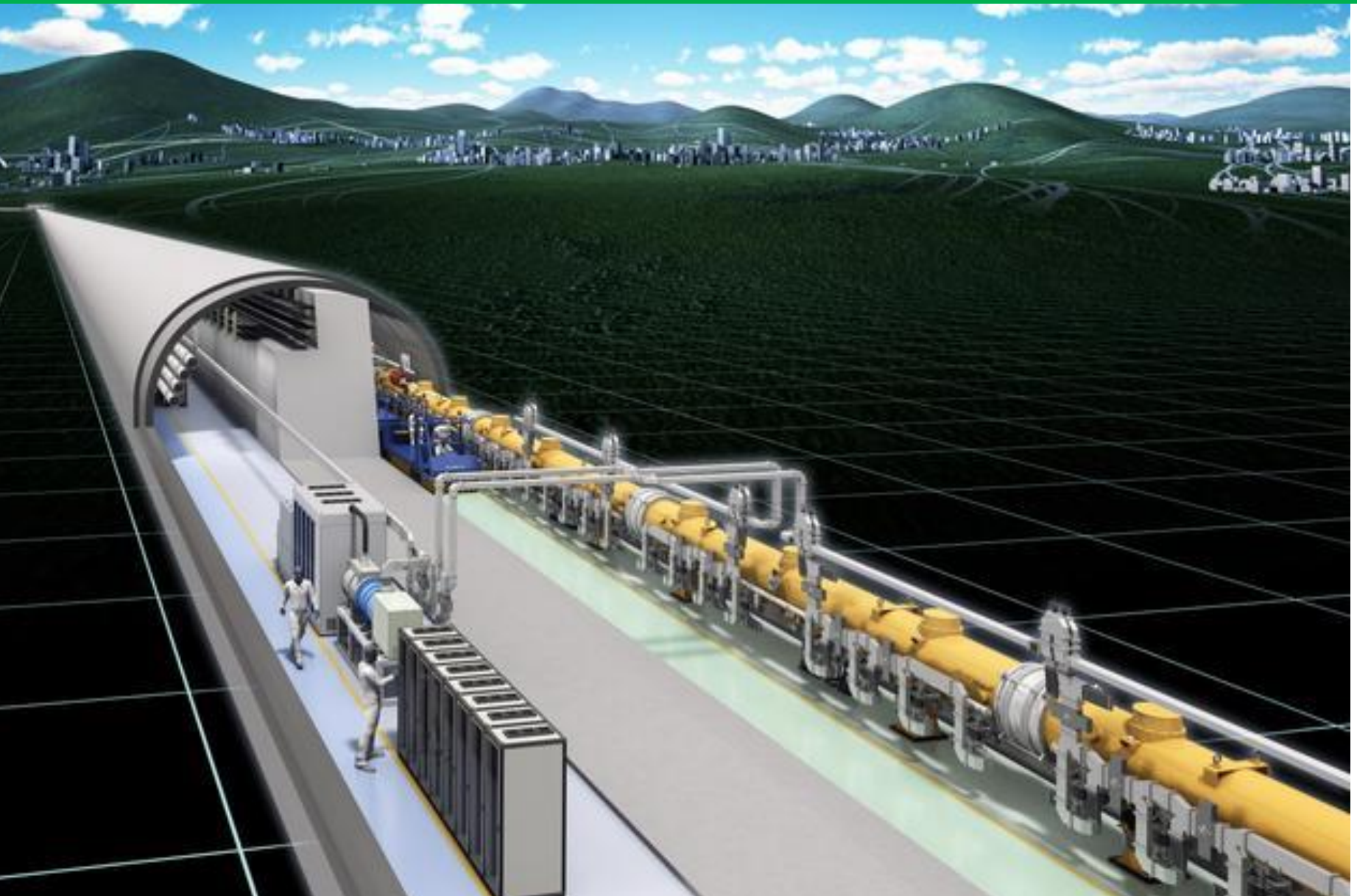
LCB report and news

2nd November 2015 @ LCWS15 Sachio Komamiya The University of Tokyo



LCB members

5 members X 3 regions + chair = 16 members + secretary

Chair	Sachio Komamiya (The University of Tokyo)
Americas	Jonathan Bagger (TRIUMF)
	Nigel Lockyer (Fermilab Director)
	David MacFarlane (SLAC)
	Lia Merminga (TRIUMF)
	Hugh Montgomery (Jefferson Lab)
Asia	Jie Gao (IHEP, Beijing)
	Rohini Godbole (Indian Institute of Science)
	Sunkee Kim (RISP)
	Atsuto Suzuki (KEK DG) ⇒ Masanori Yamauchi (2015 April -)
	Yifang Wang (IHEP Director)
Europe	Rolf Heuer (CERN DG) ⇒ Fabiola Gianotti (2016 January -)
	Joachim Mnich (DESY Director of Particle Physics)
	Francois Le Diberder (IN2P3)
	Victor Mateev (JINR Director)
	Lenny Rivkin (PSI)
Secretary	Roy Rubinstein

International Organization after TDR

ICFA
Chair: J. Mnich

FALC
Chair: J. Womersley

Program Adv. Committee
PAC – Chair: N. Holtkamp

Linear Collider Board
LCB – Chair: S. Komamiya

KEK
Planning Office for the ILC

ILC Project Unit, Coordination Unit

Regional Directors
- B. Foster (EU)
- H. Weerts (AMs)
- A. Yamamoto (AS)

Linear Collider Collab.
LCC
- Director: L. Evans

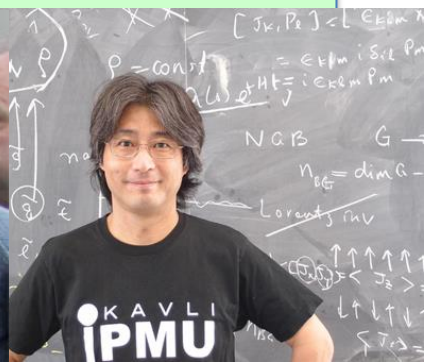
Deputy (Physics)
– H. Murayama

Assoc. Directors

ILC
– M. Harrison
(Deputy)
H. Hayano, N. Walker

CLIC
– S. Stapnes

Physics & Detectors
– H. Yamamoto



Things happened in this year

- February ICFA/LCB Meeting at J-Lab
- April The first PAC meeting was held at LAL Orsay
- April ALCWS15 at KEK and ILC "Tokyo statement" was issued at "ILC Tokyo Event"
- May FALC Meeting at CERN
- August MEXT opened to the public "Interim Report" and its English translation of the ILC Advisory Panel
- August ICFA at Lepton Photon Symposium in Ljubljana
- September CERN SPC working group of Energy Frontier
- November LCWS15 and FALC meeting at Whistler
- December ICFA Letter to ILC Advisory Panel of the MEXT

Diplomatic activities are not in this list

Project Implementation Planning Approved by PAC

The authors of this document are scientists experienced in the organisation of large scientific projects. ….
As was also the case for the original PIP published in conjunction with the ILCTDR, the purpose of this document is not to pre-empt necessary discussion among governments and funding authorities; rather it attempts to put forward possible solutions to important aspects of the running and foundation of a new international laboratory, seen to be acceptable and viable by the particle physics community, for their consideration and as an aid to their discussions.

Brian Foster Chair of the LCB Subcommittee on Governance

Contents

1. Executive Summary
2. Introduction and General Principles
3. Governance
4. Funding Models
5. Project Management
6. Host Responsibilities
7. Siting Issues
8. In-Kind Contribution Models
9. Industrialisation and Mass Production of the SCRF Linac Components
10. Project Schedule
11. Intellectual Property
12. Interface between ILC Laboratory & the Detectors
13. Transitional arrangements
14. Future Technical Activities

They critically studied the existing large projects of ITER, CERN, E-XFEL, ESS, OIST, ... to find an optimal form of ILC governance.

Organization of LCB/LCC in the next year

The current mandate of the Linear Collider Board (LCB), which incorporates the Linear Collider Collaboration (LCC), has a three year term which will end in February 2016. ICFA extended the mandate of LCB and LCC to the end of 2016, so that the membership and mandate of both entities can be reviewed during 2016.

Reinforcement of LCB/LCC with ICFA towards new organization

1) Continue accelerator technology development

We need significant increase of budget for real activities. Without political development it is not easy to build up the budget for the engineering design and further R&D towards higher performance, risk management and cost reduction.

(a) Find out important items that can be done without large budget, and

(b) Refine mass production and industrialization of the major system learning from the currently running projects like E-XFEL, LCLS-II, …

2) Reinforce political activities to help intergovernmental negotiation

Since governmental and ministerial structure and budget system are different for country to country, we need more refined organization.
Find voluntary physicists who have good knowledge on science policy and have good connection to the higher level officials or politicians in each country/region.
They work with LCB/LCC directorate and regional directors.

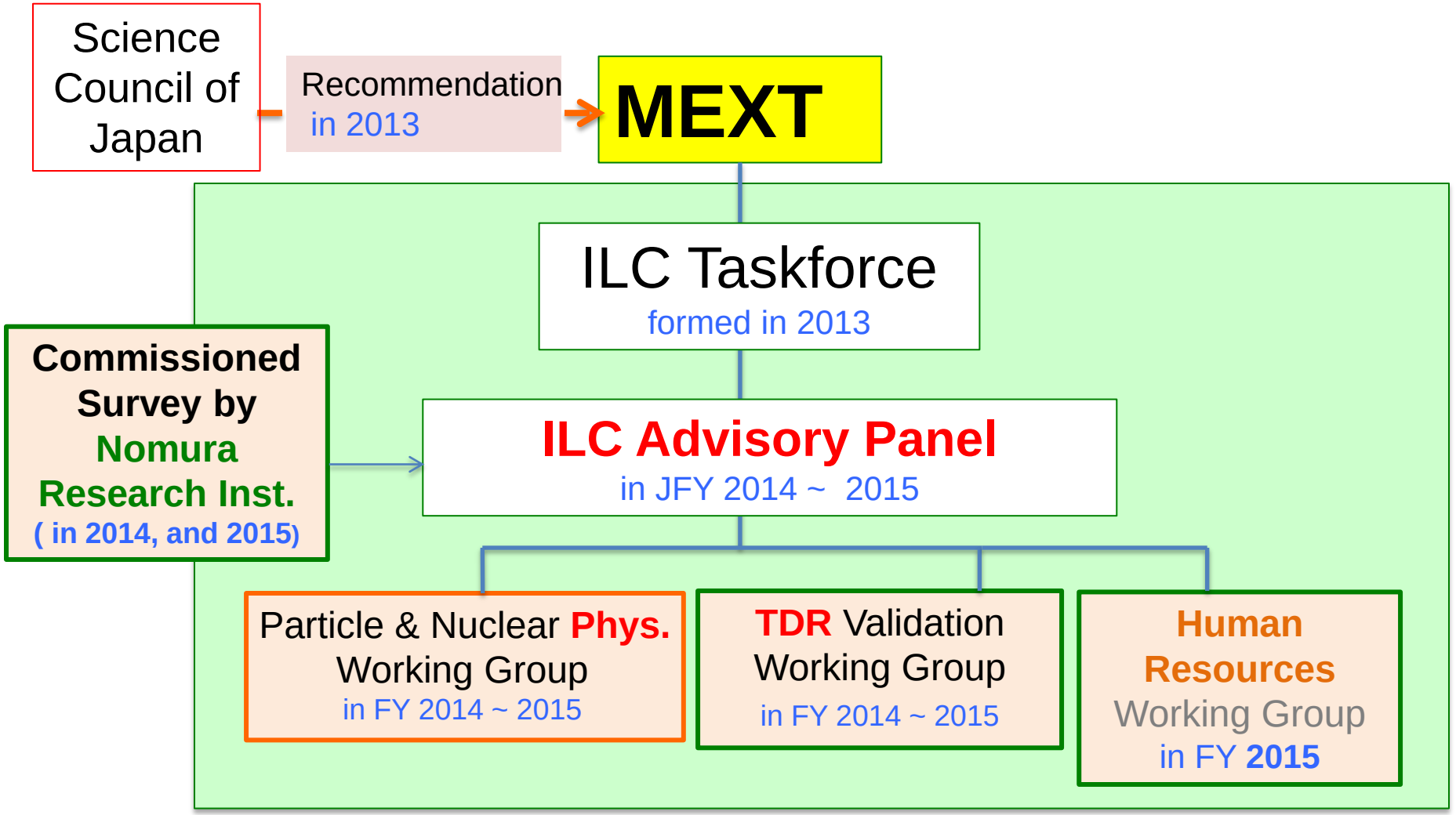
Since the political issues are rather delicate, information should be centralized but with great care of confidentiality.

3) Keep watching LHC new data

Once new physics is discovered, we need to study immediately the influence to the ILC project.

The Position of MEXT and the Japanese Government towards the ILC

ILC being studied officially by the MEXT Japan



“Summary of the ILC Advisory Panel’s Discussions to Date”

with English translation August 2015

As an official process of the Japanese Government towards the approval

⇒ ICFA will respond to this report

1. Discussion background …
2. Overview of discussions

(1) Science Merit of the ILC Project

The ILC is considered to be important because of its capability to investigate new physics beyond the Standard Model by exploring new particles and precisely measuring the Higgs boson and top quark. It should be also noted that the ILC might be able to discover a new particles which are difficult to be detected in LHC experiments…….

ILC experiments are able to search for new particles, different from the ones that LHC experiments have been searching for. In case these new particles are supersymmetric particles, ILC and LHC experiments can study them complementally. On the other hand ILC experiments can carry out more precise measurement of the Higgs boson and the top quark, which are beyond the reach of LHC experiments……

…

(2) Validation of TDR

(3) International Collaboration

(4) Social effect of the ILC Project **Economic effects, Industrial Spin-off**

Recommendation 1: The ILC project requires huge investment that is so huge that a single country cannot cover, thus it is indispensable to share the cost internationally. From the viewpoint that the huge investments in new science projects must be weighed based upon the scientific merit of the project, a clear vision on the discovery potential of new particles as well as that of precision measurements of the Higgs boson and the top quark has to be shown so as to bring about novel development that goes beyond the Standard Model of the particle physics.

⇒ Discovery is not guaranteed at any frontier machines , but clear vision of discovery potential have been already demonstrated for ILC.

Recommendation 2: Since the specifications of the performance and the scientific achievements of the ILC are considered to be designed based on the results of LHC experiments, which are planned to be executed through the end of 2017, it is necessary to closely monitor, analyze and examine the development of LHC experiments. Furthermore, it is necessary to clarify how to solve technical issues and how to mitigate cost risk associated with the project.

⇒ Surely we will monitor LHC physics.

MEXT is contacting governments during the LHC 13 TeV Run.

Recent "ILC Progress Report" by LCC answers most of the technical items.

Recommendation 3: While presenting the total project plan, including not only the plan for the accelerator and related facilities but also the plan for other infrastructure as well as efforts pointed out in Recommendations 1 & 2, it is important to have general understanding on the project by the public and science communities.

⇒ Public relation will be reinforced by international team and by KEK and the Industry Supporters (AAA).

Discussions with scientists of the other fields have been undertaken by KEK DG.

ICFA/LCB are preparing a document to clarify the issues in the report of the ILC Advisory Panel by the end of this year.

Letter from ICFA to the ILC Advisory Panel of MEXT

Since the “Interim Summary” was translated in English for the international community, and there are so many open issues raised in this Summary, ICFA decided to write a letter to the Panel.
The Panel opened the Summary of their discussions but they did not ask anything to the international community, the purpose of the ICFA letter is just to clarify and to explain the issues raised in the Summary. KEK and Japanese ILC community is preparing the daft in cooperating with LCC and LCB.

0) Preface (based on request from KEK DG)

Appreciation of Panel’s work

“First of all, we would like to express our profound gratitude to the members of the ILC Advisory Panel for seriously considering, in response to a request from the Japanese government, the various issues concerning the hosting of ILC in Japan, which is being promoted by the international community of elementary particle physicists. …..”

High-brow discussions on scope of our field beyond the Panel’s Report
Social effects of fundamental science like ILC and the role of ICFA
Composition of this document

1） Science Significance and Potential for Discovering New Particles

(Follow the Panel's discussions ….. repeat positive paragraphs in their Report)

Particle Physics: Current Status, Issues, and Goals

Higgs boson and top quark

Potential for Discovering New Particles (three cases based on the Panel's Summary)

- No discoveries of new particles at LHC Experiments
- LHC experiments discover light new particles
- LHC experiments discover heavy new particles

2) Accelerator technology

General Response to Technical Recommendation

"It is necessary to clarify how to solve technical issues and how to mitigate cost risk associated with the project."

Comments to the issues presented at the "TDR Validation Working Group".

3) Comparison of Organizational Models of International Projects in vie of the ILC Application

Response to the following explicite paragraph in the "Recommendation 1"

"It is appropriate to proceed discussion on a possible international cost sharing scheme of the ILC project by not only taking into account the scheme used by CERN but also taking into account the schemes of existing large scale international projects such as the International Thermonuclear Experimental Reactor (ITER) and International Space Station (ISS)."

Comments from ICFA is based on "Project Implementation Planning"

Federation of **Diet members** to promote a construction of international laboratory for ILC

31st July 2008 established a suprapartisan ILC supporters

White House July 2014

(July 2008～)

President	Kaoru Yosano
Deputy	Yukio Hatoyama
Secretary-General	Takeo Kawamura
Directors	Yoshihiko Noda
Director	Norihisa Tamura
	Masamitsu Naito

Renewed on 1st Feb 2013
lead by Takeo Kawamura

New Officers

Supreme advisor	Kaoru Yosano
President	Takeo Kawamura
Secretary-general	Tatsu Shionoya

> 150 Diet Members

Supporter of Industrial Sector : Advanced Accelerator Association of Japan (AAA)

Established in June 2008 ⇒ Reformed as a general incorporated organization in 2014

Industry: 100 companies (Mitsubishi HI、Toshiba、Hitachi、Mitsubishi Electric、Kyoto Ceramic et al.) Academy: 40 institutes (KEK, Tokyo、Kyoto、Tohoku, Kyushu, RIKEN, JAEA et al.)

AAA homepage http://aaa-sentan.org

Supreme advisor	Kaoru Yosano
President Emeritus	Masatoshi Koshiba
President	Takashi Nishioka (Mitsubishi HI)
Trustee	Masanori Yamauchi (KEK)
〃	Akira Maru (Hitachi)、
〃	Yasuyuki Ito (Mitsubishi Electric)
〃	Shigenori Shiga (Toshiba)、
〃	Akira Noda (Kansei University)
〃	Masayuki Inagaki (Kyoto ceramic)
Auditor	Sachio Komamiya (The University of Tokyo)

Necessary steps towards the approval

1. Technology Choice (2003)

2. R&D and design of the machine/detectors by the international team
   ⇒ Technical Design Report (2013)

3. Official investigation and reviews of the ILC project by MEXT (now)
4. Clarify the scientific and technical issues in the report of the ILC Advisory Panel (now)

5. To facilitate / prepare intergovernmental discussions for sharing of cost human resources and the schedule without commitment (starting).

6. MEXT green signal
7. Endorsement of CSTP (Council of Science, Technology and Innovation; chair: Prime Minister)
8. Cabinet decision

9. International agreement with commitment ⇒ Establishment of ILC Lab

Time line for the ILC project

Years need

2 Preparation period Continuation of high-tech R&D (now)

4 Preparation for the ILC construction (with real budget)

9 Construction

6th year - Start Installation

7th year- Start of step-by-step accelerator test

1 Beam Commissioning

~8 Physics Run (500 GeV, 350 GeV, 250 GeV)

~ Run with Luminosity upgrade (500 GeV, 250 GeV)

TBD Energy upgrade (~ 1TeV)

Summary

◎We will reinforce the organization of LCB/LCC with help of ICFA to materialize the ILC project towards the next organization.

◎The ILC accelerator technology is mature and solid as in TDR. After TDR, further development of E-XFEL (LCLS-II) is essential for the mass production and industrialization of SRF.

◎ We appreciate MEXT because of their serious investigations of the issues in hosting the ILC project as in the official process.

◎Sign of willingness to participate in the project from governments outside Japan is essential.

◎MEXT opened to the public "Interim Report" and its English translation of the ILC Advisory Panel. ICFA is preparing a document to clarify issues raised in the Report.

◎In Japan, the Federation of Diet Members, Industrial sectors, local governments powerfully support the ILC project.

◎Diplomatic discussions has been gradually started among governments.