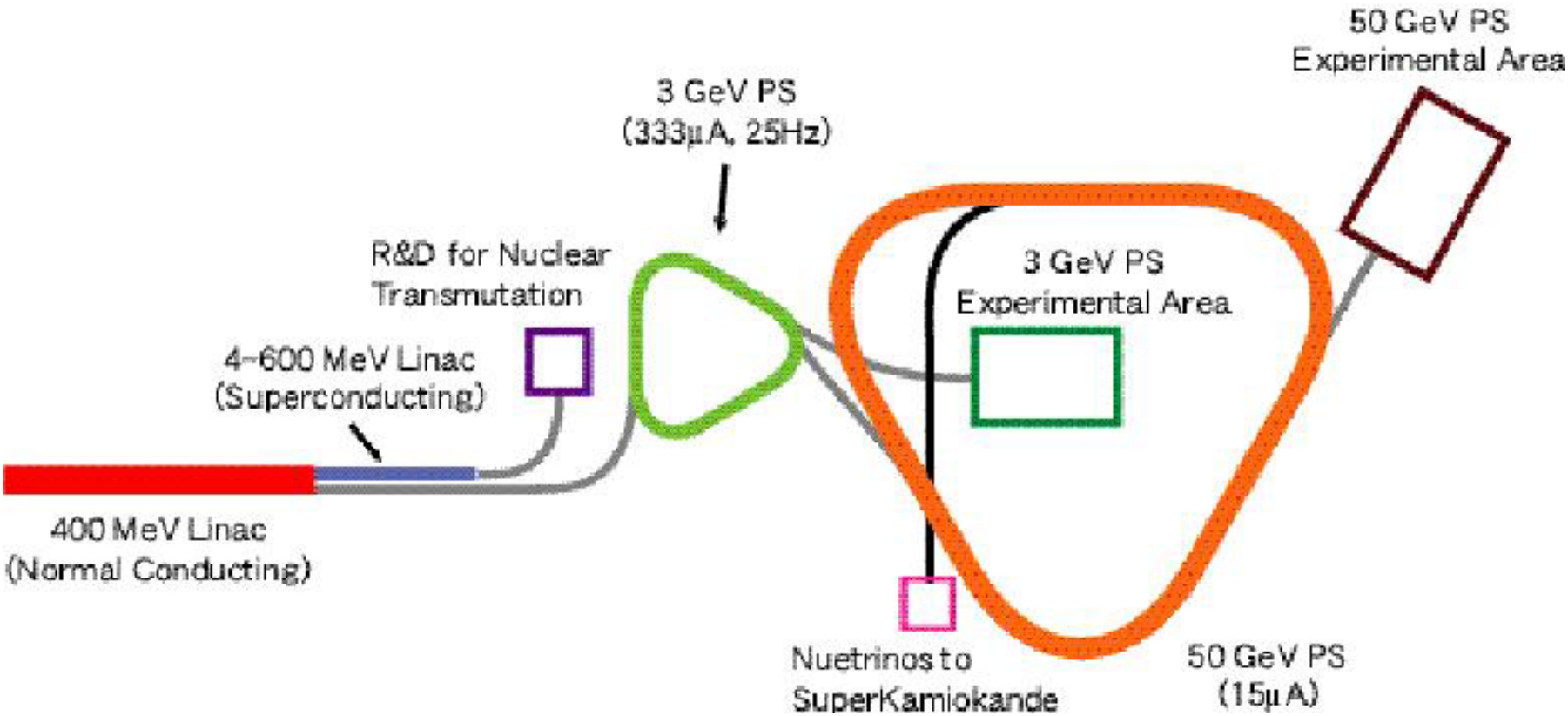
J-PARC Status Report

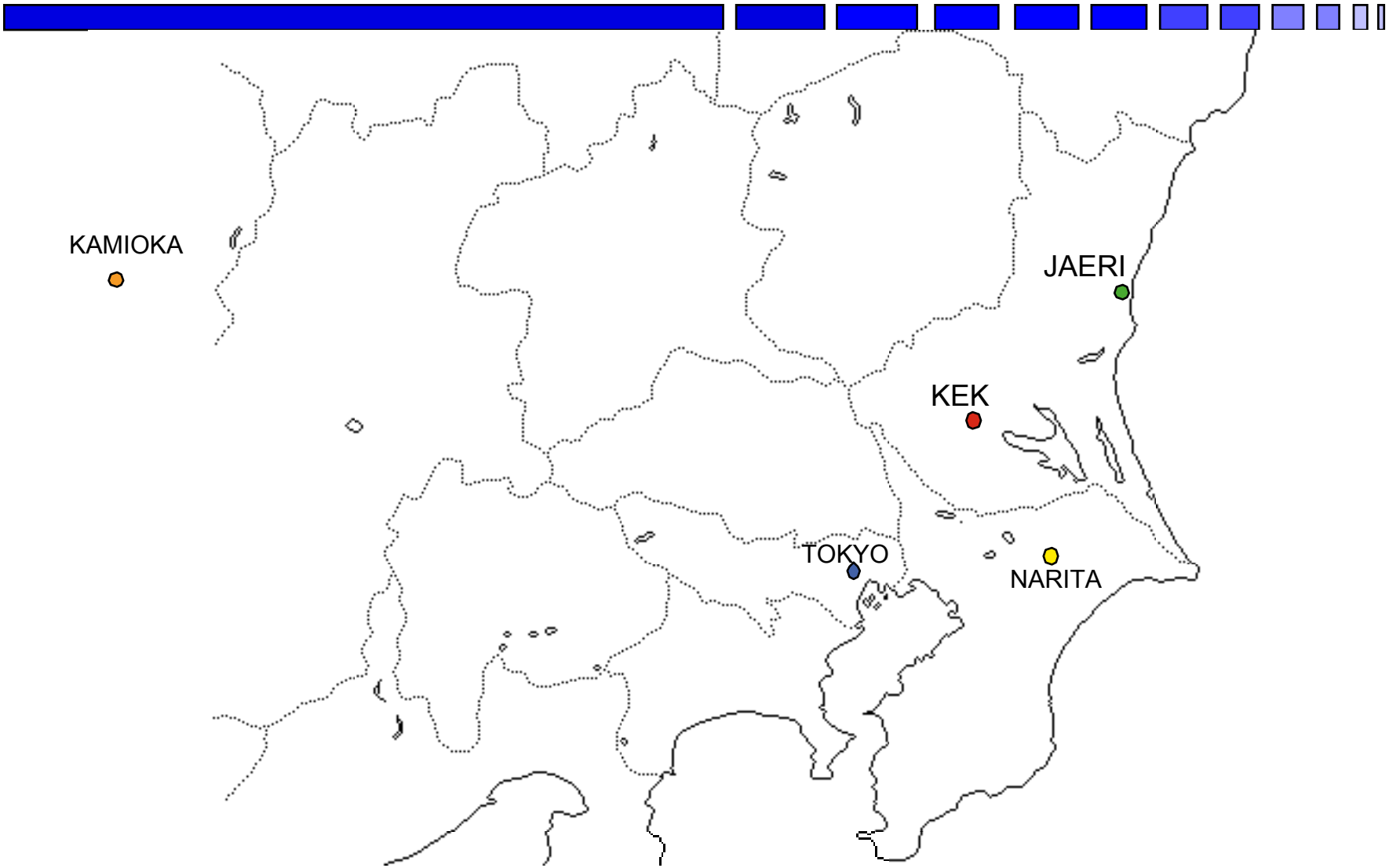
Junsei Chiba
KEK

- What is **J-PARC** ?
  - Formerly “Joint KEK-JAERI Project”
  - Nickname finally comes!
  - Japan Proton Accelerator Research Complex
- Organization - Control group structure
- Current Status

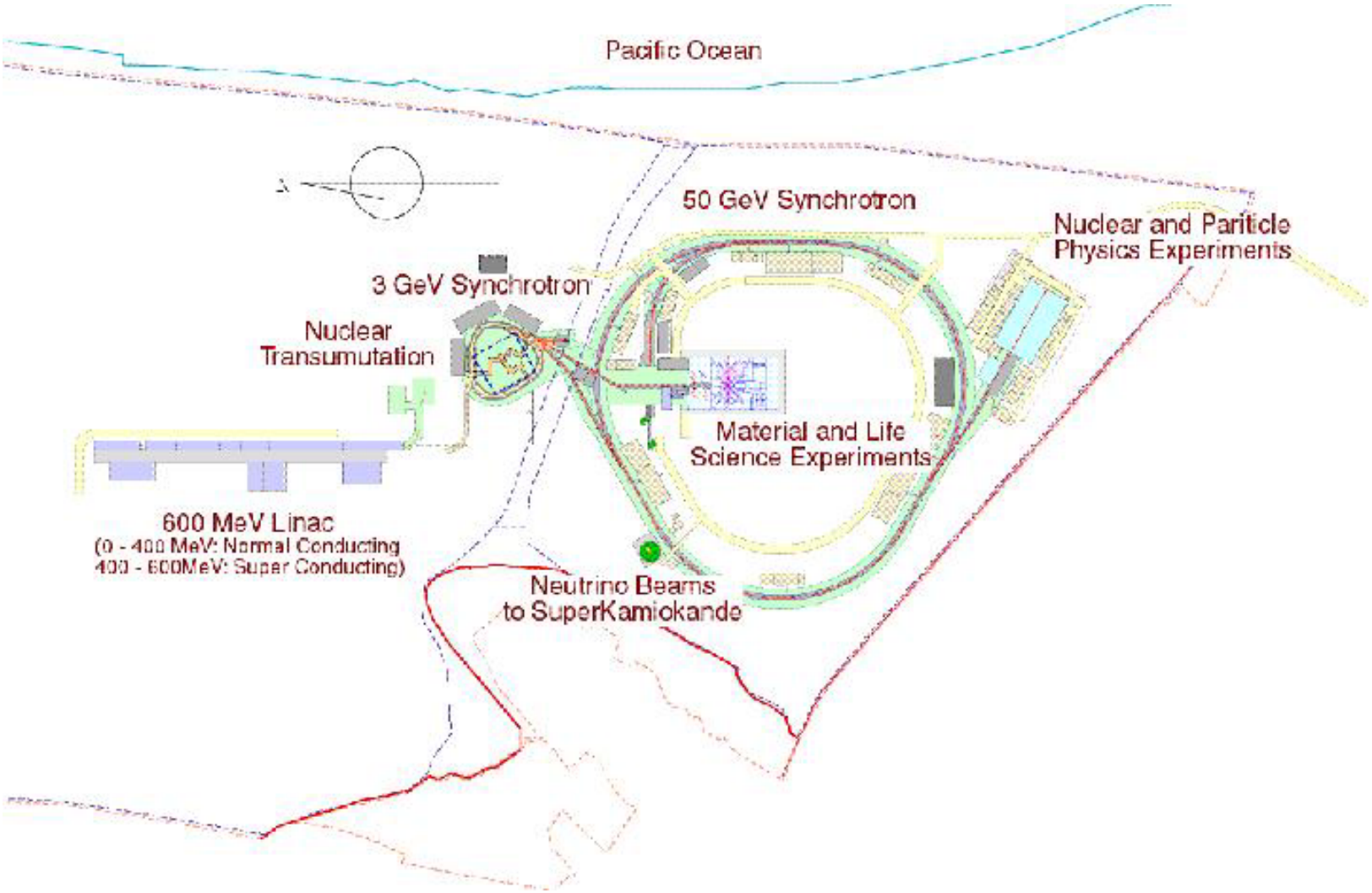
Configuration of the Accelerator Complex



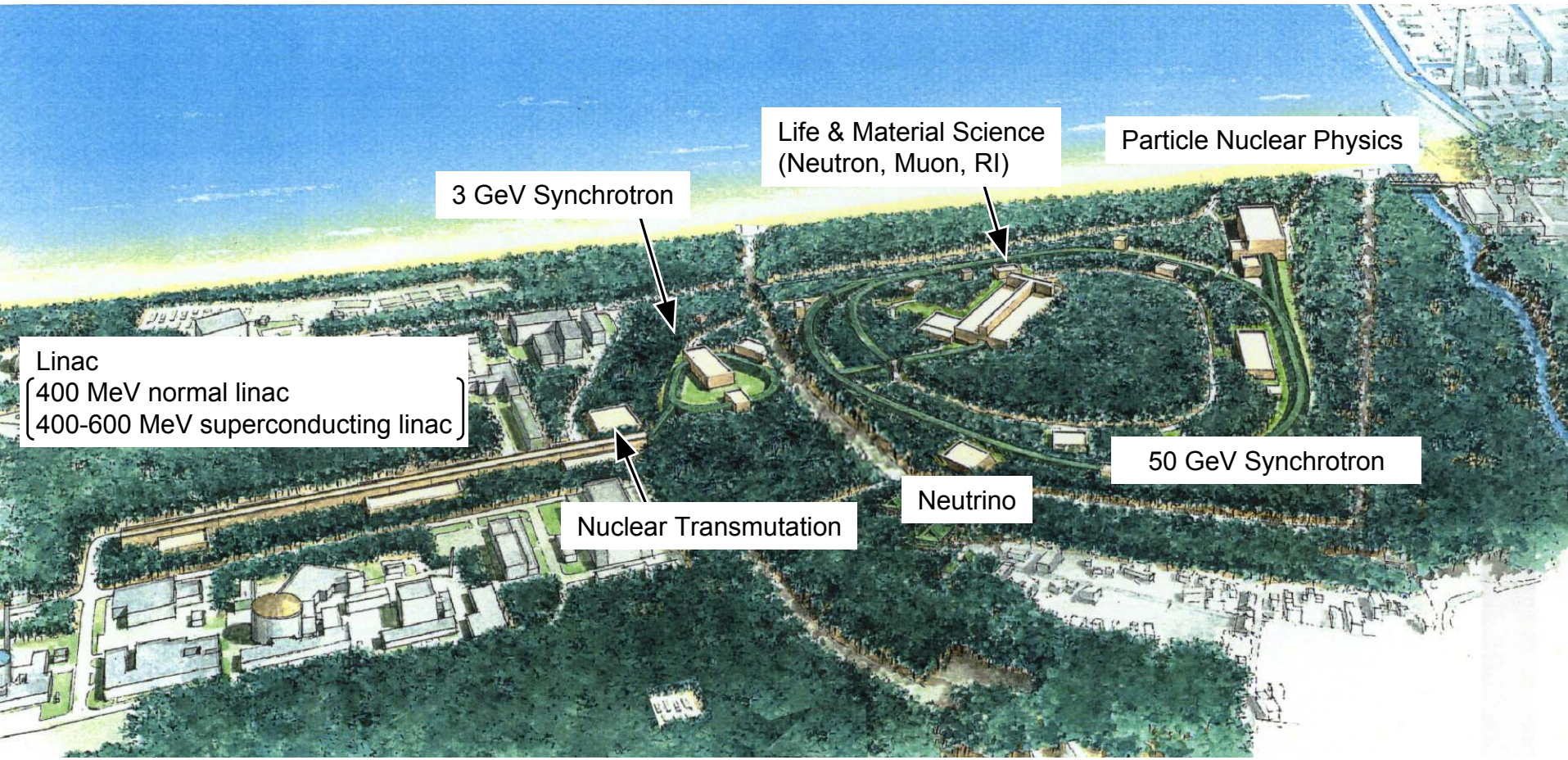
Location of JAERI at Tokai



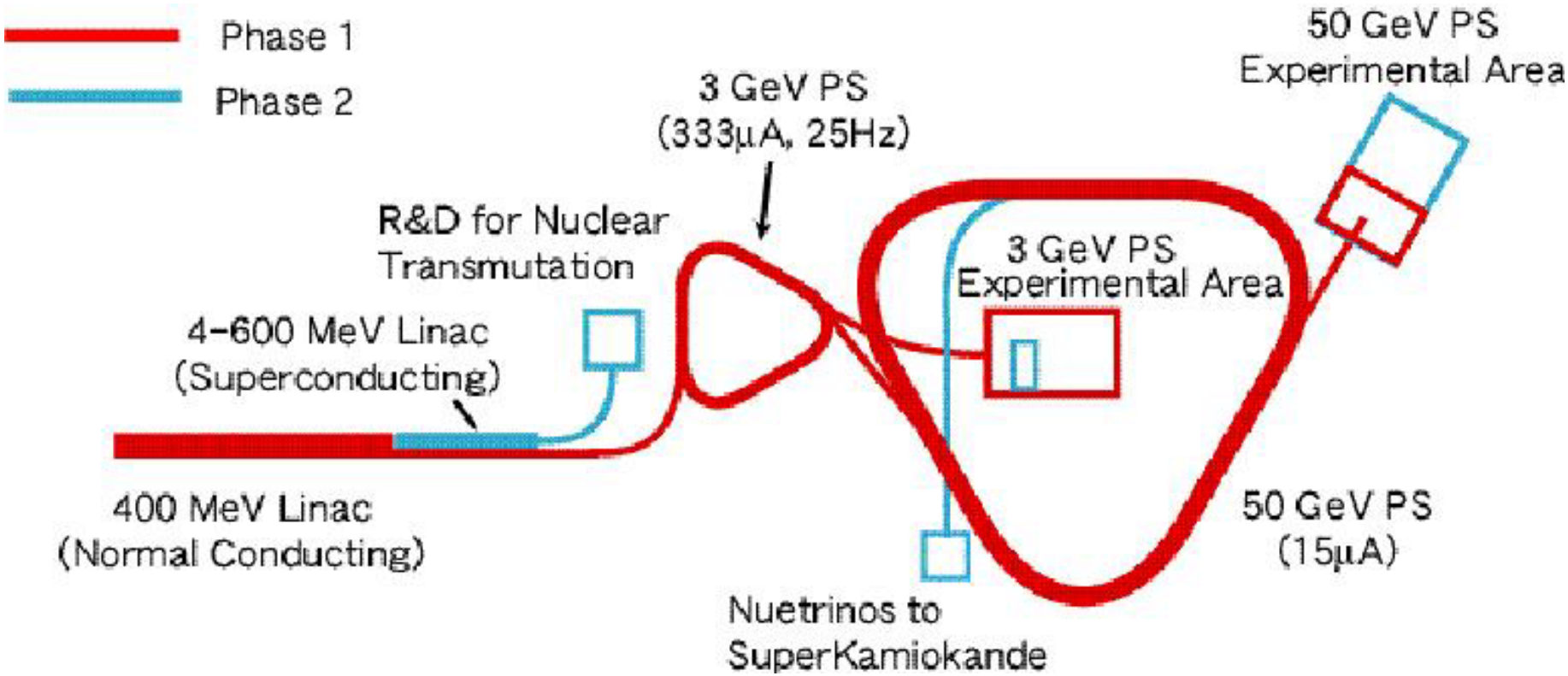
Plan View


Pacific Ocean
50 GeV Synchrotron
Nuclear and Particle
Physics Experiments
3 GeV Synchrotron
Nuclear
Transumutation
Material and Life
Science Experiments
600 MeV Linac
(0 - 400 MeV: Normal Conducting
400 - 600MeV: Super Conducting)
Neutrino Beams
to SuperKamiokande

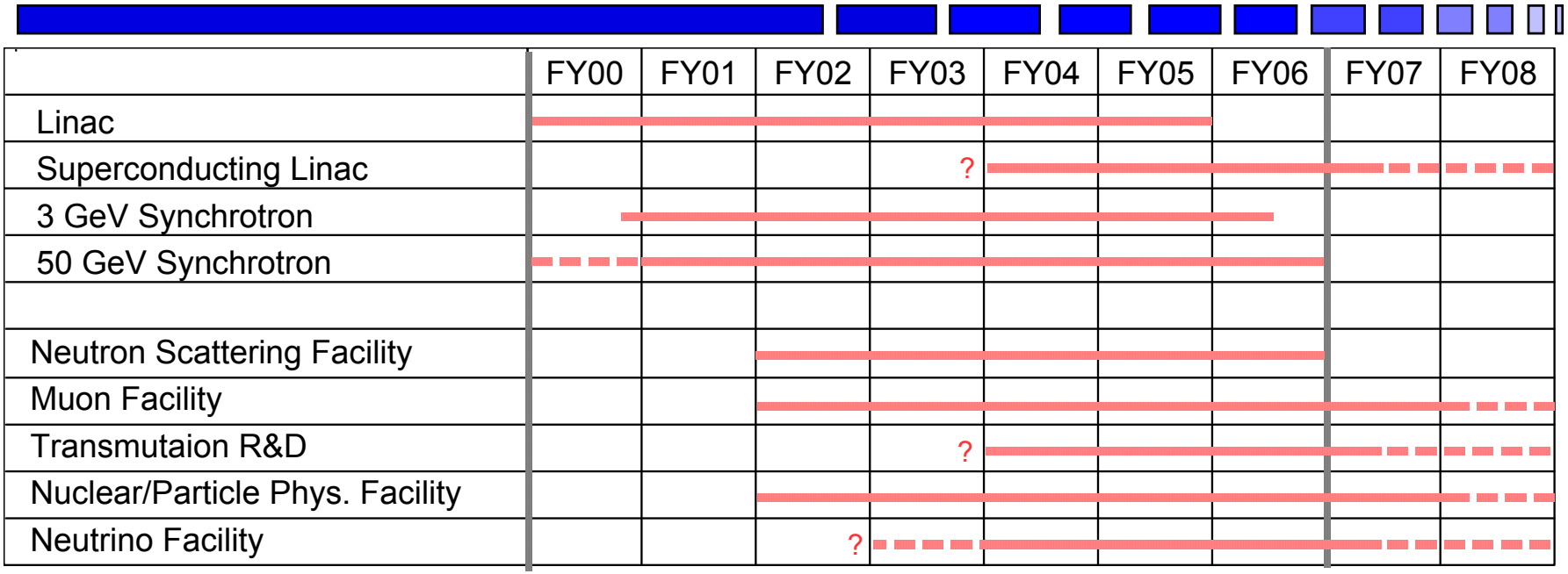
Site View of the Project



Phase 1 and Phase 2



Schedule



R&D Budget for FY00 ≅ 33 Oku Yen

Phase 1 Project Cost ≅ 1,335 Oku Yen
(Total Project Cost ≅ 1,890 Oku Yen)

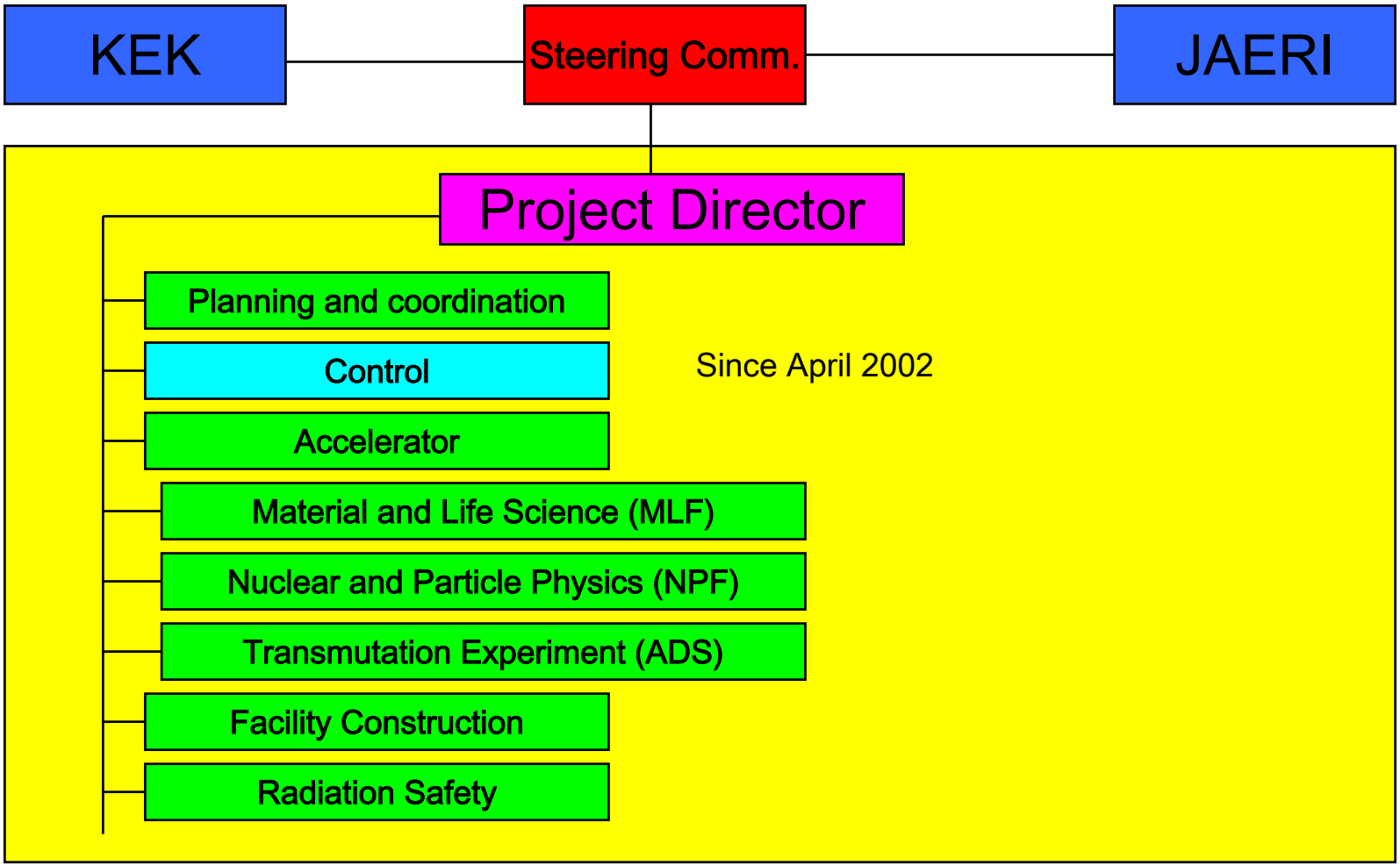
Construction in progress

Pictures taken on Nov. 11, 2002

End of Linac, RCS and Central Control building

Linac tunnel

Organization



Control Group Structure

	Linac -J&K	RCS-J&K	MR-KEK	MLF-J&K	NPF-KEK
Device Control					
PPS					
MPS					
Timing					
Network					
Utility					
EPICS and Application Development Environment					

Need Database subgroup

EPICS Related Topics

- Host Problem (HP-UX)
  - We chose HP-UX because KEKB uses it
  - Make VxWorks using HP-UXv10 and copy it to v11
  - WindRiver no longer supports HP-UX
- Making host systems (KEK and JAERI) be identical
- Trying to define “standard” VME modules and PLCs
- Education/Demonstration program in progress
  - EPICS has been chosen for accelerator control, but very few people knows what is the EPICS
  - Control system for experiment groups is not decided yet
- Naming convention (not yet determined)
  - Example MRMAG:BMPS_D1_3:function
- Timing modules are now in designing stage. Need EPICS software

Network Based Device Controller

- Network connected controller (get rid of field-busses)
  - Simplify software, management and troubleshooting
  - Standard network technology
  - Normally UDP/IP for error handlings
- We have developed so far
  - PLC
    - Yokogawa FA-M3
    - Used for Ion-source, vacuum etc
  - WE7000 measurement station
    - Digital oscilloscope (100kS/s, 1MS/s, 100MS/s and 1GS/s)
    - May not be used for a 50-Hz LINAC operation
  - Ethernet interface board
    - Initially designed for the Power supplies of DTL Q-magnet
    - May be used most of Power supplies of DC magnets