

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
<p>Overall Goal</p> <p>Countermeasures against earthquake-induced disasters in Romania are strengthened.</p> <p>Project Purpose</p> <p>Improvement and dissemination of technology for reducing building collapse in case of great earthquakes are achieved.</p>	<p>1. Number of citizens who are expected not to be injured and/ or killed by earthquake damage</p> <p>2. Value of economic losses that are expected to be prevented from earthquake damage</p> <p>1. Number of buildings/ housing units retrofitted by technology introduced by Center, and number of residents and users of the buildings/ housing units</p> <p>2. Number of buildings/ housing units that are expected to be designed based on technical manuals or regulations introduced by Center, and the number of residents and users of those buildings/ housing units</p> <p>3. Level of the structural engineers' skills on post- earthquake evaluation for earthquake-damaged buildings</p> <p>4. Disaster prevention preparedness of citizens</p>	<p>1. MLPTL/Center report or survey report</p> <p>2. Survey report</p> <p>1-1. Report explaining number of retrofitted buildings, issued by MLPTL and other ministries</p> <p>1-2. Questionnaire survey to contractors</p> <p>2. Report explaining number of buildings that will be constructed by MLPTL and other ministries</p> <p>3. Questionnaire survey of seminar effect to the seminar participants</p> <p>4. Questionnaire survey of seminar effect to the seminar participants</p>	<p>Vera</p> <p>-Residents and users consensus on retrofitting works will be obtained.</p> <p>-Building structure. (Residents do not damage or remove structural elements.)</p> <p>-Other concerned ministries owning 1st class importance buildings finance retrofitting works.</p>
<p>Outputs</p> <p>1. Effective and low-cost retrofit techniques are developed by Center and acquired by structural engineers.</p> <p>2. Regulations/ codes concerning seismic issues for both new buildings and existing ones are improved by MLPTL and Center.</p> <p>3. Post- earthquake evaluation techniques of the damaged buildings are developed by Center and acquired by structural engineers.</p> <p>4. Disaster prevention education for the citizens is improved by Center.</p>	<p>1-1. Number of examined buildings/ housing units</p> <p>1-2. Number of technical manuals</p> <p>1-3. Number of seminars on retrofit techniques, structural engineers attended the seminar, and evaluation of the seminar by the participants</p> <p>2-1. Availability of experiment equipment and facilities, (number of experiments and data)</p> <p>2-2. Number of technical manuals and regulations, including draft of the new code which are newly developed or improved by Center</p> <p>2-3. Number of seminars on regulations/ codes concerning seismic issues, structural engineers attended the seminar, and evaluation of the seminar by the participants</p> <p>3-1. Number of technical manuals</p> <p>3-2. Number of seminars on quick inspection of damaged buildings, structural engineers attended the seminar, and evaluation of the seminar by the participants</p> <p>4-1. Number of seminars on earthquake disaster prevention, citizens attended the seminar, and evaluation of the seminar by the participants</p> <p>4-2. Number of printed matters published by Center, and evaluation of the printed matters by citizens</p>	<p>1-1. MLPTL/ Center report</p> <p>1-2. MLPTL/ Center report</p> <p>1-3. MLPTL/ Center report and questionnaire survey</p> <p>2-1. MLPTL/ Center report</p> <p>2-2. MLPTL/ Center report</p> <p>2-3. MLPTL/ Center report and questionnaire survey</p> <p>3-1. MLPTL/ Center report and questionnaire survey</p> <p>3-2. MLPTL/ Center report and questionnaire survey</p> <p>4-1. MLPTL/ Center report and questionnaire survey</p> <p>4-2. MLPTL/ Center report and questionnaire survey</p>	

<p>Activities</p> <ol style="list-style-type: none"> 1-1. To examine the building seismic performance listed in the MLPJL's retrofit projects 1-2. To support and evaluate MLPJL'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 judgement 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 	<p>Inputs (Japanese side)</p> <ol style="list-style-type: none"> 1. Dispatch of expert -Number of long-term experts: 3 persons -Number of short-term experts: Approx. 6 persons per year 2. Acceptance of counterpart training: Approx. 4 persons are accepted every year 3. Equipment provision 	<p>(Romanian side)</p> <ol style="list-style-type: none"> 1. Arrangement of counterparts and administrative staffs 2. Necessary budget 3. Necessary facilities 	<p>-Economic conditions of each side do not get worse. - Trained engineers remain active for ongoing projects.</p> <p>Pre-conditions -Great earthquake does not occur before the Project is completed. -Unexpected severity of earthquake is not identified</p>
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Achievement Plan by every 6 month

Activities of PDM	Field	2002.10-2003.3 (FY2002Q3-4)	2003.4-2003.9 (FY2002Q1-2)
1-1. To examine the building seismic performance listed in the MLPJT's retrofit projects 1-2. To support and evaluate MLPJT'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 (linear 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 MLPJT Retrofit ⑥ Structural experiment ⑦ Database ⑧ Strong motion ⑨ Soil test/Ground survey ⑩ Dissemination/Awareness	<ul style="list-style-type: none"> Report on 1st and 2nd 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 MLPJT Retrofitting Projects (1-1,1-2) Report on Structural Testing Facilities, Testing Methods and Data Processing Methods (2-1,2-2,2-11) 	<ul style="list-style-type: none"> RM version of Report on 3rd 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)
3-4. To disseminate the technical information to structural engineers by seminar 4-4. To disseminate information on disaster prevention preparedness to the citizens by seminar		<ul style="list-style-type: none"> 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) 	<ul style="list-style-type: none"> 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)

Achievement Plan by every 6 month

Field	2003.10-2004.3 (FY2003Q3-4)	2004.4-2004.9 (FY2003Q1-2)
① Seismic evaluation	<p>ACTIVITIES OF PDM</p> <p>1-1. To examine the building seismic performance listed in the MLPTL's retrofit projects</p> <p>1-2. To support and evaluate MLPTL's retrofit projects</p> <p>1-3. To study the methods of building retrofitting (strength and ductility, and displacement-based methods)</p> <p>1-4. To prepare manual explaining retrofit methods</p> <p>1-5. To disseminate the technical information to structural engineers by seminar</p> <p>2-1. To prepare equipment and facilities for seismic structural testing</p> <p>2-2. To implement experiment and analyze data</p> <p>2-3. To study the methods of seismic design (shear strength and ductility, and displacement-based design)</p> <p>2-4. To prepare equipment for strong-motion earthquake record (underground, free field and building)</p> <p>2-5. To collect ground information (microtremor characteristic, underground soil condition) and analyze/accumulate the data</p> <p>2-6. To prepare equipment and facilities for soil test/ investigation</p> <p>2-7. To study the methods for soil test</p> <p>2-8. To accumulate the data on earthquake intensity corresponding to ground condition</p> <p>2-9. To accumulate the data on input earthquake-ground-motion to buildings</p> <p>2-10. To prepare the manual of input design earthquake-ground motion</p> <p>2-11. To disseminate the technical information to structural engineers by seminar</p> <p>2-12. To prepare draft of technical manuals, regulations and new codes</p> <p>3-1. To collect information concerning post-earthquake evaluation techniques (quick inspection of damaged buildings and judgment of damage degree)</p> <p>3-2. To prepare technical manual explaining the methods of post-earthquake evaluation techniques</p> <p>3-3. To disseminate the technical information to structural engineers by seminar</p> <p>4-1. To investigate disaster prevention preparedness of the citizens</p> <p>4-2. To disseminate information on disaster prevention preparedness to the citizens by seminar</p> <p>4-3. To publish printed matter concerning disaster prevention preparedness to the citizens</p>	<p>① Input ground earthquake motion→</p> <ul style="list-style-type: none"> Study Report on Outline of the Manual for Seismic Evaluation of Buildings in Romania (1-1,1-4,1-5)
② Retrofit technique	<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) 	<ul style="list-style-type: none"> Study Report on Outline of the Manual for Post-Earthquake Inspection and Restoration (3-1,3-2,3-3)
③ Inspection/Restoration	<ul style="list-style-type: none"> 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 (2-3,2-11,2-12) 	<ul style="list-style-type: none"> Study Report on Outline of the Manual for Post-Earthquake Inspection and Restoration (3-1,3-2,3-3)
④ Seismic design	<ul style="list-style-type: none"> Number of Technical Assistance for MLPTL Retrofitting Projects (1-1,1-2) 	
⑤ MLPTL Retrofit	<ul style="list-style-type: none"> 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) 	<ul style="list-style-type: none"> Building up/ updating database on ground info. (2-5)
⑥ Structural experiment	<ul style="list-style-type: none"> Report on micro tremor measurement for evaluation of building vibration characteristics (2-9) 	<ul style="list-style-type: none"> Report on micro tremor measurement for evaluation of building vibration characteristics (2-9)
⑦ Database	<ul style="list-style-type: none"> Summary of ground information based on ground survey and investigation (2-7) Building up/ updating database on ground info. (Feed to 2-5) 	<ul style="list-style-type: none"> Reference study on the deep ground structure and effect of ground condition (2-5,2-8) Summary of ground information based on ground survey and investigation (2-7) Building up/ updating database on ground info. (Feed to 2-5) Report on ground investigation techniques (2-7) Report on indoor soil testing techniques (2-7) Report on ground vibration characteristics (2-11,12)
⑧ Strong motion	<ul style="list-style-type: none"> Technical/Awareness seminar (1-5,2-11,3-4,2-2) 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)
⑨ Soil test/Ground survey		
⑩ Dissemination/Awareness		

Achievement Plan by every 6 month

ACTIVITIES OF PDM	Field	2004.10-2005.3 (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 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 characteristics, 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 ⑧ Strong motion ⑨ Soil test/Ground survey ⑩ Dissemination/Awareness	2004.10-2005.3 (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 (1-3,1-4,1-5,2-2,2-11) →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) Technical/Awareness seminar (1-5,2-11,3-3,4-2)) Newsletter (4-3) Handbook on mitigation of earthquake disaster (4-3)	2005.4-2005.9 (JFY2002Q1-2) 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) Reference study on input earthquake ground motion (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 (FY2002Q3-4)	2006.4 (FY2002Q1-2)
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 (clear 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 characteristics, 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 ⑧ Strong motion ⑨ Soil test/Ground survey ⑩ Dissemination/Awareness	2005.10 (FY2002Q3-4) 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 MLPTL 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 (FY2002Q1-2) ⑦ Input ground earthquake motion→ Preparation of the Manual for Seismic Evaluation of Buildings in Romania (1-1,1-4,1-5) Preparation of ground information based on ground survey and investigation(2-7) →⑦Building up/ updating database on ground info. (Feed to 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) 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) Revision of pamphlet on mitigation of earthquake disaster (4-3)

Achievement Plan by every 6 month

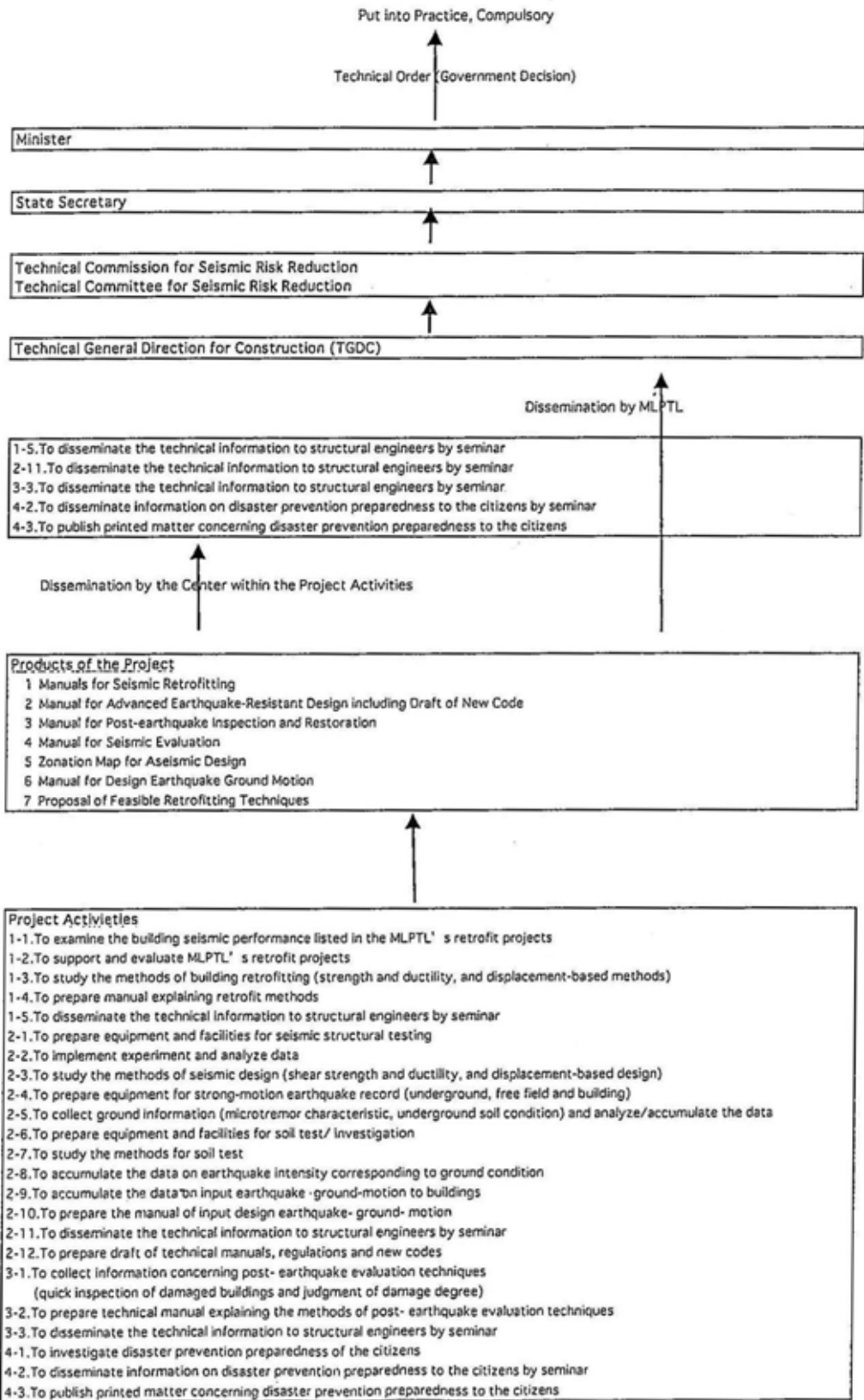
ACTIVITIES OF PDM	Field	2006.10-2007.3 (FY2002Q3-4)	2007.4-2007.9 (FY2007Q1-2)
1-1. To examine the building seismic performance listed in the MLPTL's retrofit projects 1-2. To support and evaluate MLPTL's retrofit projects 1-3. To study the methods of building retrofitting (strength and ductility, and 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 ⑧ Strong motion ⑨ Soil test/ Ground survey ⑩ Dissemination/ Awareness	2006.10-2007.3 (FY2002Q3-4) ③ structural experiment method→ <ul style="list-style-type: none"> Study of the Manual for Seismic Retrofitting of Buildings in Romania (1-3,1-4,1-5) <ul style="list-style-type: none"> Preparation 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 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) →②Building up/ updating database on ground info. (Feed to 2-5) Technical/Awareness seminar (1-5,2-11,3-3,4-2)) Newsletter (4-3) Revision of handbook on mitigation of earthquake disaster (4-3) 	2007.4-2007.9 (FY2007Q1-2) ⑦ Input ground earthquake motion→ <ul style="list-style-type: none"> Dissemination and Application of the Manual for Seismic Evaluation of Buildings in Romania (1-1,1-4,1-5) ⑦ Input ground earthquake motion→ <ul style="list-style-type: none"> 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) ⑦ Input ground earthquake motion→ <ul style="list-style-type: none"> Dissemination and Application of the Advanced Earthquake-Resistant Design Manual for Buildings (2-3,2-11,2-12) Summary report on Technical Assistance for MLPTL 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) →②Building up/ updating database on ground info. (Feed to 2-5) Summary of new findings about ground vibration characteristics (2-11,12) →②Building up/ updating database on ground info. (Feed to 2-5) Technical/Awareness seminar (1-5,2-11,3-3,4-2))

Prospective results and related activities

Manual	Keywords in the Manuals
Manual for Seismic Retrofit	Structural system, earthquake damage retrofitting design, methods and techniques
Manual for Earthquake-Resistant Design	Structural system, design seismic action, structural analysis, details for elements and structures
Manual for Post-earthquake Restoration	Structural system, damage, assessment, inspection forms, solutions, induced hazards
Manual for Dissemination	Basics of earthquakes elements at risk, potential threats, preparedness, what to do?
Manual for Seismic Evaluation	Structural system, seismic action, structural analysis, evaluation methods, damage degree, vulnerability, diagnosis and decision
Code for Ascismic Design	Structural system, design seismic action, structural analysis, details for elements and structures, seismic evaluation, vulnerability, diagnosis and decision, retrofitting
Zonation Map for Ascismic Design	zonation parameters, zonation layers (geology, soil, ground motion, amplification level) appendix of code for aseismic design
Manual for Geophysical Tests for Dynamic Properties of Soil Samples	Soil profiles, shear and compressional waves velocity profile, up-hole, down-hole seismic waves inversion methods ^a
Manual for Laboratory Tests	Dynamic soil properties, triaxial tests, bending element tests, soil samples
Manual for Design Earthquake Ground Motion	Ground motion parameters for design, regional and local seismic hazard, accelerograms for design spectra

Flowchart to put the products of the Project into practical use

Annex 7-7



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Terms of Reference (TOR) for long-term experts

Chief Technical Advisor

1. Overall management of the Japanese team
2. Progress control to achieve the Project Purpose
3. Understanding of the Action Plan of Governance Program related to the Project
4. Guidance and advice to the organizations concerned with implementation of the Project
5. Formulation of a detailed yearly schedule of the Project and implementation thereof
6. Monitoring and management of the progress of the Project
7. Advice to the Japanese experts and the C/P
8. Preparation for reports on the Project activities and achievements

Coordinator

1. Support to the chief technical advisor in the Project management
2. Communication and coordination with the organizations concerned along with documentation control
3. Drafting yearly schedule of the Project in support of the chief technical advisor
4. Facilitating implementation of the yearly schedule of the Project
5. Budget control
6. Arrangement for receiving study teams and providing convenience to them
7. Support to preparation for reports on the Project activities and achievements

Expert on Seismic Retrofitting and Design

1. Technical guidance and advice to the C/P on development of effective methods for seismic retrofitting techniques
 - 1) Experiments on seismic structures and analysis of the experimental results
 - 2) Preparation of technical manuals for seismic structures
 - 3) Support to technical seminars for structural engineers
2. Guidance and advice to the C/P on the evaluation of damaged buildings
 - 1) Preparation of technical manuals for the evaluation of damaged buildings
 - 2) Support to technical seminars for structural engineers on the evaluation of damaged buildings



3. Guidance and advice to the C/P on education to the general public on disaster prevention
 - 1) Support to awareness seminars to the general public on disaster prevention
 - 2) Support to the publication of materials for awareness on disaster prevention to the general public

Expert on Earthquake Observation and Soil Testing

1. Guidance and advice to the C/P on Development of effective methods for seismic retrofitting and formulation of architectural standards
 - 1) Collection, analysis and storage of information from strong motion observations
 - 2) Development of methods for soil tests and collection of data on seismic intensity corresponding to ground properties and data on input seismic motions to buildings
 - 3) Preparation for manuals on the design input of seismic motion
 - 4) Preparation for microzoning maps
 - 5) Preparation for manuals on seismic retrofitting method
2. Guidance and advice to the C/P on education to the general public on disaster prevention
 - 1) Awareness seminars to the general public on preparedness for disaster prevention
 - 2) Publication of materials for awareness of disaster prevention to the general public



Terms of Reference (TOR) for counterpart personnel

Project manager (Main: Secretary of State for urban planning and Construction, Sub: Secretary General of the Ministry of Public Works, transport and Housing)

1. General coordination with the organizations concerned, undertaking of necessary measures and cooperation with the chief technical advisor, to ensure smooth execution of the Project
2. Guidance to the Project from the perspectives of management and technology with the advice from the chief technical advisor

Director of the National Center for Seismic Risk Reduction

1. Coordination and cooperation with organizations concerned to ensure smooth functioning of the Project, under the guidance and advice of the chief technical advisor
2. Management of the C/P and the staff of the divisions and the sections of the Center
3. Coordination and management of the yearly execution plan of the Project formulated by the chief technical advisor
4. Schedule control of the Project to achieve the Outputs
5. Securing the budget or other resources necessary for the Project

C/P in charge of Seismic Building retrofitting

(Output 1: Effective and low-cost retrofit techniques are developed by Center and acquired by structural engineers.)

1. Experiments on the seismic structures and analysis of the results thereof under the guidance of the expert
2. Preparation of manuals for seismic retrofit methods
3. Holding seminars for structural engineers on seismic retrofit methods under the guidance of the expert under the guidance of the expert
4. Preparation of standards (draft) for seismic retrofitting under the guidance of the expert

C/P in charge of Design code

(Output 2: Regulations / codes concerning seismic issues for both new buildings and existing ones are improved by MLPTL and Center.)

1. Collection analysis and accumulation of data of ground information by observation of strong seismic under the guidance of the expert
2. Development of the methods for soil testing, and collection, analysis and accumulation of



seismic intensity data according to ground properties, and input seismic motions to buildings under the guidance of the expert

3. Preparation of manuals for design input seismic motions under the guidance of the expert
4. Preparation of microzoning maps under the guidance of the expert
5. Drafting of seismic design standards (draft) under the guidance of the expert

C/P in charge of Post- earthquake evaluation techniques of the damaged buildings

(Output 3: Post- earthquake evaluation techniques of the damaged buildings are developed by the Center and acquired by structural engineers.)

1. Preparation of manuals on evaluation techniques on damaged buildings under the guidance of the expert
2. Holding technical seminars on evaluation of the damaged buildings for structural engineers under the guidance of the expert

C/P in charge of Disaster prevention education for the general public (Output 4: Disaster prevention education for the citizens is improved by Center.)

1. Holding awareness seminars to the general public on disaster prevention under the guidance of the expert
2. Publication of materials to the general public for awareness on disaster prevention under the guidance of the expert

