interim Technology Advice Panel (iTAP) Meeting Report
July 8-9, 2002
San Francisco, USA

Summary

The iTAP's inaugural meeting was held in conjunction with the final meeting of the JOIDES Technical and Engineering Development Panel (TEDCOM). TEDCOM met on the morning of July th, iTAP met jointly with TEDCOM that afternoon and iTAP meet on July 9th.

At the joint meeting, discussions focused on past experience and included a discussion of TEDCOM's advice on IODP, the Technical Advisory Working Group recommendations, and discussion of expertise needed to complete iTAP's membership. The full iTAP meeting's primary foci were a review and discussion of the panel mandate, recommendations on added members, and initial discussions on technical development needs for IODP based one the priority science described in IODP's Initial Science Plan (ISP).

This Report includes a list of the participants, the final agenda, and a list of the Panel's action items, and recommendations to the interim Planning Committee. The Appendix to this Report includes diagrams presented at the meeting as well as a summary of the groupings of technical challenges developed by iTAP.

Meeting Participants

<u>iTAP Members</u>
Yusei Arai (Japan)
Dave Huey (US)
Masahiro Kamata (Japan)
Vincent Maury (France)
Kate Moran (US; Co-chair)
Frank Schuh[1] (US)
Alister Skinner[1] (UK)
Axel Sperber[1] (Germany)

<u>Members Who Sent Regrets:</u>
Sigmund Stokka[1] (Norway)
Brian Taylor[1] (Canada)
Yoshihiro Masuda (Japan; Co-chair)

<u>TEDCOM Members</u>
Hugh Elkins (US)
Marvin Gearhart (US)
Masanori Kyo (Japan)
Howard Shatto (US)

[1] Also a member of TEDCOM

iTAP & TEDCOM Liaisons
Jamie Austin (iPC)
Keir Becker (SCICOM)
John Farrell (JOI)
Brian Jonasson (ODP/TAMU)
Eiichi Kikawa (iSCIMP)
Jeff Schuffert (iSAS Office)
Shinichi Takagawa (JAMSTEC)

Guests
Bruce Ahrendsen (Fugro-McClelland)

Agendas

Joint TEDCOM/iTAP

I. Introductions
II. Review & Discussion of TEDCOM recommendations for IODP
III. Review & Discussion of TAWG recommendations for IODP
IV. Report from iSCIMP on integrated technical requirements in areas of overlap with iTAP (logging, downhole measurements, observatories, database needs)
V. Discussion and recommendations on future membership needs for iTAP

iTAP

I. Review of mandate (Moran)
II. Overview of science goals for IODP (Austin)
III. Review of science challenges (technical) remaining from ODP (Becker)
IV. Discussion on approach for developing technical development priorities
V. Presentation of Chikyu capabilities (Takagawa)
VI. Proposed US ship conceptual design (Farrell)
VII. Proposed European MSP capability (Skinner)
VIII. Review of timeline for ships coming online (Austin)
IX. Discussion of the top technical areas that require R&D and prioritize these areas
X. Discuss and recommend remaining membership
XI. Next meeting
XII. Contracts and Intellectual Property Issues
XIII. Other business

iTAP Action Items

- Austin presented an overview of IODP (see Appendix A for summary diagrams of IODP & the iSAS), including the ISP and highlighted the science priorities that would require new technological developments. Becker also presented the technological developments that were not achieved in ODP. Based on these discussions, iTAP developed a list of technologies that will be needed in IODP (Appendix B). iTAP will begin place priorities on these technologies at their next meeting, following input from their liaison with iSSEPs. ACTION: iTAP members at the next meeting

- iTAP members requested copies of ODP & IODP documents related to Technical Developments and Science Priorities. Keir Becker kindly offered to have his office (JOIDES) forward a CD-ROM with these documents to all meeting participants and to iTAP members who did not attend. ACTION: Becker
- ITAP members will review the MSP proposals before the next meeting that are recommended by the iPC at their August meeting. ACTION: iSAS Office (forward proposals to members) and iTAP Members
- Prepare and place an ad in the SPE newsletter requesting nominations for new members of iTAP. ACTION: Moran, after approval by iPC Co-chairs
- During discussion under "Other Business", iTAP agreed that panel members would make presentations at each meeting with a goal to making each member aware of the other's expertise. The first presentation will be made by Vincent Maury at the next meeting. ACTION: Maury

iTAP Recommendations to iPC

Mandate

The panel spent considerable time discussing and reviewing this new panel's membership. The panel recommends that the mandate be modified to improve the link between scientific needs and the technology needed to meet science objectives. Also, the panel recommended delineating the difference between operational advice to IOs and the primary focus of the panel, guidance on technology development.

Recommendation iTAP02-01: iTAP recommends the following modified wording of the mandate and specific tasks:

"iTAP provides advise to iPC, and to IWG through iPC, on long range technological developments needed to meet the scientific objectives outlined in the Initial Science Plan of IODP. To meet this mandate, iTAP will provide:

- Advice and recommendations on IODP's technological needs as the panel's highest priority;
- An assessment (including risk assessment) of whether proposed developments should go forward (i.e. go or no-go decision) or can be most optimally met through the use of "commercial off-the-shelf" technology or whether R&D within IODP will be required.
- Advice and recommendations on operational practices and procedures of the IOs that build on program experience on an as needed basis;
- Advice and recommendations on the technical development management structure for IODP;
- Advise the scientific constituents of IODP on technologies that are available to meet specific science targets;
- Recommendation on the appropriate mode for pursuing such R&D, (i.e., through IODP development, university or industry development, or joint ventures);
- Advice and recommendations on the process and procedures for technical development contracts and evaluation in support of technical design and innovation; and
- Ongoing reviews of the progress of technology development projects made by the science community and iSAS."

Recommendation iTAP02-02 on liaisons: As its highest priority, the iTAP would

have a strong link with the iSSEPs so that the panel can identify technological gaps early in the proposal cycle process. To accomplish this, iTAP co-chairs would attend and report at iSSEPs and iTAP members would review selected proposals. iTAP co-chairs would meet with iSCIMP co-chairs as soon as possible to define the respective roles of each panel and ensure that their respective mandates are clear and complimentary to each other. On an ongoing basis, iSCIMP would provide a liaison to iTAP. IODP IOs would provide appropriate liaisons to iTAP on an ongoing basis.

Recommendation iTAP02-03 on panel membership: iTAP discussed panel membership, including some of the constraints associated with the types of industry members needed for successful deliberations. Because of the difficulty that some industry members will have in attending all meetings, iTAP recommends that membership be described in two groups: panel member and associate panel member. Panel members would be required to serve a three-year term and attend all meetings, including their liaison duties. Panel membership would be a total of 16. Associate panel members would participate through email and conference call on an as-needed basis and would attend at least one panel meeting per year, typically at the iTAP meeting held in conjunction with SPE's Drilling Contractors Annual Conference. Associate memberships would be extended to an additional 5 to 6 members. iTAP discussed proposed names for new panel members, but recommended that a request for nomination be made through the SPE newsletter. Once nominations are received from this process, the iTAP co-chairs will work with the iPC co-chairs to finalize the nominations.

Recommendation iTAP02-04 on technology-related intellectual property and contractual matters: iTAP discussed IP and contractual matters from the perspective of past experiences in ODP. iTAP recommends that the CMO and the IOs ensure that their contractual administration groups be structured to be flexible enough to ensure that new technologies will be embraced by IODP while still retaining proprietary and patent issues that protect the industrial developer.

Recommendation iTAP02-05 on meetings: iTAP requests that their next meeting be held prior to the SPE in Amsterdam for the dates of February 17-18. iTAP also recommends approval to lead an "IODP town meeting" at SPE as an outreach activity to the drilling engineering community. Finally, iTAP recommends that the iSCIMP co-chairs and the iPC co-chairs meet in the fall for a one day session to address the overlapping mandates of these closely-related panels.

Advice to JAMSTEC on OD21: iTAP suggests that OD21 re-consider their drillpipe configuration from quadruples (API-R.2-DP; 9.3 m) to triples (API-R.3-DP; 13 m). The advantages of triples include reduced weight, increased margin of overpull at any given depth, reduced pressure loss, and reduced price (20 to 30% lower).

Appendix A
Summary Diagrams Presented at iTAP

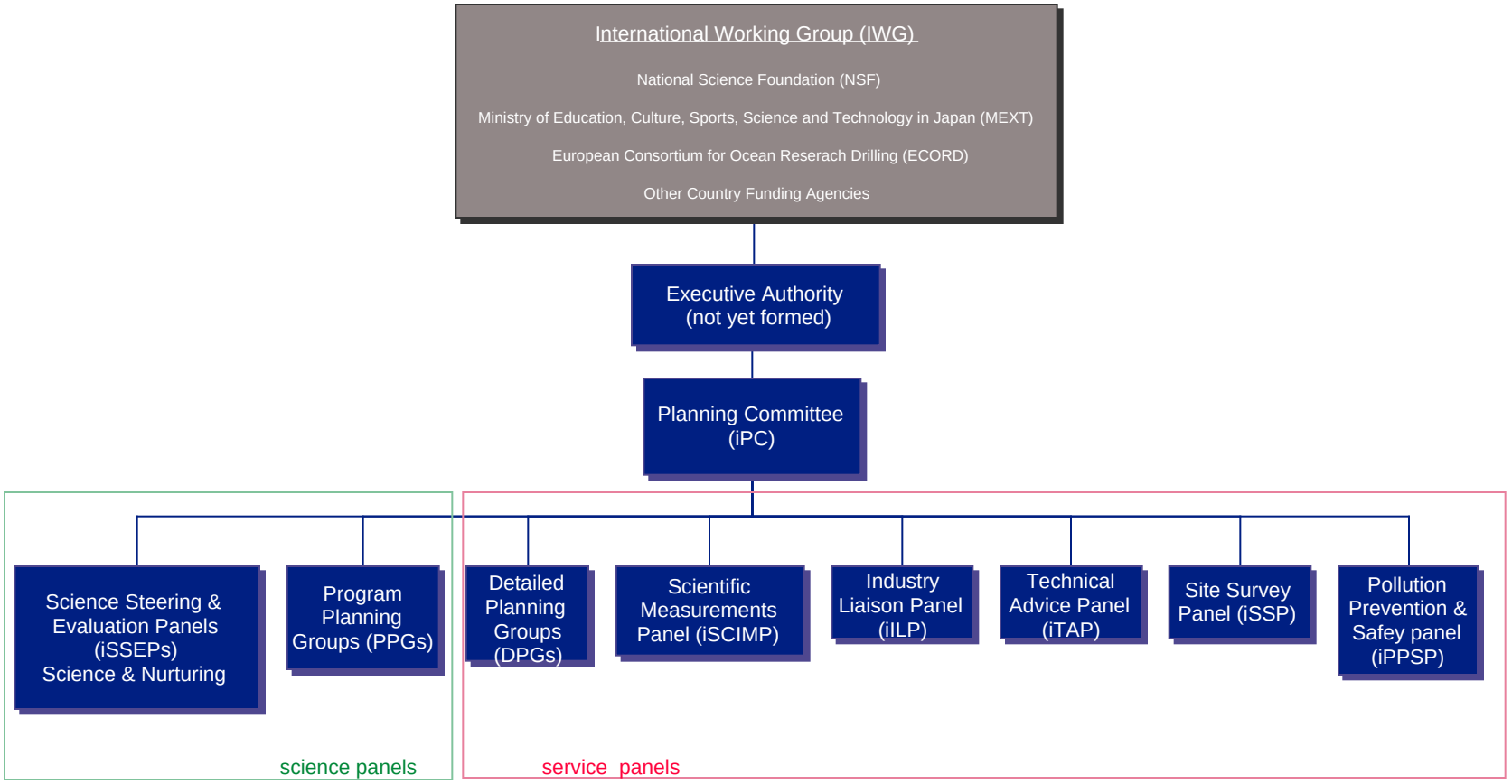

Figure 1 interim (small "i") Science Advisory Structure (iSAS)

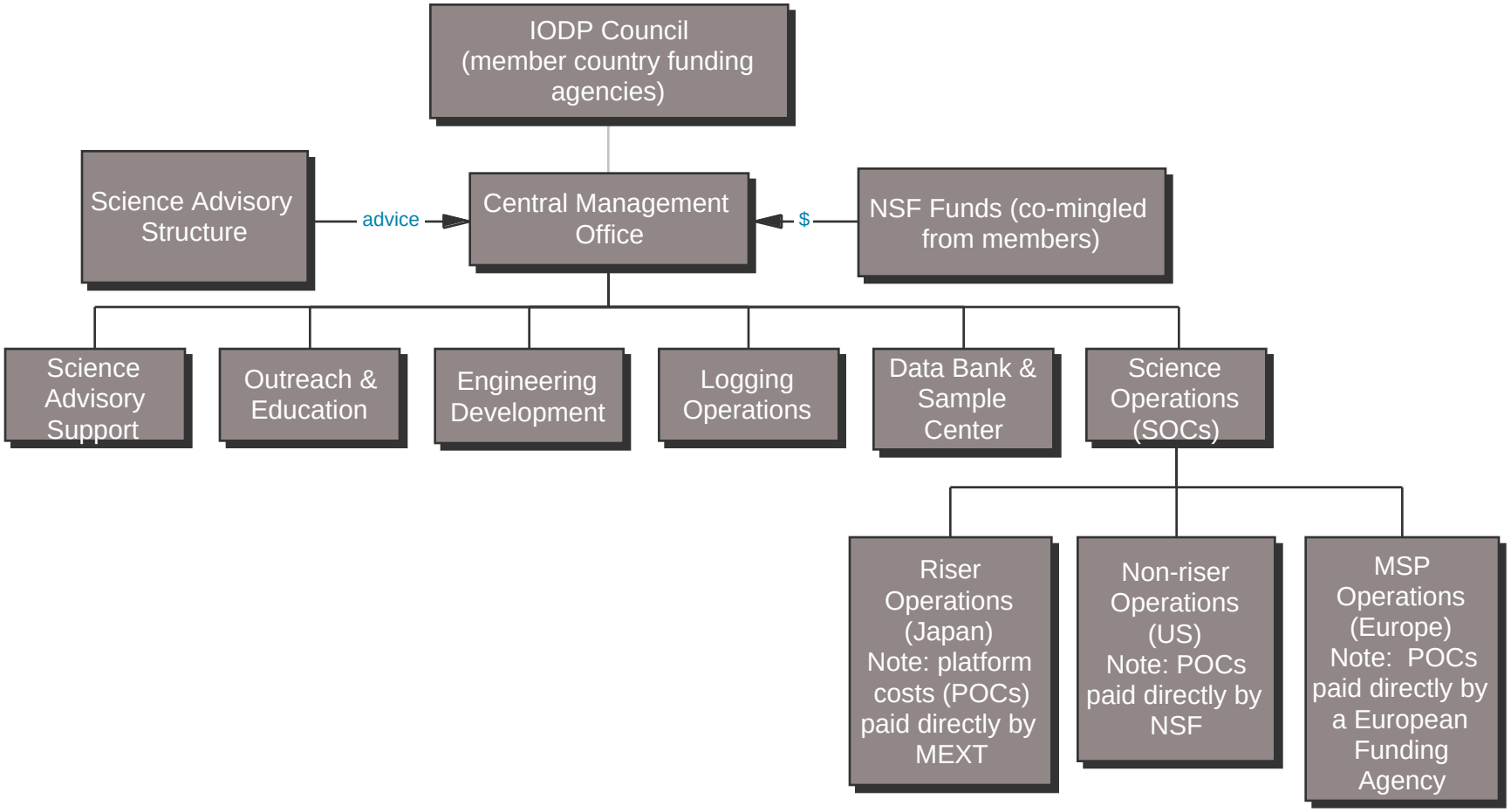

Figure 2 IODP Draft Management Structure

Appendix B
Technical Challenges Identified Through a Review of the ISP

- Well design for deepwater and deep penetration. The challenges associated with this include:
  - Riser mud weight and application of "riser-less" systems
  - Borehole stability due to anisotropy, temperature, and stress
  - Vortex-induced vibration
  - Prediction of pore pressure & effective stresses
  - Developing fishing and hole-by-pass technologies
- High pressure and temperature tool development challenges include:
  - Temperatures above 150^{o}
  - Pressures at depths of 5 km below seafloor
- Gas Hydrate challenges include:
  - Pressure-controlled cores
  - Onboard "handling" and scientific measurements on pressure-cores
  - Sample recovery in varying types of hydrate
  - Measurement of in situ conditions
- Deep Biosphere challenges include:
  - Recovery of uncontaminated samples in hard rocks
  - Provision of temperature and pressure control systems for cores
  - Developing sterile sample handling and shipping systems
  - Ability to recover and handle unforeseen biological materials
  - Develop appropriate technology for long-term microbiological observatories
- Zero-age crust drilling challenges identified in ODP, continue in IODP and include:
  - Rubble and hole stability
  - Bare-rock spuds
- Climate history challenges primarily relate to improvements and include:
  - Recover of loose sands
  - Improved APC coring
  - Develop in situ proxy records
  - Recovery of hard/soft sequences
  - Application of LWD
- Observatory science is relatively new and crosscuts many of the science initiatives in the ISP. The challenges include:
  - Sensor development for hydrates and other ephemeral materials
  - Borehole integrity over the design lifetime
  - Completion designs
  - Communication systems for recovery of data and/or samples
  - Exploration of standardizing systems so that re-entry from other vessels, submersibles, ROVs and AUVs can be readily achieved
  - Develop shallow, soft-sediment deployed observatories
- Cross-science technology issues include:
  - Stress and pore pressure measurements, including magnitude & orientation
  - Borehole geophysical property measurements, such as permeability and geomechanical properties
  - Orientation of hard rock cores
  - Provision of shared technologies and, where appropriate, standard systems across all platforms