

2. ミニッツ(プロジェクトドキュメント英文を含む)

THE MINUTES OF MEETING
BETWEEN THE JAPANESE PROJECT DESIGN TEAM AND
THE MINISTRY OF PUBLIC WORKS, TRANSPORTS AND HOUSING OF ROMANIA
ON JAPANESE TECHNICAL COOPERATION PROJECT
ON THE REDUCTION OF SEISMIC RISK FOR BUILDINGS AND STRUCTURES

The Japanese Project Design Team (hereinafter referred to as "the Team"), organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") visited Romania from July 28 to August 2, 2002, for the purpose of working out the details of the technical cooperation program concerning the Project on the Reduction of Seismic Risk for Buildings and Structures (hereinafter referred to as "the Project").

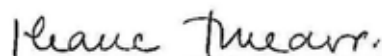
During its stay in Romania, the Team exchanged views and had a series of discussions with the Romanian authorities concerned.

As a result of the discussions, the Team and the Romanian Ministry of Public Works, Transports and Housing agreed to summarize the matters referred to in the document attached hereto as a supplement to the Record of Discussions.

Bucharest, August 1, 2002



Mr. Junichi Murakami
Leader
Japanese Project Design Team
Japan International Cooperation Agency
Japan

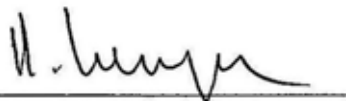


H.E. Mrs. Ileana Tureanu
Secretary of State
Ministry of Public Works, Transports and
Housing
Romania

Witnessed by



Prof. Dr. Petre Patrut
Rector, Technical University of Civil
Engineering, Bucharest
Romania



Prof. Dr. Dan Lungu
General Director, National Building
Research Institute in Bucharest
Romania





THE ATTACHED DOCUMENT

I The Attendants

The discussions between JICA and the Romanian authorities concerned were held in Bucharest with the participants listed below:

1. Romanian Side

H.E. Ileana Tureanu	Secretary of State, MLPTL
Mr. Gheorghe Tomoiala	Deputy General Secretary, MLPTL
Dr. Petre Patrut	Rector and Professor of UTCB
Dr. Dan Lungu	Director General, INCERC, Professor of UTCB
Mr. Ion Stanescu	Director General, Technical Direction for Construction, MLPTL
Dr. Dan Georgescu	Director of Structural Department, INCERC
Mr. Cristian Stamatiade	Deputy Director General, Technical Direction for Construction, MLPTL
Mr. Sorin Mugur Dumitrescu	Head of Office, Department of International Relations, MLPTL
Mrs. Stela Petrescu	Counselor, Technical Direction for Construction, MLPTL
Mrs. Loredana Sarbu	Juridical Adviser, Legal Department, MLPTL
Dr. Radu Vacareanu	Associate Professor, UTCB
Mrs. Elena Simion	Director of Department of Economy, INCERC
Mr. Mihail Iancovici	Assistant Professor, UTCB
Dr. Alexandru Aldea	Lecturer, UTCB
Mr. Cristian Arion	Structural Engineer, UTCB

2. Japanese Side

The Project Design Team

Mr. Junichi Murakami	Leader (Deputy Director General, National Institute for Land and Infrastructure Management, Ministry of Land, Infrastructure and Transport)
Dr. Hisashi Okada	Earthquake Countermeasures (Director, Department of Structural Engineering, Building Research Institute)
Mr. Isao Tojo	Cooperation Planning (Second Technical Cooperation Division, Social Development Cooperation Department, JICA)
<u>JICA</u>	
Mr. Hiroshi Furukawa	Resident Representative, JICA/JOCV Romania Office
Ms. Hiroko Uchida	Expert on Coordination of International Cooperation
Dr. Taiki Saito	Expert on Earthquake Engineering
<u>Embassy of Japan</u>	
Mr. Ryohei Tobihayashi	Attache

II Result of the discussions

1. Implementing organization of the Project

The Ministry of Public Works, Transports and Housing (hereinafter referred to as "the MLPIL") explained the implementing organization of the Project as follows:

(1) Establishment of the Center

National Center for Seismic Risk Reduction (hereinafter referred to as "the Center"), an implementing organization of the Project, is to be established (Informative Document I). Function of the Center to promote new technology for retrofitting as well as carry out the practical activities necessary for the seismic risk reduction is specified (Informative Document II). The Center organization is specified by the Organization chart. (ANNEX I)

(2) Staff of the Center

The name list (ANNEX II) was shown all of the staff of the Center with the distinction of part/full-time except for technicians. The MLPIL committed that even part-time counterparts will secure enough working time to implement the Project activities. All the counterparts of the Center except for the technicians are to be assigned at the start of the Project.

(3) Workplace of the Center and the condition for the staff

The layout of the working places of the Center in UTCB/INCERC and the working regulation, working hours, salaries, etc. are arranged by the MLPIL, UTCB and INCERC.

(4) Budget for the Center to implement the Project

The MLPIL committed to secure enough budget for the implementation of the Project and the budget for 2002 will be available from the start of the Center.

(5) Time-schedule of preparation for the start of the Project

Establishment of the Center was approved by the Romanian Government on July 31, 2002 and the time-schedule including Establishment of the Center by law, Staff



arrangement, Budget arrangement and Preparatory meeting among staff is shown by MLPTL in ANNEX III.

2. Implementation plan of the Project

(1) Project Design Matrix (PDM)

The Japanese side proposed to specify in the Output 2 of PDM the organization by which action is taken. The Romanian side agreed the proposal and it was revised to "The regulations/codes concerning seismic issues for both new buildings and existing ones are improved by MLPTL and Center "

(2) Equipment

The Japanese side showed the list of equipment to be provided for the implementation of the Project (ANNEX IV). The equipment provided for the Project implementation by the Japanese Government should be properly utilized and maintained by the Center during the Project period.

(3) Dissemination measures (Seminars, etc.)

The Romanian side presented the idea on dissemination measures in ANNEX V. MLPTL and Center jointly commit themselves to hold regular technical/awareness seminars so that the fruit of the Project will be disseminated and utilized.

(4) Achievement Plan for every 6 month

Both sides jointly formulated and agreed on Achievement Plan for every 6-month during the Project period. (ANNEX VI). It aims to keep track of the progress towards the Project purpose.

3. Application of the output of the Project

MLPTL showed the flow chart (ANNEX VII) of how the application of the output of the Project will be put in practical use. MLPTL and the Center will make maximum efforts for the revision of seismic standards to be legislated and retrofit techniques to be disseminated at the earliest possible time for the reduction of seismic disaster.

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4. Monitoring and Evaluation of the Project

Both sides understood that monitoring and evaluation of the Project have to be conducted periodically by Steering Committee, Joint Coordinating Committee and also jointly by the Evaluation Teams dispatched by JICA and Romanian authorities concerned. In order to confirm the impact of the Project on engineers/citizen, survey on earthquake disaster preparedness are to be conducted targeting seminar participants.

5. Project Document

Verifying the contents of the Project document, both sides agreed on it for rationalization of the plan and justification of the Project implementation. (ANNEX VIII).

6. Utilization and Maintenance of equipment after the Project period

MLPTL shows a table with the organization in charge of equipment (ANNEX IX). The alternative organization shown in the bracket is the one in charge in case the former organization is unable to take responsibilities. If either of the organization cannot take responsibility, MLPTL will take overall responsibility for the equipment.

Even after the Project cooperation period, the equipment provided for the Project implementation by the Government of Japan, should be properly utilized and maintained as the Center's property under the responsibility of the MLPTL. Necessary expenses related to the equipment after the termination of the Project will be born by a protocol between the MLPTL and UTCB/INCERC. MLPTL commits itself to take overall responsibility for the effective utilization of and necessary running cost for the equipment in case UTCB/INCERC are unable to fulfill their duties.

7. Others

As for the clause in R/D on Privileges, exemptions and benefits for Japanese Experts, MLPTL expressed difficulties in implementing exemption from import and export duties regarding "one motor vehicle per expert", however, they will make maximum efforts for its exemption.

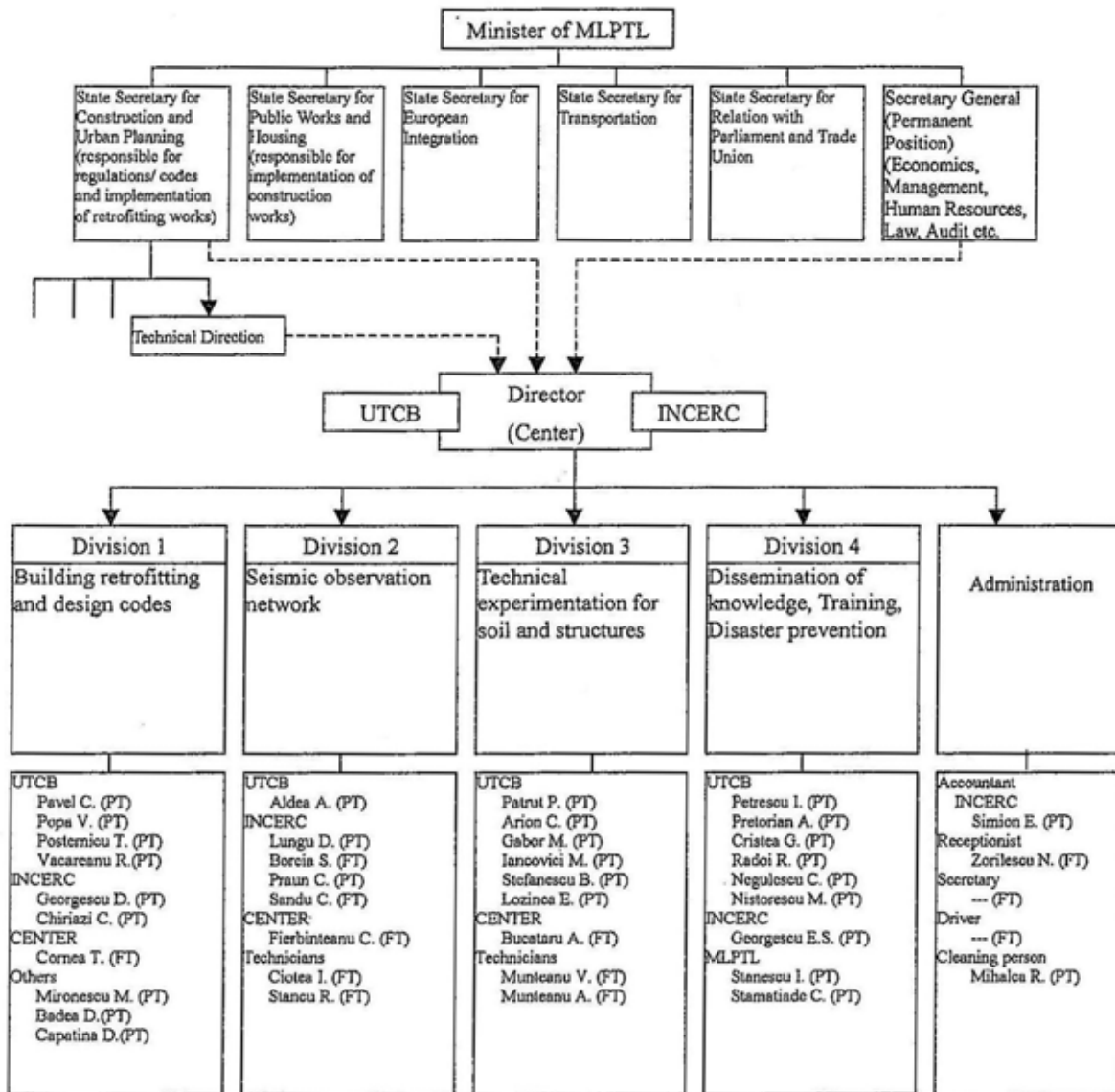


ANNEX I	Organization Chart of the Center
ANNEX II	Name list of the staff of the Center
ANNEX III	Time Schedule of Preparation
ANNEX IV	List of equipment
ANNEX V	Dissemination measures
ANNEX VI	Achievement Plan for every 6 month
ANNEX VII	Prospected Results
ANNEX VIII	Project Document
ANNEX IX	Organization in charge of equipment
Informative Document I	Ordinance
Informative Document II	Function Regulation

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7-7-4. Chart of organizational structure for Project management



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Staff list – Draft – July 30, 2002

Division 1

Building retrofitting and design codes

Head: Dr. D. Georgescu, Scientific Director of INCERC

No.	Name	Status	Another Organization
1.	D. Georgescu	PT	INCERC
2.	T. Postelnicu	PT	UTCB
3.	R. Vacareanu	PT	UTCB
4.	C. Pavel	PT	UTCB
5.	T. Cornea	FT	
6.	V. Popa	PT	UTCB
7.	M. Mironescu	PT	Miro Group
8.	D. Badea	PT	Proiect Buc.
9.	C. Chiriasi	PT	INCERC
10.	D. Capatâna	PT	IPTC

Division 2

Seismic observation network

Head: Dr. A. Aldea, UTCB

No.	Name	Status	Main employer
1.	D. Lungu	PT	INCERC
2.	A. Aldea	PT	UTCB
3.	C. Praun	PT	INCERC
4.	C. Fierbinteanu	FT	
5.	C. Sandu	PT	INCERC
6.	Borcia S.	PT	INCERC
7.	Ciotea ¹ I.	FT	
8.	Stancu ¹ R.	FT	

1 - technician

Division 3

Technical experimentation for soil and structures

Head: C. Arion, UTCB

No.	Name	Status	Main employer
1.	P. Patrut	PT	UTCB
2.	C. Arion	PT	UTCB
3.	M. Gabor	PT	UTCB
4.	M. Iancovici	PT	UTCB
5.	B. Stefanescu	PT	UTCB
6.	A. Bucataru	FT	
7.	E. Lozinca	PT	UTCB
8.	V. Munteanu ¹	FT	
9.	A. Munteanu ¹	FT	

1 - technician




Division 4
Dissemination of knowledge and training for engineers
Head: Prof. Dr. I. Petrescu, Vice-rector of UTCB

No.	Name	Status	Main employer
1.	I. Petrescu	PT	UTCB
2.	E.S. Georgescu	PT	INCERC
3.	A. Pretorian	PT	UTCB
4.	G. Cristea	PT	UTCB
5.	I. Stanescu	PT	MLPTL
6.	C. Stamatiade	PT	MLPTL
7.	R. Radoi	PT	UTCB
8.	C. Negulescu	PT	UTCB
9.	M. Nistorescu	PT	UTCB

Administration

No.	Name	Status	Main employer
1.	E. Simion ¹	PT	INCERC
2.	N. Zorilescu ²	FT	
3.	Secretary/ International relations ³	FT	
4.	Driver ⁴	FT	
5.	R. Mihalca ⁵	PT	INCERC

¹ Accountant

² Receptionist

³ Secretary/International relations

⁴ Driver

⁵ Cleaning person

Note: FT = full time
PT = part time

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TIME SCHEDULE OF PREPARATION FOR THE START OF THE CENTER

1. Approvement of the Ordinance to the establishment of the Center: July 31, 2002; effectiveness of law after publication in the Official Journal (i.e. max 30 days)
2. Functional Regulation of the Center and Organization Chart: August 20, 2002
3. Staff assignment: September 16, 2002 (for Staff list, see Annex II)
4. Preparation meeting with the staff will be on September 18, 2002 at the Center's site, Șoseaua. Pantelimon nr. 266, with the participation of all staff members
5. Establishment of the Center on October 1st. Budget of the Center is available from October 1st.

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Main Equipment List

	Equipment	Field of Activity	Usage
1-1	Strong Motion Accelerograph	Strong Motion Observation	Evaluation of Input Earthquake
1-2	Bore-hole Sensor	Strong Motion Observation	Evaluation of Input Earthquake
1-3	Bore-hole Transmitter	Strong Motion Observation	Evaluation of Input Earthquake
1-4	External Sensor	Strong Motion Observation	Evaluation of Input Earthquake
2-1	Boring Machine	Soil Testing, Ground Investigation	Ground Investigation
2-2	Boring Pump	Soil Testing, Ground Investigation	Ground Investigation
2-3	Boring Tool	Soil Testing, Ground Investigation	Ground Investigation
2-4	Standard Penetration Testing Machine	Soil Testing, Ground Investigation	Ground Investigation
2-5	Data Collection System	Soil Testing, Ground Investigation	Testing of Ground Condition
2-6	Down-hole Sensor	Soil Testing, Ground Investigation	Testing of Ground Condition
2-7	Ground Surface Sensor	Soil Testing, Ground Investigation	Testing of Ground Condition
2-8	Micro-tremor Data Collection System	Soil Testing, Ground Investigation	Testing of Ground Condition
2-9	Micro-tremor Sensor	Soil Testing, Ground Investigation	Testing of Ground Condition
2-10	Data Analysis Software	Soil Testing, Ground Investigation	Testing of Ground Condition
2-11	Tri-Axial Testing Machine	Soil Testing, Ground Investigation	Indoor Soil Testing
2-12	Bender-Element Testing Machine	Soil Testing, Ground Investigation	Indoor Soil Testing
2-13	Physical Characteristics Testing System	Soil Testing, Ground Investigation	Indoor Soil Testing
2-14	Data Collection/Analysis System	Soil Testing, Ground Investigation	Indoor Soil Testing
2-15	Carrying Vehicle	Soil Testing, Ground Investigation	Testing Vehicle
3-1	Reaction Frame	Structural Testing	Loading Facility
3-2	Hydraulic Jack	Structural Testing	Loading Facility
3-3	Power Pump Unit	Structural Testing	Loading Facility
3-4	Hydraulic Pump / Controller	Structural Testing	Loading Control
3-5	Control Computer / Software	Structural Testing	Loading Control
3-6	Data Logger	Structural Testing	Measurement System
3-7	Switch Box	Structural Testing	Measurement System
3-8	Load Cell	Structural Testing	Measurement System
3-9	Displacement Scale	Structural Testing	Measurement System
3-10	Computer / Software for Measurement	Structural Testing	Measurement System
3-11	Dynamic Strain Scale	Structural Testing	Measurement System
3-12	Measurement Frame	Structural Testing	Measurement System

Practical Image of Dissemination Activities

1. Technical Seminar for Engineers

Seminar Organizer: Prof. I. Petrescu, Division 4 of the Center
Target Group: Professionals (civil engineers from main design institutes)
Advertising: Direct connection with the heads of design institutes, newsletter, Center's homepage, etc.
Materials: Handbooks on technical issue and printed materials
Duration: 1 day/2 day

2. Awareness Seminar for Public

Seminar Organizer: Prof. I. Petrescu, Division 4 of the Center
Target Group: Civilians (teachers / pupils in elementary and high schools)
Advertising: Direct connection with the heads of schools, Center's homepage, etc.
Materials: Pamphlet, video
Duration: Teaching hours, 2-4 hours / semester

3. Newsletter about Center activity

Disseminated to subscribers by e-mail or downloaded from Center's homepage using PDF Format

4. Pamphlet on mitigation of earthquake disaster

Distributed to teachers / pupils in elementary and high schools

5. Educational video on mitigation of earthquake disaster

Presented to teachers / pupils in elementary and high schools
Presented to citizens on TV

6. Center's homepage on mitigation of earthquake disaster

Prepared for any interested users of Internet



Achievement Plan by every 6 month

Activity of PDM	Field	2002.10-2003.3 (JFY2002(3-4))	2003.4-2003.9 (JFY2002Q1-2)
1-1. To examine the building seismic performance listed in the MLPTL's retrofit projects 1-2. To support and evaluate MLPTL's retrofit projects 1-3. To study the methods of building retrofitting (strength and ductility, and displacement-based methods) 1-4. To prepare manual explaining retrofit methods 1-5. To disseminate the technical information to structural engineers by seminar 2-1. To prepare equipment and facilities for seismic structural testing 2-2. To implement experiment and analyze data 2-3. To study the methods of seismic design (shear strength and ductility, and displacement-based design) 2-4. To prepare equipment for strong-motion earthquake record (underground, free field and building) 2-5. To collect ground information (microtremor characteristic, underground soil condition) and analyze/accumulate the data 2-6. To prepare equipment and facilities for soil test/ investigation 2-7. To study the methods for soil test 2-8. To accumulate the data on earthquake intensity corresponding to ground condition 2-9. To accumulate the data on input earthquake ground-motion to buildings 2-10. To prepare the manual of input design earthquake ground-motion 2-11. To disseminate the technical information to structural engineers by seminar 2-12. To prepare draft of technical manuals, regulations and new codes 3-1. To collect information concerning post-earthquake evaluation techniques (quick inspection of damaged buildings and judgment of damage degree) 3-2. To prepare technical manual explaining the methods of post-earthquake evaluation techniques 3-3. To disseminate the technical information to structural engineers by seminar 4-1. To investigate disaster prevention preparedness of the citizens 4-2. To disseminate information on disaster prevention preparedness to the citizens by seminar 4-3. To publish printed matter concerning disaster prevention preparedness to the citizens	① Seismic evaluation ② Retrofit technique ③ Inspection /Restoration ④ Seismic design ⑤ MLPTL Retrofit ⑥ Structural experiment ⑦ Database	Report on 1 st and 2 nd Screening Method of Japanese Seismic Evaluation Method (1-1,1-4,1-5) RM version of Report on Strength Upgrading Method of Japanese Seismic Retrofitting (1-3,1-4,1-5) RM version of Report on Japanese Quick Inspection and first-aid restoration Method for damaged buildings (3-1,3-2,3-3) RM version of Report on Shear Designing Method of Japanese Seismic Evaluation Method (2-3,2-11,2-12) Annual report on Technical Assistance for MLPTL Retrofitting Projects (1-1,1-2) Report on Structural Testing Facilities, Testing Methods and Data Processing Methods (2-1,2-2,2-11)	RM version of Report on 3 rd Screening Method of Japanese Seismic Evaluation Method (1-1,1-4,1-5) RM version of Report on Ductility Upgrading Method of Japanese Seismic Retrofitting (1-3,1-4,1-5) RM version of Report on Japanese Post-Earthquake Inspection and restoration Method for damaged buildings (3-1,3-2,3-3) RM version of Report on Ductility Designing Method of Japanese Seismic Evaluation Method (2-3,2-11,2-12)
		Data collection plan of earthquake intensity according to ground condition (2-8,2-9) Study report on past earthquake records (2-8,2-9) Data collection plan of input earthquake ground motion to building (2-9) Data collection plan of ground information (2-5) Study report of ground info. On existing /new points (2-5) Report on Ground survey /prove technique (2-7)	Installation/ Operation manual of strong motion observation equipment (2-4) Study report on past building vibration characteristics (2-9) Study report on ground motion characteristics (2-11,12) Study report of ground info. On existing /new points (2-5) Study report on micro tremor and ground condition (2-5,2-8) Operation manual of soil testing / ground investigation (2-6) Report on Ground survey /prove technique (2-7) Newsletter (4-3) Pamphlet on mitigation of earthquake disaster (4-3)
	⑧ Dissemination/Awareness	Technical/Awareness seminar (1-5,2-11,3,3,4,2) Newsletter (4-3)	

Achievement Plan by every 6 month

ACTIVITIES OF FDM	Field	2008.10-2004.3 (JFY2002Q3-4)	2004.4-2004.9 (JFY2002Q1-2)
1-1. To examine the building seismic performance listed in the MLPTL's retrofit projects 1-2. To support and evaluate MLPTL's retrofit projects 1-3. To study the methods of building retrofitting (strength and ductility, and displacement-based methods) 1-4. To prepare manual explaining retrofit methods 1-5. To disseminate the technical information to structural engineers by seminar 2-1. To prepare equipment and facilities for seismic structural testing 2-2. To implement experiment and analyze data 2-3. To study the methods of seismic design (shear strength and ductility, and displacement-based design) 2-4. To prepare equipment for strong motion earthquake record (underground, free field and building) 2-5. To collect ground information (microtremor characteristic, underground soil condition) and analyze/accumulate the data 2-6. To prepare equipment and facilities for soil test/ investigation 2-7. To study the methods for soil test 2-8. To accumulate the data on earthquake intensity corresponding to ground condition 2-9. To accumulate the data on input earthquake ground-motion to buildings 2-10. To prepare the manual of input design earthquake ground-motion 2-11. To disseminate the technical information to structural engineers by seminar 2-12. To prepare draft of technical manuals, regulations and new codes 3-1. To collect information concerning post-earthquake evaluation techniques (quick inspection of damaged buildings and judgment of damage degree) 3-2. To prepare technical manual explaining the methods of post-earthquake evaluation techniques 3-3. To disseminate the technical information to structural engineers by seminar 4-1. To investigate disaster prevention preparedness of the citizens 4-2. To disseminate information on disaster prevention preparedness to the citizens by seminar 4-3. To publish printed matter concerning disaster prevention preparedness to the citizens	① Seismic evaluation ② Retrofit techniques ③ Inspection/Restoration ④ Seismic design ⑤ MLPTL Retrofit ⑥ Structural experiment ⑦ Database ⑧ Strong motion ⑨ Soil test/Ground survey	<ul style="list-style-type: none"> ● Report on Applicability of the Japanese Seismic Evaluation Method to Romanian Buildings (1-1,1-4,1-5) ● Report on Applicability of the Japanese Seismic Retrofitting Method to Romanian Buildings (1-3,1-4,1-5) ● Report on Applicability of the Japanese Post-Earthquake Inspection and Restoration Method to Romanian Buildings (3-1,3-2,3-3) ● Report on Applicability of the Japanese Earthquake-Resistant Design Method to Romanian Buildings (3-2,11,2-12) ● Number of Technical Assistance for MLPTL Retrofitting Projects (1-1,1-2) ● Planning of the Structural Test to Develop the Retrofitting Technique (1-3,1-4,1-5,2-2,2-11) ● Operation manual on structural experiment (2-1) ● Building up/ updating database on ground info. (2-5) ● Report on micro tremor measurement for evaluation of building vibration characteristics (2-9) ● Summary of ground information based on ground survey and investigation (2-7) -⑦ Building up/ updating database on ground info. (Feed to 2-5) 	<ul style="list-style-type: none"> ● Input ground earthquake motion → Study Report on Outline of the Manual for Seismic Evaluation of Buildings in Romania (1-1,1-4,1-5) ● Input ground earthquake motion → Study Report on Outline of the Manual for Post-Earthquake Inspection and Restoration (3-1,3-2,3-3)
	⑩ Dissemination/Awareness	<ul style="list-style-type: none"> ● Technical/Awareness seminar (1-5,2-11,3-3,4-2) ● Newsletter (4-3) ● Educational video on mitigation of earthquake disaster (4-3) 	<ul style="list-style-type: none"> ● Newsletter (4-3) ● Home page on Mitigation of earthquake disaster (4-3)

Achievement Plan by every 6 month

ACTIVITIES OF PDM	Field	200410-20053 (JFY2002Q3-4)	2005.4-2005.9 (JFY2002Q1-2)
1-1. To examine the building seismic performance listed in the MLPTL's retrofit projects 1-2. To support and evaluate MLPTL's retrofit projects 1-3. To study the methods of building retrofitting (strength and ductility, and displacement-based method) 1-4. To prepare manual explaining retrofit methods 1-5. To disseminate the technical information to structural engineers by seminar 2-1. To prepare equipment and facilities for seismic structural testing 2-2. To implement experiment and analyze data 2-3. To study the methods of seismic design (shear strength and ductility, and displacement-based design) 2-4. To prepare equipment for strong-motion earthquake record (underground, free field and building) 2-5. To collect ground information (microtremor characteristic, underground soil condition) and analyze/accumulate the data 2-6. To prepare equipment and facilities for soil test/ investigation 2-7. To study the methods for soil test. 2-8. To accumulate the data on earthquake intensity corresponding to ground condition 2-9. To accumulate the data on input earthquake ground-motion to buildings 2-10. To prepare the manual of input design earthquake ground-motion 2-11. To disseminate the technical information to structural engineers by seminar 2-12. To prepare draft of technical manuals, regulations and new codes 3-1. To collect information concerning post-earthquake evaluation techniques (quick inspection of damaged buildings and judgment of damage degree) 3-2. To prepare technical manual explaining the methods of post-earthquake evaluation techniques 3-3. To disseminate the technical information to structural engineers by seminar 4-1. To investigate disaster prevention preparedness of the citizens 4-2. To disseminate information on disaster prevention preparedness to the citizens by seminar 4-3. To publish printed matter concerning disaster prevention preparedness to the citizens	① Seismic evaluation ② Retrofit technique ③ Inspection /Restorati on ④ Seismic design ⑤ MLPTL Retrofit ⑥ Structural experiment ⑦ Database ⑧ Strong motion ⑨ Soil test/ Ground survey ⑩ Dissemination/Awareness	200410-20053 (JFY2002Q3-4) ②Structural experiment method→ ● Study Report on Outline of the Manual for Seismic Retrofitting of Buildings in Romania (1-3,1-4,1-5) ● Study Report on Outline of the Advanced Earthquake-Resistant Design Manual for Buildings (2-3,2-11,2-12) ● Annual report on Technical Assistance for MLPTL Retrofitting Projects (1-1,1-2) ● Testing of Beam and Column Elements (1-3,1-4,1-5,2,2-11) →②Development of retrofit technique (Feed to 1-3, 1-4) ● Building up/ updating database on ground info. (2-5) ● Report on micro tremor measurement for evaluation of building vibration characteristics (2-9) ● Report on the investigation of deep ground structure (2-5) ● Summary of ground information based on ground survey and investigation (2-7) →⑦Building up/ updating database on ground info. (Feed to 2-5)	⑦Input ground earthquake motion→ ● Preparation of Draft of the Manual for Seismic Evaluation of Buildings in Romania (1-1,1-4,1-5) ⑦Input ground earthquake motion→ ● Preparation of Draft of the Manual for Post-Earthquake Inspection and Restoration (3-1,3-2,3-3)
		● Building up/ updating database on ground info. (2-5) ● Summary of ground information based on ground survey and investigation (2-7) →⑦Building up/ updating database on ground info. (Feed to 2-5) ● Report on the analyzing techniques (2-7) ● Reference study on soil-structure interaction (2-9) (2-10) ● Summary of the ground vibration characteristics (2-11,12) ● Newsletter (4-3)	

Achievement Plan by every 6 month

ACTIVITIES OF PDM	Field	2005.10 (JFY2002Q3-4)	2006.4 (JFY2002Q1-2)
1-1. To examine the building seismic performance listed in the MLPPTL's retrofit projects 1-2. To support and evaluate MLPPTL's retrofit projects 1-3. To study the methods of building retrofitting (strength and ductility, and displacement-based methods) 1-4. To prepare manual explaining retrofit methods 1-5. To disseminate the technical information to structural engineers by seminar 2-1. To prepare equipment and facilities for seismic structural testing 2-2. To implement experiment and analyze data 2-3. To study the methods of seismic design (shear strength and ductility, and displacement-based design) 2-4. To prepare equipment for strong motion earthquake record (underground, free field and building) 2-5. To collect ground information (microtremor characteristic, underground soil condition) and analyze/accumulate the data 2-6. To prepare equipment and facilities for soil test/investigation 2-7. To study the methods for soil test 2-8. To accumulate the data on earthquake intensity corresponding to ground condition 2-9. To accumulate the data on input earthquake ground motion to buildings 2-10. To prepare the manual of input design earthquake ground motion 2-11. To disseminate the technical information to structural engineers by seminar 2-12. To prepare draft of technical manuals, regulations and new codes 3-1. To collect information concerning post-earthquake evaluation techniques (quick inspection of damaged buildings and judgment of damage degree) 3-2. To prepare technical manual explaining the methods of post-earthquake evaluation techniques 3-3. To disseminate the technical information to structural engineers by seminar 4-1. To investigate disaster prevention preparedness of the citizens 4-2. To disseminate information on disaster prevention preparedness to the citizens by seminar 4-3. To publish printed matter concerning disaster prevention preparedness to the citizens	① Seismic evaluation ② Retrofit technique ③ Inspection/Restoration ④ Seismic design ⑤ MLPPTL Retrofit ⑥ Structural experiment ⑦ Database ⑧ Strong motion ⑨ Soil test/Ground survey ⑩ Dissemination/Awareness	2005.10 (JFY2002Q3-4) ⑥ structural experiment method→ ● Preparation of Draft of the Manual for Seismic Retrofitting of Buildings in Romania (1-3,1-4,1-5) ● Preparation of Draft of the Advanced Earthquake-Resistant Design Manual for Buildings (2-3,2-11,2-12) ● Annual report on Technical Assistance for MLPPTL Retrofitting Projects (1-1,1-2) ● Testing of Wall Elements (1-3,1-4,1-5,2-2,2-11) →②Development of retrofit technique (feed to 1-3, 1-4) ● Building up/updating database on ground info. (2-5)	2006.4 (JFY2002Q1-2) ⑦ Input ground earthquake motion→ ● Preparation of the Manual for Seismic Evaluation of Buildings in Romania (1-1,1-4,1-5) ⑦ Input ground earthquake motion→ ● Preparation of the Manual for Post-Earthquake Inspection and Restoration (3-1,3-2,3-3)
		● Summary of ground information based on ground survey and investigation (2-7) →②Building up/ updating database on ground info. (Feed to 2-5) ● Report on the effect of soil-structure interaction considering the characteristics of ground and building (2-9) ● Draft of the manual of input earthquake ground motion (2-10) ● Technical/Awareness seminar (1-5,2-11,3-3,4-2) ● Newsletter (4-3)	● Building up/ updating database on ground info. (2-5) ● Draft of the manual for input earthquake ground motion (2-10) ● Summary of the ground vibration characteristics (2-11,12) →⑦Building up/ updating database on ground info. (Feed to 2-5) ● Summary of ground information based on ground survey and investigation(2-7) →⑦Building up/ updating database on ground info. (Feed to 2-5) ● Newsletter (4-3) ● Revision of pamphlet on mitigation of earthquake disaster (4-3)

Achievement Plan by every 6 month

ACTIVITIES OF PDM	Field	2006.10-2007.3 (JFY2003Q3-4)	2007.4-2007.9 (JFY2007Q1-2)
1-1. To examine the building seismic performance listed in the MLPPTL's retrofit projects 1-2. To support and evaluate MLPPTL's retrofit projects 1-3. To study the methods of building retrofitting (strength and ductility, and displacement-based methods) 1-4. To prepare manual explaining retrofit methods 1-5. To disseminate the technical information to structural engineers by seminar 2-1. To prepare equipment and facilities for seismic structural testing 2-2. To implement experiment and analyze data 2-3. To study the methods of seismic design (shear strength and ductility, and displacement-based design) 2-4. To prepare equipment for strong motion earthquakes record (underground, free field and building) 2-5. To collect ground information (microtremor characteristic, underground soil condition) and analyze/accumulate the data 2-6. To prepare equipment and facilities for soil test/ investigation 2-7. To study the methods for soil test 2-8. To accumulate the data on earthquake intensity corresponding to ground condition 2-9. To accumulate the data on input earthquake ground motion to buildings 2-10. To prepare the manual of input design earthquake ground motion engineers by seminar 2-11. To disseminate the technical information to structural engineers by seminar 2-12. To prepare draft of technical manuals, regulations and new codes 3-1. To collect information concerning post-earthquake evaluation techniques (quick inspection of damaged buildings and judgment of damage degree) 3-2. To prepare technical manual explaining the methods of post-earthquake evaluation techniques 3-3. To disseminate the technical information to structural engineers by seminar 4-1. To investigate disaster prevention preparedness of the citizens 4-2. To disseminate information on disaster prevention preparedness to the citizens by seminar 4-3. To publish printed matter concerning disaster prevention preparedness to the citizens	① Seismic evaluation ② Retrofit technique ③ Inspection/Restoration ④ Seismic design ⑤ MLPPTL Retrofit ⑥ Structural experiment ⑦ Database ⑧ Strong motion ⑨ Soil test/Ground survey ⑩ Dissemination/Awareness	2006.10-2007.3 (JFY2003Q3-4) ③Structural experiment method→ ● Study of the Manual for Seismic Retrofitting of Buildings in Romania (1-3,1-4,1-5) ● Preparation of the Advanced Earthquake-Resistant Design Manual for Buildings (2-3,2-11,2-12) ● Annual report on Technical Assistance for MLPPTL Retrofitting Projects (1-1,1-2) ● Testing of Structural Frame (1-3,1-4,1-5,2-2,2-11) →②Development of retrofit technique (feed to 1-3, 1-4) ● Building up/ updating database on ground info. (2-5) ● Earthquake intensity map using the database (2-10) ● Summary of ground information based on ground survey and investigation (2-7) →⑦Building up/ updating database on ground info. (feed to 2-5)	2007.4-2007.9 (JFY2007Q1-2) ⑦Input ground earthquake motion→ ● Dissemination and Application of the Manual for Seismic Evaluation of Buildings in Romania (1-1,1-4,1-5) ⑦Input ground earthquake motion→ ● Dissemination and Application of the Manual for Seismic Retrofitting of Buildings in Romania (1-3,1-4,1-5) ● Dissemination and Application of the Manual for Post-Earthquake Inspection and Restoration (3-1,3-2,3-3) ⑦Input ground earthquake motion→ ● Dissemination and Application of the Advanced Earthquake-Resistant Design Manual for Buildings (2-3,2-11,2-12) ● Summary report on Technical Assistance for MLPPTL Retrofitting Projects (1-1,1-2) ● Dissemination of the Structural Testing Technique (1-3,1-4,1-5,2-2,2-11) ● Building up/ updating database on ground info. (2-5) ● Summary of ground information based on ground survey and investigation (2-7) →⑦Building up/ updating database on ground info. (feed to 2-5) ● Summary of new findings about ground vibration characteristics (2-11,12) →⑦Building up/ updating database on ground info. (feed to 2-5) ● Technical/Awareness seminar (1-5,2-11,3-3,4-2)

Application of the output of the Project

