

Box and cube assembly at CERN or J-PARC?

SFGD group conveners

This document describes the status and results of the investigation for a decision of the place to assemble the box and cube. **It is updating now and still VERY PRELIMINARY.**

Timescale

- Go through the list and add points before the meeting on 1st February 1st.
- SFGD PI meeting with spokespersons on the 15th of February as the latest date??

How to make a decision?

- 1) Make the list of points to be investigated.
- 2) Investigation with the support of relevant people as much as possible.
- 3) Evaluate the advantages and risks.
- 4) Make a proposal by SFGD conveners
- 5) Approval by SFGD PI and SFGD group (and ND upgrade group?)

Investigation items

General

- a) Possible to change the decision? (Status: **Investigating**) [**SFGD conveners**]
- We have to decide ASAP.
 - First report about the possibility to CERN on Jan. 21 by Thorsten and Claudio.
 - Similar question by J-PARC PAC by Adachi-san on Jan. 21 (one of the IPNS reviewer)
 - First report about the possibility to J-PARC neutrino facility on Jan. 22 by Matsubara.
 - **Anything else?**
- b) Time saving? (Status: **Investigating**) [**SFGD conveners**]
- Depending on the shipment complexity from CERN to J-PARC.
 - We would expect an advantage to save time if we ship parts to J-PARC, separately.
 - **Anything else?**

CERN

- c) Shipment to CERN (Status: **Investigating**) [**Who?**]
- **News?**
- d) Shipment from CERN to J-PARC (Status: **Investigating**) [**Stefania**]
- Marzio said that "...shipment of the box walls to J-PARC instead of the full box with cubes will be much easier and less risky".
 - According to the transportation guideline on t2k.org, KEK will not pay anything.
 - If not donation, we have to be careful about the custom.
 - **Anything else?**

e) Space/Equipment at CERN

- Discussion with Filippo (EHN1 site manager) is ongoing.
- Anything else?

f) Safety at CERN

- PPSPS and ISD are requested by Letizia (Deputy Departmental Safety Officer (DSO))
- Anything else?

g) Test the integration with BabyBasket (Results: Feasible with mockup) [Davide]

- Davide confirmed that "Franck and Adamo said that the integration can be tested with a mockup of the box, if we can't do it with the original box".

J-PARC

h) Shipment from everywhere (Result: No problem if correctly shipped) [Matsubara]

- There is a guideline on t2k.org: <https://www.t2k.org/nd280/facility/applicationforms>
- Need to submit a form for the material transportation to inform. For example, schemes to avoid/reduce custom (donation or not donation) should be clarified. If donation, donation letter is necessary. If not donation, all are covered by shipper, i.e. the group specifies that it is DDP. All including tax are covered by the shipper.
- The group can send the material after the shipping scheme is approved.

i) Space/Equipment at J-PARC (Status: Investigating) [Marat, Yury and Matsubara?]

- The available space at NA was checked by Matsubara. Mobile crane and possible storage area for the transport box were also checked.
https://www.dropbox.com/s/ge6386owxis4rat/NA_space_check210122.pdf?dl=0
- Action item: INR/Dubna group will check the feasibility to work at NA.
- Question: No difference in the process between works at CERN and J-PARC?
- Question: A crane is necessary to assemble the assembly platform?

j) Safety at J-PARC (Status: Investigating) [Marat, Yury and Matsubara?]

- Type of work is "Heavy work" due to the floor of the assembly platform being >2 m. Stronger restrictions for the work will be applied. See ND280 safety committee link: <https://www.t2k.org/comm/sc>
- Forms of work plan and risk assessment will be necessary for the approval to work.
- Advantage for assembly platform design. We only need to adopt to J-PARC rule.
- Anything else?

k) How many workers in Japan? (Status: Investigating) [Marat, Yury and Matsubara?]

- Action item: Need to investigate the assembly process to estimate person power.
- Action item: Need to count the expected person power.
- An option to employ Japanese contractors but it costs.

l) Risk of travel restrictions to Japan due to COVID-19 (Status: Investigating) [Matsubara?]

- New entries to Japan are not allowed until the end of January.
- Vaccines in Japan will start from end-February?
- In the worst scenario, we have to postpone.

m) Risk of earthquake during assembly in Japan (Status: Investigating) [Dubna group?]

- Action item: Seismic analysis by Dubna group?

- Possible countermeasure like small plates to hold temporary?
- n) Risk of what is written in MoU (Status: **CERN is no problem**) [**Thorsten and Claudio**]
- There will be no objections from CERN according to the Thorsten's information: "One point that was raised by Marzio, is that he wonders why we want to do the assembly of the cubes in the box at CERN and he will be very happy to ship the empty box to J-PARC...".
- o) Risk of funding for shipment (Status: **Investigating**) [**Who?**]
- **Cube: ??**
 - **Platform: ??**
 - **Box: ??**
 - Anything else?
- p) Risk if we find an issue of the box (Status: **Investigating**) [**Mechanics group?**]
- If there is a problem with closing the box, we will know about it in Japan. That is a risk. The risk to the schedule can be mitigated if we will check the box closure before the all cube layers are installed. We can get the time to repair.
 - Marzio (?) stated that their responsibility for the box would end when the box leaves CERN and then they do not want to hear complaints if something breaks. It means we have to repair it in Japan, right?
 - No mechanical workshop in J-PARC. We have to ask the Japanese company to modify it if necessary. Risk would depend on the failure.