



Asian Regional Program

Kaoru Yokoya
KEK



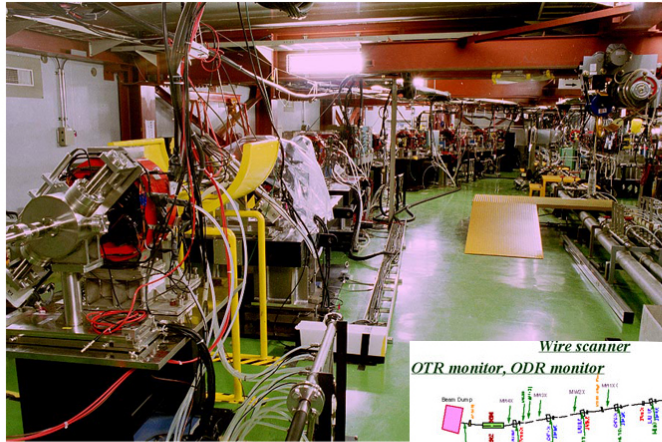
GDE

- GDE Members
Japan 12 (KEK 11), Korea 2→4, China 1
- Including
 - Shidara (cost), Enomoto (CF), Yamamoto (MDI)
- Boards
 - CCB Toge, Kubo, Kuriki
 - RDB Hayano, Higo
 - DCB Shidara, Enomoto, Terunuma
- RDR
 - AS 5 (China 1, Korea 1)
 - TS 8
 - GS 5



R&D Program

- Acceleration Technology
 - High-gradient Cavities
 - Linac System → STF
 - Infrastructure
- Beam-handling Technology
 - ATF
 - ATF2
- Others
 - Conventional facility study
 - Site study



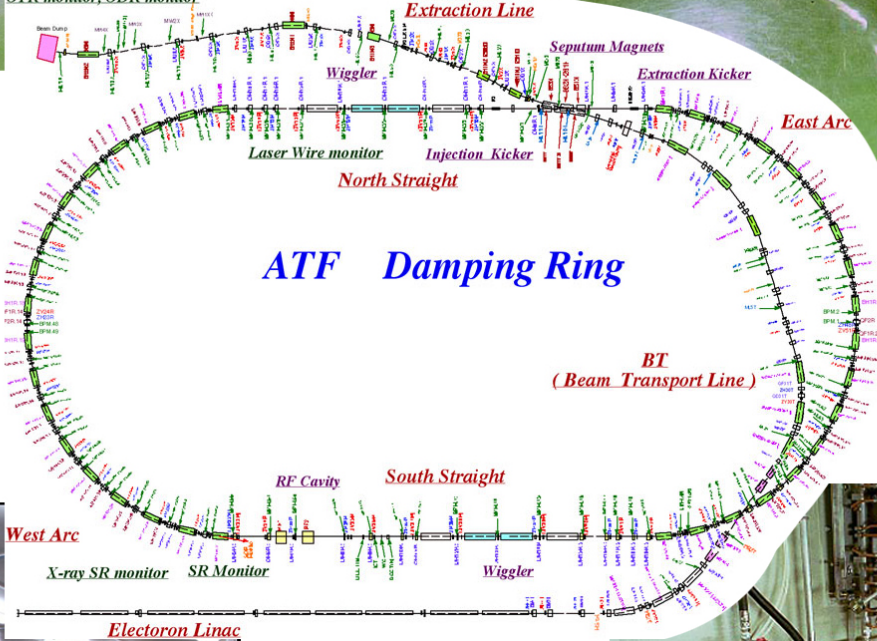
Wire scanner
OTR monitor, ODR monitor

Extraction Line



Damping Ring

ATF



ATF 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, XSR monitor, ODR monitor, pulsed optical cavity, cavity BPM, etc.
- Hardware systems like bunch-by-bunch feedback system, polarized positron, fast kicker, etc.

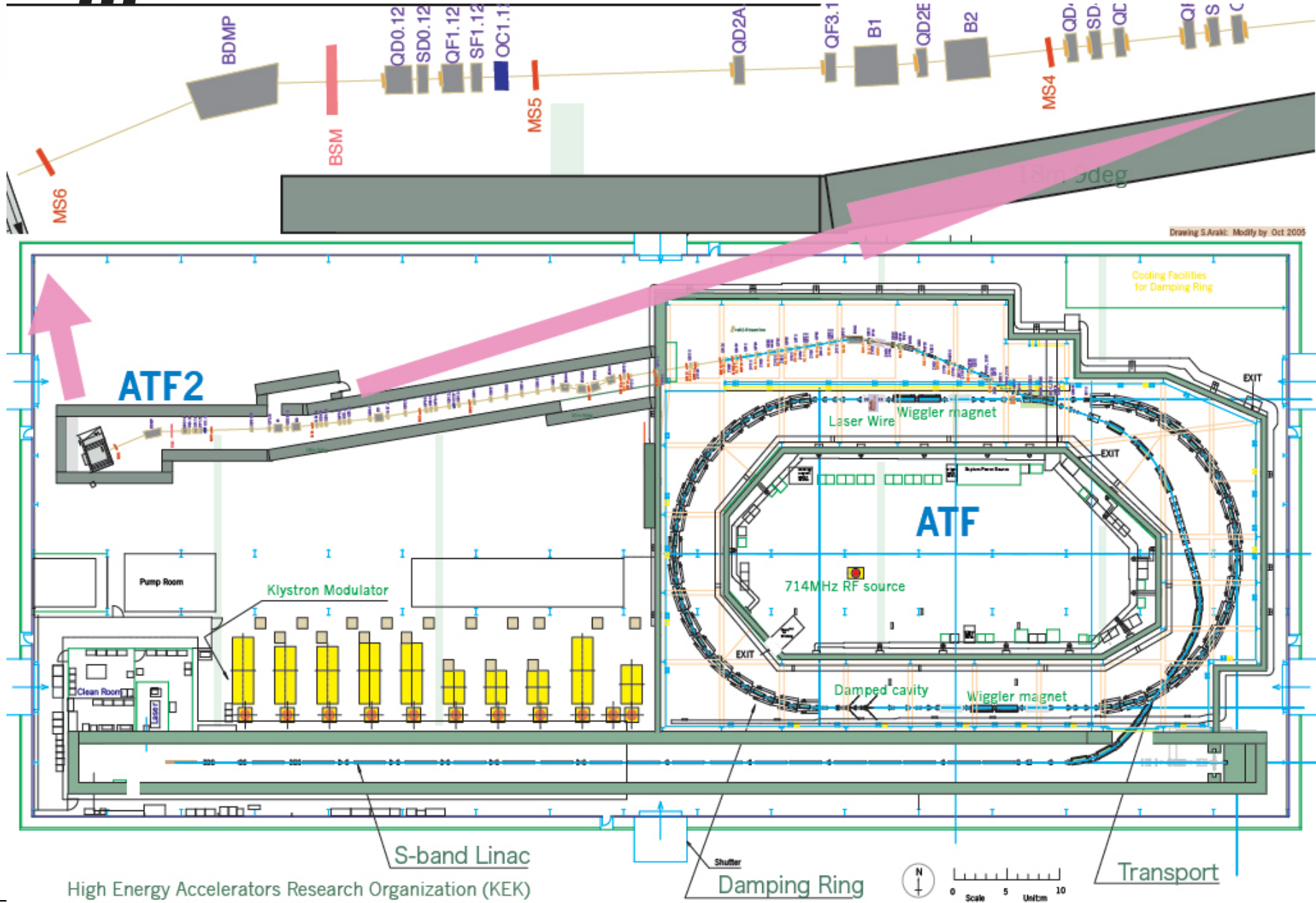
Internationalization → ATF MoU



ATF2

- Extend ATF extraction line to add Final Focus prototype
 - **Small beamsize**
 - Squeeze the ATF extracted beam down to ~35nm
 - Maintain it for long time
 - **Beam center**
 - Stabilize beam center to ~2nm
 - Bunch-to-bunch feedback system with ILC-like beam
- Start operation in Jan.2008 (1 year delay)
- International collaboration from beginning
 - **Asia: magnet, BPM fabrication, etc**
 - **Americas: design, BPM electronics, magnet support, etc**
 - **Europe: feedback, laser wire, FD support, etc**

ilc



Drawing S.Araiki; Modify by Oct 2005

High Energy Accelerators Research Organization (KEK)

07 April 08 ILC REVIEW

Global Design Effort

T.Táuchi



ATF2 Schedule

Japanese Fiscal year	JFY2005												JFY2006												JFY2007																	
	2005						2006						2007						2008																							
Activity	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3						
Beam operation	ATF								ATF		ATF										ATF		ATF												ATF2							
Conventional Facilities																									preparation		floor		utility				shield									
Magnets									24-Q		test								5-Q, Bends (7), 6,8poles		test						Final doublet		test													
Magnet Support									support (44)								movers																									
Alignment																																										
Power supplies									prototype							production							test																			
QBPM									prototype		prodction-1				production-2							test at KEK																				
IP-BPM									prototype				test			support system							production																			
Shintake monitor (BSM)									modification to the half wavelength ; i.e. 532nm with precise phase control																test at KEK																	
Laserwire									R&D at ATF-extraction																production																	
Other instrumentation																																										
Feedforward & FONT4/5									R&D and production																test at KEK																	
Vacuum																																										
Cable plant																																										
Control system																																										
Installation																																										
Funding Process									JFY2006							call for UK fund							JFY2007							JFY2008												



STF Plan at KEK

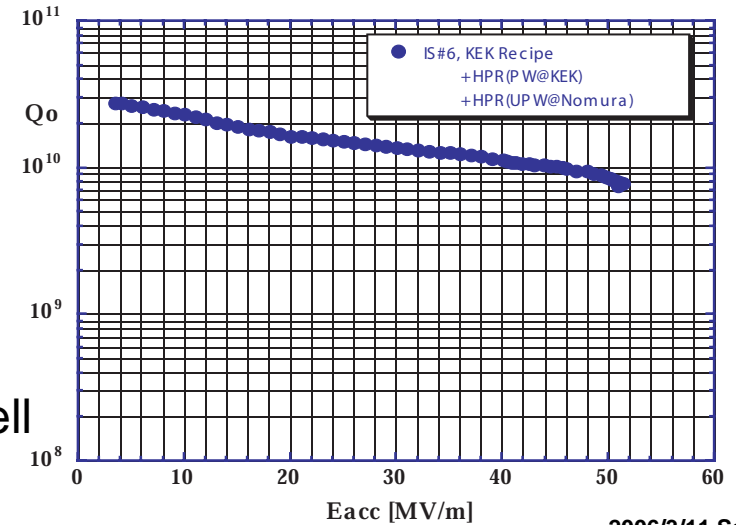
- Establish an **industrial design** of 35MV/m and 45MV/m cavity systems.
- Construct a linac unit by Asian/Japanese industries for **accurate cost estimation**.
- Build **Asian regional center** of superconducting technology so that **Asian industries** can participate in the ILC construction.
- Build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



High Grad Cavity R&D

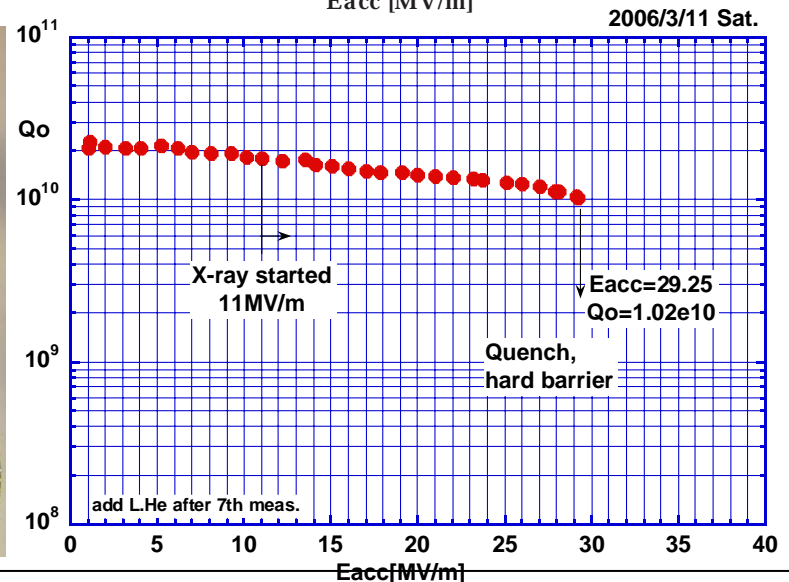
- Baseline (TESLA-type) cavity
 - LL-type cavity
- Significant contributions from
Korea and China

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



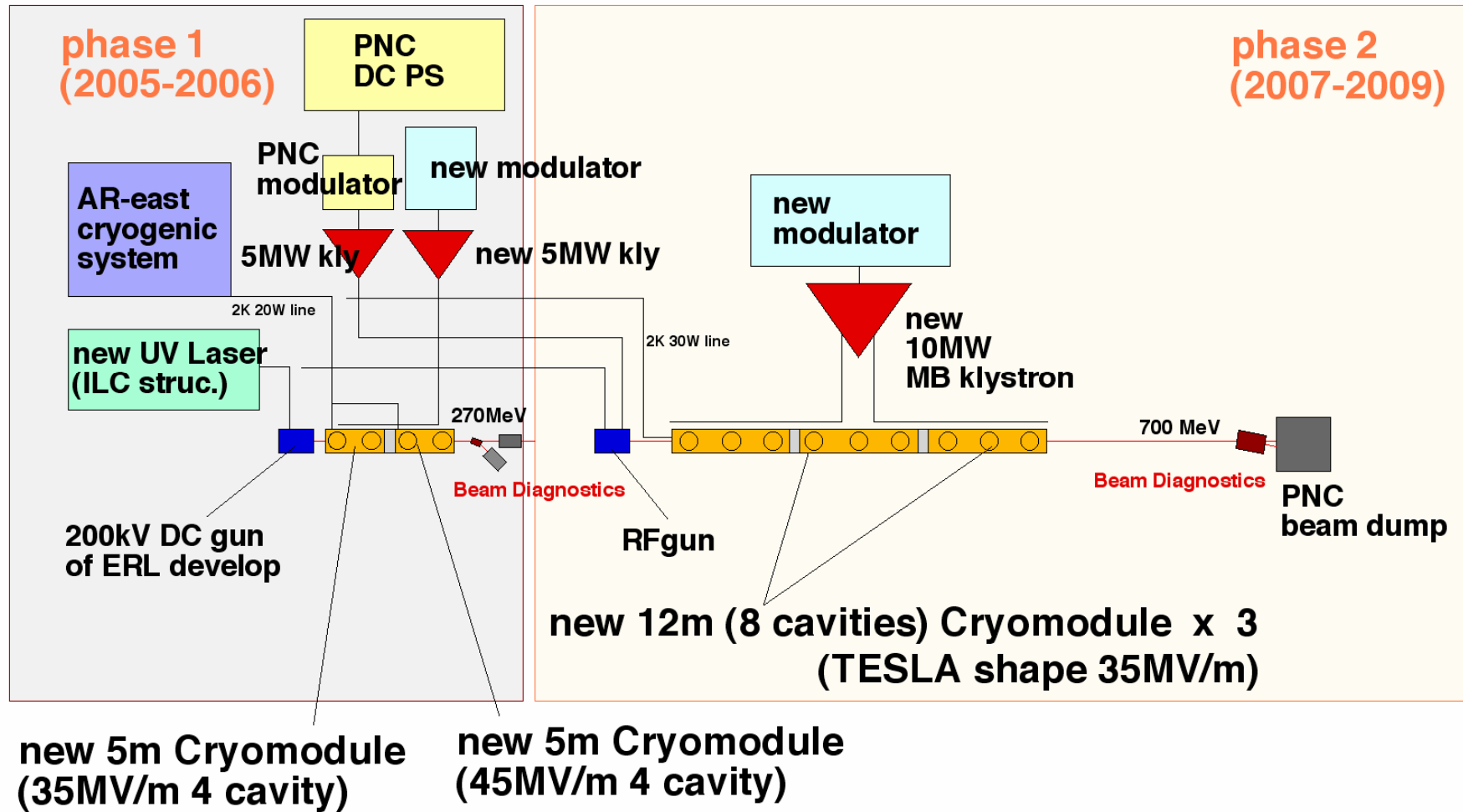
LL Single Cell

LL 9-cell



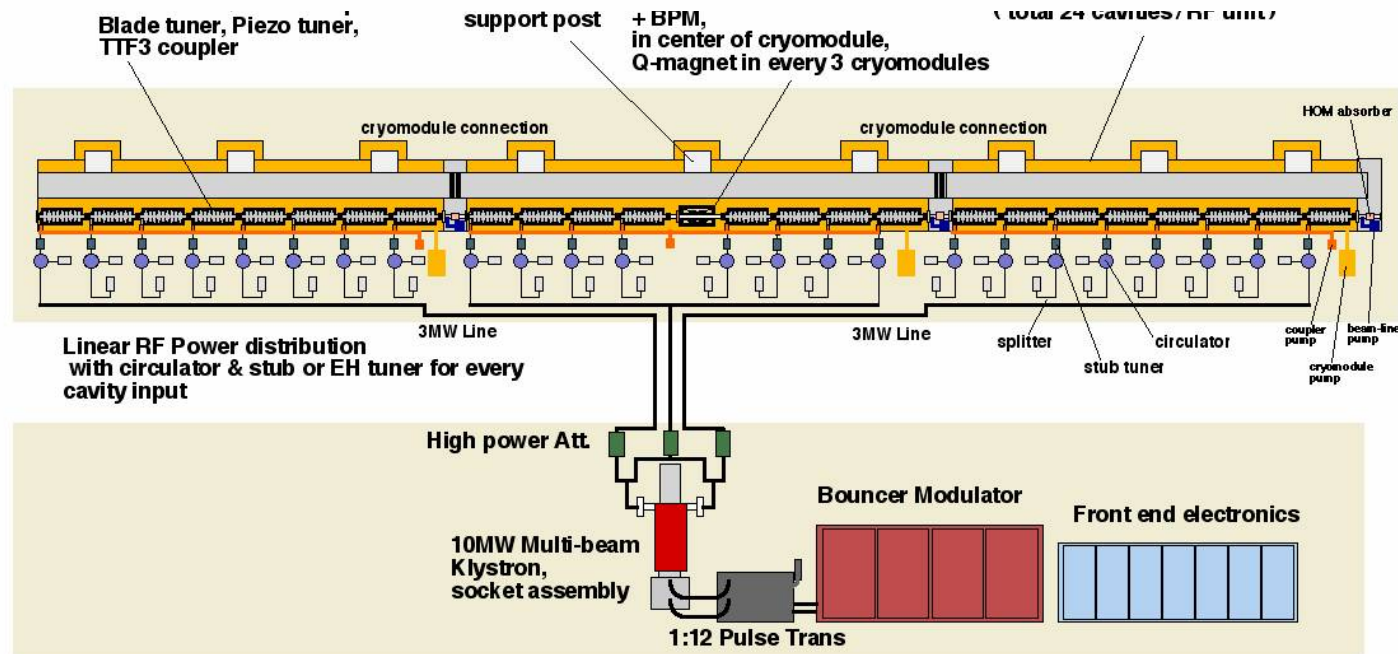


Plan of Superconducting RF Test Facility (STF)



STF Phase 2 (2007-9)

- 1 RF Unit for ILC



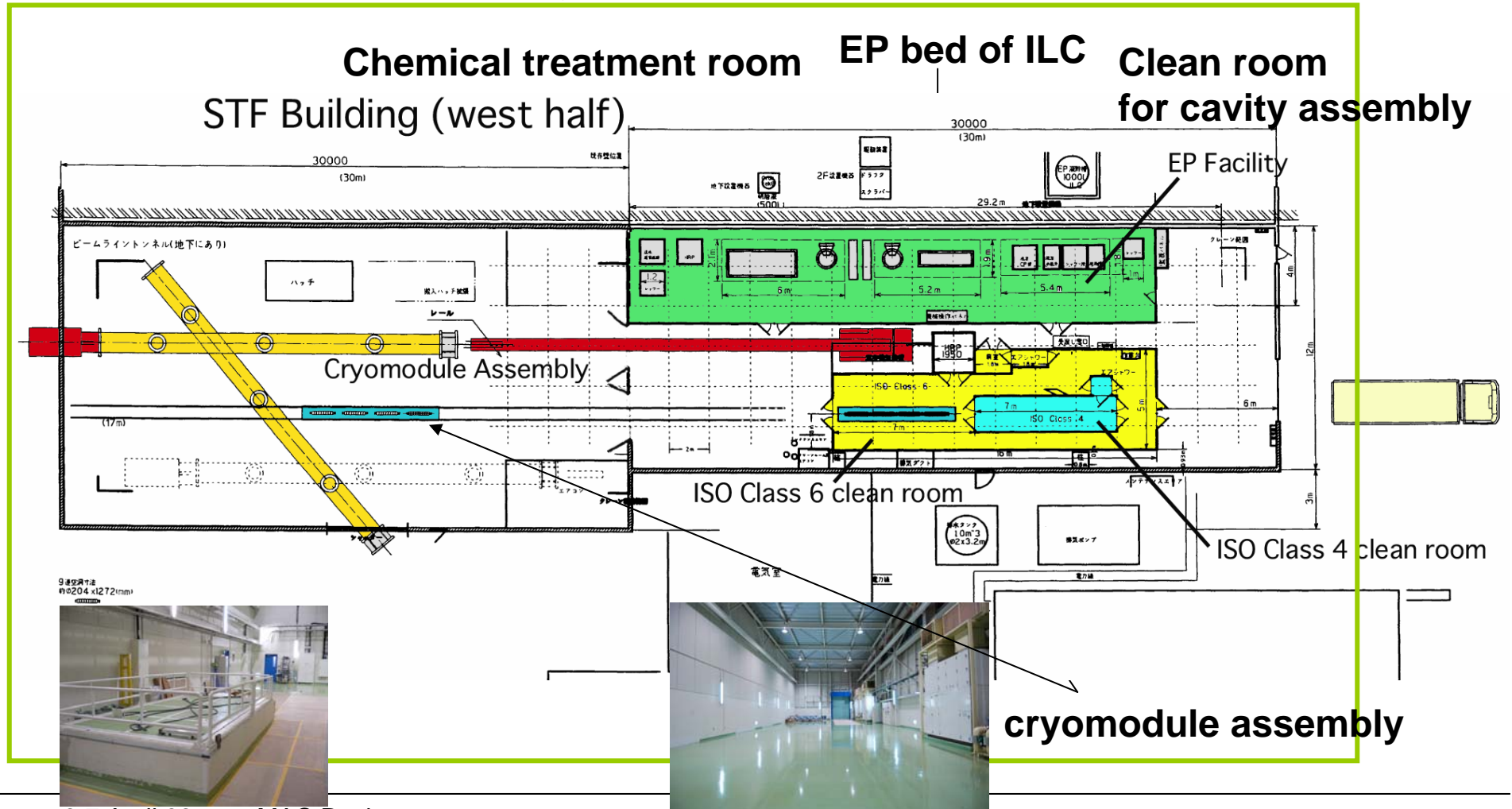
RF power system should accommodate 35MV/m operation.

- But may adopt LL
- Design in 2007 (during phase 1 operation)
- Construction in 2008-9



STF Infra-structure

- New EP facility and clean room needed for STF Phase 2
- Can be used for other projects



6-7 April 06

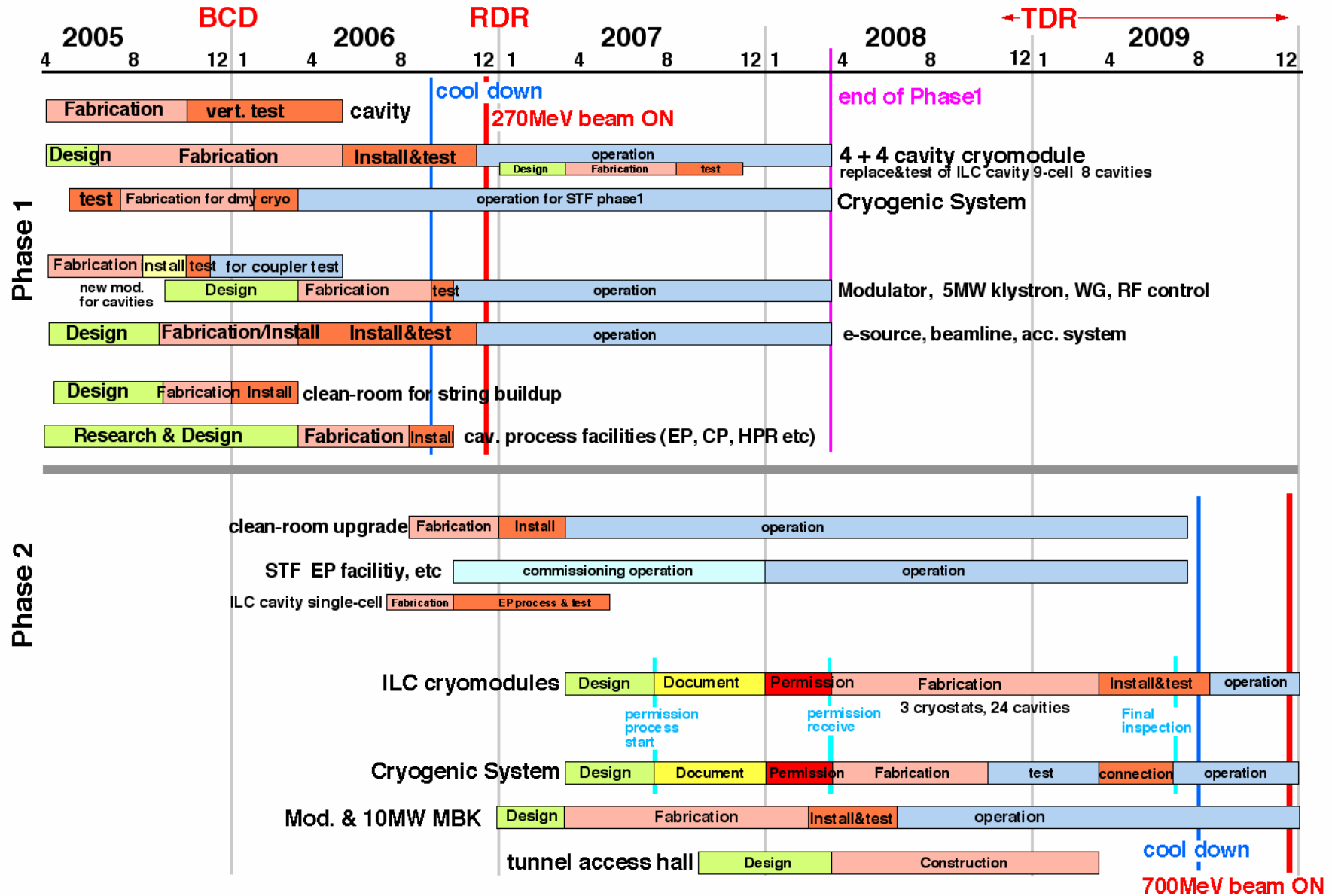
MAC Review

Global Design Effort

14

STF long-term Plan

H. Hayano 12022005



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



Budget and Resource

		2005 budget	2006 budget	2006 FTE
ATF/ATF2		326	325	15.3
	ATF maintenance	154	138	8.6
	ATF study	115	76	2.3
	ATF2	57	111	4.4
STF		653	592	20.9
	Cavities	243	113	11.2
	Cryogenics	48	40	0.7
	RF	178	165	3.7
	Cryostat	90	45	1.9
	Beam/control	37	48	2.5
	Infrastructure	57	181	0.9
Travel		33	?	
Others		94	109	4.6
Total		1106	1026	40.8

Budget in
MYen

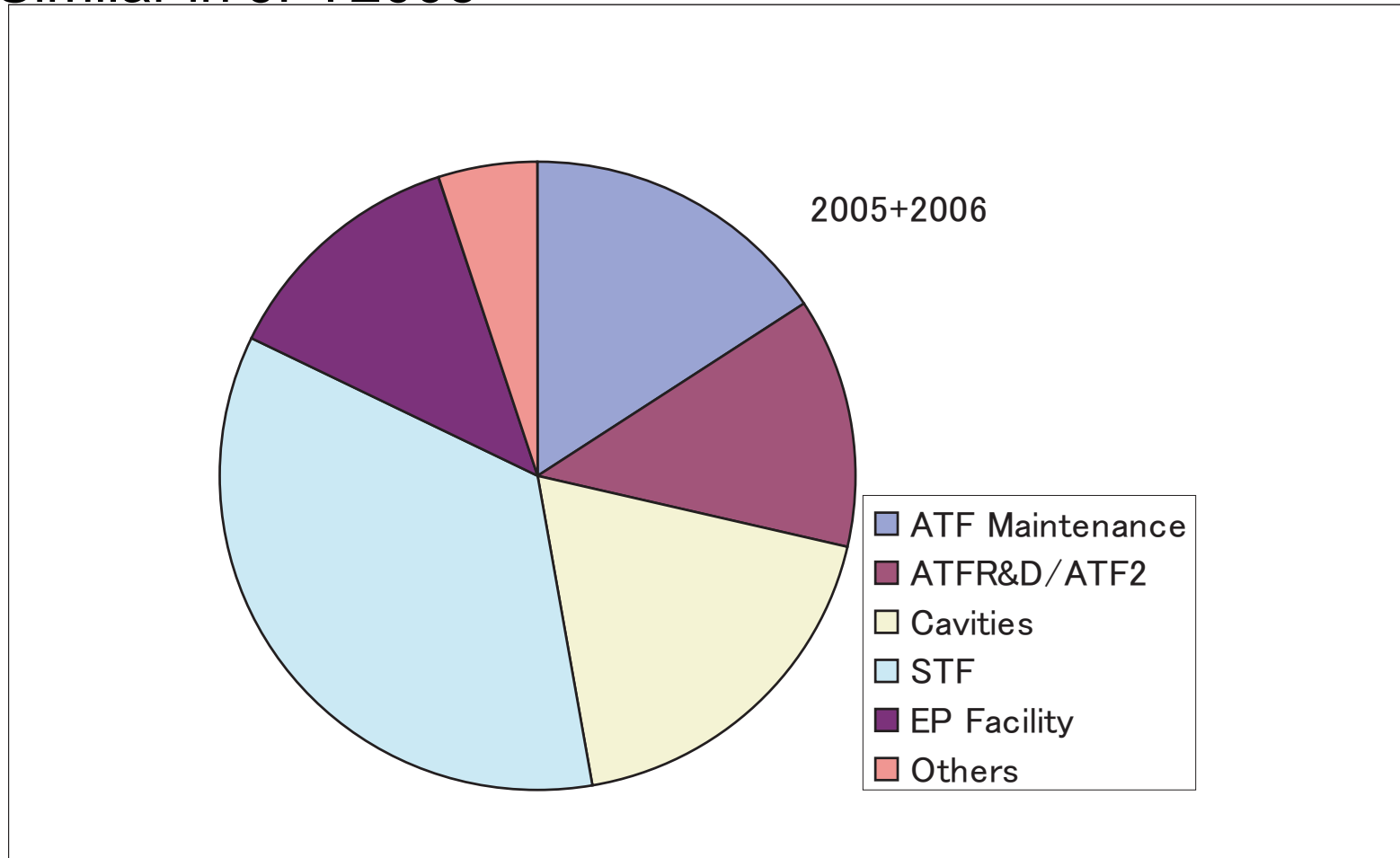
Japanese budget and FTE only.

Salary not included. 2006 budget still tentative.



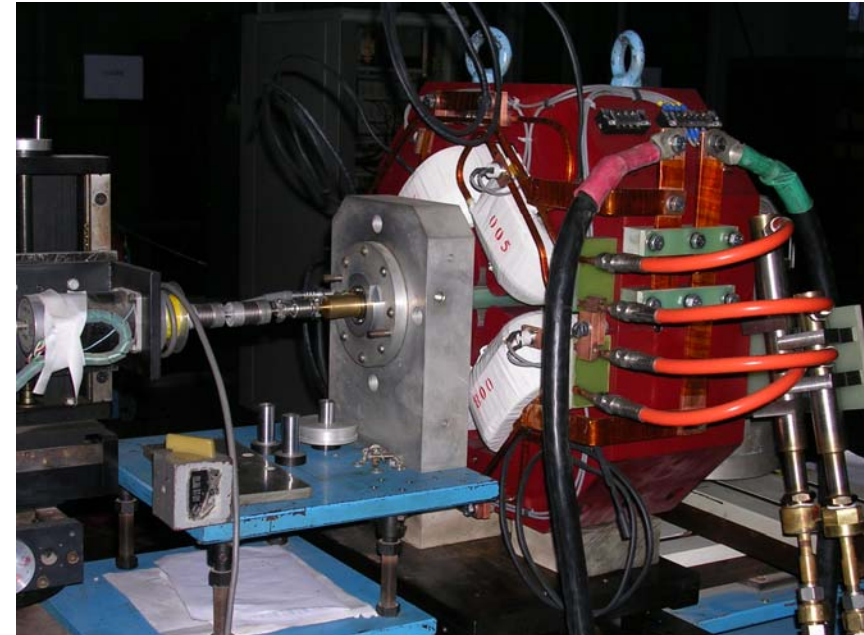
Budget

- ~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





Conclusion

- Asia is concentrating the efforts to R&D, in particular to those related to the facilities, ATF/ATF2 and STF.
 - **Efforts for RDR work is not sufficient.**
- Budget is flat since 2005. Increased budget needed for starting construction of STF Phase 2 (JFY2008-)
- Collaboration between Asian labs is evolving quickly. Present technology level may not be sufficient but Asia is rapidly changing.