The Meeting accepted the Report and Advice from the MAC Meeting noting, in particular, the need to devise solutions to a number of administrative issues relating to the termination of the EDA. The Meeting noted a continuing need to secure formal approval/endorsement of applicable MAC recommendations. After discussing the Report from the Chair of the Management Advisory Committee (MAC), the Meeting accepted the Report and Advice/Advise from the latest MAC Meeting and noted a continued need to secure formal endorsement of applicable MAC recommendation.

Having noted the Director's presentation on Progress in Design and validating R&D for ITER and the presentation from the TAC Chairman, the Meeting endorsed the assessments and recommendations of the TAC Report and approved the Outline Design Report as updated following domestic assessments and as outlined to TAC, as the basis for preparation of the Final Design Report.

The Meeting asked TAC to review the draft Final Design Report, to be submitted by the Director by the end of the year, and to report to the Council at its next Meeting. The cost analysis will be reviewed through an ad hoc group involving the Home Teams and industry upon invitation from the Director.

The Meeting shared the view that it is now opportune to encourage the industries in the ITER Parties to conduct under their own auspices the dialogue initiated at the San Diego and Tokyo ITER Industry Liaison Meetings. It is recommended that the 3rd Meeting should be held in Toronto in November this year.

Having noted the input from the EU delegation on work done in Canada on public identification of ITER, the Meeting emphasized the importance of promoting public acceptance of ITER in all Parties and the value of using professional expertise in this area. The Meeting invited the Parties to review and exchange comment on public identification of ITER, including the meaning of "ITER" acronym for the future and asked the CPs to facilitate this exchange.

The Meeting took note of the CPs' Report and approved their further tasks. After considering several proposals and discussion, the Meeting agreed not to modify the ITER EDA logo and to retain the "name" ITER-FEAT for the device for the remaining period of EDA.

Initiated by the EU Party, the Meeting decided to hold the next IC Meeting in Toronto (Canada) in February – March 2001. The exact time of the next ITER meeting is to be confirmed later.

STATUS OF THE ITER EDA

by Dr. R. Aymar, ITER Director

This article summarizes progress made in the ITER Engineering Design Activities in the period between the ITER Meeting in Tokyo (January 2000) and June 2000.

Overview

Following acceptance at the Tokyo Meeting of the Outline Design Report (ODR), technical work in the EDA has focused on resolving the open issues from the ODR, including points raised by TAC, and on responding to questions arising from the Parties' domestic assessments of the ODR. Progress in this area has now been outlined in a report to TAC. A companion paper to TAC discusses the R&D programme in support of the new ITER design, including both pertinent results achieved and priorities for further work.

A key feature of current work is the preparation of "procurement packages" as the basis for detailed industrial costing studies during the second half of 2000, with the objective of generating a complete estimate of the costs of the new design to be incorporated in a draft Final Design Report around the turn of the year. As previously, the project cost estimates will be expressed in IUA, with the emphasis on the relative costs of the different systems and on comparative assessment of physical processes and unit costs, so as to allow proper collation of the input from all Parties. For this reason, the Home Teams are asked each to achieve broad coverage of ITER systems and to stress to their industrial participants the importance of transparency in the documentation supporting their presentation of results of the cost studies.

In the area of Safety, the JA Party has designated a new Safety Contact Person as the focus for information interaction on Safety/Regulatory matters. The EU has established an ITER Licensing Working Group charged to elaborate a basis for a possible EU common approach to ITER licensing. The RF Party has been invited also to nominate a Contact Person so that all Parties will be able to interact informally on progress in this vital area for the successful implementation of ITER.

Since the Tokyo meeting, the CS Model Coil facility at Naka has come into full operation. The test programme for the model coil is proceeding very well with results to date that confirm the expected behaviour. All concerned in bringing this complex international project to successful fruition can be justly proud of their joint achievement.

As requested, the Director has assisted the exploration process, in particular providing information on co-ordinated technical activities towards a start of possible future ITER construction.

Termination of the EDA

Protocol 2 of the EDA Agreement requires the Council, assisted by the Director, to provide for a timely and co-ordinated termination of the work to be carried out under the Agreement and to make proposals for actions as appropriate. For the sake of such planning it is assumed that the Parties will be aiming to progress, through Explorations and Negotiations, towards possible joint implementation of ITER, following the lines of the SWG-P2 report.

Against this background, at the end of the EDA extension period, the Parties will have at their disposal technical information necessary for future decisions on construction of ITER. Technical activities will, however, still be necessary in support of the preparations for possible joint implementation, for instance in adapting the design to specific sites offered, in safety and environmental analyses to prepare for licence applications, in collating and interpreting latest fusion physics and technology R&D results in anticipation of possible future construction, operation and exploitation and in preparing for procurement actions.

It is presumed that the Parties will need to maintain collective, first hand involvement in the definition and execution of technical activities that affect the nature of the device that they envisage to implement jointly.

In planning such activities and their possible framework, it will be essential to ensure the coherence of the Project following the dissolution of the framework for joint action that the ITER EDA Agreement provides. This implies providing for co-ordination of the Parties' technical activities, so that the design integrity and configuration control are maintained, and that the evolution of cost/schedule and safety/environment matters are seen to proceed satisfactorily from the perspective of the Parties collectively.

In addition, there should be some coherence in the overall evolution of management structures towards a future project configuration that is oriented towards joint construction, for instance, in relation to the Parties' necessary preparations of their respective procurement organizations and their interfaces to overall project management.

For the efficiency and effectiveness of both the co-ordinated technical work and of the organizational preparations, it will be most important to use the accumulated expertise and effective operational networks that have evolved in the Project to date. To this end there should be a smooth transition from the current EDA configuration to the joint implementation structure. An appropriate framework enabling such a transition should be developed to come into operation with effect from July 2001.

Joint Central Team and Support

The status of the Team at the beginning of June 2000 is summarized in the table below. There has been an overall fall of eight in JCT staff on site in all categories. Eight EC members have left the Team. The other Parties have each matched departures to new arrivals. Three further RF Team members are expected to arrive in the near future; one is expected to leave.

JCT - Status by Joint Work Site and Party at 1 June 2000

Garching	Naka		EU	JA	RF		Total
46[1]	50[1,2]		38[1]	33	25[2]		96[1,2]

1 includes three Canadians provided through the Canadian association with the EU Party
2 three additional RF members are due to arrive shortly; one more is due to depart.

The JCT numbers have been supplemented by VHTPs (~3 - 4 PPY from RF and 5 - 6 PPY from EU) and other temporary attachments to the JCT.

Task Assignments

The following tables summarize the status of R&D and Design Task Agreements. The first one covers the number of Task Agreements over the entire period of the ITER EDA. The second table summarizes the cumulative total values of Task Agreements concluded to date.

Summary of Task Agreements (cumulative)

TA Status	R&D Number	Design Number
Task Agreements committed (EU, JA, RF)	620	540
Task Agreements completed or to be completed	480	426
Task Agreements on-going	140	114
US (to 7/99)	*173*	*162*

Task Agreements Summary per Party

PARTY	R&D (IUA)	Design (PPY)
EU	222,366	295.52
Japan	219,360	267.98
Russia	95,013	231.70
US(to 7/99)	*108,023*	*170.71*
Total	644,762	965.91

ITER Physics

The Physics Basis was published at the end of 1999 as a special edition of "Nuclear Fusion", the costs of which were shared equally among the four original Parties. In addition, a special reprint of the overview chapter was produced for wider circulation.

The seven ITER Physics Experts Groups, with their modified titles and charges, are now in full operation and the arrangements for interaction with US fusion scientists on generic issues of tokamak physics are proceeding smoothly. A new framework for continued joint work on tokamak physics databases is being developed.

The priorities for physics research in 2000 as set by the ITER Physics Committee are set out in the following table. The main objectives are to strengthen further the physics basis for the inductive Q=10 operating scenario and to explore further and clarify scenarios for new modes of operation that could be used to approach steady-state operation.

Urgent (bold) and High Priority Physics Research Areas

RESEARCH AREAS	ISSUES
Finite-β effects	**Tolerable ELMs (dW/W<2%) with good confinement alternate to type-I ELMs** (e.g. type II, type III + core confinement) **Stabilization of neoclassical islands** and recovery of β
Plasma termination and halo currents	**Runaway electron currents:** production and **quenching, e.g. at low safety factor**
Sol and Divertor	Achievement of high n_{sep} and relation of $n_{sep}/<n_e>$ in ELMy H-modes Carbon chemical sputtering and deuterium retention/cleaning methods
Diagnostics	Determine requirements for q(r) and assess possible methods that can be applied to ITER Determine life-time of plasma facing mirrors and optical elements (incl. those in divertor) Reassessment of measurement requirements in divertor region + recommendation of diagnostic techniques
Core confinement	Non-dimensional scaling and identity experiments; effect of finite β and flow shear Determine dependence of τ_E upon shaping, density peaking, etc.
Internal transport barrier properties	ITB power thresholds vs n, B. q, Te/Ti, V rotation etc. for strong reversed shear ($q_{min}>3$), moderate reversed shear ($q_{min}>2$), and weak shear ($q_{min}>1$).
H-mode power threshold	H-mode accessibility in ITER-FEAT, data scatter
Density limit physics	Confinement degradation onset density; its dependence on aspect ratio, shape and neutral source
Pedestal physics	Scaling of pedestal properties and ELMs Effects of plasma shape on pedestal and ELMs

Urgent: Essential to confirm the feasibility of the inductive Q=10 scenario for the draft Final Design Report of ITER-FEAT at the end of 2000

High: Information valuable for design of ITER-FEAT, especially for establishing a scenario for steady-state operation of ITER-FEAT

EXPERT GROUP WORKSHOP ON TRANSPORT AND INTERNAL BARRIER PHYSICS, CONFINEMENT DATABASE AND MODELLING AND EDGE AND PEDESTAL PHYSICS, AND IEA WORKSHOP ON TRANSPORT BARRIERS AT EDGE AND CORE

by Dr. J.G. Cordey, JET; Dr. G. Janeschitz, ITER JCT, Garching; Dr. Y. Kamada, JAERI, Japan; Dr. V. Mukhovatov, ITER JCT, Naka; Dr. T. Takizuka, JAERI, Japan; and Prof. M. Wakatani, Kyoto University

A combined workshop of Transport and Internal Barrier Physics Expert Group, Confinement Database and Modelling Expert Group, and Edge and Pedestal Physics Expert Group was held in Naka, Japan from 28-30 March 2000. This combined meeting took place in association with the IEA Workshop on Transport Barriers at Edge and Core, organized by JAERI, on 27-30 March, based on the Implementation Agreement on Co-operation among the Three Large Tokamak Facilities. This note summarises the results of both Workshops.

Seven plenary sessions of the Workshops were devoted to generic tokamak issues of (1) Internal Transport Barrier (ITB), (2) Interaction between Pedestal & Core, (3) Alternative Regimes, (4) Transport Barriers & Modelling, (5) Pedestal & Modelling, (6) ITB Database, and (7) Summaries of above Sessions. The ITER Expert Groups held a plenary session on ITER Predictions. There were also parallel sessions of the individual Expert Groups.

More than 50 talks were devoted to experiments (JET, JT-60U, ASDEX-Upgrade, JFT-2M, TEXTOR-94, TCV, TUMAN-3M, START, and LHD), database (DB) analyses, theoretical models and simulations. Creation of the International ITB Database was one of the main items discussed at the Workshops. Modelling and