**DM 2003 Project Implementation**
**PROGRESS REPORT**
[11/05/2005]

In order to ensure transparency, accountability, as well as to share lessons learned, we will post this Progress Report on the Development Marketplace website at www.developmentmarketplace.org However, if you would like to share any sensitive information with us, you can do so in section VI. The information protvided in this part of the report will be handled as confidential, thereby it will not appear on the DM website.

## I. Background Information

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| **DM Project Number and Title** | #1451 – Seismic Performance Improvement of Masonry Houses |
| **Report Author's Name (if different from Team Leader)** | Ahmet Turer |
| **Total Award** | US$ 129,990 |
| **Amount Disbursed to Date** | US$ 123,490.50 ( 95.0 % of the Total Award) |

## II. Progress Against Milestones

i) List the milestone objectives in the first column as expressed in the Project Agreement. The second
column should indicate the current status of each milestone objective. In the third column, please provide quantitative data and qualitative information describing the status of the project against that particular milestone.

| **Milestone Objectives** **(Copy from the Agreement)** | **Status (Completed/ In Progress)** | **Descriptive Information on the Status** |
|---|---|---|
| 1 - Execution of Agreement | Completed | Signed on February 23, 2004. |
| 2 - a) 'Tilt-table' design, manufacturing, transportation, and setup | Completed | Tilt table is in use and fully functional. Additional safety shields are constructed to prevent property damage to the lab if/when the masonry house collapses. |
| 2 - b) Initial lab tests on scaled-down masonry buildings | Completed | Small scale shaking table construction is completed by Selcuk team at Selcuk University. Numerous 1/10 scale tests are completed on the small shaking table. Results showed effective use of scrap tire rubber band strengthening. |
| 2 - c) Structural tests on scrap tires | Completed | Test setup for tire pull test is completed. Six different brand tires are tested (three specimens from each brand). The tensile capacities of scrap tire rings changed between 70kN and 170kN. Connection design is optimized. |
| 2 - d) Structural tests on retrofitted (using scrap tires) lab specimens | Completed | Four strip brick walls are tested. Fourth wall had a strength increase of 17 times the original strength after retrofitted by scrap tires. Two additional briket walls are tested with strength improvement up to 5 times (inferior increase compared to brick walls due to poor material quality of brikets). Hybrid system with rebars and scrap tires is tested with success and further reduced cost. Two identical, full scale single-storey masonry houses |

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| | | are constructed on the tilting table and tested before and after strengthening using scrap tires. The original house suddenly and totally collapsed at $18^o$ degrees inclination loading (0.31g) while the latter strengthened using scrap tires withstood forces at an inclination of $34^o$ (0.56g) with about two times strength and invaluable behavior improvement. The scrap tire strengthened house showed ductile behavior, did not collapse suddenly and became flexible; cracks are drastically reduced in size and number. The cracks are formed at the base resembling over-turning. The house returned back to its original shape after unloading and most of the cracks are closed. |
| 2 - e) Structural tests on lab specimens using scrap-tire dynamic isolators | Completed | 12 scrap tire dynamic isolator specimens made from 5 different tire brands are tested dynamically using impact hammer, accelerometer, mass=2 ton (4.4 kips) test beam and slab mass, spectrum analyzer. Damping ratios and dynamic stiffness values are obtained for all pads. Additional tests are conducted using inclined plates on the blue compression machine and compared against dynamically obtained values. Additional isolator (STP) shear tests are conducted using the yellow machine after minor modifications. |
| 3 a) Selection of pilot masonry building for seismic improvement application | Completed | A Graphic Information System (GIS) based database is generated for all cities in Turkey. Each city's resident population living in masonry houses, earthquake zoning map value, past earthquakes' magnitude, location, and date information are evaluated together and most vulnerable regions are determined. Socioeconomic studies, local government support, and availability of a brick masonry house for strengthening are also evaluated. Hatay (Antakya) is selected for the pilot application study. |
| 3 - b) Application of seismic improvement for the selected building | Completed | The selected masonry house (a one story local library and former primary school) is strengthened using scrap tires between September 1 and 10, 2004 using local resources. The application has shown that the methods are applicable in Antakya (and similar economical level cities), the methods can be applied in 1 week by a team of about 9 people, and the application cost is very coarsely and about 1 $\$/m^2$ (9 $¢/ft^2$) of plan area. |
| 4 – a) Development of internet site to disseminate project results. | Completed | The site is generated and running since April 2004 at **www.spim.metu.edu.tr** The site is being updated regularly including the Feb. $17^{th}$, 2005 workshop papers and presentations. |
| 4 – b) Prepare and print handouts/posters for dissemination of knowledge. | Completed | Total of 9 posters are prepared to describe application phases using graphics (1), GIS studies (2), FEM studies (1), social studies (1), 1/10 scale tests (1), wall and house strengthening studies (1), seismic base isolation studies (2). Posters are printed however; mass number of printing will be done at General Directorate of Disaster Affairs. A |

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| | | simple to follow booklet is prepared to help people implement the techniques by themselves and learn more about the project and lab studies. |
| 4 – c) Training of researchers / local representatives (seminar/workshop). | Completed | A comprehensive workshop has been organized in Feb. 17th, 2005 to disseminate the information generated in DM2003 SPIM-1451 project. About 150 contributors joined to the event from municipalities, universities, disaster management, civil defense organization, private companies, media etc. About 10 TV-news and 4 radio programs are prepared by Dr. Turer to develop an awareness and interest to the scrap-tire strengthening project. The workshop proceedings will be printed and further distributed to government officials and universities for future implementation of the project outcomes in many cities. |
| 4 – d) Project completion report / publish paper/ conference | In progress | Two papers are submitted to Kocaeli Earthquake Symposium (March 23-25, 2005). These are: a) seismic risk maps of masonry houses in Turkey, b) wall strengthening using scrap tires.<br><br>One paper is submitted to EVAGES'05 conf. in France and will be presented on Oct. 26-28, 2005. a) seismic base isolation using scrap tires,<br><br>Three papers are submitted to "Engineering Failure Analysis" peer reviewed journal.<br>a) Recycling Scrap Tires for Structural Strengthening: Tensile Capacity Tests<br>b) Out-of-plane Failure Mechanism of Post-Tensioned Masonry Walls Using Scrap Tires<br>c) 1/10 Scale Tests on Performance Improvement Studies on Masonry Houses Using Elastic Post-Tensioning Straps.<br>However, the editor requested the paper to be published in a different journal since the subject is too specialized to earthquake engineering. First paper is resubmitted to "Materials and Structures / Matériaux et Constructions" Journal. Second paper is modified and resubmitted to ASCE Journal of Structural Journal. The third paper is resubmitted to Earthquake Engineering and Structural Dynamics Journal. Results are pending.<br><br>Two additional papers are being prepared for Journals "Structural Safety" and "Engineering Structures", which will be "GIS applications" and "seismic base isolation studies on ¼ scale house", respectively. "Erzurum EQ observations" will also be submitted as the last paper from this project.<br><br>As papers from the DM2003 project are published on international peer reviewed journals, the scrap tire usage for structural strengthening will be disseminated on a global scale. Developed internet site will also serve for the same purpose. |

ii) If you did not achieve some of your stated milestone objectives, please explain the reasons.

All of the milestone objectives are achieved.

iii) Has your project's overall accomplishments to date exceeded the original plan?

☒ Yes ☐ No

If Yes, describe your achievements:

Although mile stone #4 completion date has been delayed, the media attention and TV-news, radio programs number and quality has exceeded original expectations. Major TV channels made live news from METU structural mechanics laboratory at prime time evening news to show SPIM-1451 project and outcomes. Many TV news programs have invited Dr. Turer to the studio and made live programs to *disseminate information generated in SPIM-1451 project*. The contribution to the workshop was above expectations most probably driven by the media coverage. Researchers from other universities wanted to participate in the event and explain their own research to develop a synergy between academics, state officials, and practitioners.

A larger number of academic papers are being prepared from the project. Papers that will be printed at international peer reviewed journals and conferences will enable dissemination of results in a global scale helping other researchers to further disseminate results to people living in seismically vulnerable masonry houses at other countries. The acknowledgments attributed to WorldBank in these publications will promote WorldBank's awareness and support to global challenges and poverty.

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NOTES FROM THE PREVIOUS REPORTS:

The classes begin at mid September 2004 and field application was successfully completed prior to that date.

The second big test on the scrap tire strengthened house model is completed with success. The as-is, non strengthened house collapsed at 18 degrees (0.31 g) whereas house strengthened using scrap tires resisted 34 degrees (0.56 g) of tilting close to 80 percent of strength increase. Furthermore, the behavior has changed from sudden collapse (brittle) to more flexible (ductile) behavior. Post cracking behavior of scrap-tire strengthened houses are yet to be determined.

Tests conducted using small shaking table for 1/10 scale masonry houses gave very valuable insights for the seismic strengthening using scrap tires. The models strengthened using strips of rubber bands (same material as scrap tires) resisted much higher accelerations and shaking compared to the original ones (about 75 to 80 percent improvement in strength). The strengthened models stood up after larger shakings while as-is models collapsed violently.

The tests on base isolation can be carried out in the laboratory on scaled models during winter months also. Dynamic testing of full scale models are too expensive and outside the scope of the project. Dynamic and static properties of the scrap tires are obtained using innovative yet simple and cost efficient methods.

Connection design is improved and cost is lowered.

Although mile stone #2 completion date is originally 27-Jul-2004, many tasks have been completed ahead of time since project related work was already started before the contract was signed. The researchers are working with ambition due to motivation and support resources of a) graduate students working towards their MS and PhD degrees, b) tenure track faculty member as the project coordinator, c) (although limited – about net 370$/month) financial support in the form of "student project assistantship" meets their essential expenses so they can denote their full time to the project, d) support from experienced lab personnel and available equipment in the lab.

Small scale shaking table is constructed. Initial 1/10 scale model is constructed and first test is conducted. Retrofitting techniques and base isolation methods will be tested in the near future.

Medium scale shaking test table is now able to generate any sine wave or recorded previous earthquakes' data.

Static shear test setup for "scrap tire seismic base isolation" and tensile test setup for "scrap tire ring and connection testing machine" are prepared and are successfully being implemented.

Scrap tire tensile strength testing setup is prepared intelligently to test single and couple tires at the same time testing the tensile strength of the tire and the connection.

Erzurum earthquake took place on March 25$^{th}$ and 28$^{th}$ mainly striking the Askale and Cat village residents who are typically living in self-constructed not engineered masonry houses and have low income rates mostly from animal husbandry. A trip to Erzurum is carried out by Dr. Ahmet Turer and Mr. Cagdas Simsek to investigate the damage patterns of masonry houses which gave good insight and possible use of developed methods.

The proposals submitted to TUBITAK (The Scientific and Technical Research Council of Turkey) is granted a funding of about 30,000 USD until the end of 2006, which will enable additional tests and development using other low cost material like plaster & chicken-wire.

Although mile stone #3 completion date is originally 19-October-2004, the site selection and site application tasks have been expedited and moved to an earlier stage due to time constraints with the winter season and university's semester dates. The third mile stone is completed 1.5 weeks ahead of time.

Hybrid system tests in the laboratory show larger success and lower cost for strengthening walls in out-of-plane direction. The 10 times record is broken by 17 times the original strength under 10 ton (22 kips) axial compression.

The analytical studies carried out using ANSYS shows good correlation with actual test results giving hope for low cost analytical simulations for decisions.

Papers that will be printed at international peer reviewed journals and conferences will enable dissemination of results in a global scale helping other people living in seismically vulnerable masonry houses. The acknowledgments made to WorldBank in these publications will promote WorldBank's awareness and support to global challenges and poverty.

## III. Overall Project Progress

i) What have been the main challenges of your project to date? What, if any, adjustments have you made to your original business plan in order to overcome the challenges and meet your objectives?

| **Challenges:** | **Adjustments:** |
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| a) Multiple dimensions of the project (experimental, analytical, field application, GIS)requires | a) Increased the number of students working on the project by further dividing work load into smaller pieces. Included researchers from other disciplines such as sociology, aeromechanics, mechanical engineering, and other universities such as Selcuk University. Coordinated experienced lab technicians to contribute to the project's experimental phase. Project resources is tried to be balanced by minimizing tilt table cost (used an available large footing in the lab from previous experiments) and |

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| | searching for other financial contributors. |
| b) Slippage of scrap tires from standard testing machines. | b) New testing machine is designed and constructed. The tires are tested in rings rather than straps. Cost is optimized using lab machines and personnel. |
| c) difficulty in cutting scrap tires: the steel mesh inside the tire is difficult to cut. | c) The tires will be used in the form of rings which would eliminate the need for cutting. |
| d) Difficulties in connection design of scrap tires. | d) The connection design is altered to be used with scrap tire rings, simplifying the connection design and improving the strength of the scrap tires. |
| e) Paper work required by the university for expenses. | e) Efficiency is largely improved by utilizing alternative expense regulations (involving project liaison). |
| f) Conducting large scale experiments on masonry houses for seismic strengthening using scrap tires. | f) A tilting table is designed and manufactured to take advantage of the gravitational acceleration as controlled lateral load acting on all parts of the masonry house. Hydraulic jacks would have failed to simulate the same effect since they can generate point loads whereas earthquake acceleration acts on all mass points on a masonry house. Different than the reinforced concrete houses, masonry houses have distributed mass on all points due to the fact that there are massive and continuous walls supporting the structure. |
| g) Lowering the cost of connection design | g) One of the greatest challenges is to connect scrap tires to each other in cost efficient ways. New methods are investigated to totally eliminate connection by tying tires together (in the form of knots). |
| h) Determining and adjusting the level of axial force in a scrap tire strip | h) Initially, car jacks were planned to be used for tensioning the tires. However, the tensioning need to be 3 to 5 tons (6.5 to 11 kips) and car jacks are weak. The tensioning is achieved by long bolts, turning nuts to the required tension level.<br>The level of tensioning is determined by a torque wrench which is calibrated to the required torque. A low cost version is generated using a pipe and hand held weighing equipment to maintain a known torque on the nut. |
| i) Field application on masonry house seismic strengthening has to be done before the fall semester begins and before the fall/winter season and poor weather conditions. | i) The schedule is slightly modified to conduct the field application in early September, leaving some of the less important lab work in to the fall and winter. The project will end in February 2005, not leaving any room for spring/summer 2005 field application. |
| j) Selection of the field application site was a major challenge. | j) Initial studies concentrated on the socio economical aspects of the cities, earthquake zoning map of Turkey, and cities that would attract the highest attention of Turkey's media and masonry house residents. Psychological aspects of the pilot application site are also evaluated; Selection of a site in the south-east or east of the country might have positive impacts on the poor residents of masonry houses to apply the techniques on their own houses. |

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| k) We have forgotten our project digital camera at the rental van during returning it. The camera was not found in the van and was stolen by unknown person(s). | k) We have asked police to investigate and find our camera. We had to file a suit against the rental company and gave the serial number of the camera. Currently, the whereabouts of the camera is unknown and could not be found up to date. |
| l) The major decline in USD versus Turkish Lira (TL) in 2004 affected the financial plans since the equivalence of the TL has reduced about 20% (from 1.55 down to 1.25) in the last 6 months. As the laboratory work has finished, large health insurance costs have been reduced. | k) The reduction in health insurance is achieved as the contracts are shifted from Netcad to small assignments, lump-sum contracts. Mr. Cagdas Simsek, Mr. Onder Ozen, and Mr. Atilla Akaydin have found other jobs and quit the project. The USD funds are kept in USD currency hoping that the TR-USD exchange rates have hit the lowest points and will climb in the coming weeks. |
| m) Dissemination of information phase required a comprehensive Workshop. | m) The arrangements for the workshop was more difficult than initially foreseen. Ms. Ozlem Tekin is found by newspaper/internet adds and joined to the project for 4 months where she has organized the telephone contact information, followed up by sending fax messages, prepared the nametags and helped at the reception during workshop. Student assistants from the civil engineering department are assigned to the workshop for various duties. The university has supplied a 200 people conference room free of charge to the project's workshop. |
| n) Organization and documentation of expenses and receipts. | n) Ms. Ozlem Tekin also organized the documents since she is a graduate of accounting high school. |
| o) The budget release (payment) for each milestone is made after the milestone is accomplished. Activities to achieve each milestone require a certain budget which is tried to be obtained from the previous milestone's remainder. | o) Some of the purchases have been delayed to allocate resources to the much critical expenses. Mid-payment is requested when resources are totally finished in the middle of a activity period. |

ii) Have any of your objectives changed or have you added new objectives since you signed your Project Agreement? If Yes, explain the changes.

☐ Yes ☒ No

The objective of the project as listed in the submitted proposal is "To develop innovative ways and techniques to make masonry houses safer for their poor residents (while minimizing costs by using scrap materials), implement by pilot applications, disseminate results and provide sustainability".

The objectives remained fairly unchanged while the scope of the work to achieve parts of objectives have been expanded and improved (such as using hybrid systems, coverage on TV news, etc).

Sustainability is inherent to the nature of the developed methods since the scrap tires are in abundance; once the knowledge is generated, it can be implemented everywhere in Turkey and in other countries. Project manager was reluctant to directly go to the citizens without prior consent of the government. Although invited to the workshop, government officials were unresponsive to need and implementation of the project outcomes. As the final report is completed, all of the project outcomes will also be submitted to The Ministry of Public Works & Settlement and The General Directorate of Disaster Affairs one last time for review, help, and permission for execution.

iii) Do you have any concerns about meeting your next milestone objectives?

☒ Yes ☐ No

If Yes, what are the concerns and how do you plan on addressing those challenges?

Time constraint is an important parameter for the last phase of the project since report preparation will require some additional time. SPIM-1451 project is granted a project extension period of about 1.5 months. Currently, all activities (except printing) are completed. The project final report is being reviewed by an editor (Mrs. Ciler Hatipoglu from English department METU for acceptable level of language quality and taste. Proceedings book of the February 17th workshop will be printed and distributed along with attached conference-dissemination CDs.

The report review/editing process together with the last chapter will be completed in early June 2005. METU and AFET (The General Directorate of Disaster Affairs) printing departments are being investigated for printing a portion of the reports, posters, and booklets; or printing for a lowered cost. Nevertheless, enough number of copies can be printed and distributed using the remaining budget. Two private printing companies are contacted in addition to above. CD burning will be completed in the office computers.

The final progress report is taken 15 days back to May 15th since the transfer has to be processed before June. The Project Completion Report is due August 31st where the budget related information will also be submitted.

iii) Although this is an interim report, are there any development outcomes or results of your activities to date that you would like to call attention to?

It is worthwhile to mention that tensile strength of scrap tires are higher than expected and changes from 70 kN to 170 kN (15 kips to 38 kips) based on the brand and the type.

Out-of-plane bending capacity of brick walls are increased up to 17 times and briket walls up to 4 times their original strength after strengthened using scrap tires.

Scrap tire tension strap preparation time and effort has been drastically reduced by leaving the tires in their ring shape rather than cutting them into long bands. The preparation can now be made using a sharp knife only instead of complicated steel wire cutting tools.

Scrap tire connection design has been a major challenge for the project which has been successfully solved using water pipes and low-cost bolted connections. The connections are optimized and now capable of carrying the full tire axial load. (New alternatives are currently being investigated to lower the cost further down).

Tilting table tests revealed impressive results regarding lateral CAPACITY and BEHAVIOR of masonry houses after being strengthened using scrap tires. The full scale test house constructed on the tilting table has collapsed suddenly at 18 degrees of tilt (31 percent of gravitational acceleration (g)) while strengthened house stood up to 34 degrees (0.56 g) without major damage. While the original house collapsed dangerously, strengthened twin house returned back to its original shape due to pre-tensioning in the scrap tires. The number, location, and width of the cracks were drastically less in the strengthened house using scrap tires.

Geographic Information System (GIS) based studies started to give results showing the most vulnerable cities of Turkey that the project team should target first for the dissemination of knowledge phase.

Small shaking table tests on 1/10 scale models showed good correlation in capacity to the full scale model although there was some differences in behavior.

Other researchers in Turkey working on masonry house strengthening have expressed their appreciation to the amount of work done and invested to the project during the *February 17th Workshop* held at METU. The proceedings will be a strong step to raise awareness at the government and civil organization states. The TV

and radio programs has also contributed to raise awareness about Turkey's large masonry building stock (about 51% of all buildings is masonry) and their vulnerability to earthquakes. Iran-Bam earthquake, Erzurum, Hakkari, and Bingol earthquakes in Turkey also draw attention to masonry house vulnerability issues in Turkey. We believe, SPIM-1451 project has made a difference and will continue to do so for the months and years to come. We hope that DM2003 SPIM-1451 project will initiate a study on nation wide masonry house strengthening campaign to save many lives of poor people living in sub-standard masonry houses that are vulnerable to earthquakes.

The workshop proceedings are carried to the internet site at www.spim.metu.edu.tr under "workshop" link on the left window index. The site is currently in Turkish version only since the workshop language was Turkish, but the abstracts are prepared in English to summarize each work. The site includes PDF copies of the papers as well as presentations at http://www.spim.metu.edu.tr/turkish/sunumlar.htm .

A short but explanatory hand book is being prepared for explaining how to apply scrap-tire strengthening. Graphical designs and pictures are combined with simple and easy to follow instructions on a 10 page handbook.

GISAM prepared a 15 min project explanation video, which was not in the original plan but came out to be a nice and compact way of explaining the project. The spoken language is in Turkish but English subtitles are provided.

Two team members (Mr. Ozden and Mr. Golalmis visited Antakya – Odabasi library to control the tension on tires. Researchers have found that most of the tires had experienced creep and re-tensioning was required. Reapplication of the post tensioning force is possible using the specifically designed connections simply by tightening the nuts by a few additional turns. The tires can be stretched at spring time every year. The relaxation (creep) like behavior is expected to decrease as time passes.

iv) Reminder: In accordance with Paragraph 3.1.1 of the Project Agreement, each project team is required to submit a statement of account showing the use of the funds within three months after the last disbursement. As a part of periodical expenditure review exercise, please provide an annex with un-audited summary of expenses during this reporting period.

*(The expenditure list is included. The bank account records and invoices are reviewed by Mr. Sirer up to April 25th, 2005. )*

## IV. Ancillary Achievements

i) Have you or has your organization received any awards/recognitions or media attention as a result of your DM-funded project during this period?

☒ Yes ☐ No

If Yes, please specify the sources and identify the names.

| **Award /Recognition** | **Media**<br>e.g. ☒ International: BBC News on Dec. 3-4, 2003 |
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| ☐ Local:<br>☒ National:<br><br>TUBITAK Grand (USD 30,000) for 24 months | ☒ Local:<br>1. ODTÜLÜ Bulletin (25.03.2004)<br>2. Istanbul TV (telephone connection to live morning news)<br>3. Antakya newspapers for the pilot study (08.09.2004) |

| ☐ International: | ☒ National:<br>1. TRT1 – Feb. 24, 2004<br>2. ExpoChannel – Feb.25, 2004<br>3. Arkitera - Online (29.12.2003)<br>4. Haber (7) - Online (12.03.2004)<br>5. Digi Medya - Online(16.03.2004)<br>6. Digi Medya - Online(28.12.2003)<br>7. Akşam Newspaper (24.02.2004)<br>8. Arkitera -Online(24.02.2003)<br>9. Radikal - Newspaper (28.12.2003)<br>10. Radikal - Online (29.12.2003)<br>11. Arkitera - Newspaper (12.12.2003)<br>12. Milliyet - Newspaper (28.12.2003)<br>13. Nethaber - Online (28.12.2003)<br>14. Milli Gazete - Online (29.12.2003)<br>15. Hürriyet - Newspaper (26.03.2004)<br>16. Interview (For Akşam Newspaper) (08.04.2004)<br>17. Interview (For Vatan Newspaper) (10.04.2004)<br>18. TRT1(Turkish National Radio and Television) Live Studio Radio Programme (13.03.2004)<br>19. Kanal 7 Prime-time Evening News<br>20. Show TV (Evening and morning news)<br>21. Star TV Prime-time Evening News<br>22. Nethaber - Online (19.04.2004)<br>23. TGRT TV 7:30 Evening News<br>24. TRT Channel 1<br>25. Expochannel TV 8:00 Evening News<br>26. Channel B (Baskent TV) – Live program guest 11:30AM – "At the shadow of earthquakes" program, June.<br>27. Channel B (Baskent TV) – Live program guest 11:30AM – "At the shadow of earthquakes" program, August.<br>28. TUBITAK research grant (about US$30,000)<br>29. Chamber of Architects of Turkey magazine (August)<br>30. Middle East Technical University Alumni Magazine<br>31. Milliyet Newspaper<br>32. Radikal Newspaper<br>33. TRT 1 – Evening news (09.09.2004)<br>34. Show TV – Evening news (09.09.2004)<br>35. NTV radio – February<br>36. Channel D – Main news – Jan. 24, 2005<br>37. ATV – Main news (live) – Jan. 25, 2005<br>38. TV8 – Morning news – Jan. 26, 2005<br>39. Various media – small coverage on Feb 17th workshop probably since Mr. Vorkink was not able to attend to the opening due to his schedule.<br>40. Ahmet Turer selected as one of the World Bank TR country development marketplace jury members as a winner of DM2003. May 3, 2005.<br>41. Channel B – (6:30PM - 7:00PM) in the shadow of earthquakes program only guest (live). Apr.18, 2005 |
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| | ☒ International:<br>1. Wordbank Internet Site<br>2. New York Times – Dec. 24, 2003<br>3. Voice of America – Dec. 2, 2004 |

Explain the Award/Recognition or the Media content:

The media attention was outstanding especially since DM2003 winning proposal was on the global scale and was targeting a very important and unattended problem of Turkey (seismic strengthening of low cost masonry houses). The content was in the form of TV channels evening (prime time) news, newspapers (quarter to half page size), internet sites of news agencies, radio programmes, live telephone connection to TV news, and recently live 30 minute TV program (Channel B) explaining the earthquake problem of Turkey, and the second time about the DM2003 #1451 project. The third time we had DM2003-1451 project on air was April 18, 2005. Channel B is a satellite channel, and surprisingly most of the rural housings have satellite dishes since local and national TV channels are not clearly visible at rural areas.

Earthquake in Iran hit mostly masonry houses causing 40,000 deaths. Fatalities might have been reduced using some of the currently developed techniques, which also had some impact and influence on the news.

The field application which took place between September 1 and 10 at Hatay-Antakya has also attracted media attention. Local and national newspapers printed our pilot studies. Two national TV stations gave footage about our field work at their evening news.

TV coverage especially before the Workshop in February has raised curiosity while informing citizens about some striking facts about Turkey (such as 51% of our building stock is masonry type and vulnerable to earthquakes).

Attach web links/news clips, if available:

http://www.ce.metu.edu.tr/~aturer/contact.htm
http://www.arkitera.com/haberler/2003/12/12/odul.htm
http://www.arkitera.com/haberler/2003/12/29/otolstik.htm
http://www.arkitera.com/haberler/2004/02/24/proje.htm
http://www.haber7.com/default.asp?PW=3&NewsID=20684&CatID=16
http://www.digimedya.com/default.asp?sp=45&p=7&h=51451
http://www.digimedya.com/print.asp?h=51451
http://www.aksam.com.tr/arsiv/aksam/2004/02/24/ekonomi/ekonomi5.html
http://www.radikal.com.tr/veriler/2003/12/28/haber_100451.php
http://www.milliyet.com.tr/2003/12/28/son/sontur12.html
http://www.hurriyetim.com.tr/haber/0,,sid~1@w~5@nvid~351952,00.asp
http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:20169648~menuPK:34457~pagePK:64003015~p
http://www.worldbank.org.tr/WBSITE/EXTERNAL/COUNTRIES/ECAEXT/TURKEYEXTN/0,,contentMDK:20246865~
http://web.worldbank.org/servlets/ECR?contentMDK=20247631&sitePK=205098
http://web.worldbank.org/servlets/ECR?contentMDK=20133829&sitePK=205098
http://www.worldbank.org.cn/Chinese/youth/4kids/Natural%20Disasters/natdisstory4.asp
http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/ECAEXT/0,,contentMDK:20219753~pagePK:146736~piP
http://voa-8.chntva1-dc1.cscehub.com/Turkish/article.cfm?objectID=6FDBEF8D-09D4-41B8-8B1B85AD5322998B
http://servesrilanka.blogspot.com/2005/01/natural-disasters-earthquakes-in.html
http://www.banquemondiale.org/EXT/French.nsf/0/4F4EA4885672673285256E4B005BC0F8?Opendocument
http://www.globalgiving.com/pr/900/proj813p.html
http://www.factbites.com/topics/Development

ii) Has your organization made any new partnerships as a result of this project during this reporting period?

☐ Yes ☒ No

If Yes, specify type of the organization from the list below and describe nature of the partnership:

| | |
|---|---|
| ☐ Local Government:<br>☐ National Government:<br>☐ NGO:<br>☐ Bilateral Development Agency: | ☐ Multilateral Development Agency:<br>☐ Private Corporations:<br>☐ Other: |

iii) Sustainability and scalability after completion of the DM fund are top of the DM Team's priorities. Has your organization leveraged new funding or secured future funding during this reporting period?

☐ Yes ☒ No

If Yes, provide the following information.

Project discussion with Ankara-Sincan head official of district (kaymakam) for strengthening 32 single storey masonry houses using scrap tires is investigated. The cracks formed on the houses are due to the fact that previous person in charge did not seek engineering help and did not make proper excavation on the top soil surface. Furthermore, the houses do not have footings. Being placed on soft soil and without any footing serious settlement and cracking has occurred. The applicability of the generated methods should be carefully evaluated since the failure of methods due to the problems associated with the building might jeopardize the reputation of the SPIM-1451 project.

## V. Requests to the DM

i) Do you have any comments on the overall process and support provided by the DM Team or Project Liaison?

We express our gratitude to our project liaison Mr. Ibrahim Sirer and DM2003 team, especially Ms. Amy Lin. Mr. Sirer is helpful trying to open doors to us regarding our project and its applications; Ms. Lin was always supportive as a fast bridge between SPIM1451 project and the WorldBank. The earthquake mitigation studies in Istanbul which are credited by WorldBank will probably have a masonry application study in Besiktas and/or Zeytinburnu. We are thankful to Mr. Sirer for reviewing our expenses. His support, friendly comments and existence gave us comfort during the report period. DM Team have always been supportive and heartening to us. A tap on the shoulder really made a difference as we go through hard times.
The two month extension will give us the chance to complete our reporting work and a few additional items that we would like to elaborate more (e.g. visit to Antakya to check post tensioning force changes in the strengthened library building, investigate long term behavior of scrap tires in tension, additional posters, etc.)

ii) If your contact information has changed, please provide us with the new information.

| | |
|---|---|
| Contact Name: | Not changed. |
| Title: | |
| Organization: | |
| Primary Email Address: | |
| Secondary Email Address: | |

| | |
|---|---|
| Organization's Website | |
| Phone: | |
| Fax: | |
| Address: | |
| Postal Code: | |

## VI. Confidential Report

Please provide, if any, sensitive comments or requests in the box below. Information provided in this section will be handled as confidential and will not be publicly posted on the DM website.

| |
|---|
| |

## VII. Next Steps

- Send this Progress Report to your Project Liaison via email
- cc to the DM team dmwinner@worldbank.org
- The Project Liaison will review the Report and will either

a) approve the Report and authorize disbursement via email with cc to dmwinner@worldbank.org ;
or
b) does not approve (or does not authorize disbursement) but responds with comments, questions, requests for team to address with cc to dmwinner@worldbank.org (in this case, the team would address PLs concern to move to approval)

- Once approved, team send signed Request for Payment to DM Team
- via fax +1-202-522-2042
- or scanned document via email to dmwinner@worldbank.org
- Upon receipt of the following, the DM Team can process disbursement:

a) Progress Report & Expense Addendum in Annex I
b) Signed Request for Payment
c) Project Liaison's approval of report and authorization of payment

## Annex I. Project Expenses for this Reporting Period*

| | Items | [04/28/2004] #2 midterm Sub-Totals (USD) | [08/30/2004] #2 Sub-Totals (USD) | [11/08/2004] #3 Sub-Totals (USD) | [14/03/2005] #4 Sub-Totals (USD) | [12/05/2005] #5 Sub-Totals (USD) |
|---|---|---|---|---|---|---|
| 1 | **Personnel** | 11,920 | 14,870 | 7,440 | 29,405 | 5,670 |
| 2 | **Materials and Equipment** | 10,578 | 12,194 | 1,000 | 5,060 | 2,625 |
| 3 | **Training** | - | - | at METU cost | M at METU c | - |
| 4 | **Travel** | 500 | 400 | 2,700 | 3,834 | 242 |
| 5 | **Evaluation/Information Dissemination** | - | - | - | 1,580 | 780 |
| 6 | **General Administration/Overhead** | - | 99 | - | - | - |
| 7 | **Other** | | 100 | - | - | 1,440 |
| | **Total Expenses** | **22,998** | **27,663** | **11,140** | **39,879** | **10,757** |

*Note: The values are approximate.*

Some of the major expenses are listed below:

**Equipment:**

- Office computer (about 2500 USD)
- Digital card (170YTL ≅ 125 USD)

**Travel:**

- 2 day Hatay trip – check the tire post-tension level and additional stretching (330 YTL ≅ 242 USD)

**Dissemination:**

- Kocaeli Earthquake Symposium – 2 papers (1075 YTL ≅ 780 USD)

**Table: The detailed table for personnel expenses**

| | 7,660 | 11,200 | 5,810 | 1,080 | 7,710 | 3,070 | 220 | 2,015 | 1,600 | 2,060 | 1,760 | 200 | 1,060 | 2,285 | 1,925 | 49,655 | 69,669 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bayezid | Ahmet | Cagdas | Huseyin | Mustafa | Atilla | Endam | Özlem | Zerrin | Hasan | Onder | Murat | Abdullah | Hasan Metin | Burhan Avci | YTL (net) | USD (gross) |
| 25-Mar-04 | 500 | | 500 | 500 | 500 | 320 | | | | | | | | | | 2,320 | 3,480 |
| 09-Apr-04 | * | | | | | | 120 | | 200 | 200 | 100 | 100 | | 200 | | 920 | 1,179 |
| 13-Apr-04 | 150 | | 150 | 80 | 150 | 20 | | | | | | | | | 200 | 750 | 1,081 |
| 07-May-04 | 500 | | 500 | 500 | 500 | 320 | 100 | | 200 | 200 | 100 | 100 | | 200 | 200 | 3,420 | 4,890 |
| may | 500 | | 500 | | 500 | 320 | | | 200 | 200 | 200 | | | 200 | 200 | 2,820 | 4,012 |
| June | 500 | | 500 | | 550 | 350 | | | 200 | 200 | 200 | | | 225 | 225 | 2,950 | 4,196 |
| July | 500 | | 500 | | 500 | 320 | | | 200 | 200 | 200 | | | 200 | 200 | 2,820 | 4,012 |
| August | 560 | 5,600 | 560 | | 560 | 380 | | | 200 | 260 | 260 | | 260 | 260 | 200 | 3,500 | 18,170 |
| September | 500 | 700 | 500 | | 500 | 320 | | | 200 | 200 | 200 | | 200 | 200 | 200 | 3,020 | 5,766 |
| October | 500 | 700 | 500 | | 500 | 320 | | | 200 | 200 | 200 | | 200 | 200 | 200 | 3,020 | 5,766 |
| November | ***500*** | ***700*** | ***500*** | | ***500*** | ***400*** | | ***165*** | | | | | | | | | 2,765 |
| December | ***500*** | ***700*** | ***500*** | | ***500*** | | | ***440*** | | | | | | | | | 2,640 |
| January | ***600*** | ***700*** | ***200*** | | ***600*** | | | ***440*** | | ***100*** | ***100*** | | ***100*** | ***300*** | | | 3,140 |
| February | ***650*** | ***700*** | ***200*** | | ***650*** | | | ***400*** | | ***100*** | ***100*** | | ***100*** | | | | 2,900 |
| March | ***600*** | ***700*** | ***200*** | | ***600*** | | | ***400*** | | ***100*** | ***100*** | | ***100*** | ***300*** | | | 3,100 |
| April | ***600*** | ***700*** | | | ***600*** | | | ***170*** | | ***100*** | | | ***100*** | | ***300*** | | 2,570 |
| May | 300 | 700 | | | 600 | | | | | | | | | | | | |

*yellow region is paid in TRL + 69.6% Insurance&Tax + 20% additional tax > Netcad had invoiced to the project 69,669

**grey region is paid in TRL + 20% Insurance&Tax + 20% additional tax > Netcad had invoiced to the project

USD5600 is management expense for months January until August for USD700/month. The units in the table are all mixed. The yellow and gray sections show the period where personnel's salaries are paid through NETCAD. NETCAD billed the project by invoices. The cost of the yellow region is high due to high tax rates and insurance cost. The gray section is paid without insurance (low risk) and has lower tax. Following the months after October 2004, the field and lab work has almost stopped removing the extra coverage of insurance and the payments are started to be paid by using "small assignments lump-sum payments" contract saving a good portion of the personnel funds.

Small salary increases of about 10% are given to project assistants that show superior performance and effort. Similarly, 60 YTL additional payment was made during the field work month.

Mr. Cagdas Simsek started working at the University by January 1st, 2005. Mr. Atilla Akaydin (technical lab personnel) has quit the job in November. Ms. Ozlem Tekin has been assigned to the job for about 4 months with minimum wage for the duty of workshop preparation, assignments during and after the workshop, and accounting work.

Current balance in the bank is USD 17,605.00 – about 2,500 for the computer + 1,636 YTL (1,636/1.3685 = 1,195) which yields about 16,300 USD.

**Details of USD account:**

| HESAP ADI<br>Account name | HESAP TİPİ<br>Account type | ŞUBE<br>branch | HESAP NO<br>Account # | BAKİYE<br>remainder | KULLANILABİLİR BAKİYE<br>Usable remainder |
|---|---|---|---|---|---|
| WorldBank 1451DM2003 | Vadesiz USD | ÜMİTKÖY | 9095234 | 17.605,00 | 17.605,00 |

Yukarıdaki hesabınıza ait, belirlediğiniz kriterlere uygun gerçekleşen hesap hareketleri aşağıdadır.

| Tarih<br>Date<br>(dd/mm/yyyy) | Açıklama<br>Explanation | Tutar<br>Amount | Bakiye<br>Balance | |
|---|---|---|---|---|
| 10.03.2005 | INT DÖVİZ SATIŞ 9095234 - 6685374 | -3.500,00 | 5.878,00 | Dekont |
| 23.03.2005 | INT DÖVİZ SATIŞ 9095234 - 6685374 | -578,00 | 5.300,00 | Dekont |
| 28.03.2005 | INT DÖVİZ SATIŞ 9095234 - 6685374 | -1.300,00 | 4.000,00 | Dekont |
| 01.04.2005 | INT DÖVİZ SATIŞ 9095234 - 6685374 | -600,00 | 3.400,00 | Dekont |
| 04.04.2005 | INTERNATIONAL BANK FOR RECONSTRUCTI Havale Ödeme - Hesaba | 19.493,50 | 22.893,50 | Dekont |
| 04.04.2005 | INTERNATIONAL BANK FOR RECONSTRUCTI Komisyon | -58,48 | 22.835,02 | Dekont |
| 25.04.2005 | INT DÖVİZ SATIŞ 9095234 - 6685374 | -1.335,02 | 21.500,00 | Dekont |
| 25.04.2005 | INT-HVL-management - March 2005 - AHMET TURER | -700,00 | 20.800,00 | Dekont |
| 25.04.2005 | INT-HVL-Management - April 2005 - AHMET TURER | -700,00 | 20.100,00 | Dekont |
| 02.05.2005 | INT-HVLEMR-Management - May 2005 | -700,00 | 19.400,00 | Dekont |
| 02.05.2005 | INT DÖVİZ SATIŞ 9095234 - 6685374 | -125,00 | 19.275,00 | Dekont |
| 02.05.2005 | INT-HVL-beyaz-mustafa-b.avci -BAYEZİD ÖZDEN | -1.500,00 | 17.775,00 | Dekont |
| 05.05.2005 | INT-HVL-ozlem SSK -BAYEZİD ÖZDEN | -170,00 | 17.605,00 | Dekont |

**Note:** TL became YTL after December 31, 2005 as 6 zeros have been removed from TL).

**Details of TL account:**

| HESAP ADI Account name | HESAP TİPİ Account type | ŞUBE branch | HESAP NO Account # | BAKİYE remainder | KULLANILABİLİR BAKİYE Usable remainder |
|---|---|---|---|---|---|
| WorldbankDM2003_1451 | Vadesiz YTL | ÜMİTKÖY | 6685374 | 1.636,42 | 1.636,42 |

| Date (dd/mm/yyyy) | Explanation | Amount | Balance | |
|---|---|---|---|---|
| 14.03.2005 | INT-HVL-correction - wrong account -AHMET TURER | -75,83 | 385,79 | Dekont |
| 14.03.2005 | INT-HVL-postageDVD - husnu -AHMET TURER | -16,48 | 369,31 | Dekont |
| 14.03.2005 | INT-HVL-strip wall building - cement - AHMET TURER | -47,82 | 321,49 | Dekont |
| 14.03.2005 | INT-EFT-7070012 TURER100-GOLALMİS50-KORKMAZ50-DİLSİZ50-OZ50 | -300,00 | 21,49 | Dekont |
| 14.03.2005 | KESİNTİ VE EKLERİ-TURER100-GOLALMİS50-KORKMAZ50-DİLSİZ50-OZ5 | -0,80 | 20,69 | Dekont |
| 23.03.2005 | INT DÖVİZ SATIŞ 9095234 - 6685374 | 783,77 | 804,46 | Dekont |
| 23.03.2005 | INT-HVL-workshop - fax, telephone -AHMET TURER | -156,90 | 647,56 | Dekont |
| 23.03.2005 | INT-HVL-photocopy, office supplies -AHMET TURER | -116,20 | 531,36 | Dekont |
| 28.03.2005 | INT DÖVİZ SATIŞ 9095234 - 6685374 | 1.790,10 | 2.321,46 | Dekont |
| 28.03.2005 | INT-HVL-Kocaeli Semposium Expenses - AHMET TURER | -1.039,90 | 1.281,56 | Dekont |
| 30.03.2005 | INT-HVL-mustafa-bayezid transportation - BAYEZİD ÖZDEN | -35,50 | 1.246,06 | Dekont |
| 30.03.2005 | INT-HVL-correction,symposium registrati-AHMET TURER | 300,00 | 1.546,06 | Dekont |
| 01.04.2005 | INT DÖVİZ SATIŞ 9095234 - 6685374 | 807,00 | 2.353,06 | Dekont |
| 01.04.2005 | INT-HVL-807-875-133 must byz abdl march-BAYEZİD ÖZDEN | -1.815,00 | 538,06 | Dekont |
| 13.04.2005 | INT-HVL-hatay trip advance payment - BAYEZİD ÖZDEN | -300,00 | 238,06 | Dekont |
| 25.04.2005 | INT DÖVİZ SATIŞ 9095234 - 6685374 | 1.815,63 | 2.053,69 | Dekont |
| 25.04.2005 | INT-HVL-antakya trip 330YTL remaining - BAYEZİD ÖZDEN | -30,00 | 2.023,69 | Dekont |

| | | | | |
|---|---|---|---|---|
| 25.04.2005 | INT-HVL-transportation -AHMET TURER | -29,00 | 1.994,69 | Dekont |
| 25.04.2005 | INT-HVL-postage and photocopy expenses - AHMET TURER | -104,83 | 1.889,86 | Dekont |
| 25.04.2005 | INT-HVL-extension cord -AHMET TURER | -55,00 | 1.834,86 | Dekont |
| 25.04.2005 | INT-HVL-workshop colour printing-procds-AHMET TURER | -115,02 | 1.719,84 | Dekont |
| 25.04.2005 | INT-HVL-worldbankoffice visit and lunch-AHMET TURER | -85,00 | 1.634,84 | Dekont |
| 02.05.2005 | INT DÖVİZ SATIŞ 9095234 - 6685374 | 172,63 | 1.807,47 | Dekont |
| 02.05.2005 | INT-HVL-kingston digital card -DESTEK BİLGİSAYAR VE | -170,75 | 1.636,72 | Dekont |
| 02.05.2005 | KESİNTİ VE EKLERİ-kingston digital card | -0,30 | 1.636,42 | Dekont |

**For Internal Use Only**

Progress Report Number

Approved by Project Liaison Date

Received by DM Team Date