

二十一世紀の挑戦――日本、そして原子力界が直面するもの――

原子力開発は「逆風の中にある」というのが、このところ原子力関係者の間で合言葉のようになっている。だが、世界を見渡して見ると、日本の状況はむしろ最も順調に開発が進行しているように見える。即ち、昨年とくに後半において、四基の新原子力発電所が許認可手続きに乗り、東海再処理工場が運転再開し、高速炉「もんじゅ」の改造の安全審査手続き開始に地元知事が漸く同意したし、建設中の青森県六ヶ所村の再処理工場の使用済み燃料貯蔵池への電力会社からの持ち込みに県知事の同意をとりつけられた。また、再処理計画の遅延で生ずる使用済み燃料を長期間貯蔵する制度が制定され、その候補地に名乗り出る自治体もでてきた。また商業用MOX加工工場計画も動きはじめた。なによりも、高レベル放射性廃物処分の経費の積立と実施主体と実施手続きとを定めた法律「特定放射性廃棄物法」が国会の迅速な審議により成立、実施主体「原子力発電環境整備機構」と積立金を公正に運用する組織「原子力環境整備・資金管理センター」とが、いずれも財団法人として設立を終わった。また、1年有余の公開討議を経て、原子力研究開発利用の「新長期計画」もほぼ従来の路線を踏襲したものとして出来上がった。

こんな状況を踏まえ、ここ数年慎重居士で来た原産も、「去年は原子力の行く手にやっと仄かな明かり見えた。今年はこれを確かなものするべく、がんばろう。地球環境問題と増加するエネルギー安定供給（昨年度の日本のエネルギー消費は史上最高を記録した）とからの要請に応えられなければ、むしろ原子力界は厳しい批判に晒されることになる」と2001年の事業基本方針として関係者の奮起を要請した次第である。

しかし、頭痛の種は尽きない

では今後、いままでのやり方で努力すれば、将来はバラ色かという、決してそうではない。まず原子力発電についても、自由化に対応して競争力を維持していくためには、多くの課題がある事は言うまでもない。そのような課題の基本にあるものは何か。

それを明らかにするために、前記青森県六ヶ所村のいわゆる三点セット事業の現状をありのまま述べてみよう。順調にいつているのは、発電所低レベル廃棄物処分場だけであり、遠心分離方式のウラン濃縮工場は、経済性の悪さが憂慮されてきたが、それどころか、まず技術的に頓挫している。十年ほど前筆者の親友の或る欧州の濃縮会社の社長が「この技術は正に日本向きのもの。自動車と同じで同一機種的大量生産、しかもその材料〔カーボン・ファイバー〕の品質の良さは日本が世界のトップ。いずれ先行している我々が追い越されるのは目にみえている。それまで、暫くの間稼がせてもらいます。」

と語ってくれたものである。ところが日本は、追い越すどころか、欧州勢に、経済性は勿論、機器性能・運転能力とも追いつく見込みがまだ立たない。再処理工場の方も、建設費が当初見込みの三倍になり、工期も遅れに遅れているし、完成しても、順調な運転は期待できないと憂慮する声が高い。機器の性能に加え、エンジニアリング会社不在のままの分割発注から生じうる、取り合い不全等の可能性、東海工場の経験が消化不良のままで生かされていないなど、心配の種は尽きない。関係者もこの種の問題に気づき、欧州企業との協力も含めて思い切った対策に乗り出しているが、解決は容易な事ではなかろう。このような技術課題を克服して欧州並の水準に達したとしても、次に未経験の難題が待ち構えている。

それは、再処理工場が原子力発電所とは全く違った性格のものであるということが、まだまだ社会やマスコミに（そして当事者にも）理解されていないこと、それに「もんじゅ」以来の、些細な事でも大げさな問題にしてしまう体質が染みついたこと、そしてそれが結局は規制強化につながり、屋上屋を重ねる対策に伴うコスト高を招いてきた。このような原子力界と社会との関係の中で、果して合理的な稼働率と経済性を達成出来るか、これが最も深刻な問題であろう。

二十一世紀における我々の挑戦

「・・・最も大切な事は、「権威主義からの脱皮」です。いままで何か問題が起きると、政府の方針だ、或いは権威者の意見だということで、相手を説得してきた。しかし今後は、当事者（電力会社、メーカー）が技術的な裏付けのある責任をはたしながら、公開の場で議論し、例えば規制の合理化をフェアに進めて行かねばならない。米国のNRCと電力会社との折衝のように・・・。

「もんじゅ事故」以降今日までの、国民世論の冷却、そういったことの一つの大きな原因は、いつも権威主義によって事態を收拾しようとし、そのためかえって影響を広げてしまったと、私は思っている。・・・」

これは、昨年11月の通産省原子力部会の議事録の中の筆者の発言部分であるが、要するに言いたいことは、事故の收拾にしろ、世論や地元知事の納得を得る方策にしろ、また方針や計画の大幅な転換を図るときなど、何時も「権威者」や政府の威光をかりて物事を進めてきた事の、計り知れない弊害である。殆ど総ての場合、社会的に著名な人（大学の学長等）に頼みこんで、「…原因調査委」や「…会議」－メンバーには体制側だけでなく批判者を加えている－の議長を依頼し、時間と金をたっぷりかけて対応する、という日本的な常套の手法に依存してきた。その上、多くの場合事務局（所管の官庁）の「原案」を修正することに終始しており、本質的な議論は殆ど行われない。

批判者はえてして核心のポイントをあまり知らないので、時間を引き延ばすため、問題を大げさにし検討範囲を広げたがる。その結果、責任の所在や問題の核心は段々とぼかされ、「教訓」と称するものが平板的に百項目も書き並べられた「報告書」が出来上がる（殆どのケースでは規制機構の肥大と予算のバラマキを伴うことになる）。批判者は解決を遅らせた事に満足感を覚え、或いは別の要求が別のところで叶えられた事で「この辺で勘弁しようか」と矛を収め、また推進者（の一部？）は責任者を出さないで穏便に終わりそうなことに胸を撫ぜ下ろす。国民は、権威者が結論を出したのだから、と渋々ながら納得する……。これが、「もんじゅ」事故以来のお定まりのパターンである。

権威主義からの脱皮

ここまで書くと、この状況は、いま日本全体を覆っている閉塞感、すなわち旧来の日本システムの「改革」を巡って、政界・官界—それに国民の間のせめぎあいから抜け出せず、苦吟している状況と、極めて類似している事に思いあたる。いまや、原子力関係者は凜然として「権威主義」と決別し、自己責任を中心としたシステムの確立に向かって邁進すべきであろう。二十一世紀には、我々の前に、こんなやり甲斐のある仕事があるのである。

（おわり）

The Challenge of the 21st Century —What Japan and the Nuclear Power Industry Face —

The development of nuclear power in Japan now seems to be confronting a heavy "backdraft," in the minds of all people involved in the industry. However, a look around the world would show us that Japan's situation is, if anything, progressing the most smoothly of all.

To wit, last year — particularly in the latter half — quite a few positive developments occurred: (1) confirmation procedures were carried out for four new reactor units, (2) operations resumed at the Tokai Reprocessing Plant, (3) the local prefectural governor, at long last, gave his approval for the initiation of safety examination procedures for the overhaul of the fast breeder reactor (FBR) Monju, and (4) the governor of Aomori Prefecture agreed to let power utilities transport spent fuel to the storing pond, site within the Rokkasho-mura Reprocessing Plant now under construction.

Furthermore, the legal framework was set up for the long-term storage of the extra spent fuel produced on account of the delay in the reprocessing plan, and a municipality has volunteered to be a candidate for siting. In addition, a plan has geared up to build a fabrication plant for commercial MOX fuel.

More important than anything, probably, was the fact that the National Diet swiftly deliberated and passed the "Specified Radioactive Waste Final Disposal Act," which stipulates the funding methods, implementing body, and execution procedures for the disposal of high-level radioactive wastes (HLW) in Japan. Based on the Act, both the implementing body, to be known as the "Nuclear Waste Management Organization of Japan," and the funding body, called the "Radioactive Waste Management Funding and Research Center" were established. The latter organization has

been set up to secure funding in a fair manner.

And finally, after more than one year of public hearings, the "New Long-term Plan" for the research, development, and utilization of atomic energy was formulated, basically following the lines of the previous plan.

Considering such developments, the Japan Atomic Industrial Forum (JAIF), which had taken a cautious position over the past few years, has now provided industry participants with a fresh incentive. Here is JAIF's basic policy statement for the year 2001: "Last year, at long last, a dim light started to be shone on the future of atomic energy. In order to consolidate that progress, let us exert earnest efforts in the current year. Unless the country's nuclear power industry is able to meet demands to cope with environmental problems and a stable supply of energy (during the last fiscal year, Japan's energy consumption hit record high levels), it will likely experience even greater criticism."

Many Headaches Remain

We would be remiss to assume that the future will turn out rosy just by continuing to act in traditional ways.

First of all, it goes without saying that many issues remain to be solved if nuclear power generation is to maintain its competitiveness in the midst of deregulation in the power industry. What are the basic issues in that regard?

To illuminate the question, let me frankly describe the current status of each of the three divisions (disposal, enrichment, reprocessing) at the Rokkasho-mura facilities, mentioned above. The only unit of the project that is progressing smoothly is the low-level radioactive waste (LLW) disposal

facility from nuclear power stations all over Japan. Concerns had arisen about the centrifugal-separation enrichment plant on account of its poor economy, but in fact, the plant is suffering technologically.

About a decade ago, a close friend of this writer's — the president of a uranium enrichment firm in Europe — told me, "This technology is ideally suited to Japan. As has been seen in automobile production, Japan excels in the mass production of machinery, as well as in the high quality of materials (carbon fiber in this case). Although we are now leaders in this field, Japan will surpass us before long. Until that point, we will try to earn as much money as we can." However, Japan did not end up catching up with the Europeans.

Instead, there is not sure that this country will ever do so in terms of equipment performance and operational capability, not to mention economy.

As for the reprocessing plant, its construction costs have burgeoned to three times the original estimate, and the schedule for its completion keeps on being pushed back. Some people are voicing fears that even once it is finished, the plant will not be able to operate as smoothly as expected. The sources of concern are endless: (1) the performance of the equipment, (2) the possibility that the absence of an engineering company will create the undesirable situation where different companies scramble for separate orders, and (3) the lessons of the Tokai Plant have not been fully digested, and are not being applied.

The personnel involved in the plant are aware of these problems, and are beginning to take resolute measures, such as joining hands with European firms. Nonetheless, the problems are unlikely to be solved easily. And even should the technical problems be overcome, with the level brought up to European standards, there still remains the thorny problem of inexperience.

Neither society nor the media (nor even the personnel involved) yet understand that reprocessing plants are entirely different in character from nuclear power generation plants. Another thing is that ever since the breakdown of Monju, the tendency has become ingrained to exaggerate even the slightest problem.

That, in turn, ends up leading to stiffer regulations — such measures, which "add a fifth wheel to the coach" (i.e., are un-

necessary), only serve to boost costs. Probably the most serious problem, then, is whether or not streamlined efficiency and economy can really be achieved, given the current strained relationship between the nuclear power industry and society in Japan.

Our Challenge in the 21st Century

"The most important thing for us is to graduate from a dependence on 'authority'. Previously, whenever a problem arose, it was sufficiently persuasive to explain that it was the 'government's policy,' or the opinion of some 'authority.' In the future, though, the parties concerned (e.g., power companies and manufacturers) need to hold public discussions and pursue, for instance, the unbiased streamlining of regulations, while they make their technological guarantees. Witness the negotiations made between the NRC and power companies in the U.S." "Ever since the Monju accident, down through today, Japan's popular opinion has undergone a cooling-off period. I believe that a major cause is that attempts to clear up problems by depending on authority have actually compounded those problems."

I made those comments at the 77th meeting of the Nuclear Power Subcommittee, Advisory Committee for Energy of the former Ministry of International Trade and Industry (now the Ministry of Economy, Trade and Industry) on November 8, 2000.

What I meant to say was this: always trying to enlist the power of "the authorities" and the government has in fact produced incalculable damage — whether it be in dealing with the aftermath of accidents, or in adopting measures to gain the understanding of the public and prefectural governors, or in implementing major revisions in policies or plans.

In almost every case, too much reliance has been made on the traditional Japanese method of coping with problems: i.e., making earnest appeals to a socially renowned person (such as a university president) to chair an "investigative committee" and/or "conference," including critics as well as establishment figures in the membership, and then spending a lot of time and money before finally arriving at a solution.

Moreover, those committees primarily end up as exercises in revising "drafts" presented by working committees (usually associated with a ministry or agency), and fail to carry out any meaningful deliberations at all. Since the critics are apt not to

be aware of the core points of a subject, they tend to expand the scope of debate by exaggerating problems, in order to prolong the time needed.

As a result of all this, the locus of the blame and the true heart of the problem gradually get glossed over.

The so-called "lessons" that are learned end up being drawn up in monotonous reports with some hundred items (thus largely requiring the further bloating of regulatory bureaucracy and budgetary largesse). The critics end up feeling satisfied after such a process, because they have been successful in delaying the resolution of the problem by making complaints. Or else, they sheathe their swords only after their requests have been satisfied somewhere else, saying, "We can put up with this." Meanwhile, (some of?) the persons in the responsible organization being investigated heave a deep sigh of relief, since the matter has been resolved amicably and no blame has been assigned. The national populace, for their

part, grudgingly accept the result, since it represents the conclusion of the "authorities." Such a problem-resolution scheme has been par for the course in Japan ever since the Monju accident.

Graduating from a Dependence on "Authority"

Having written this far, I realize how strikingly similar that situation is to the oppressive mood that hugs all of Japan. Namely, a bitter taste remains in the mouths of people around the country, owing to the inability of government, business, and the public to extricate themselves from the struggle over how to reform the traditional Japanese system. People in the nuclear power industry have to gallantly part with their dependence on authority, and move toward the establishment of a system revolving more around personal responsibility. That will be our job in the 21st century — a job worth doing. ■

Editor in Chief

