

maximized for a given amount of investment, regardless of its degree of scientific achievement at the final stage, deserves our commitment.

To maximize the efficiency of the program, many issues have to be clarified at present. These issues are important in considering the start of the experimental fusion reactor. First of all, we need to investigate the long term energy supply and consumption needs. Here, it is important to be impartial in assessing the energy demand, not being specific to a particular industry or to a community where the life style is uncommon.

Secondly, a feasibility assessment should be made for alternative energy resources, and a proposal should be made on development and utilization, incorporating the investment in scientific research and industry support.

The third issue are the possibilities of the commercial use of fusion energy as a safe and secure alternative. This would have to be studied from the viewpoint of the potential technical as well as administrative capabilities and the characteristics of industry structure. Here, it is above all important to acquire the participation from major industries.

The fourth point is that if Japan were to host ITER, we would have the responsibility of continuously supporting fusion energy development programs. A comprehensive long term plan must be made for a system in support of ITER and future fusion reactor development. This plan should specify the roles of universities and industries in related basic research such as material research, as well as the education and training of specialists. This plan should also provide a scheme for collaboration among different institutions.

The following issues may not be directly relevant to fusion only. However, they address the fundamental guidelines in distributing the appropriations and coordinating the international program.

In many fundamental scientific studies, some appropriation is required, and the way of distribution is in practice determined by the national strategy. As to the guidelines for the distribution, it is necessary to distinguish the purely academic research from the research required for the survival of humanity. They are not by all means antipodal. However, it is important to balance the weights of these two categories, reflecting social and economical situations. It is evident that the latter should be emphasized at present.

As I have mentioned at the beginning, there are many important issues and controversies, which have to be treated as global problems requiring global solutions, i.e. the provision of food and energy as well as the preservation of the global environment. In future, effective countermeasures have to be applied on the basis of global collaboration, well before the symptom progresses.

I have also emphasized that we would have to use different ways of decision making in order to cope with these global issues. In other words, it is essential for all friends in various nations to share their understanding and strive forward to improve the situation, defying the difference in cultures and the national borders. I would like to emphasize that in the particular case where scientific issues are involved, cooperation is indispensable, and the driving force of our collaborative effort shall not be the short term profit close at hand, but courageous decisions made by the integrated wisdom of humanity.

ITER ON DISPLAY AT YOKOHAMA, JAPAN
by Dr. B. Green, ITER Joint Central Team



XA9949211

During the 17th IAEA Fusion Energy Conference (held in Yokohama, Japan from October 19 to 24), the ITER Project exhibited a display, primarily of the research and development which has taken place to support the design of ITER.

The ITER exhibit was displayed in a large room on the 3rd floor of the Yokohama Pacifico (the distinctively shaped conference centre building), alongside exhibits by three other fusion research organisations — the Joint European Torus (JET) Project, which used the display to commemorate 25 years since the original design team was established in 1973, the JT-60 U Project (Japan Atomic Energy Research Institute, Naka, Japan), and the National Institute of Fusion Studies (NIFS), Toki, Japan, which based its display on the recently constructed and commissioned Large Helical Device. Such displays were a somewhat new development for the IAEA Conference, but one that seemed much appreciated by the conference participants.

The ITER display featured 5 display boards describing the Project's aims, the goals and achievements of the Engineering Design Activities, and, in more detail, the physics studies and technology R&D especially 7 large R&D projects involving the superconducting model coil, the blanket module and divertor cassette and their associated remote handling, and the vacuum vessel sector. Other R&D work such as for heating and current drive systems were also presented.

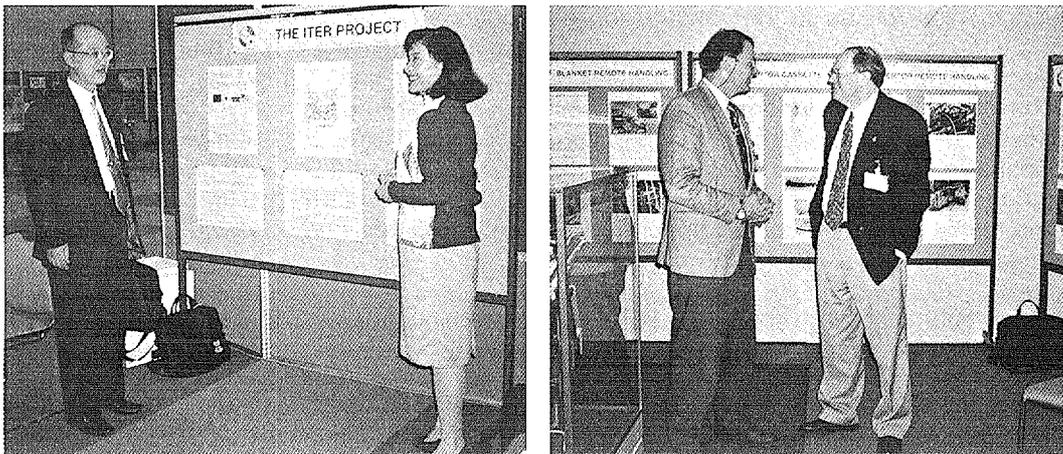
The display directed the interested visitor to more specific ITER papers and posters being presented at the conference.

Also featured in the exhibit were a 1/30 scale model of ITER (kindly provided by JAERI), the ITER brochure (in English, Japanese and Russian) with handout information material on each of the 7 large R&D projects, safety and the project in general, small samples of hardware from the superconducting model coil projects (jacketed conductor, a TF radial plate section and similar items); and videos of the Project (e.g. the electronic drawing office, assembly of the machine, maintenance of systems and the 7 large R&D projects (many provided by Home Teams)).

The display started on Tuesday, October 20, and ran through to the last day of the Conference. It was continually staffed throughout the day by Barry Green and Annick Lyraud from the Joint Central Team and Tomoko Ito from the Naka host support team, assisted by a roster of Joint Central Team participants to the conference. The display was strongly supported by the Director.

The messages of the display seemed to be well understood by all visitors, namely:

1. that over \$700M has been expended on R&D in the EDA, resulting in validation of the design choices and the construction and testing of prototypes;
2. that this work has advanced considerably the technology in various fields, confirming the view that project-led R&D of this kind is a more effective way of doing this than generic fusion technology R&D;
3. that this R&D, although performed to support the ITER design, as described in the ITER Final Design Report, was not limited in its application, but can be directly applied to support the design of the reduced technical objective/reduced cost ITER, and significantly strengthens the overall technology data base for development of fusion energy.



At the Display: Ms. Tomoko Ito (ITER Naka JWS) greets a distinguished visitor – Ohta-san, Director of Naka Research Establishment; Change of roster: Alan Costley relieves Barry Green (both JCT)

The many visitors to the display (about 250 left their names in a guest book provided for the purpose) all expressed strong interest in the work presented. The participants came from most of the countries represented at the conference, not only those involved directly in the ITER Project. The IAEA, under whose auspices the ITER project is being conducted, was also most helpful and supportive, and expressed the wish to see such a display repeated.

Items to be considered for inclusion in the ITER Newsletter should be submitted to B. Kuvshinnikov, ITER Office, IAEA, Wagramer Strasse 5, P.O. Box 100, A-1400 Vienna, Austria, or Facsimile: +43 1 2633832, or e-mail: c.basaldella@iaea.org (phone +43 1 260026392).

Printed by the IAEA in Austria
January 1999