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A BRIEF HISTORY OF THE EXPLOITS OF SWG-2

by Dr. M. Roberts, Chair, SWG-2



The Special Working Group designated in Protocol 1 to address task allocations and drafting of Protocol 2 (called SWG-2) was set to work at the first ITER Council meeting (IC-1) and brought to a close at IC-6, having completed its major tasks.

In the nearly two years between IC-1 and IC-6, SWG-2 addressed the two major tasks outlined in Protocol 1 and a number of other tasks assigned by the Council. The charges to SWG-2 and the Council's decisions related to SWG-2 are shown in the first two boxes while the membership for each of the two major tasks is shown in the third box. *(In the photograph, the author is being captured in a somewhat non-diplomatic pose, apparently after successful conclusion of a discussion)*

TASK ASSIGNMENT GUIDELINES

SWG-2's first major task was to develop proposed guidelines for task assignments. Protocol 1 had contained both principles and procedures, but more specific guidelines were called for by the Protocol. As requested, SWG-2 addressed the guidelines and suggested three major topics:

- A. Approval and Revision of Task Agreements
- B. Task Identification, Definition and Valuation
- C. Selection Criteria

SWG also had to develop terminology, a first glossary, in order to make the guidelines understandable. Each of the three major topics represented an attempt to deal with a fundamental issue among the Parties and with the Director.

In A, the issue was how to reach a balance of oversight between too much, thereby stifling the project, and too little, thereby opening the Parties up to potential complaints about unfair allocations of work. Specific ranges within which the Director had full or limited authority were defined, along with the role for MAC and the HTLs. The most difficult part for SWG-2 was to reach a workable system in which each Party was comfortable, based on its experience in such matters, whether domestic or international, and the Director could see how to proceed. On this point, the Council simplified the SWG-2 recommendation and accepted a two-tier rather than three-tier system.

In B, the issue was how to assure each Party that it would have a substantive exposure to each significant element of technology. This was treated with the idea of balance in a system area rather than expecting each Party to have a role in each and every individual task.

In C, the issue was how to balance the competing concerns over technical capability and Party's self-image and overall balance. This was treated by emphasizing the technical nature of the work while being sensitive to other concerns.

While these guidelines were accepted by the Council, with the one modification noted, the specific procedures resulting from the principles in the Protocol and the guidelines proved, with experience, to be too time consuming to work well. Consequently, as the Director has some opportunity to work with MAC on the process, the Council agreed that the Director, the HTLs and MAC, in consultation with SWG-2, should revise the guidelines for improved workability.

Protocol 1 Charges

Section 1 – Special Working Groups

In accordance with Article 10 of the Agreement, two Special Working Groups (SWG) shall be established.

SWG-2 shall submit, not later than three months after entry into force of the Agreement, guidelines for implementation of task assignments, as defined in Section 3(1), to the Council for its approval, and prepare in accordance with Section 4 a draft of Protocol 2.

Section 3 – Task Assignment

(1) In proceeding toward the assignment of tasks to each of the Home Teams in developing the Work Program,

a) the Director shall, acting in close interaction with the Home Team Leaders,

- identify the tasks to be performed by the Home Teams and draw up a list of these tasks,*
- draw up a detailed technical description of each task including schedules, deliverables and an indication of facilities and background information needed for its implementation, and*
- send a list of the tasks together with their technical description to each Home Team Leader;*

b) each Party shall, within two months after receipt of the list and technical description, send to the Director in writing

- an estimate of all resources required for each task on the list, and*
- an expression of interest, in order of priority, in the implementation of certain tasks. and, where such interest is expressed,*
- a description of its capability to meet the specifications and schedules as well as the availability of necessary facilities and know-how,*
- an indication of where the work would be performed, and*
- an evaluation of the technical risk and, in case of high technical risk, possible suggestions for parallel efforts; and*

c) on the basis of this material and of the guiding principles set out in Annex B, 1(C) to the Agreement and of the guidelines established by SWG 2, the Director shall propose in the draft Work Program to be submitted by the Director to the Council pursuant to Article 11 of the Agreement, the assignment of the tasks to each of the Home Teams.

Section 4 – Protocol 2

(1) SWG 2, assisted by the Director and the Joint Central Team, shall draft Protocol 2 and submit a draft to the Council not later than ten months after entry into force of the Agreement.

(2) In drafting Protocol 2, the SWG 2 shall consider, among others, the following items:

- new tasks to be initiated,*
- duration of Protocol 2,*
- consequences of inadequate performance of tasks assigned to a Home Team,*
- possible need for SWGs and their tasks,*
- detailed functions and responsibilities of the Council, the Director, and the MAC, with respect to the implementation of Protocol 2, and*
- any necessary changes to items described in Protocol 1.*

PROTOCOL 2 DRAFTING

The second major task was to draft the text of Protocol 2 for Council consideration and then consideration and acceptance by the Parties.

Whereas the drafters of the Agreement and Protocol 1, many of the same persons who were asked to draft Protocol 2 as it turned out, had envisioned six likely items for consideration as noted in Section 4 (see First Box), SWG-2 found it necessary and feasible to address only three of these items in the draft while adding one other. SWG-2 found that any new tasks to be initiated were being initiated through the operational channels of the Council and the Director, with MAC advice. The matter of the consequences of inadequate performance of tasks assigned to a Home Team was already covered in the Council guidelines discussed above. Finally, there was no apparent need to make changes in the detailed functions and responsibilities of the Council, the Director, and the MAC, compared to those contained in Protocol 1.

The new topic added dealt with the completion of the EDA and the preparation of proposals for taking the project forward beyond the EDA. Just as Protocol 1 contained initiating language as well as continuing language for all of the Protocol 1 period, so did the Protocol 2 draft contain completing language in addition to the continuing language for most of its period.

While the text for Protocol 2 was brief, as directed by the Council, there were four other significant issues that were treated in accompanying draft documents. The Parties' Negotiators, who were the Parties' senior representatives on the Council, were asked to agree to certain shared views on technical objectives, on implementation of task assignments, on secondment agreements, and on financing. The technical objectives were those adopted by the Council upon recommendation by SWG-1. The guidelines for implementation of task assignments were those revised and adopted by the Council upon recommendation by SWG-2. The arrangements of secondment agreements were those contained in the attachment to Protocol 1. This approach had the effect of giving a direct Parties' endorsement of the two actions by the Council on technical objectives and task assignments and of streamlining the Protocol 2 text with regard to the secondments.

The financing section of the shared views had three objectives. The first was to clarify which costs each Party was expected to bear on its own, which were the overwhelming bulk of the costs. The second was to make more direct the connection of the Host Support principles contained in the Agreement and the stated intentions of the Host Parties in their proposals to the Council. The third was to indicate the role of the Joint Fund in supporting other expenditures.

The draft Protocol 2 package composed of the text and the accompanying Negotiators' Shared Views was presented to the Council at IC-3 in accordance with the timing requirements contained in Protocol 1.

Subsequently, following detailed consideration of the design as it evolved, the Parties' representatives included two additional items for the shared views, one on Monitoring of the ITER EDA and one on the Outline Design. The first one instructed the Council to validate the coherence between the Detailed Technical Objectives and the Design annually, and the second one gave a Parties' endorsement to the Council's acceptance of the Outline Design. This modified version of the Negotiators' Shared Views was accepted by the Parties' Negotiators following IC-5 on January 28, 1994. Given all the preparatory work over the preceding eighteen months, the actual negotiating meeting took only enough time to place the initials on the common paper.

At this point, the Council asked that the Contact Persons facilitate the actual signing of Protocol 2. With seven weeks remaining before the expiration of Protocol 1, there was a race to meet the deadline. Even with completion of the negotiations, there had to be acceptance by the Parties of the negotiated arrangements, agreement on the place and timing for the signing and the nomination of signers. The actual signing took place in Vienna on the last day of Protocol 1's existence and was climactic to the end. The European Community approval actually came at the time of the scheduled signing so that the EC signature was later in the day. The Russian signer was changed at the last moment to be Dr. Nikolai Cheverev instead of Minister Mikhailov so that signature authority was provided at an airport transfer in Moscow, upon Minister Mikhailov's return from a trip abroad, just before Dr. Cheverev left for Vienna. Similarly, the Japanese Cabinet was giving approval on the day of the signing. In the United States, final formal approvals were also granted just before the signing. Finally, Dr. Hans Blix, who was to officiate at the ceremony, was still able to perform this function despite urgent matters requiring special attention by him and by the IAEA Board of Governors. In sum, with twenty months preparation, the signing of Protocol 2 was carried out, but with suspense to the last moment.

Council Charges and Decisions

- IC-1 ROD* 11.2 *Dr. M. Roberts was appointed Chair of SWG-2.*
- 11.3 *The Council decided that the Director presents his views on both the SWG-1 and SWG-2 tasks, but does not get involved in the negotiations and drafting of findings.*
- 11.4 *The Council asked SWG Chairs to use the draft Rules of Procedure provisionally and to bring in for Council approval final Rules of Procedure at IC-2.*
- IC-2 ROD* 6.1 *The Council adopted the Rules of Procedure of SWG-2.*
- 6.2 *The Council accepted the Report of SWG-2 and adopted the recommended guidelines with one change and related modifications.*
- 14.1 *The Council directed SWG-2 to prepare a draft of Protocol 2 at minimum length.*
- 14.2 *The Council agreed that the Director should provide input to the drafting process and be given the opportunity to comment on the drafts.*
- 14.3 *The Council asked for the Parties' designation of membership of SWG-2 for Protocol 2 Drafting.*
- 14.4 *The Council asked SWG-2 to consider questions of longer term disposition of facilities and assets.*
- 14.5 *The Council agreed that the Director should interact with persons designated by the Parties regarding specific Physics R&D for ITER, as appropriate for the benefit of the project.*
- IC-3 ROD* 3.1 *The Council accepted the SWG-2 Report.*
- 3.2 *The Council accepted draft Protocol 2 for submitting to authorities with a view to negotiating and concluding it as soon as possible.*
- 3.3 *The Council adopted the revised Guidelines for Implementation of Task Assignments as proposed in NSC Attachment 2.*
- 3.4 *The Council accepted the proposed draft Negotiators' Shared Views package document for submitting to authorities with a view to facilitating the negotiations and conclusion of Protocol 2 as soon as possible.*
- 3.5 *The Council confirmed that IC-2 Decision (ROD 14.5) covers both paragraphs Physics R&D in SWG-2 previous recommendations and therefore that the word "specific" should be deleted from decision 14.5.*
11. *The Council charged SWG-2 with further tasks:*
1. *to continue to work toward the facilitation of the timely signing of the Draft Protocol 2.*
 2. *to continue to explore the issues of the longer term disposition of facilities and other assets; Council authorizes SWG-2 to offer assistance to the Director in this matter.*
 3. *to follow through of Joint Fund operational (financial) matters with Director, IAEA and Parties.*
 4. *to expand a Working Glossary.*
- IC-4 ROD* 12. *Further Tasks for SWG-2:*
1. *continue to facilitate preparations toward Protocol 2.*
 2. *continue to follow-through with the Parties, the Director and the IAEA on Joint Fund matters, in particular, representational, legal and travel issues.*
 3. *assist the Director to clarify and work out, keeping in mind NSV4, for MAC-4 review and IC adoption, proposals on priorities in the Joint Fund budget for expenditures in 1994 and on the appropriate ceiling for 1995 encompassing all official travel for JCT members.*
 4. *consult with the Director and HTLs on their development of streamlined procedures for implementation of Task Assignments with regard to the relationship of the streamlining to the Agreement and Protocols.*
 5. *develop a Working Glossary.*
- IC-5 ROD* 3.1 *The Council took note of SWG-2's Report and recognized that the Joint Fund is now in operation.*
- 3.2 *The Council, on the basis of SWG-2's recommendation, approved the Director's proposed Financial Rules.*
- 3.3 *The Council noted that*
- 1) *there are now Agents for the Joint Fund on the territory of each Party, and*
 - 2) *the Trust Fund is operational with monies deposited in Vienna.*
- 3.4 *The Council invited SWG-2, as part of its follow-through on the Joint Fund matters, to serve as a forum for the Parties' review of "mutatis mutandis" questions.*
11. *The Council asked SWG-2 to*
- 1) *review the Director's proposed text on "commingled" R&D tasks in addition to its ongoing tasks and*
 - 2) *as part of its follow-through on the Joint Fund, explore the appropriate use of the IAEA's in-kind contributions capability associated with this Trust Fund.*
- C-6 ROD* 6.5 *The Council determined that SWG-2 has accomplished its major tasks, was therefore terminated and that the few remaining, minor tasks were transferred to the CPs, namely, the "mutatis mutandis" forum and the glossary, while the legal aspects of the "commingled" R&D tasks were transferred to a sub-group being formed by MAC.*

DEVELOPMENT OF THE JOINT FUND

The third major task of SWG-2 was to bring the Joint Fund into operation. While the Agreement provided the overall policy direction and position of the Parties, there remained the practical matter of establishing such a fund within the legal structures of all the Parties. SWG-2 recommended to the Council that the IAEA be asked to provide the mechanism of a central Trust Fund that could be used to receive contributions from the Parties and disburse them as directed by the Council. Upon acceptance by the Council, SWG-2 then consulted with the IAEA and an arrangement was agreed upon for formal interaction between the IAEA Board of Governors and the Council. Since the Council does not have "legal personality", the usual direct arrangements could not be made with other entities. Consequently, an exchange of decisions was agreed upon that fit within the Statute of the IAEA and within the Council's capability.

Following establishment of the Trust Fund, SWG-2 recommended that an Agent for the Joint Fund be put in place in each of the Parties to handle the funds sent to that Agent by the IAEA upon direction of the Council, acting through the Director. The Council accepted this concept and asked four legal entities, each nominated by one of the Parties, to fulfill the role of Agent under specific Financial Rules developed by SWG-2 and the Director and then proposed to the Council by the Director. These rules were based on a set of common rules, using applicable IAEA rules where possible, i.e., for Travel and Representation, and "local" rules where otherwise necessary to minimize the added costs for the Agents of operating two detailed accounting systems.

With the full acceptance of the framework and Financial Rules, the Joint Fund was fully operational and the monies for the first year, as determined by the Council, were requested of the Parties by the Director. This operation represented the first use of actual common funds for ITER.

Following the initiation of the Joint Fund, SWG-2 was asked by the Council to be available to act as a forum in which to address questions that might arise in the application of local rules to this rather peculiar international project without legal personality. There were no such questions raised formally to SWG-2.



SWG-2 in Meeting

MEMBERS OF SWG-2 FOR TASK ASSIGNMENT GUIDELINES EFFORT

EC: R. Andreani, E. Canobbio, F. Engelmann, P. Kind
JA: S. Aoyama, A. Kitsunozaki, H. Tsuji, T. Tsunematsu
RF: Yu. Balasanov, M. Chaplinsky, L. Golubchikov
US: C. Baker, L. Howe, W. Marton, A. Opendaker, M. Roberts, Chair

MEMBERS OF SWG-2 FOR PROTOCOL 2 DRAFTING AND ADDITIONAL EFFORTS

EC: E. Canobbio, J. Grunwald, P. Kind
JA: S. Aoyama, A. Kitsunozaki, S. Hino, T. Ide, K. Aniya
RF: Yu. Balasanov, M. Chaplinsky, L. Golubchikov
US: L. Howe, W. Marton, A. Opendaker, M. Roberts (Chair), G. Taft
Dir.: M. Drew, Y. Tajima

CONCLUDING REMARKS

SWG-2 met many times to address its wide ranging set of issues. Nearly all the issues were successfully reported to the Council for practical actions. The members of SWG-2 were able to develop a thorough respect for each other, a working understanding of each Party's system, and, together, the ability to find the common views that would serve as a basis for solution to the often knotty problem.

*A man sees an angler sitting with his fishing rod on the shore of a river and, feeling clever and strong, decides to show his superiority by playing a joke on him. "I will simply ask him, if the fishing is good. If he answers 'bad', I will say, only a fool can fish in such a place. If he answers 'good', I'll reply that even a fool can fish in such a place." So he approaches the angler: "How is the fishing?" and gets the answer: "Go to hell!". The man steps aside, scratching the back of his head, thinking "how come I had not thought of the third variant of response myself?" *)*

*) EDITOR'S NOTE: We received this text while going through the established routine clearance procedures with the ITER Contact Persons. Being aware of the SWG-2 difficulties of anticipating the right answer to questions in totally unknown situations, as well as of the stature of the author of this "comment", Dr. Lev G. Golubchikov (who is more and more often referred to as "a charter (life) member of SWG-2"), we felt that this "comment" should be published in full. Even the very fact that none of the words "fusion", "international" or "successful" is used in the text, has not stopped us from doing so! Unquestionably, all the copyrights of this particular text belong to Lev. Congratulations for another contribution to the ITER Newsletter.

TRITIUM PLANT TECHNICAL GROUP MEETING

by J. Koonce, Nuclear Technology Division, ITER Naka Joint Work Site (JWS)

The second meeting of the Tritium Plant Technical Group was held at the Naka JWS on February 1-6, 1995, with representatives from all four Parties attending. A list of participants is provided overleaf.

The first part of the meeting was used to inform attendees of changes in project administration. The immediate impact has been to require a significant JCT effort in defining and documenting the Tritium Plant functional performance requirements that will serve as a baseline for future project control. Tritium Plant design criteria documents will soon be transmitted to the Home Teams for review and comment.

Critical research and development issues were identified as: 1) completing the evaluation of processes and selection of the preferred process for detritiation of impurities in the plasma exhaust by the end of 1995, 2) conducting integrated operability testing of the selected process, and 3) developing an accountability for tritium in systems and equipment.

Redistributions of the R&D budget have meant that ITER R&D tasks on breeding blanket have stopped until a decision has been taken on the type of breeding blanket to be used for ITER.

The current concepts for Tritium Plant systems design were presented by JCT representatives. All Home Teams shared concerns relating to the large variation in both composition and rate of torus plasma exhaust to the Tritium Plant. There was consensus that the Tritium Plant design should accommodate the option for processing the full plasma exhaust with direct recycle to the Torus.

Representatives from each Party presented status reports on all ITER support activities. Small-scale proof of principle tests for candidate impurity detritiation processes were promising in all instances. Preparatory work to support fuel cycle process demonstrations with tritium has been completed or is progressing well, by all Parties. Meaningful performance data with tritium demonstrations should be available before the final evaluation and selection in the October Technical meeting. The preliminary criteria for evaluation of process alternatives for selection of the successful candidate were reviewed with considerable discussion.

Additional R&D tasks rendered valuable data on hydride bed calorimetry, advanced atmosphere detritiation, catalyst efficiency, minimization of tritium inventory, and other supporting activities.

Following the technical meeting the collective Home Teams and ITER JCT developed and agreed on the allocation of tasks and funding to support 1995 ITER R&D program and on the plans for extended testing of the integrated detritiation demonstration through 1997. Detailed specification will be worked out and submitted to the ITER Director for task placements.

The next Technical Meeting was scheduled for the end of 1995 in Naka.

LIST OF PARTICIPANTS

EC:	JA:	RF:	US:
P. Glierszewski	M. Enoeda	Y. Mileshkin	S. Birdsell
M. Glugla	T. Hayashi	G. Saxaganski	T. Motyka
D.K. Murdoch	S. Konishi	V. Tebus	G. Nardella
R.D. Penzhorn	J. Mitsui		S. Willms
G. Vassallo	S. Ohira		
	K. Okuno		

JCT: D. Dilling, C. Gordon, R. Haange, D. Holland, H. Horikiri, M. Huguet, J. Koonce, O. Kveton, E. Tanaka, H. Yoshida



Participants in the Meeting

FORTHCOMING EVENTS *)

Confinement Database and Modelling Expert Group Workshop, San Diego, USA, 13–15 March

Magnet Technical Meeting, Naka, Japan, 18–21 April

Special Review Group (part of IDR Review), Garching, Germany, 26–29 April

Vacuum Vessel, Divertor, Blanket/Shield Technical Assessment, including related Physics (part of IDR Review),

Garching, Germany, 1–6 May

Magnets, Plasma Control, Assembly, Cryostat Assessment, including related Physics (part of IDR Review),
Naka, Japan, 10–13 May

*) Attendance at all ITER Meetings by invitation only.

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MS M. AVEDIKIAN
NESI
A-241B

IAEA

Items to be considered for inclusion in the ITER Newsletter should be submitted to B. Kouvchinnikov, ITER Office, IAEA, Wagramerstrasse 5, P.O. Box 100, A-1400 Vienna, Austria, or Facsimile: 43 1 237762 (phone 2360 6392).

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