

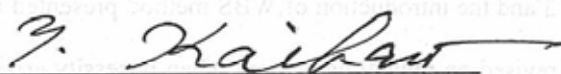
MINUTES OF MEETINGS
BETWEEN THE JAPAN INTERNATIONAL COOPERATION AGENCY
AND THE RELATED AUTHORITIES OF THE GOVERNMENT OF
THE ISLAMIC REPUBLIC OF PAKISTAN
ON JAPANESE TECHNICAL COOPERATION
FOR
HIGHWAY RESEARCH AND TRAINING CENTRE (HR&TC)

The study team (hereinafter referred to as "the Team") of Japan International Cooperation Agency (hereinafter referred to as "JICA") on ex-ante evaluation study II of technical cooperation (hereinafter referred to as "the Technical Cooperation") for Highway Research and Training Centre, was dispatched to the Islamic Republic of Pakistan from Jul 9th 2006. The purpose was to formulate the Technical Cooperation plan requested by the related authorities in the Government of Pakistan (hereinafter referred to as "GOP") under the technical cooperation of the Government of Japan (hereinafter referred to as "GOJ").

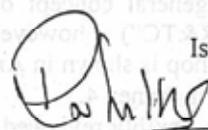
During its stay, the Team exchanged views with the related authorities of GOP through a series of meetings, workshops and field observations on the Technical Cooperation.

As the result of the discussions, both parties reached common understanding regarding the matters mentioned in the attached document. Both parties agreed to recommend them to their respective governments.

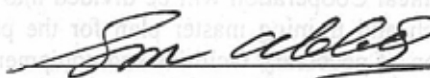
Islamabad, August 25th 2006



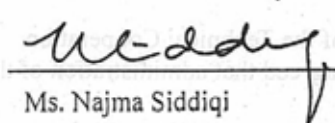
Mr. Takao Kaibara
 Resident Representative
 Pakistan Office
 Japan International Cooperation Agency



Mr. Raja Nowsherwan
 Member Planning
 National Highway Authority
 Government of Pakistan



Mr. Mohammad Abbas
 Additional Secretary
 Ministry of Communications
 Government of Pakistan



Ms. Najma Siddiqi
 Joint Secretary
 Economic Affairs Division
 Ministry of Economic Affairs and Statistics
 Government of Pakistan

Attached Document

1. The result of the activities of ex-ante evaluation study II
During the ex-ante evaluation study II of the Technical Cooperation, both sides held a series of meetings and workshop in order to discuss the framework of the Technical Cooperation, such as the purpose, output, activities, time schedule and input of both parties. The result of the discussion is summarized in Project Design Matrix (PDM), Plan of Operation (PO) and Work Breakdown Structure (WBS). PDM and PO attached respectively in Annex 1 and 2.
The common understanding of both parties are summarized in the following.
2. Project design matrix (PDM), plan of operation (PO) and work breakdown structure(WBS)
Both sides have confirmed that PDM, PO and WBS will be the basis of the Technical Cooperation, and the Technical Cooperation is to be carried out in line with the documents.
(a) PDM summarizes the framework of the Technical Cooperation
(b) PO defines the framework of the time schedule and input for the activities mentioned in PDM.
(c) WBS is a results-oriented family tree that captures all the work of the project to create outline of work in an organized way. It is portrayed graphically as a hierarchical tree, and tabular list of "element" categories and tasks or the indented task list that appears in Gantt chart schedule. In the Technical Cooperation, WBS breaks down the activities into more specific level than PO, and is formulated to monitor the process of the Technical Cooperation. Daily activities will follow the plan defined in WBS. WBS will be formulated at the commencement of the Technical Cooperation by mutual discussion and will be regularly monitored and reviewed. The WBS tree that captures general concept of Highway Research and Training Centre (hereinafter referred to as "HR&TC") , however it exceeds the scope of the Technical Cooperation, developed in workshop is shown in Annex 3 and the introduction of WBS method presented in workshop is shown in Annex 4.
PDM and PO are to be flexibly reviewed and revised on mutual agreement when necessity arises during the Technical Cooperation. WBS will be regularly reviewed by monitoring the process of the Technical Cooperation.
3. Duration and time schedule of the Technical Cooperation
The duration of the Technical Cooperation will be 5 (five) years.
The Technical Cooperation will be divided into two phases. Phase I will focus on the formulation of research and training master plan for the pavement and related technology of HR&TC, and preparation of necessary facilities and equipment. Phase I is to be completed by March 2009 and there will be mid-term evaluation at the completion of Phase I. PDM, PO, WBS and relevant documents will be reviewed to make a modified framework of the Technical Cooperation. Phase II will be initiated with the completion of the construction of the building of HR&TC, disposition of necessary equipment and completion of the master plan. Phase II will focus on research and training according to the master plan formulated during Phase 1 on pavement and other related technology.
4. Administration of the Technical Cooperation
Both sides have agreed that administration of the Technical Cooperation will be as follows;

Administrator: Chairman, NHA will bear overall responsibility for the administration of the Technical Cooperation.
Manager: Member Planning, NHA will be responsible for the implementation and management of the Technical Cooperation.
The tentative organization chart for the administration and Counterpart assignment of the Technical Cooperation is shown in Annex 5.
5. Counterpart Personnel
For the successful implementation of the Technical Cooperation, NHA will assign appropriate number of counterpart and supporting personnel as shown in Annex 6. The detailed list of counterparts will be submitted prior to the commencement of the Technical Cooperation.

6. Joint Steering Committee
 For the effective and successful implementation of technical cooperation for the Technical Cooperation, Joint Steering Committee will be established in order to fulfil the following function:
- (a) To formulate annual work plan of the Technical Cooperation based on the Plan of Operations and Work Breakdown Structure (WBS)
 - (b) To review the results of the annual work plan and the progress of the Technical Cooperation
 - (c) To exchange views and ideas on major issues which arise during the implementation period of the Technical Cooperation
 - (d) To evaluate PDM during the course of the Technical Cooperation and suggest revision, if necessary.
- Joint Steering Committee will be held at least once a year. The chairperson will be the Chairman of NHA.
 The member of Joint Steering Committee will be notified to JICA by NHA before the commencement of the Technical Cooperation.
7. Area of cooperation
 The Technical Cooperation of this Project will primarily focus on the cooperation area in pavement. The Technical Cooperation related to environment and traffic safety will be considered taking into account the result of joint evaluation of the Technical Cooperation Phase 1. Subject to positive evaluation, Technical Cooperation will extend to the formulation of research and training plan.
8. Relation of the Technical Cooperation to NHA's research activities
 NHA intends to integrate all research activities in the country by providing an umbrella of HR&TC. All present and forthcoming research activities (such as "NHIP Pavement Study") will be succeeded into HR&TC such as output and equipment for implementation of the Technical Cooperation. The recruitment of the key staff for HR&TC, would be carried out jointly by NHA and JICA during Phase 1.
9. Input to the Technical Cooperation by the Pakistani Side
- (a) Counterpart
 - i) Administrative Personnel
 - Project Administrator
 - Project Manager
 - HR&TC Executive Director (Project Coordinator)
 - Supporting Staffs
 - ii) Technical Personnel
 - Chief researcher
 - Researchers
 - Laboratory technicians
 - IT engineer
 - Training coordinator
 - Assistants/Supporting Staffs
 - (b) Facilities
 - Land and building for HR&TC
 - Equipment, furniture and stationary
 - Vehicle
 - (c) Budget
 - Administrative expenses
 - Research, Training and seminars expenses
 - Operation and maintenance expenses
10. Input to the Technical Cooperation by the Japanese Side
- (a) Dispatch of Long- and Short-term expert
 The Japanese side has shown the plan of dispatch of following experts. The title, number and duration of the expert may change due to the budgetary constraint of Japanese side, or the mutual consultation by both side.
 - i) Long-term Experts

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- Chief Advisor/ Organizational Designing and Research Planning (Phase 1)
 - Chief Advisor/Road Pavement (Phase 2)
- ii) Short-term Experts
- (about 2~4 per year)
 - Laboratory facilities
 - Research planning
 - Training planning
 - Database system
 - Laboratory Equipment maintenance operation
- (b) Necessary equipment for the Technical Cooperation
 JICA has agreed to provide equipment and provisional list of equipment is shown in Annex 7. Contents, specifications and quantity of the equipment will be prepared during the Technical Cooperation with collaboration of the Experts and Counterparts and finalised through mutual consultations within the allocated budget of the Japanese fiscal year. Some part of the necessary equipments will be succeeded from NHIP and there will be no duplication between the equipment of the Technical Cooperation and NHIP.
- (c) Training of Pakistani Counterpart Personnel in Japan
 For the improvement of their knowledge in the research management development and pavement, counterparts will be provided with training in Japan during the Technical Cooperation period. The participants and contents of training will be decided upon the basis of the purpose of the Technical Cooperation.
- (d) Incidental support for dissemination of the output of the Technical Cooperation
 JICA will consider possible financial support for training, seminar and international conference organize by the Technical Cooperation for dissemination of its output. Likewise, JICA will also consider possible support for participation of HR&TC personnel for presentation of technical paper accepted in international conference or symposium.
11. Budget for the Technical Cooperation
 Both sides have confirmed that the expenses necessary for execution of the Technical Cooperation will be borne by both sides according to the Agreement on Technical Cooperation between the Government of Japan and the Government of the Islamic Republic of Pakistan, signed in Islamabad on April 30, 2005.
 The PC-1 of HR&TC will be prepared by NHA and be put in the approval process of GOP to ensure the sustainability and further development of the HR&TC.
12. Record of Discussion (R/D)
 R/D will determine the framework of the Technical Cooperation, and include the contents of this Minutes of Meeting (M/M). It will be agreed and signed among Japanese side and related Pakistani authorities. Draft R/D is attached as Annex 8, and it will be finalized after the approval in JICA headquarters.
13. Commencement of the Technical Cooperation
 The Technical Cooperation will be commenced after NHA dispositions counterparts necessary for the implementation and the list of counterpart will be submitted to JICA prior to the commencement of the Technical Cooperation.

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List of Annexes

- Annex 1: Project Design Matrix (PDM)
- Annex 2: Plan of Operation (PO)
- Annex 3: HR&TC Work Breakdown Structure (WBS)
- Annex 4: Introduction of WBS (Presentation document)
- Annex 5: Organization Chart of the HR&TC Project (Tentative)
- Annex 6: List of Counterpart Personnel (Tentative)
- Annex 7: List of Equipment (Provisional)
- Annex 8: Draft R/D

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PROJECT DESIGN MATRIX (PDM)

Project Name: Highway Research and Training Centre (HR&TC)

Duration: Jan. 2007 to Dec. 2011 (Phase I: Jan 2007 to Mar. 2009, Phase 2: Apr. 2009 to Dec. 2011) *

Target Area: Pakistan

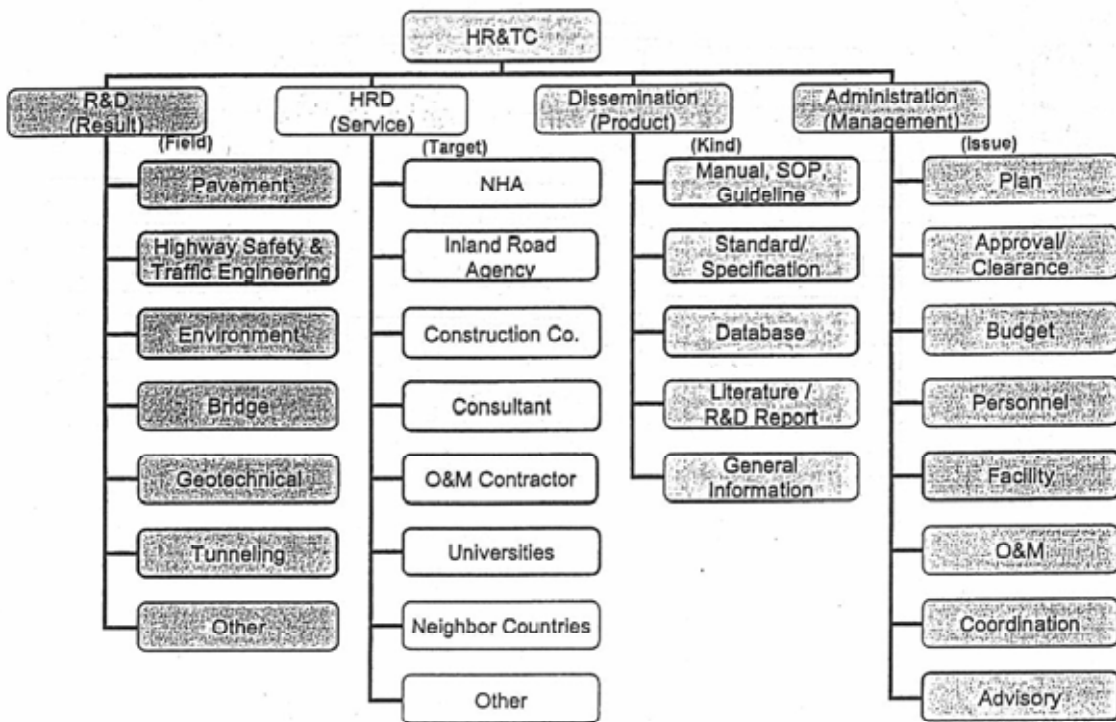
Target Group: Researchers, Engineers and Technicians concerned in road sector in Pakistan

| Narrative Summary | Objectively Verifiable Indicators | Means of Verification | Important Assumptions |
|---|---|---|---|
| <p>Super Goal Durable, economical, safe and environment friendly Highways are built, maintained and operated efficiently</p> | <p>1. Highway service life is increased 2. Cost efficiency of highway maintenance is improved. 3. Effective highway safety and environmental measures are enforced.</p> | <p>1. Road Inventory Survey 1&2&3. NHA Annual Network Report 2-1. Highway accident record 2-2. Highway environmental report</p> | <p>- Construction and maintenance of highways are implemented by utilizing "Indigenous Standards", Specifications, Manuals and Guidelines.</p> |
| <p>Overall Goal "Indigenous Standards" for highways suiting local conditions developed by HR&TC are applied for construction maintenance and operations.</p> | <p>1. "Indigenous Standards" for highway construction and maintenance developed by HR&TC are approved and enforced by NHA, and/or concerned organization. 2. Researcher, Engineers, and Technicians who have necessary knowledge and technology for highway construction and maintenance are trained in HR&TC.</p> | <p>1-1. Enforced "Indigenous Standards" and related Orders/Notifications by NHA and/or concerned organization. 1&2. NHA Annual Performance Report, Highway O&M Report 2-1. Training/seminar recorded conducted in HR&TC with evaluation of achievement. 2-2. Interview of trained Engineers/ Technicians and their Employers.</p> | <p>- HR&TC is expanded and strengthened based on the master plan (PC1). - Personnel trained by HR&TC remain in road engineering sector in the country. - Government policy on the road sector is not change</p> |
| <p>Project Purpose Institutional framework and system of research and training for highway construction maintenance and operations are developed</p> | <p>1. "Indigenous Standards" draft on highway Pavement and related fields are developed. 2. Researcher, Engineers, Technicians in road sector are trained in highway Pavement and related fields</p> | <p>1-1 Research report 1-2 "Indigenous Standards" draft (No. & kind) 2-1. Record of training/seminar conducted in HR&TC with evaluation of achievement. 2-2. Interview of trained Engineers/ Technicians and their Employers.</p> | |
| <p>Output 1. Research and Training facilities necessary for Pavement and related field are developed.</p> | <p><Phase 1> 1-1 Master plan with layout of HR&TC facilities is prepared. 1-2 Office, Laboratory and Training buildings for Pavement and related research, and training are developed by Mar. 2009. 1-3 Equipments for Pavement research and training are setup by March 2009. <Phase 2> 1-4 Additional building and equipments for Pavement and related research and training are facilitated.</p> | <p>1-1 Master plan with HR&TC building layout/design 1-2&1-4 Design and completed Office, Laboratory, Training buildings 1-2, 1-3&1-4 Equipment procurement plan, Inventory record.</p> | |
| <p>2. Research reports and/or draft of "Indigenous Standards" in Pavement and related technology are developed.</p> | <p><Phase 1> 2-1 Master plan of HR&TC research is prepared by Dec. 2007. 2-2 Detailed Pavement research plan is prepared, and research is conducted from Dec. 2007 on ward. 2-3 Detailed plan of Pavement related research is prepared by Mar. 2009. <Phase 2> 2-4 Research reports and/or "Indigenous Standards" drafts for Pavement and/or related fields are developed</p> | <p>2-1 Master plan of HR&TC research 2-2 Pavement research plan, Research record. 2-3 Research reports, Draft of "Indigenous Standards".</p> | |
| <p>3. Output of Pavement and related fields research are disseminated to concerned personnel.</p> | <p><Phase 1> 3-1 Database is developed and accumulated Pavement and related data, research record are made part of the database. <Phase 2> 3-2 Achieved record and literature of Pavement and related research are made available on publication and/or Web-site.</p> | <p>3-1 &3-2 Database and its contents. 3-2 Publication, Database contents, Access No. on Database/V-ch-site.</p> | |

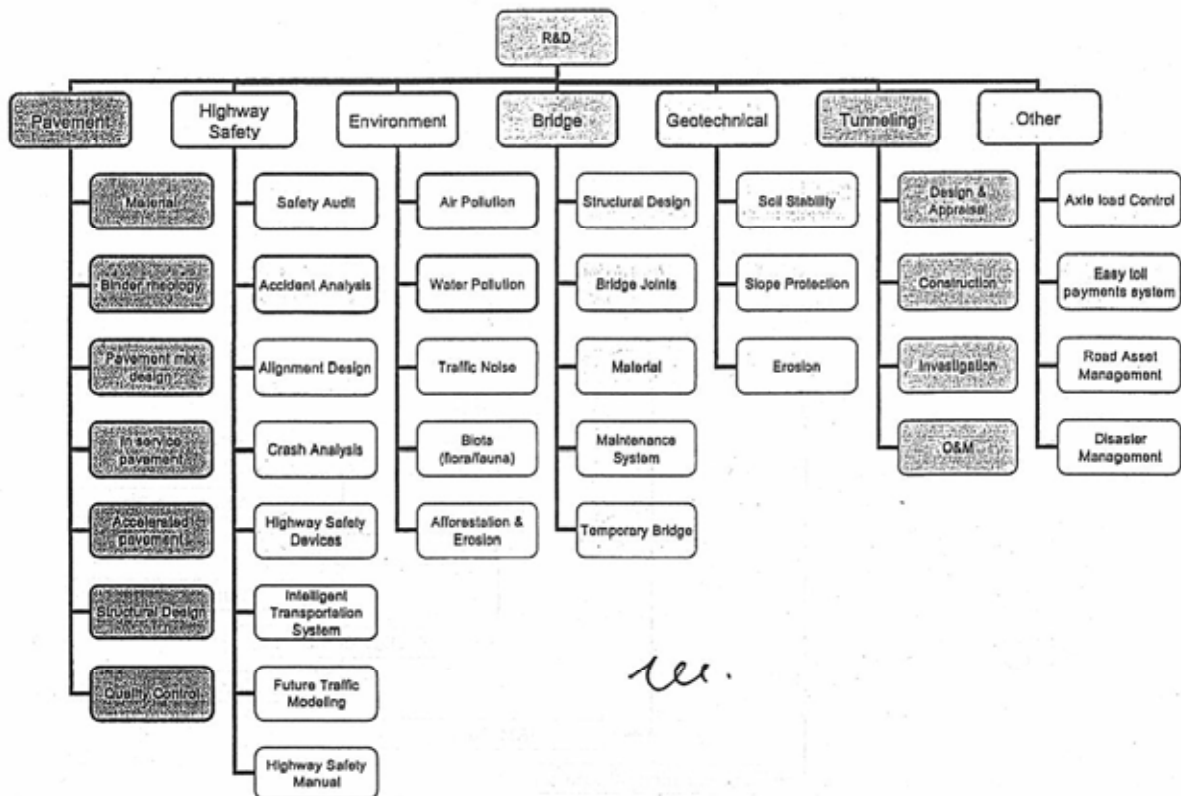
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| <p>4. Researcher, Engineers and Technicians are trained for Pavement and related technology.</p> | <p><Phase I> 4-1 Master plan of training program in HR&TC is prepared 4-2 Plan of training and seminar on Pavement and related technology are prepared. 4-3 Concerned Researcher, Engineer and Technician are trained <Phase 2> 4-4 Concerned Researcher, Engineer, Technician are trained.</p> | <p>4-1. Master plan, training 4-2 Plan of training and seminar on Pavement and related technology. 4-3&4-4. Record of training/seminar with curriculum, training material and evaluation of achievement. 4-3&4-4. Interview of trained Researcher/Engineers/Technicians and their Employers.</p> | <p>- Trained/qualified staff is retained in HR&TC - Budget for NHA is kept at adequate level. - Personnel, equipment and output of the NHP Pavement research study is taken over by HR&TC.</p> |
| <p>ACTIVITIES <Phase I> 1-1-1 Prepare master plan of HR&TC with tentative building layout 1-1-2 Prepare specification and TOR and coordinate design activities of Pavement and related research and training facilities 1-1-3 Advice for design and construction of HR&TC facilities for concerned NHA officials 1-1-4 Prepare equipment lists and specifications 1-1-5 Procure and setup equipment. 2-1-1 Prepare master plan of HR&TC research activities 2-1-2 Prepare detail plan of Pavement research based on the master plan. 2-1-3 Conduct Pavement research based on the plan. 2-1-4 Prepare future plan for other related research (i.e. Traffic safety, Environment) 3-1-1 Prepare database system design and specification 3-1-2 Develop database system 3-1-3 Input accumulated information and research record 4-1-1 Prepare master plan of training program in HR&TC 4-1-2 Prepare training and seminar plan on Pavement technology 4-1-3 Develop training curriculum and texts 4-1-4 Conduct in-service training of HR&TC counterparts 4-1-5 Conduct training and/or seminar for concerned Researchers, Engineers and Technicians. <Phase II> 1-2-1 Study and prepare layout and specification of additional facilities necessary for Pavement and related research and training. 1-2-2 Advice for design and construction of HR&TC facilities for concerned NHA officials 2-2-1 Conduct Pavement research based on the plan. 2-2-2 Conduct Pavement related research based on the plan (i.e. Traffic safety, Environment) 2-2-3 Integrate research result and create research report 2-2-4 Develop "Indigenous Standards" drafts based on the research output. 3-2-1 Input data, record and literature of Pavement and related technology into database. 3-2-2 Provide accumulated information of Pavement and related technology by publication and/or Web-site. 3-2-3 Consult with NHA Officials on dissemination of research output to concerned personnel/organizations. 4-2-1 Develop training curriculum and text 4-2-2 Conduct in-service training of HR&TC counterparts 4-2-3 Conduct training and seminar for concerned Researchers, Engineers and Technicians.</p> | <p>INPUT Japanese side <Experts> 1. Long term Experts - Chief Advisor/ Organizational Designing and Research Planning (Phase 1) - Chief Advisor/Road Pavement (Phase 2) 2. Short Term Experts (about 2-4 per year) - Laboratory facilities - Research planning - Training planning - Database system - Laboratory Equipment maintenance and operation <Equipment> - Equipment for research and training - Database Equipment <Counterpart Training > (about 2-4 per year) - Organization and research management - Pavement and related research</p> | <p>Pakistani side <Counterpart> 1. Administration Personnel - Project Director - Project Manager - HR&TC Executive Director - Supporting Staffs 2. Technical Personnel - Chief researcher - Researchers - Laboratory technicians - IT engineer - Training coordinator - Assistants/Supporting Staff <Facilities> - Land and building for HR&TC - Equipment, furniture and stationary (Lab. DB, Training, Office), - Vehicle <Budget> - Administrative expenses - Research, Training and seminars expenses - Operation and maintenance expenses - Salary and travel expenses of counterparts and HR&TC staffs</p> | <p><Pre-conditions> - PC-1 is approved - Necessary counterparts are allocated - Financial measure for the Project is secured. - Construction work plan of HR&TC building is approved.</p> |

*The project implementation is divided into phases I and phase 2.
*Detail plan of 2nd phase will be reviewed during 1st phase, based on the evaluation of the progress and achievements of 1st phase.
***"Indigenous Standards" includes "Specification, Guideline and Manual" in addition to the standard.

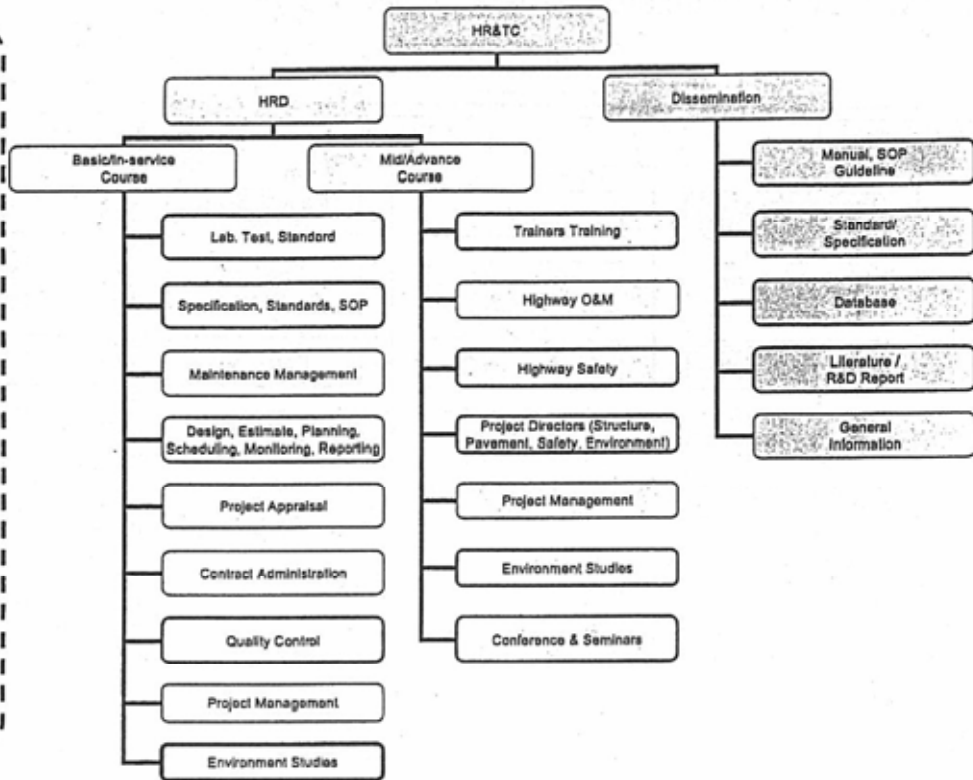
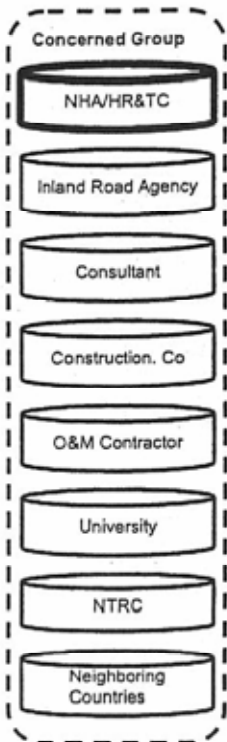
HR&TC WBS Structure (General; Level 1-3)



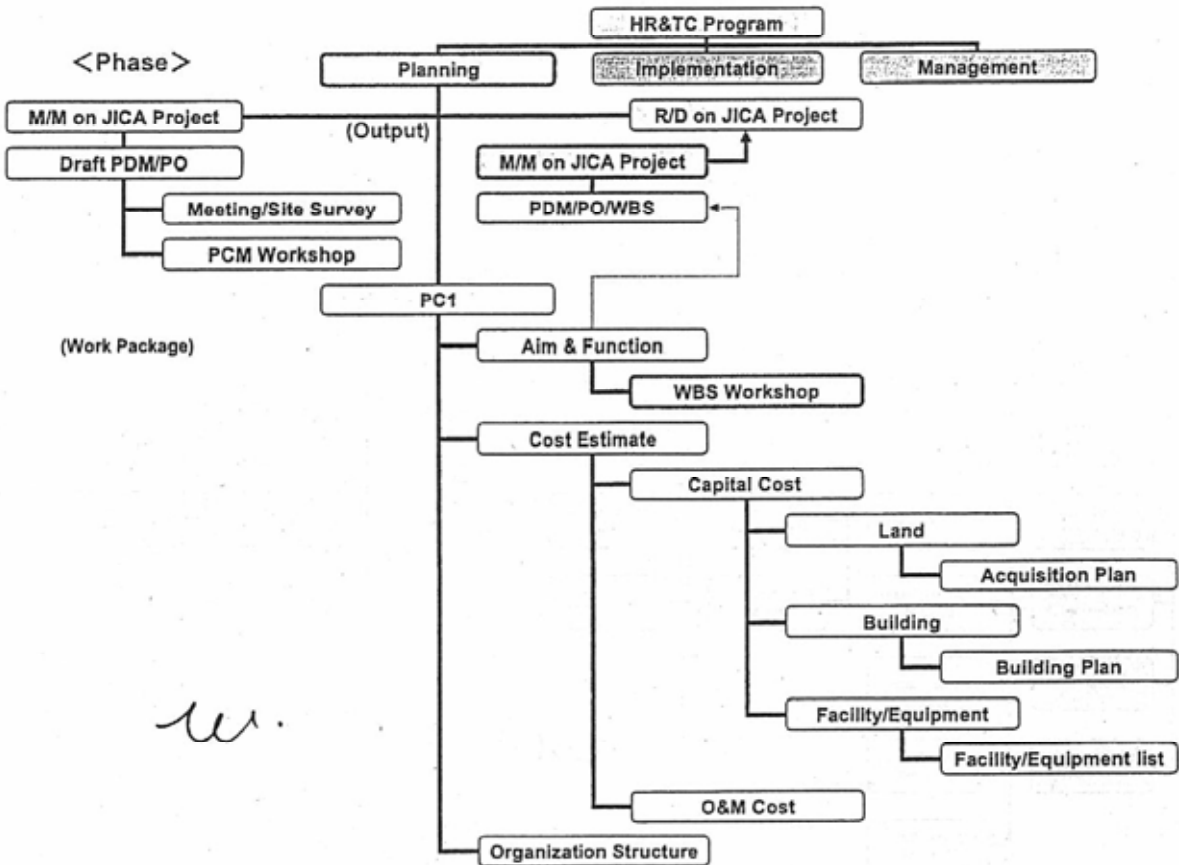
HR&TC WBS Structure (R&D; Level 2-4)



HR&TC WBS Structure (HRD & Dissemination; Level 2-4)



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(Work Package)

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