

ILC-Asia

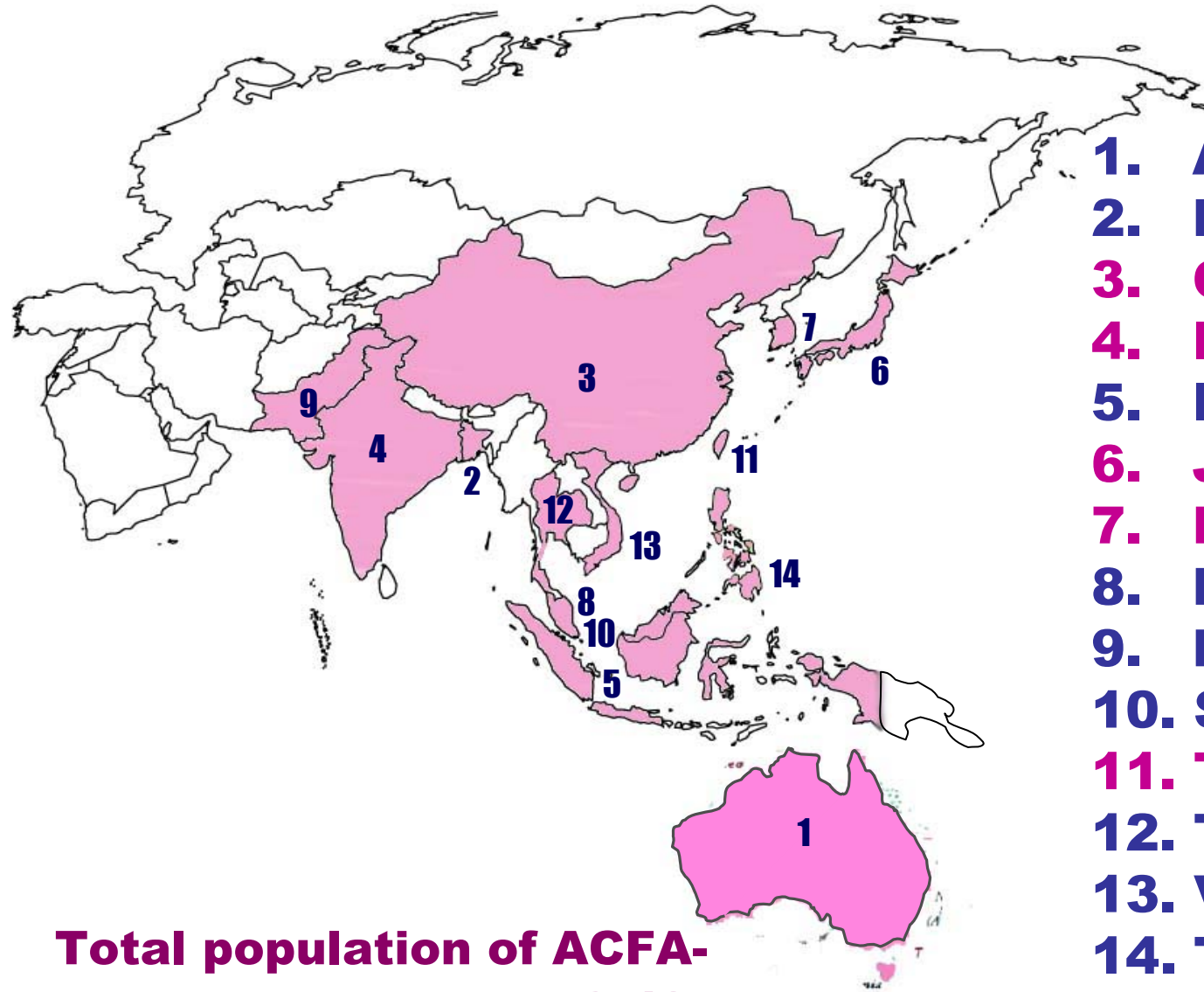
K.Yokoya, KEK

Mar.9.2006

Bangalore, India

ACFA Members

S.Kurokawa



1. **Australia**
2. **Bangladesh**
3. **China**
4. **India**
5. **Indonesia**
6. **Japan**
7. **Korea**
8. **Malaysia**
9. **Pakistan**
10. **Singapore**
11. **Taiwan**
12. **Thailand**
13. **Vietnam**
14. **The Philippines**

Total population of ACFA-member countries = 3.42 billion

(53.8% of the world population)

ACFA Statements

- ACFA has been pushing LC through the two statements in the past.
- After the ICFA decision at Beijing, the 3rd statement was issued in the Kolkata meeting on 2-3 Nov. 2004 (just before the KEK workshop)

ACFA Statements

- ACFA reaffirms that the ILC, the next major high-energy physics project, should be realized by world-wide efforts.
- ACFA reconfirms the importance of hosting ILC in Asia
- With ILC entering this important phase, ACFA urges Governments of Asian countries to support participation of their scientists in GDI.

Asian GDE

- Participation in the GDE Activities
- R&D efforts on the regional base
- Director: F.Takasaki (going to change)

Asian GDE Meetings

- 8/19 2005 during Snowmass
- 9/30 2005 during ICFA Seminar at Daegu
- 1/16 IHEP meeting
- 2/17 PAL meeting
- Several video meetings

16 GDE members from Asia



Norihito
Ouchi

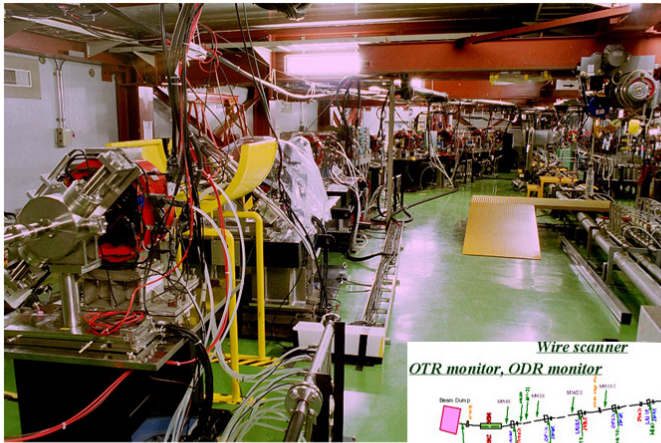


Nobuhito
Terunuma



Main Fields of Asian Activity

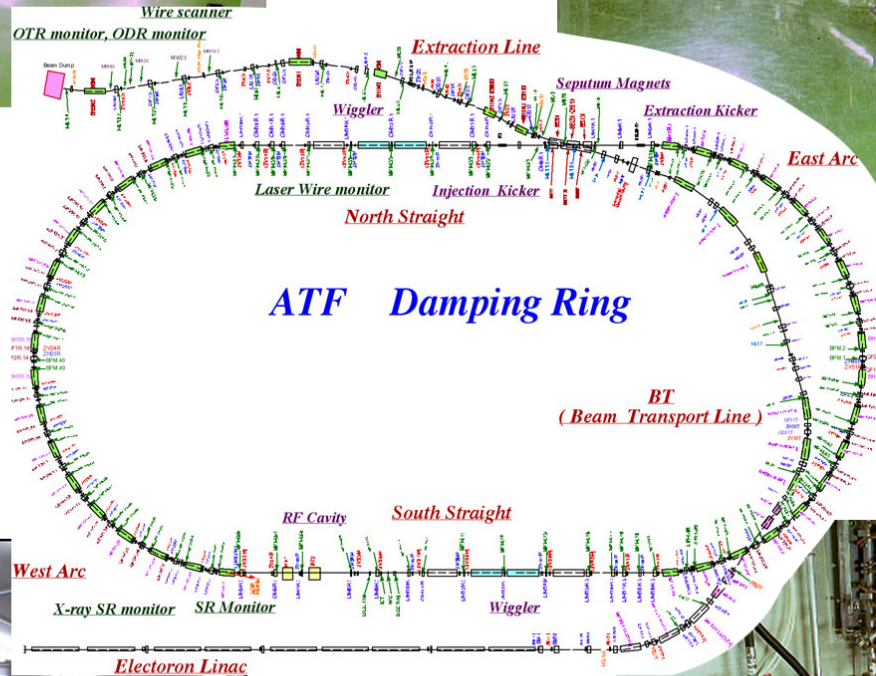
- Superconducting linac technology
 - Cavity technology
 - System unit developments
- Advanced beam-handling technology
 - Damping ring R&D using ATF
 - Establishment of FFS by ATF2
 - Instrumentation R&D with ATF/ATF2



Extraction Line



Damping Ring



Control Room



Linac

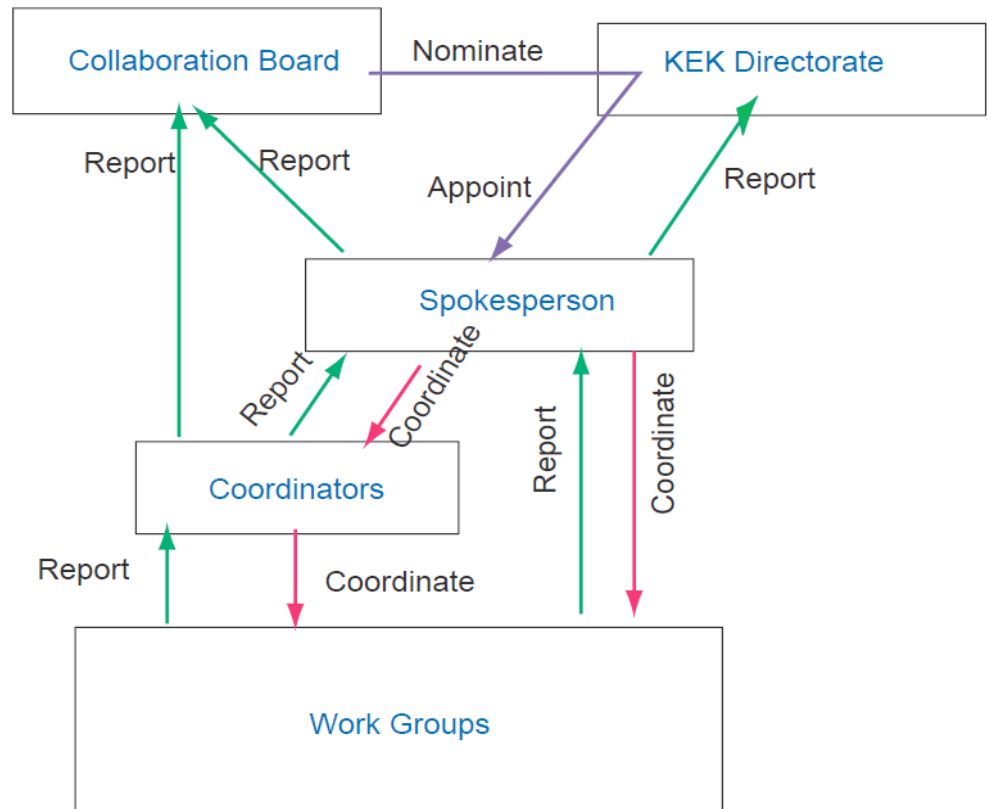
What's been done at the ATF

- Achievement of small emittance 1.5pm
- Beam dynamics study such as intrabeam scattering & fast ion instability
- Development of diagnostics devices such as laser wire, ODR monitor, pulsed optical cavity, cavity BPM, etc.
- Hardware systems like bunch-by-bunch feedback system, polarized positron, fast kicker, etc.

Help of US and European labs have been essential in these works

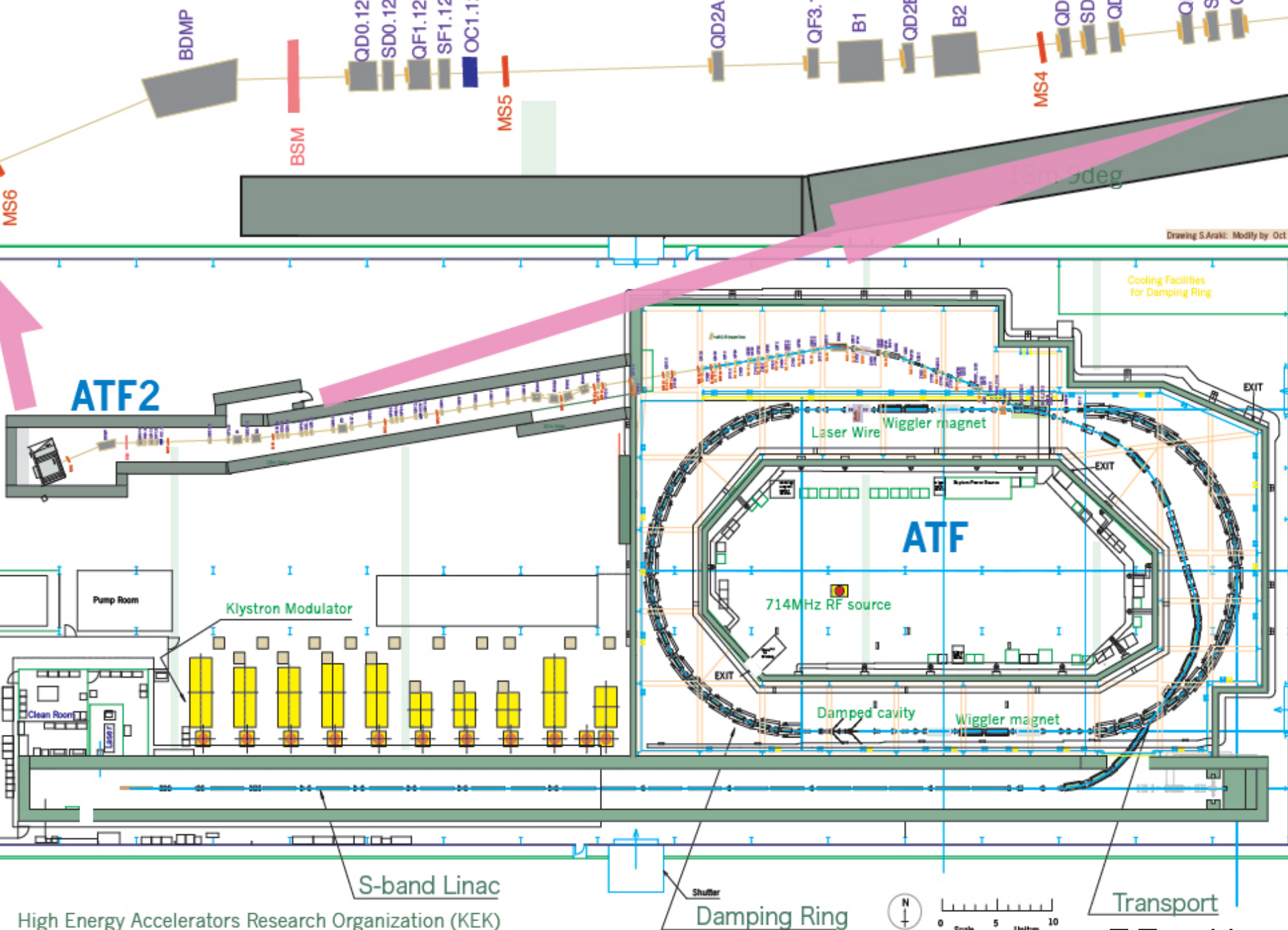
ATF MoU

- Needs to internationalize ATF
- More effective participation to ILC
- ATF2 construction
- ATF MoU signed last year



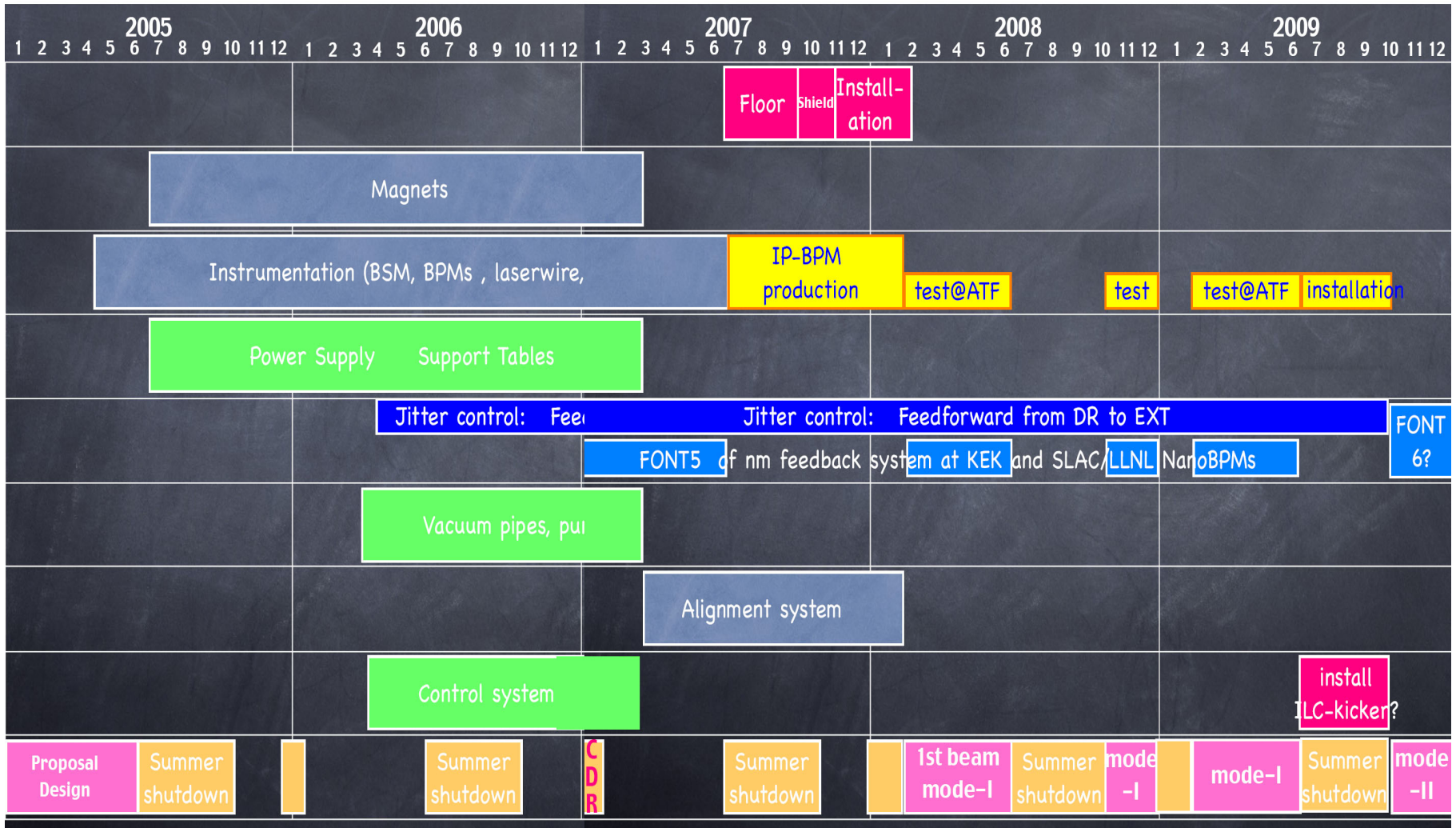
ATF2

- Extend ATF extraction line to add Final Focus prototype
 - Squeeze the ATF beam down to $\sim 35\text{nm}$
 - Stabilize beam center to $\sim 2\text{nm}$
- International collaboration from beginning



Drawing S.Arai; Modify by Oct

ATF2 Schedule



High Grad Cavity R&D

- TESLA-type cavity
- LL-type cavity

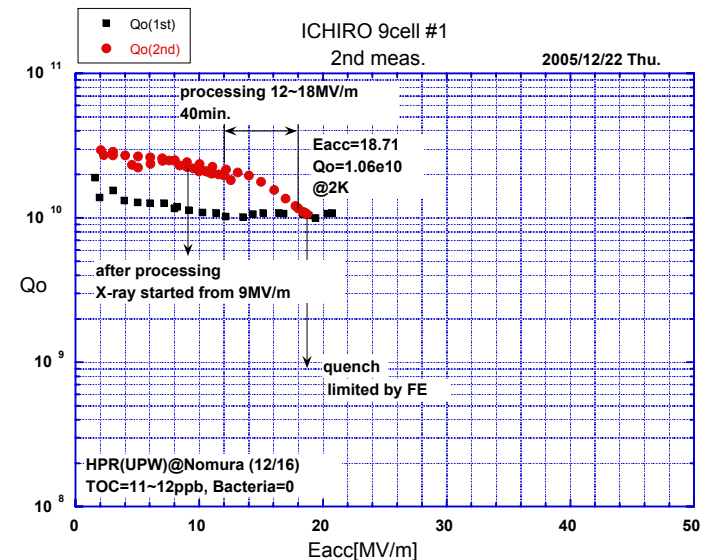
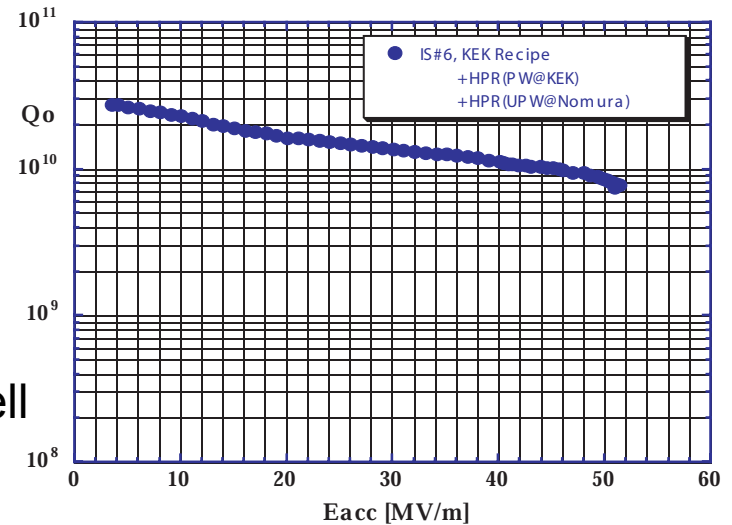
Participation of
asian countries

LL 9-cell



LL Single Cell

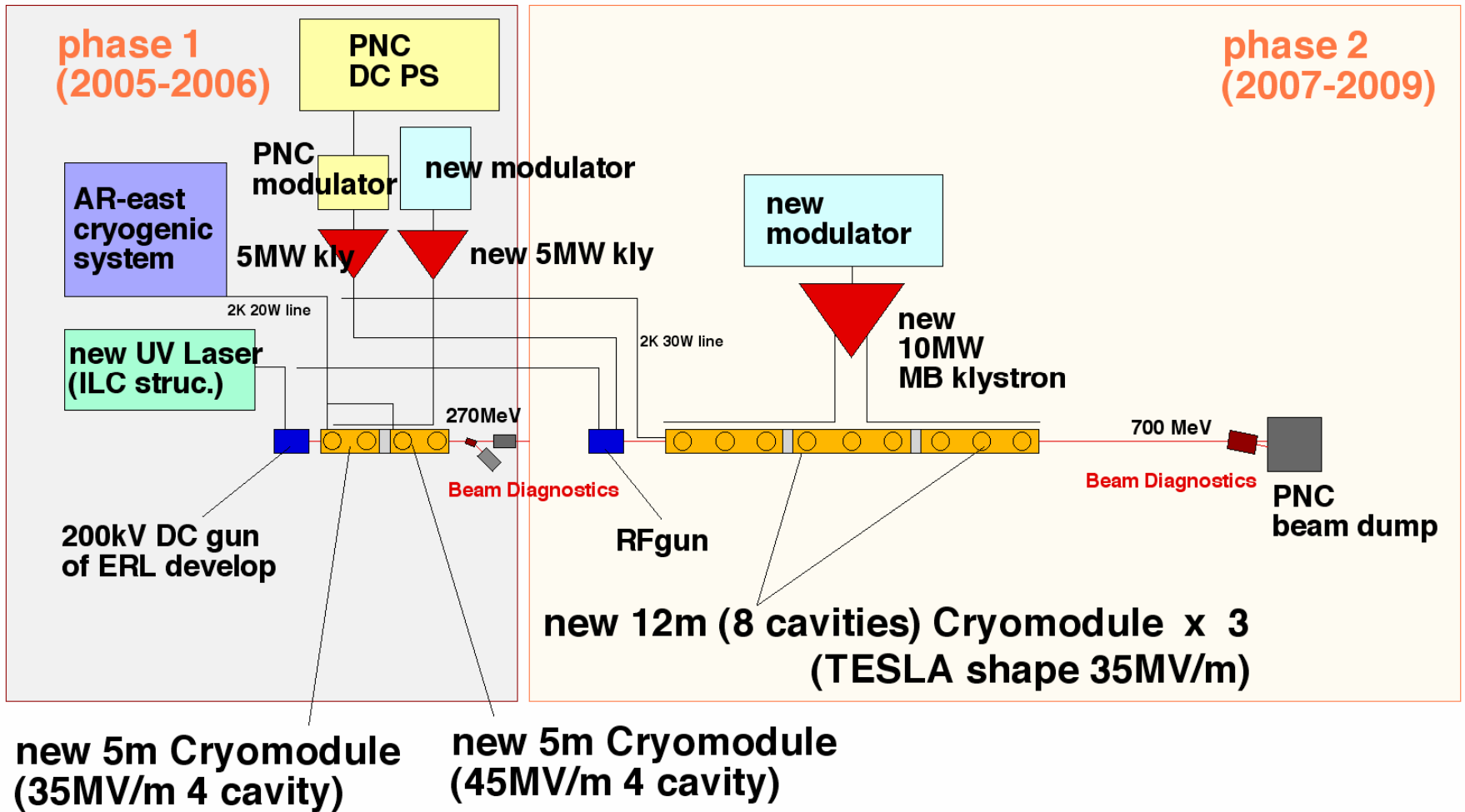
51MV/m on a single cell cavity with ICHIRO center cell shape



STF Plan at KEK

- Establish an industrial design of 35MV/m and 45MV/m cavity systems.
- Construct a linac unit by Asian/Japanese industries for accurate cost estimation.
- Build Asian regional center of superconducting technology so that Asian industries can participate in the ILC construction.
- Build up a pool of experts at both the labs and the industries towards future mass-production.

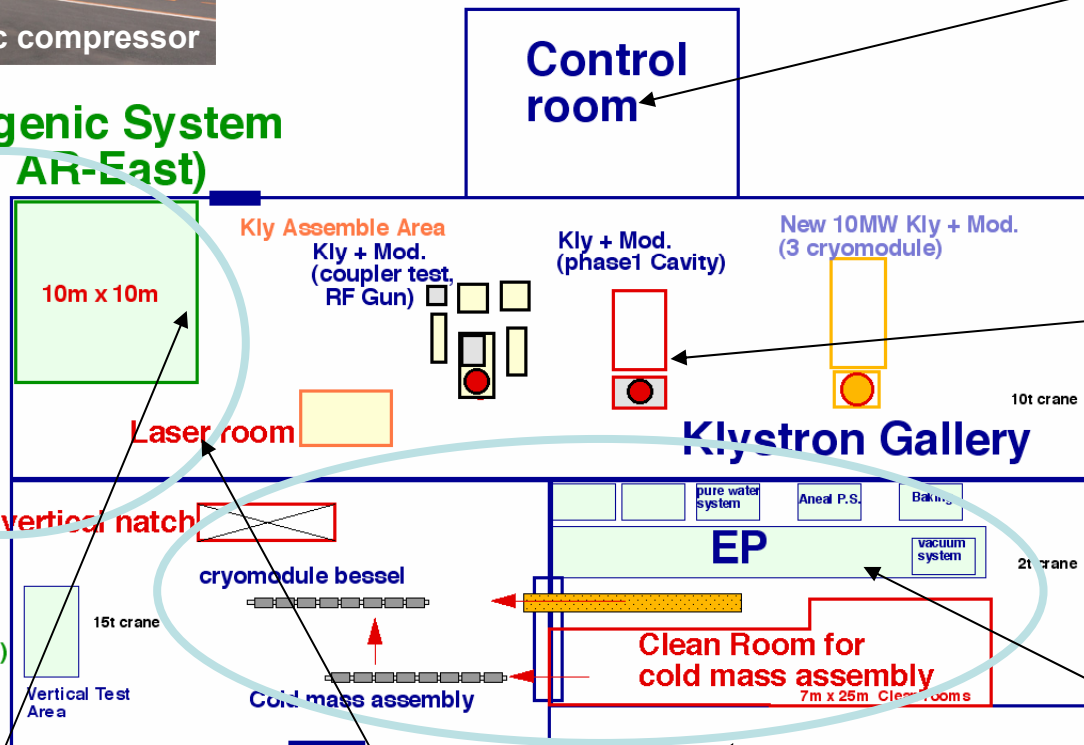
Plan of Superconducting RF Test Facility (STF)



STF Building plane view

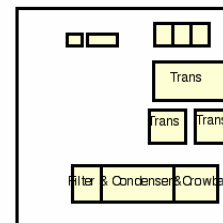


Cryogenic System (from AR-East)



Cavity Process (EP) & assemble Area (clean rooms)

Cryomodule Assemble Area

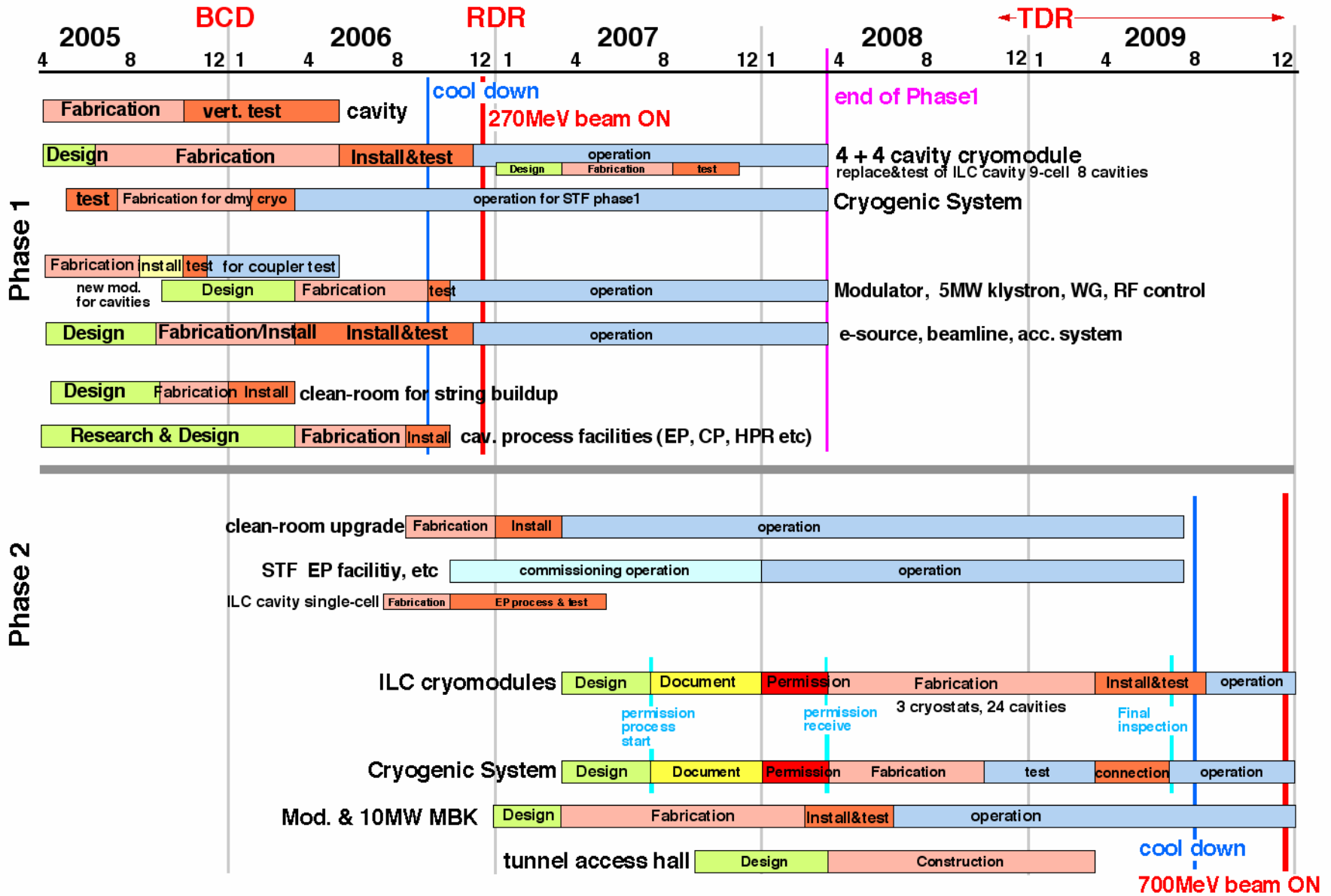


V6.0 H. Hayano, 12/02/2005

Infra-structure for SC-RF production

STF long-term Plan

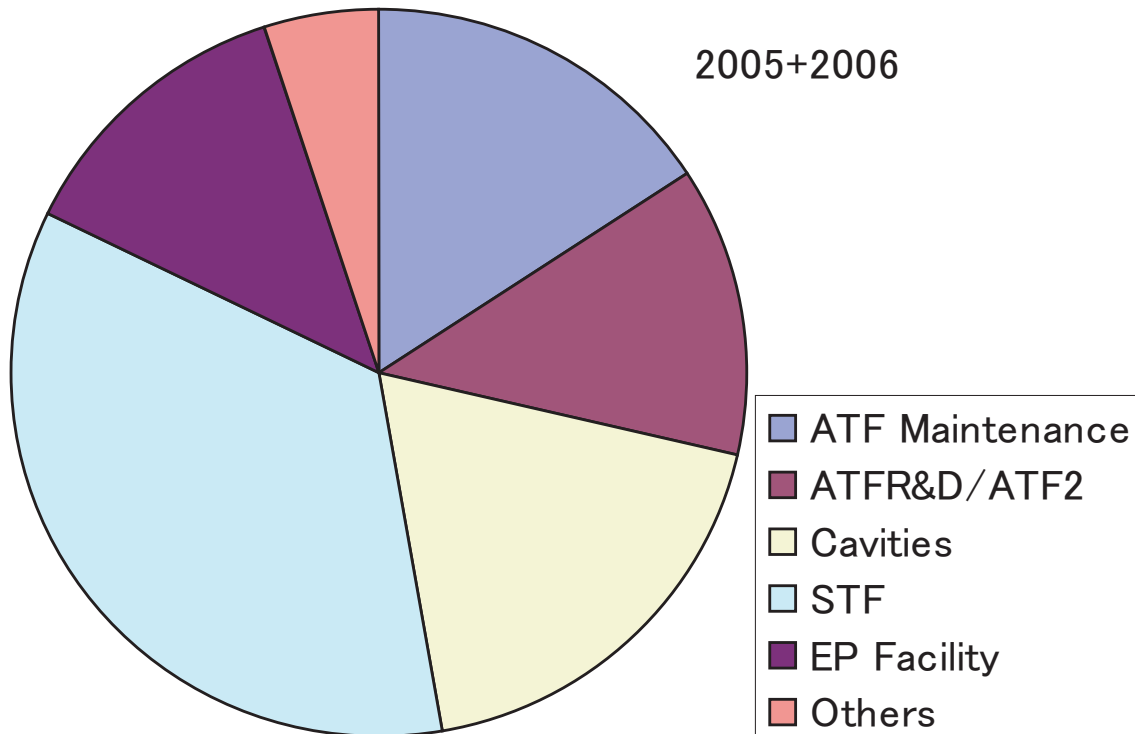
H. Hayano 12022005



* Phase 2 Schedule was changed(1 year delay).

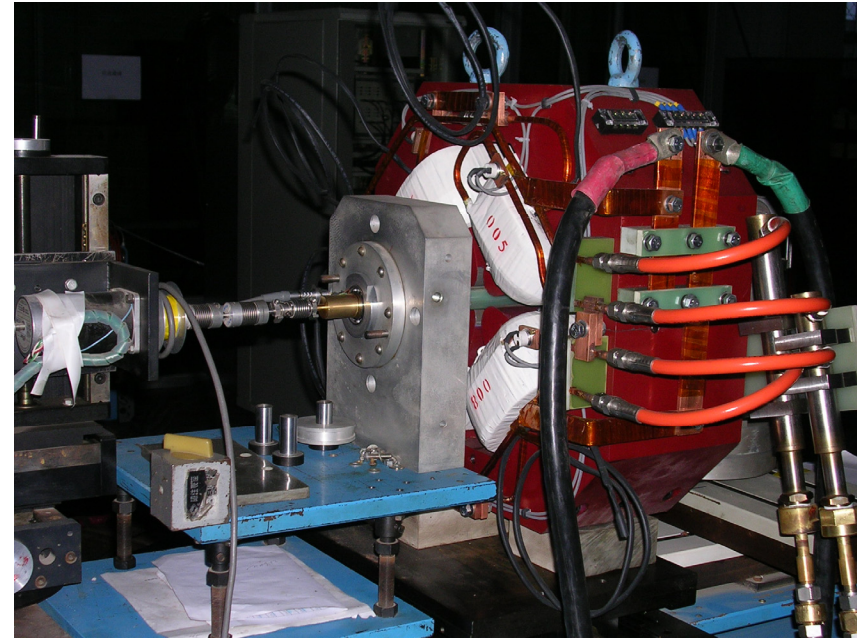
Budget and Manpower

- ~10 Oku yen in JFY2005, ~30 FTE from KEK
- Similar in JFY2006



Activities in China

- Design work
parameter study, DR design, etc.
- R&D work
 - ATF2 quaderupole magnet fabrication at IHEP
 - LL-cavity study (optimization, HOM measurement) at Tsinghua Univ.
 - Others not directly related to ILC
(photocathode RF gun at Tsinghua)



Niobium plate
from Ningxia

Activities in Korea

- Design work
(Bunch compressor,
DR instability, etc)
- ATF2 cavity-BPM
fabrication
- ILC-related cavity
study (at KEK)
- Other SCRF studies
for Korean projects



India

- Relation to Japan on ILC has not been very close mainly due to the visa problem,
- which was almost removed last year.
- This year KEK is expecting at least 3 long-term visitors (1 senior, 2 students) from India.
- Expect much more intensive collaboration for ILC.

Conclusion

- Asia is trying to contribute to ILC much more intensively than before, in particular in R&D efforts.
- Collaboration between Asian labs is evolving quickly.
- Present technology level may not be sufficient but Asia is rapidly changing.