological innovations. The time has come for the government to present a more imaginative and broader vision of the future.

The average electricity bill for a normal Japanese household is around 8,000 yen per month (= 68 euros). If you add to that the impact of a purchase price of "40 yen over 20 years", the average electricity bill will rise temporarily by 500 yen (4.30 euros). But this price also purchases security and peace of mind. In addition, the price of fossil fuels is rising, as is the price of nuclear energy as

a consequence of the costs of the accident. So there is no sense in opting for a more dangerous and more expensive form of energy.

Alongside these considerations, we have to reduce our CO2 emissions. In order to take the path towards using green energy sources, which will *soon* become less expensive, politicians have a duty to achieve a national consensus over the need for the population to take on board this temporary increase of about 500 yen in electricity charges, through budgetary constraints to which households must agree.

To achieve this, the government will not need to undertake large-scale financial investments. It will be quite enough to include in the policy on purchasing solar energy, which is currently under discussion, a further clause providing for "the purchase of the entire amount, at 40 yen per kWh, over a period of 20 years", or changing the wording along the same lines. Currently, the cost of renewable energy has just fallen below that of nuclear energy, and this trend can only increase. Is it not the height of stupidity to cling to nuclear energy on its downward path?

Talking is not enough; action must also be taken. That is why, as a concerned citizen, I have decided to create the "Green Energy Foundation" to shoulder some of the responsibilities involved. I have decided to make a personal donation of 1 billion yen (= 8.5 million euros). I would like the Foundation to bring together the combined wisdom of the whole world, to make known the results of research projects, and to formulate proposals for governmental policy. My greatest wish is that this Foundation, as the initiator of debates, will be able to provide a realistic alternative to our current energy policies.

There will be a new dawn

Renewable energy sources, such as the light and heat of the sun, wind power, geothermal energy, biomass, ocean currents and tides etc., offer the benefit of not contaminating the Earth and of being useable for thousands of years. These are forms of energy which do not destroy nature but allow us to live in harmony with her. My proposal offers a vision for repairing the damage caused by the earthquake. People say that the areas struck by the tsunami will not be able to return to cultivation in less than 10 years because of the detrimental effects of the salt from seawater. If we choose simply to "restore" the pre-existing situation by returning the affected areas to agricultural production, and by building very high sea-walls, how much will all that cost? And what kind of future would it bring? It would be much better not to go for that kind of rebuilding. Could we not plan for the creation, under governmental supervision, of a future-oriented energy production "base", or a kind of "East Japan solar energy belt"? The former seaports in the area could be reborn as solar and wind ports. With such a rebuilding project, there is no doubt that a wide range of employment opportunities could be offered to the disaster victims. Japanese manufacturers already possess the best solar technology in the world. This would be a chance, not to export it but to build in Japan the greatest "solar belt" in the world.

If this is done, Japan in the 21st century will not decline; on the contrary it will see a new dawn. These measures will enable us to acquire security and peacefulness and to revitalise the affected regions for thousands of years. I believe that it is possible to bring this hopeful vision into reality.

The inappropriate behaviour of the Kan government [Kan seiken no taiô ha ayamatteiru] - *Sekai*, June 2011, p. 77-81 *(translated from Japanese by Yann Favennec).*

Kawauchi Hiroshi is a deputy from the Democratic Party and Chairman of the "Special Committee at the Diet for the Promotion of new technology and innovation". Here he is interviewed by Yokota Hajime, a journalist for the daily newspaper Mainichi Shimbun

Yokota: Today, April 19th, the situation at the nuclear plant after the incident is still very worrying. What is your view of the measures taken by the Kan government to manage the crisis?

Kawauchi: Obviously we have to appeal to the population and its understanding in order to debate the best way to handle the situation confronting us. Yet until now, Mr. Kan has taken the firm view that the public should "*follow his instructions without question*" and without even receiving any information. That is a fundamental mistake.

The Prime Minister's biggest mistake is in still not getting TEPCO to reveal any information on the sources of the radioactive leaks: that is to say, which reactors are affected by leaks, and the type and size of the radioactive emissions ... That is why we still do not know which parts of the reactors are giving off radiation. We continue to lack the most important information.

According to the law, the government is obliged to receive information about the sources of radiation. To do that it ought to get TEPCO to measure them. The law also specifies the need to activate, on the basis of the information received, the resources of the ERSS (Emergency Response Support System) and SPEEDI (System for Prediction of Environment Emergency Dose Information) which fall under the purview of the "Department for Security and Nuclear Safety" of the METI and the MEXT respectively. It was for that purpose that on March 13th the Centre of Technology for Nuclear Safety provided two robots to TEPCO to allow it to measure the radiation levels in each of the reactors. Yet, on that day the robots were not used.

At the same time, the government used the media to report on the achievements of the robots borrowed from the Americans. But it turns out that the robots which would have allowed TEPCO to obtain crucial information on the intensity of the radioactive emissions had still not been put to use. Determining

the levels of radioactivity would have allowed people to form an idea of the seriousness of the leaks from each of the reactors. But this information is also directly linked to the issue of the compensations which TEPCO will have to pay out, and this responsibility arises solely from the leaks having occurred.

[Yokota has added the following note: *the radioactive clouds from the reactors are spread by the wind. The most important data concern the output from the radioactive leaks (for example the density and flow patterns of the harmful substances escaping from the reactors and their direction): if they are mapped by means of specialised software, it is possible to estimate the level of contamination. Following this procedure, the ERSS analyses the first half of the data gathered in real time and combines it with data gathered prior to the incident, in order to then assess the damage to the reactors and compile a forecast of the directions which the developing situation might take. Meanwhile, the SPEEDI system analyses the second half of the data to construct a simulation. The two information systems are therefore interlinked through their respective modes of operation*].

Kawauchi: I obtained my information on the ERSS by consulting the agency in charge of nuclear safety. They explained that it was an IT system "capable of foreseeing all possible outcomes". It even had a user's manual available, just in case it was no longer possible to get the radioactive emissions information online, in the event of a sudden power cut to the system. The Kan government justified their failure to divulge this information by a so-called malfunction in the system in place, which made all radiation measurements impossible. But it is not written either in the wording of the law, or in the software manual, that in such circumstances the government must give up any idea of gathering crucial information on radiation levels! The authorities must demand that TEPCO send robots close to the reactors in order to carry out the necessary measurements.

Concealing the data obtained from SPEEDI

Yokota: The data believed to have been obtained by SPEEDI's calculations have been semi-concealed from the public ...

Kawauchi: Immediately after the earthquake, complaints were made that there was insufficient information about radioactive leaks. But now I believe that it would be more apt to talk of a "concealment of information". While the ERSS and the SPEEDI operatives are conducting their work on the ground impeccably, the Prime Minister's office is blocking all publication of the data obtained. In the "disaster prevention plan" and also in the "handbook of measures to be taken in the event of nuclear catastrophes", both of which were issued in accordance with the law on special measures against nuclear catastrophe, there are detailed instructions and lessons drawn from nuclear incidents occurring previously throughout the world. One of them clearly specifies that information on radioactive emissions should be handled jointly with the regional communities, in order to put protective measures in place. Therefore the results of the simulations conducted by the SPEEDI should be supplied to the communities so that they can make full use of them.

The SPEEDI information technology system is managed by the Centre of Technology for Nuclear Safety. In accordance with its contract with the State, the latter has provided the government with more than 2,000 reports on possible scenarios dealing with the spread of radioactive clouds, but altogether the government has only

published two of them. If this information were handled jointly with the regional communities, it would be possible to establish a good number of safety measures. For example, depending on wind direction, it is possible that certain areas extending as far as 20 km beyond the security cordon around the generation plant could also become dangerous. In such an event, instructions along the following lines might be broadcast: “It is highly likely the radioactive particles may affect this region tomorrow. Everyone at present in the area should remain indoors!”. By contrast, the following type of bulletin could be issued in other areas: “Tomorrow this area will probably not be exposed to unfavourable winds. It will therefore be possible to go out looking for people reported missing after the tsunami”. Yet none of the information produced by the SPEEDI was provided to the communities. This is an infraction of the law on the special measures against nuclear disasters, as well as the provisions of the manual. That means that the State is breaking its own laws. I have learnt that the official reason for the non-dissemination of information was due to the government’s desire not to spread panic, but isn’t that exactly what its behaviour brings about? This is truly a case of information being concealed!

The law which provides the basis for the Commission on Nuclear Security, and its own internal regulations, lays down its obligation to hold meetings every Monday during a crisis. But since the major earthquake in Eastern Japan there have been practically no meetings. That too is an infraction of the law. Could the government be afraid that information presented during any meetings would become openly revealed? Could they even go so far as to fear the minutes of such a meeting? Under these circumstances, what has been the point in allowing the major participants in the nuclear industry to make use up until now of the funds allocated to compile a handbook for the management of disasters? Their willingness to handle the crisis in secret as an internal matter makes me hopping mad!

When a regulation is drawn up, we are assured that it is on solid grounds and is reliable. But when the situation for which the rule was devised actually occurs, we are kept in the dark! It is this culture of secrecy that has earned us criticism from the international community, since they believe that the behaviour of the Japanese government in managing this crisis is highly suspect. Every nuclear expert, whether Japanese or foreign, is aware that Japan has compiled a manual for use in the event of a crisis, but that it does not respect its provisions. Consequently, the international community, logically enough, concludes that the Japanese government is concealing its information. And that is why it goes on to wonder whether the radioactive contamination in Japan might not be infinitely worse than our government asserts.

In his recent official reports the general secretary of the Prime Minister’s Office, Mr. Edano, has repeated many times that radiation on the nuclear site has no immediate repercussions on health. I have asked him what he meant: did he mean that there was no risk to health? He said no, but the radiation would “in all probability”, as he put it, only have an effect after long hours of exposure. By talking of “probability”, Mr. Edano meant that “5 people out of every 1,000” would be affected. To put the matter more simply, the radiation would not have any effect on the population as a whole, but only on the limited number of individuals exposed to it. By using the expression “long hours”, he meant that there was no risk of sickness, burns, or death, immediately after reaching the site. On the other hand, prolonged exposure to radiation would cause deterioration in the state of health.

Mr. Edano did not therefore deny the effects that long exposure to radiation could have on health. He acknowledged a risk, and was quite specific about the combination of factors that would make it become real.

Towards raising taxes and abandoning promises

Yokota: What do you think about the issue of reconstructions funds, and the recent debates over them?

Kawauchi: It is a mistake to consider raising taxes as well as reducing the budget in order to release funds for reconstruction projects. What is the point in making the kind of speeches one would expect from a head of department's assistant when the morale of the population is at its lowest point?

[Note inserted by Yokota: *On April 15th this year the "Association to carry out post-earthquake reconstruction in view of the promises made to the people" made a proposal, not for the rewriting of the 2023 budget but for the use of the surpluses remaining in the special accounts of the first budget ring-fenced for reconstruction in the afflicted areas. There are forty-eight members of the Association: forty-two deputies (including Mr. Kawauchi) and six senators. Their principal aims are as follows:*

1. *"Concerning the budget for 2023 which is already drawn up: in order to enable the initial fund for rebuilding the affected areas to be set up, the government is currently considering the possibility of reviewing its electoral promises, such as the abolition or reduction of motorway taxes, or else the support for basic retirement pensions. Such a decision would be contrary to the promises made to the Japanese people, and are therefore unacceptable.*
2. *With regard to the reconstruction fund itself, currently estimated at 30 to 40 trillion yen: in order to establish such a fund, it is necessary to draw on a sum larger than the government's financial reserves, currently estimated at 600 trillion yen. In addition, it would be desirable to include the 20 trillion yen excess in State funding (12 trillion from the funds in hand and 8 trillion in anticipated income) with the surpluses in the special accounts which will go into the reconstruction fund.*
3. *The question is not whether the use of the surpluses in the special accounts for reconstruction funds for the afflicted areas is possible, but whether it will be done. That will depend on the political decision of the Prime Minister as leader of the country."*

On April 18th 2011, Mr. Kawauchi went to the Prime Minister's residence to submit this written proposal].

Kawauchi: On the one hand the myth of the "dependable nature of nuclear energy" created by the METI has completely collapsed. On the other hand, the myth of "the empty coffers of the State" has been fully mobilised by the Ministry of Finance. We are told that 30 to 40 trillion yen will be necessary for the rebuilding of the affected areas, but there is no way to increase taxes, to dig deeper into public indebtedness, or to abandon the JDP's electoral promises. But it is precisely for such instances of overriding need that the governmental reserves exist! It would even be possible to use income from US credit.

Some people argue that there is the risk of causing a collapse of the dollar by selling US credits, but if we take advice from the experts there is every hope that the latter will

inform us of the best ways of exchanging dollars for yen. The Ministry of Finance will probably invent excuses for not having recourse to this action, but it is above all a problem of political will.

The delay in information about the system for pumping and reserving hydroelectric power

Yokota: And what about TEPCO's responsibility?

Kawauchi: The company bears a major share of responsibility for spreading radiation into the areas around the generating plant. In addition, TEPCO struck a heavy blow at the Japanese economy by carrying out a series of power cuts. An electricity supplier has a duty to make every effort to ensure the power supplies. But despite that, even within its programme of planned power cuts, TEPCO did not make full use of the system for pumping and storing hydroelectric power (*Note:* This system operates as follows: water levels are raised during the night, and are allowed to fall during the day in the process of producing electricity). The company therefore failed in its duty to supply power, because it was simply unwilling to take on the high cost of using thermal generating plants at night!

In principle, the productive capacities of the system for hydroelectric pumping and storage can amount to 10,500,000 kWh. If TEPCO resorted to a programme of planned power cuts, that was because it believed that it was impossible to fill the gap of 10 million kilowatts between the supply (the thermal and the nuclear plants at Fukushima now being able to produce only 31 million kilowatts because of the earthquake damage) and the expected demand for 41 million kilowatts. Yet, if full use had been made of the system for pumping and hydroelectric storage, there would have been no need to resort to the programmed power cuts. Furthermore, until recently TEPCO has not publicised its productive capacities.

Yokota: Could the limits on electricity generation planned for this summer be avoided, even if all the reactors were to be shut down?

Kawauchi: Even if there is no reactor in operation, this situation can be avoided. The ceiling on TEPCO's capacity to supply energy is 78 million kilowatts. Even if you subtract the 18 million kW capability of the nuclear reactors, the overall generating capacity still remains at 59.8 million kW. We are taking all possible measures to restart the thermal generators affected by the earthquake. In addition we can undertake to purchase home-produced power and include private commercial electricity generating plants. By bringing all these measures together, we could ensure the generation of 60 million kilowatts (the maximum achieved last summer). So, even if all the nuclear reactors were shut down, it would not be necessary to undertake a programme of planned cuts, putting our economic activities at risk. Whatever happens, Japan's economy must remain dynamic, because otherwise we will never recover from the earthquake disaster. That is why politicians must send a positive message of reassurance to the people.

The need for an initiative to change energy policy

Yokota: What is your opinion of the government's current nuclear energy policy?

Kawauchi: In our country, there is a Cabinet meeting once every five years to decide on an energy supply policy. It is absolutely necessary to radically review this. There must be an organised debate on our need to invest

in alternative sources to nuclear power. First of all, we must realise that we have been forced, at least in part, to let ourselves be persuaded about the "reliable character" of nuclear power. Japan is a country exposed to frequent earthquakes. Now we have been able to see with our own eyes the dangers represented by nuclear power plants built in coastal areas (without any choice on our part!) when a tsunami is caused by an exceptionally strong earthquake. Inevitably this fundamentally calls into question the national policies on nuclear power. Up until now, the salesman's pitch put out by the electricity companies promoting the building of nuclear reactors along the shoreline, has been: "There is absolutely no danger! Trust us!" These words earned them the trust of the communities concerned. But now it is clear that the situation is not absolutely without danger. First of all we must start from the "dangerous character" of a site to reflect on whether it really needs to be built. The inhabitants of the villages dependent on the generating plants insist on this need, but if they are asked what they intend to do in the event of an accident, they do not know how to reply.

This is a question of short-sightedness, and I think there urgently needs to be a debate over what should be done with the Hamaoka nuclear installation (in the town of Gozensaki, in the prefecture of Shizuoka), close to the potential epicentre of a serious earthquake likely to affect Tôkaido. The new generating plant of Kaminoseki (in the town of the same name, in the department of Yamaguchi) which was to have been built soon, will certainly no longer be tolerated by the Japanese people. Moreover, further construction of new generating plants is no longer conceivable.

In the safety field, we must initiate rigorous control over the generators still in operation. In view of the recent experience of the catastrophic developments that can overtake a generator subjected to overwhelming forces, the best option is to begin the step-by-step building throughout Japan of reliable sites of moderate size for the production of renewable energy. Commitment to a green revolution, like that in the United States or Europe, is the obvious goal to be achieved. By progressively switching over to natural energy sources, there is a good chance that the separation between production and supply guaranteed by the energy companies will become a reality.

We need a strong political decision to send a message on the need to give up nuclear energy in favour of natural sources of energy. Renewable energy, based on small-scale production which can easily be shared out nationally, is much simpler to manage in terms of security, and it represents an undeniable advantage for the regional economies. There can be no doubt about the soundness of this proposed redirection.

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