

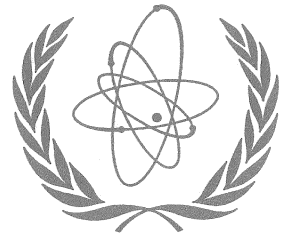
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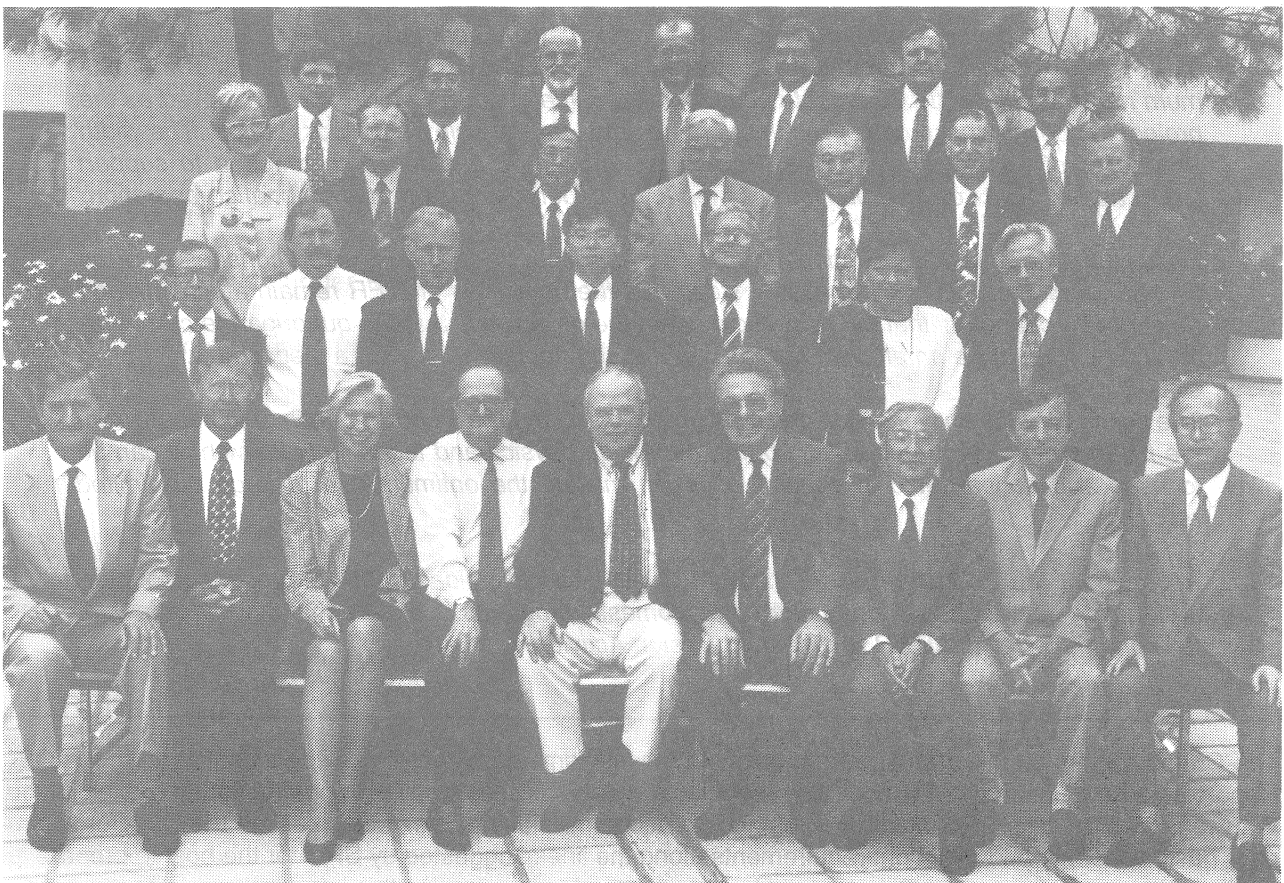
8TH MEETING OF THE ITER COUNCIL

by Acad. E. Velikhov, ITER Council Chair

The 8th Meeting of the ITER Council was held in San Diego on 26–27 July 1995. It was attended by all members of the Council; the total number of participants was 32.

The Council took note of the ITER Director's Status Report and remarks and expressed to the Director and the Joint Central Team its high appreciation for the remarkable progress made over the period reported.

The key point of the discussions during the meeting was the ITER Interim Design Report presented by the Director. The Council commended the Director, the JCT and the Home Teams for the high quality and coherence of the joint work presented in the ITER Interim Design Report, Cost Review and Safety Analysis and related documents and expressed appreciation to TAC and to the Special Review Group (SRG) for the thoroughness and quality of their reviews of the documents (with regard to the SRG's activities, please see separate article in this issue).



Participants in the Meeting

The Council, on the basis of the ITER Interim Design Report, Cost Review and Safety Analysis, and the Reports from TAC and SRG, agreed:

- a) that the design as a whole was well-founded as a basis for continuation of technical work; and
- b) that the estimated costs remain comparable with previous estimates.

The Council accepted for consideration by the Parties

- a) the Interim Design Report, Cost Review and Safety Analysis,
- b) the Report on ITER Site Requirements and ITER Site Design Assumptions presented by the Director, and
- c) the CPs' Report on Tentative Sequence of Events.

The Council accepted both the TAC-8 and SRG Reports. It determined that the IDR Package consisted of:

- 1) the ITER Interim Design Report, Cost Review and Safety Analysis,
- 2) the Report on ITER Site Requirements and ITER Site Design Assumptions,
- 3) the TAC-8 Report,
- 4) the SRG Report, and
- 5) the CPs' Report on the Tentative Sequence of Events.

The IDR Package is supported by detailed technical documentation – Interim Design Report, dated 12 July 1995, and Design Description Documents (DDD)s, totalling about 4.350 pages and 1.400 drawings – which is available to the Parties.

Based on conclusions drawn by the Director in his presentation to the Council, the Council commended to the Parties, for their consideration, a position on ITER at the half-way point in the EDA (see box below).

COUNCIL POSITION ON ITER AT THE HALF WAY POINT IN THE EDA

Following three decades of steady progress in design and experiments, the four leading participants in world fusion research agreed in 1992 on the objectives and requirements of the optimum next step in the development of fusion as a source of energy. ITER was conceived as the project to achieve these objectives through the equal partnership of the four Parties. The width and depth of fundamental physics, technology, know-how, and research required to support ITER, as well as its cost, speak for this step to be undertaken as an international co-operation.

Halfway through the ITER Engineering Design Activities, there is a renewed consensus of the ITER Council that this is a necessary step; that the objectives of ITER remain attainable and must not be changed; that the design can meet the objectives; that the quadripartite co-operation has shown to be an efficient frame; and that the right time for such a step is now.

The success of fusion worldwide depends on this step, and ITER should continue to benefit from the full international co-operation, so that the fusion physics and technology know-how can be focused and consolidated in support of ITER, making the optimum use of large but limited resources.

Accordingly, the Council urges all Parties to fulfill their obligations to this unprecedented international co-operation and to structure their domestic programs to ensure that they provide their full contribution to the ITER Engineering Design Activities.

The Council accepted the draft paper on possible mechanisms and legal frameworks contained in the CPs' Report as a helpful survey of conceivable legal instruments for possible ITER construction and exploitation. With regard to specific SRG recommendations on decommissioning, the Council asked the Director to prepare basic concepts and minimum requirements along the lines suggested by SRG for the host to prepare for the licensing procedures. The Director said he now planned to incorporate this information in a section of the Detailed Design Report.

The ITER Council, having accepted the MAC-8 Report on its review of the Work Programme

- a) agreed that the Work Programme as proposed by the Director met the requirements of the EDA Agreement;
- b) noted that the estimated resources required to perform the Work Programme were appropriate and within the overall envelope of resources for the EDA previously noted by the Council at the IC-5 Meeting;
- c) approved the Work Programme for the EDA as proposed by the Director and agreed to address the resource requirement as recommended by the corresponding MAC-8 Recommendation.

With regard to the provision of resources necessary to perform the Work Programme, the ITER Council

- a) noted the dependence of the performance of the Work Programme upon the timely provision of resources as proposed by the Director;
- b) agreed to encourage the Parties to make all endeavours to provide a total of 800 Professional Person Years (PPY) of effort to the Joint Central Team during the EDA. Each Party was also encouraged to provide additional team members to enable the achievement of this figure, with the buildup occurring as quickly as possible. To this end, the Council noted several supportive statements of the delegations on their plans to contribute to this buildup;
- c) encouraged the Parties to make best efforts to bring the design and technical support at each of the Joint Work Sites, including necessary equipment and software, to the level proposed by the Director as quickly as practicable. In particular, the number of CAD designers at Garching*) and Naka should rise at each site to 12 with appropriate equipment. At San Diego the CAD designers should rise to 10 (with equipment) and there should be an increase of 3 in other host staff to support project integration tasks;
- d) supported the Director's proposal to have complementary design work (\approx 40 PPY) in support of the JCT undertaken in the RF, funded through the Joint Fund;
- e) supported the Director's proposal to allocate a total of 750 PPY of Home Team design tasks and 656 KIUA of R&D tasks including both task-sharing reviewed and supported by MAC-8 and a provision for tasks yet to be defined and allocated.

The Council approved the accounts of the ITER Joint Fund for 1994 and set a Joint Fund Budget for 1996 of \$2.4 millions.

The Council requested the ITER Parties' Programme Directors, acting in consultation with the Director, to monitor the progress on the matters agreed above and to take appropriate actions to ensure timely provision of necessary resources for the EDA.

The Council accepted the principle contained in the Director's proposed policy for involvement of industry in ITER and asked the CPs, working with the Home Team Leaders and Director, to make the proposal final.

The Council assigned Further Tasks to MAC, TAC and the CPs.

The Council agreed to hold its next meeting, IC-9, at Garching, Germany, on December 12-13, 1995.

LIST OF PARTICIPANTS

EU

Prof. P. Fasella	IC Member
Dr. Ch. Maisonnier	IC Member
Prof. K. Pinkau	Permanent Expert
Prof. R. Toschi	Expert, HTL EC
Dr. E. Canobbio	Expert, CP EC
Ms. H. Donoghue	Expert, EU Delegation in the USA

JA

Mr. N. Oki	IC Member
Dr. M. Yoshikawa	IC Co-Chair, MAC Chair
Dr. S. Tanaka	Expert, STA
Dr. S. Mori	Expert, JAERI
Dr. A. Kitsunozaki	Expert, CP JA
Dr. S. Matsuda	Expert, HTL JA

*)Regarding the work of the Design Office in Garching see separate article in this issue.

RF

Acad. E.P. Velikhov	IC Chair
Dr. N.S. Cheverev	IC Member
Dr. L.G. Golubchikov	Expert, CP RF
Dr. N.P. Kornev	Expert, MINATOM
Mr. A.E. Lebedev	Expert, MINATOM

US

Dr. J.F. Decker	IC Member
Dr. N.A. Davies	IC Member
Dr. M. Roberts	Expert, CP US, Chair CPs, CPFP Chair
Dr. C. Baker	Expert, HTL US
Mr. W. Marton	Expert, DOE
Mr. B. Weakley	Expert, DOE

ITER

Dr. R. Aymar	ITER Director	Mr. M. Drew	Point of Contact with Director
Dr. Y. Shimomura	ITER Deputy Director, Deputy to the Director	Dr. P. Rutherford	TAC Chair
Dr. V. Chuyanov	ITER Deputy Director, Head of San Diego JWS	Dr. K. Tomabechi	SRG Chair
Dr. R. Iotti	ITER Administrative Officer	Dr. V. Vlasenkov	IC Secretary

IAEA Dr. T. Dolan, IAEA Representative

REVIEW WORK OF SRG

by Dr. K. Tomabechi, SRG Chair

In July 1994, at its 6th meeting held in Russia, the ITER Council decided to establish the Special Review Group (SRG), chaired by Dr. Ken Tomabechi, to review the technical, social, and the safety and environmental requirements for siting ITER which will be prepared by the Director and the JCT, and to report the results of the review to the Council.

Then, the four ITER Parties nominated members to the SRG and the Chair developed the work plan for the review, which was endorsed by the Council at its 7th meeting held in Japan last December. This year, in accordance with the work plan, the SRG conducted its work by holding a series of meetings.

The first meeting was held on 14 – 16 February at the Naka Joint Work Site, Japan, with 24 participants (see List of Participants overleaf). At the meeting, the SRG discussed and agreed upon the guiding principles in reviewing the site requirements of ITER. The guiding principle included a principle that there should exist potential sites in the territory of each Party that are compatible with the site requirements of ITER. In the first meeting, a draft document of "Preliminary Site Requirements and Site Design Assumptions" was presented by the Director.

The Site Requirements were compulsory in the sense that reasonable reconfigurations of the ITER design would not result in a less demanding set of requirements. On the other hand, the Site Design Assumptions were not compulsory site requirements, but were selected as guidelines for designers to follow until the actual site would be known. It was understood that the assumptions were selected so that the EDA design would not be invalidated by actual site deviations from the assumptions. Both the Site Requirements and Site Design Assumptions were organized in seven categories: land, heat sink, energy and electrical power, transportation and shipping, external hazards and accident initiators, infrastructure, and decommissioning. The SRG discussed the contents of the document and provided its comments to the Director.

The second SRG meeting was held on 26 – 28 April at the Garching Joint Work Site, Germany, with 23 participants. In the meeting, the SRG reviewed a revised version of the "Site Requirements and Site Design Assumptions" document, and provided comments to the Director and the JCT. The SRG discussed extensively, among others, on specific items of land, energy and electric power supply, seismic characteristics, and external hazards and accident initiators. It was the opinion of the SRG that the JCT should conduct cost sensitivity analysis with regard to these specific items in the future.



Participants in the 1st SRG Meeting

The third SRG meeting was held on 21 – 23 June at the San Diego Joint Work Site, USA, with 22 participants. The SRG reviewed a new version of the “Site Requirements and Site Design Assumptions” document which was presented by the Director and produced a report to the ITER Council. The report included the following findings and recommendations:

- 1) The Site Requirements and Site Design Assumptions document addressed the important siting issues, and the Director and JCT were extremely co-operative and helpful in working with the SRG.
- 2) The SRG found that the Site Requirements and Site Design Assumptions set forth for designing ITER appeared to be reasonable at this stage of the EDA. Nevertheless, each Party had some difficulty with specific items, so that the SRG recommended to conduct a cost sensitivity analysis for these items, in order to see how construction cost of ITER would deviate for the different assumptions suggested by the SRG.
- 3) The SRG noted that important information concerning tritium shipments to ITER as well as radioactive effluents and wastes from ITER, during both normal operation and postulated accidents, was still under development, and recommended that more complete information on radioactive effluents and wastes from the ITER plants be produced.
- 4) The SRG considered decommissioning including dismantling an important subject and recommended that more complete information including a plan for dismantling and associated cost estimates be developed.

This report of the SRG was presented to the ITER Council meeting held on 26 – 27 July at the San Diego Joint Work Site, USA. The Council accepted the report with appreciation to the SRG for the thoroughness and quality of its review of the document.

LIST OF PARTICIPANTS

EU:	JA:	RF:	US:
J. Darvas	K. Tomabechi	V. Korjavine	W. Marton
C. Harfors/G. Lemon	Y. Fujii-E/K. Aizawa	Y. Petrov	R. Blond
W. Koelzer	S. Mori/S. Tanaka	S. Botcharov	D. Petti
J. Perves	S. Matsuda		R. Stark
A. Natalizio*)	T. Inabe*)	*) Expert	

ITER: R. Aymar, Y. Shimomura

S. Botcharov from the RF Party, did not attend SRG-2. Drs. G. Lemon, K. Aizawa and S. Tanaka replaced C. Harfors, Fujii-E and S. Mori, respectively, during the SRG activities.

In addition, H. Kishimoto and K. Takenawa, both of JA, participated as Experts in SRG-2 and 3 and SRG-2, respectively. Members of the JCT, namely C. Ahlfeld, R. Haange, D. Holland, P.-L. Mondino, F. Puhn, and H. Yoshida participated in the SRG Meetings as required.

THE DESIGN OFFICE AT THE GARCHING JOINT WORK SITE **by Dr. F. Casci, DD's Office, Garching**

One of the most important functions within the ITER project is the Computer-Aided Design (CAD) support provided by the Design Offices (D.O.) at the three sites.

The task of the designers is to provide technical support with the CAD system to the professional engineers of the JCT. This function, together with scientific programming and computer support, belongs to the technical support activities provided at Garching by the host organization.

The three D.O.'s have different tasks due to the activities carried out at each site. In both Garching and Naka they concentrate on the design of components and systems, while San Diego is mainly concerned with the integration of the overall machine, although some effort is also allocated to building and tooling design and diagnostic concept design. The D.O.'s are co-ordinated locally by a responsible person reporting directly to the Head of Site. Overall co-ordination is provided by the San Diego D.O. co-ordinator.

The D.O. at Garching currently has a staff of eight designers, seven Europeans provided under Host Support and a Russian supported through the Joint Fund.

Although the designers can be tasked to work on any of the components being developed at Garching, each one has at any given time a main area of activity on a specific component or system. In this way, productive teamwork on the evolution of designs is encouraged.

The three ITER D.O.'s are equipped with CATIA CAD system running on IBM RISC work stations networked together to form a CAD cluster. Both desktop and deskside work stations are available to the staff at Garching.



Staff of Garching Design Office

The CATIA software, developed by Dassault Systèmes (F), enables the generation of complicated 3D models, the performance of interference checks, the creation of electronic mock-ups and other useful features. Among the latter are navigation through the reactor systems and other animation features, which permit performing a full computer simulation of difficult operations (i.e. remote maintenance, assembly, etc.).

Designs are generated at the site as a result of teamwork which includes both the JCT staff and the Home Teams.

The work usually originates from the JCT's preliminary concepts, which are then developed with the help of Home Teams and of external organizations, such as national laboratories and industries, supporting the project in both design and technology issues. The designer, who carries out a given task in close collaboration with the JCT responsible officer, has to merge into his work both the information from the staff on site and from the external sources. This procedure is common in the ITER international co-operation. For example, a European designer, working under the supervision of a Russian engineer, may need to integrate both American and Japanese input into his design.

Some configuration control and integration issues involving components developed at the site are also within the tasks of the Garching D.O. For overall integration, the models are transferred to San Diego, where configuration control is carried out at a project level. The D.O. is also in charge of preparing the CATIA models which are exported to other CAD systems available in external organizations. Models are often provided to the Home Teams, laboratories and industries, as input to design and technology R&D tasks. The integration into CATIA of the CAD models generated by such external sources as a results of their studies is also a part of the work to be provided by the D.O.

Although remote from each other and working with small overlaps in time due to the different time zones of the three Joint Work Sites, the three D.O.'s are closely linked and exchange all kinds of information with each other. Models are regularly transferred by electronic means to the remote sites for comments and checked against constraints set by adjacent systems developed at those sites. The shipment usually takes place at the end of the working day at each site and, in most of the cases, comments are available already on the next day at the start of business. For data transfer, ITER uses 128 kbps dedicated lines linking Naka and Garching to San Diego through ESnet. The speed and reliability of the international network is a major issue and the efficiency of the daily work depends on its correct operation.

Sometimes, in order to cope with peaks in design work load at one site, D.O.'s have in the past helped by providing their local manpower to responsible officers ("commissioners") at the other sites. This approach has been successful several times in the past, and it is possible only through an extensive use of the available electronic and computer support, as well as the atmosphere of teamwork throughout the project.

WHAT WOULD I DO WITHOUT YUKO-SAN AND OSAKI-SAN? by P.A. Dillon



Patricia A. Dillon, is of African-American descent, born in Berkeley, California and graduated from San Francisco State University. She worked as a Management Analyst for the Department of Energy (DOE), Oakland Operations Office (OAK), Oakland, California, whose mission is to implement programs, perform contract management, and conduct operational oversight of National Laboratories. Being on detail from the DOE, she now is working for the ITER project as a Cost and Resource Scheduler. On the photograph, she is together with Ms. Yuko Haneishi and Mr. Kenichi Osaki, the ITER Naka Joint Work Site Local Co-ordinators.

"Welcome to Japan," the United Airline pilot announces. He is one of those talkative pilots, who make jokes and announcements throughout the flight as you are trying to sleep or read. He seems to be just as excited as I am. The pilot and I are on our first trip to Asia. Whoa! I never dreamed that I would be here.

Before my departure from OAK, I had a thousand questions concerning my detail to Japan. I telephoned Yuko Haneishi, a warm, happy Local Co-ordinator, contracted by the Japan Atomic Energy Research Institute (JAERI), concerning my housing accommodations. Yuko-san and Kenichi Osaki-san arrange numerous services for the ITER staff, like housing, including contract preparation and assistance with move in. They provide personal services to the staff such as alien registration, multiple-entry visa, visa extension, opening bank account and issuance of cash card, rent-a-car, telephone and other necessary services. They also provide translation in medical emergencies and assist in getting medical services, i.e., making appointments, translating prescriptions, etc. Yuko-san answered all my questions and concerns in a prompt and efficient manner.

The airline pilot, passengers, and I arrived in Japan and began the tedious job of filling out the customs forms, waiting for our passports and visa to be checked, and waiting for our luggage.

The Okura hotel in Tokyo impressed me with beautiful, oriental drawings and carpets, a complete shopping center on the bottom floor, and large beautiful decorative oriental-designed waiting areas. There were many Japanese people bowing to each other in the main waiting area, and I thought to myself, I am in Japan, and these are very polite people.

I managed successfully to undertake the next necessary steps with the help of the notes, written for me in advance by Yuko-san in Kanji, which is the symbol that the Japanese use. A note to the taxi driver that read "Please take me to the Ueno Train Station" and another note to a friendly Japanese gentleman read "I am going to Mito, the platform is number 16". When the train finally arrived at Mito, I saw a friendly smiling Japanese person, Yuko-san.

My first day in Naka, Yuko-san took me to the grocery store to buy food, since now I would be living at Naka. I saw a cantaloupe I wanted to buy, but when Yuko-san told me that 980 yen was \$12.34, I thought that's too much to pay for a cantaloupe and decided that I didn't need to eat it on the first day. I bought apples for \$3 a piece, 7-UP for \$2.34, a quart of milk for \$3 and a pound of potatoes for \$3; I will not go on. This was my first learning experience about prices in Japan.

The next day, Osaki-san took me to register for an Inkan (personal seal that everyone must have to sign legal papers) for banking. Osaki-san had to read everything for me and translate what the bank person was saying. He told me when all of my banking transactions were complete and when to bow.

Can you imagine not being able to read your mail for your personal services from the telephone company, electric company or advertisements? Most non-Japanese speaking staff members of the Naka JWS bring their mail to work for Yuko-san and Osaki-san to read and decide what steps to take. Yes! Yuko-san and Osaki-san read all of our mail written in Kanji! They assist us in paying our bills when appropriate, with our money of course. They draw maps for us to get to the movie theater and intercity shopping areas. They arrange our vacations' itineraries, arrange sightseeing and assist with pre-school enrollment when required. Osaki-san serves as the photographer at official and social gatherings.

Yuko-san and Osaki-san also read all instructions for any appliance in our home that we cannot read, such as, the microwave oven, television, dishwasher, dryer and electric heat and air-condition. Of course, all their knobs have labels on them, but, again, they are all in Kanji!

What would I do without Yuko-san and Osaki-san?

Still, there is a safe area in Naka, where English is spoken and even understood. It is the ITER building, where the offices of all the ITER personnel are located. The Naka JWS is made up of many enthusiastic people. The diversity of nationalities includes British, Canadian, Dutch, French, Italian, German, Japanese, Russian and Americans. We all work together daily and enjoy our special blend of languages and cultures. There are some humorous language problems, of course, they include: the British and Americans having difficulty understanding each other's English language. We also have disagreements on which coffee or wines are best (teams divide according to country). We have parties on the green (a vacant lot of grass) where we eat and dance. We are a special blend of nations and nationalities that make up the great ITER team.

Items to be considered for inclusion in the ITER Newsletter should be submitted to B. Kouvochnikov, ITER Office, IAEA, Wagramerstrasse 5, P.O. Box 100, A-1400 Vienna, Austria, or Facsimile: (+43 1) 237762; phone (+43 1) 2060 26392.