THE STUDY ON
NATURAL DISASTER PREVENTION
IN PYANJ RIVER

FINAL REPORT
VOLUME 4 PHOTOGRAF COLLECTION

DECEMBER 2007

CTI ENGINEERING INTERNATIONAL CO., LTD.
THE STUDY ON
NATURAL DISASTER PREVENTION
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CTI ENGINEERING INTERNATIONAL CO., LTD.
PROJECT COST ESTIMATE

Price Level : Average Prevailing Market Price in February 2007
Currency Exchange Rate : USD 1 = 3.4386 Tjs. = JPY 121.720;
                      JPY 10 = 0.2825 Tjs. and 1 Euro = 4.4430 Tjs.
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SECTOR 2    HYDROLOGY AND HYDRAULICS
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ABBREVIATIONS

Organization

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<tr>
<td>JICA</td>
<td>Japan International Cooperation Agency</td>
</tr>
<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
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<tr>
<td>MoES</td>
<td>Ministry of Emergency Situation and Civil Defense (Changed into Committee or CoES)</td>
</tr>
<tr>
<td>MMWR</td>
<td>Ministry of Melioration and Water Resources</td>
</tr>
<tr>
<td>SDC</td>
<td>Swiss Agency for Development and Cooperation</td>
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<tr>
<td>DHI</td>
<td>Danish Hydraulic Institute</td>
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<tr>
<td>REACT</td>
<td>Rapid Emergency Assessment and Coordination Team</td>
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<tr>
<td>UNT</td>
<td>United Nations in Tajikistan</td>
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<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
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<tr>
<td>UNICEF</td>
<td>United Nations International Children’s Emergency Fund</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<tr>
<td>WB</td>
<td>World Bank</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
<tr>
<td>FHA</td>
<td>Focus Humanitarian Assistance</td>
</tr>
<tr>
<td>Tajikmeteology</td>
<td>Agency on Hydrometeorology</td>
</tr>
<tr>
<td>IMAC</td>
<td>Information Management and Analytical Center</td>
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Unit

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<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
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<tbody>
<tr>
<td>°C</td>
<td>Degree Centigrade</td>
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<tr>
<td>dia.</td>
<td>Diameter</td>
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<tr>
<td>g</td>
<td>Gram</td>
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<tr>
<td>Ghz</td>
<td>Gigahertz</td>
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<td>Mhz</td>
<td>Megahertz</td>
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<tr>
<td>ha</td>
<td>Hectare</td>
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<tr>
<td>Kg, kg</td>
<td>Kilogram</td>
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<tr>
<td>Km, km</td>
<td>Kilometer</td>
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<tr>
<td>K</td>
<td>kilometer point (e.g. 2.0K)</td>
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<tr>
<td>L. l. lit.</td>
<td>Liter</td>
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<tr>
<td>m</td>
<td>Meter</td>
</tr>
<tr>
<td>m³</td>
<td>Cubic meter</td>
</tr>
<tr>
<td>m³/s</td>
<td>Cubic meter per second</td>
</tr>
<tr>
<td>mil.</td>
<td>Million</td>
</tr>
<tr>
<td>MLD</td>
<td>Million Liter per Day</td>
</tr>
<tr>
<td>MGD</td>
<td>Million Gallon per Day (1 MGD = 4,546 MLD)</td>
</tr>
<tr>
<td>Tjs.</td>
<td>Tajikistan Somoni</td>
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<tr>
<td>sec</td>
<td>second</td>
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<tr>
<td>t, ton</td>
<td>Tonnage</td>
</tr>
<tr>
<td>US$, USD</td>
<td>American Dollar</td>
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<td>W</td>
<td>Watt</td>
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Others

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<thead>
<tr>
<th>Abbreviation</th>
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<tr>
<td>CD</td>
<td>Civil Defense</td>
</tr>
<tr>
<td>CIS</td>
<td>Commonwealth of Independent States</td>
</tr>
<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
</tr>
<tr>
<td>ICRC</td>
<td>Internal Committee of the Red Cross</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
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<tr>
<td>M/P</td>
<td>Master Plan</td>
</tr>
<tr>
<td>F/S</td>
<td>Feasibility Study</td>
</tr>
<tr>
<td>P/P</td>
<td>Pilot Project</td>
</tr>
<tr>
<td>TA</td>
<td>Technical assistance</td>
</tr>
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<td>ToR</td>
<td>Terms of Reference</td>
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CHAPTER 1. PHOTOGRAPH OF THE STUDY AREA
Fig. 1.1. Bench Mark and Station Point
Chapter 1. PHOTOGRAPH OF THE STUDY AREA

Intake Guide Dike (July 2006)  
Spillway Guide Dike (July 2006)

Intake Weir (May 2006)  
Spillway Gate (May 2006)

Concrete Block Spur Dike in Guide Dike (March 2006)  
Concrete Block Spur Dike in Main Dike (May 2006)

*Shooting date is in parenthesis
Chapter 1. PHOTOGRAPH OF THE STUDY AREA

Round Head Spur Dike, Constructed in 2006 (May 2006)

Round Head Spur Dike, Constructed in 2007 (July 2007)

Gabion Type Revetment (September 2006)

Concrete Block Type Revetment (August 2006)

Combined Concrete Block and Gabion Type Revetment (July 2006)

Upstream End of Intake Guide Dike (April 2006)

*Shooting date is in parenthesis
Chapter 1. PHOTOGRAPH OF THE STUDY AREA

- Upstream End of Intake Guide Dike (August 2006)
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- Revetment Washed Away in BM 3.0km (December 2006)
- Riverbed Scour and Irregular Concrete Block in BM 3.5km (December 2006)
- Seepage Point in BM 3.8km (August 2006)

* Shooting date is in parenthesis
Chapter 1. PHOTOGRAPH OF THE STUDY AREA

Temporary Installation of Concrete Block against Bank Erosion in BM 6.7km (December 2006)

Broken Gabion in BM 8.2km (December 2006)

Temporary Installation of Concrete Block against Bank Erosion in BM 9.2km (December 2006)

Temporary Installation of Concrete Block and Boulder against Bank Erosion in BM 10.3km (December 2006)

Bank Erosion in BM 10.7km (December 2006)

Temporary Installation of Concrete Block against Bank Erosion in BM 11.3km (December 2006)

* Shooting date is in parenthesis
Chapter 1. PHOTOGRAPH OF THE STUDY AREA

Before Revetment Washed Away in BM 2.8km (May 2007)

After Revetment Washed Away in BM 2.8km (August 2007)

Before Revetment Washed Away in BM 2.8km (May 2007)

After Revetment Washed Away in BM 2.8km (August 2007)

Temporary Installation of Concrete Block for Bank Erosion in BM 3.2km (July 2007)

Seepage Point in BM 8.4km (July 2007)

* Shooting date is in parenthesis
CHAPTER 2. CONDITION OF 2005 FLOOD DAMAGE
Chapter 2. CONDITION OF 2005 FLOOD DAMAGE

* Shooting date is in parenthesis
Chapter 2. CONDITION OF 2005 FLOOD DAMAGE

- Recovery Work in Hamadoni -1 (July 2005)
- Recovery Work in Hamadoni -2 (July 2005)
- Explanation of Governmental Response from Deputy Premier to Local Residents (July 2005)
- Interview After Site Visit (July 2005)
- Handing Over Ceremony of Relief Material (July 2005)
- Relief Material (July 2005)

* Shooting date is in parenthesis
CHAPTER 3. SEMINARS AND WORKSHOPS
Chapter 3. SEMINARS AND WORKSHOPS

Working Group Meeting -1 (March 24\textsuperscript{th}, 2006)

Working Group Meeting -2 (March 24\textsuperscript{th}, 2006)

Stakeholder Meeting -1 (June 6\textsuperscript{th}, 2006)

Stakeholder Meeting -2 (June 6\textsuperscript{th}, 2006)

Technologies Transfer Seminar about River Plan and Design -1 (July 11\textsuperscript{th} ~12\textsuperscript{th}, 2006)

Technologies Transfer Seminar about River Plan and Design -2 (July 11\textsuperscript{th} ~12\textsuperscript{th}, 2006)

* Shooting date is in parenthesis
Chapter 3. SEMINARS AND WORKSHOPS

* Shooting date is in parenthesis
Chapter 3. SEMINARS AND WORKSHOPS

Stakeholder Meeting -1 (January 30th, 2007)  Stakeholder Meeting -2 (January 30th, 2007)

Seminar on Flood Fighting -1 (February 9th, 2007)  Seminar on Flood Fighting -2 (February 9th, 2007)

Workshop on Flood Fighting in Hamadoni -1 (February 17th, 2007)  Workshop on Flood Fighting in Hamadoni -2 (February 17th, 2007)

* Shooting date is in parenthesis
Chapter 3. SEMINARS AND WORKSHOPS

Workshop on Flood Fighting in Hamadoni -3
(February 18\textsuperscript{th}, 2007)

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(February 18\textsuperscript{th}, 2007)

Flood-Evacuation Map Exercise -1 (May 5\textsuperscript{th}, 2007)

Flood-Evacuation Map Exercise -2 (May 5\textsuperscript{th}, 2007)

Field Flood-Evacuation Drill -1 (May 6\textsuperscript{th}, 2007)

Field Flood-Evacuation Drill -2 (May 6\textsuperscript{th}, 2007)

* Shooting date is in parenthesis
Chapter 3. SEMINARS AND WORKSHOPS

Draft Master Plan Seminar -1 (May 17th, 2007)

Draft Master Plan Seminar -2 (May 17th, 2007)

Technologies Transfer Seminar about Construction Management -1 (July 26th, 2007)

Technologies Transfer Seminar about Construction Management -2 (July 26th, 2007)

Master Plan Seminar -1 (October 30th, 2007)

Master Plan Seminar -2 (October 30th, 2007)

* Shooting date is in parenthesis
CHAPTER 4. PILOT PROJECT ON THE CONSTRUCTION OF SPUR DIKE AND THE REINFORCEMENT OF DIKE
Chapter 4. PILOT PROJECT ON THE CONSTRUCTION OF SPUR DIKE AND THE REINFORCEMENT OF DIKE

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* Shooting date is in parenthesis
Chapter 4. PILOT PROJECT ON THE CONSTRUCTION OF SPUR DIKE AND THE REINFORCEMENT OF DIKE

Condition of Existing Revetment Before Construction (January 4th, 2007)

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Removal of Existing Concrete Blocks (May 2nd, 2007)

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* Shooting date is in parenthesis
Excavation Work for S1 (February 11th, 2007)

Connecting Concrete Blocks with Iron Wire in S2 (February 28th, 2007)

Base Concrete Block and Foot Protection Concrete Block in S2 (March 6th, 2007)

Base Concrete Block in S2 (March 7th, 2007)

Filling Spaces between Concrete Blocks in S2 (March 20th, 2007)

* Shooting date is in parenthesis
Chapter 4. PILOT PROJECT ON THE CONSTRUCTION OF SPUR DIKE AND THE REINFORCEMENT OF DIKE

* Shooting date is in parenthesis

Base Concrete Block and Foot Protection Concrete Block in S1 (March 20th, 2007)

Base Concrete Block and Foot Protection Concrete Block in S1 (March 24th, 2007)

Backfilling Work in S1 (March 30th, 2007)

Trimming and Clearing a Slope in S2 (March 19th, 2007)

Slope Protective Work in S2 (March 20th, 2007)

Slope Protective Work in S2 (March 24th, 2007)

* Shooting date is in parenthesis
Chapter 4. PILOT PROJECT ON THE CONSTRUCTION OF SPUR DIKE AND THE REINFORCEMENT OF DIKE

Slope Protective Work in S1 (March 29th, 2007)  
Slope Protective Work in S2 (March 30th, 2007)  
Slope Protective Work in S1 (April 10th, 2007)  
Slope Protective Work in S2 (April 10th, 2007)  
Slope Protective Work in S1 (April 16th, 2007)  
Slope Protective Work in S1 (April 23rd, 2007)  

* Shooting date is in parenthesis
Chapter 4. PILOT PROJECT ON THE CONSTRUCTION OF SPUR DIKE AND THE REINFORCEMENT OF DIKE

Wet Stone Masonry in S2 (April 2nd, 2007)

Washing Stone in S1 (April 20th, 2007)

Filling of Spaces between Concrete Blocks on Revetment in Upstream of S1 (April 15th, 2007)

Trimming and Clearing a Slope Downstream of S1 (April 18th, 2007)

Rehabilitation of Existing Revetment Downstream of S1 (April 23rd, 2007)

* Shooting date is in parenthesis
Chapter 4. PILOT PROJECT ON THE CONSTRUCTION OF SPUR DIKE AND THE REINFORCEMENT OF DIKE

Slope Protective Work Downstream of S1 (April 20th, 2007)

Slope Protective Work Downstream of S1 (April 28th, 2007)

Slope Protective Work Downstream of S2 (May 3rd, 2007)

Slope Protective Work in Downstream of S2 (May 11th, 2007)

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S2 from a Downstream View(May 14th, 2007, at Completion Inspection)

* Shooting date is in parenthesis
Chapter 4. PILOT PROJECT ON THE CONSTRUCTION OF SPUR DIKE AND THE REINFORCEMENT OF DIKE

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- Pouring Concrete into Metal Form (May 3rd, 2007)
- Compaction of Concrete (May 3rd, 2007)
- Removing Metal Form (May 10th, 2007)
- Completion of Concrete Block: 2.0m x 1.0m x 1.0m
- Completion of Concrete Block: 2.0m x 1.0m x 0.5m

* Shooting date is in parenthesis
CHAPTER 5. PILOT PROJECT ON LOCAL COMMUNICATION NETWORK FOR DISASTER MANAGEMENT
Chapter 5. PILOT PROJECT ON LOCAL COMMUNICATION NETWORK FOR DISASTER MANAGEMENT

Preparatory meeting -1 (August 28th, 2007)

Preparatory meeting -2 (August 28th, 2007)

The Patrol Team on Dike with VHF Handie-Talkie (August 29th, 2007)

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A car-messenger from the Hukumat of Hamadoni (August 29th, 2007)

* Shooting date is in parenthesis
Chapter 5. PILOT PROJECT ON LOCAL COMMUNICATION NETWORK FOR DISASTER MANAGEMENT

Receipt of the evacuation order at Jamoat Office in Turdiev (August 29th, 2007)

An on-foot messenger from Jamoat Office (August 29th, 2007)

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Dissemination of the evacuation order using Hand Siren (August 29th, 2007)

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* Shooting date is in parenthesis
Chapter 5. PILOT PROJECT ON LOCAL COMMUNICATION NETWORK FOR DISASTER MANAGEMENT

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Evaluation Meeting with the Residents -3 (August 29th, 2007)

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Evaluation Meeting with the Representatives -2 (August 30th, 2007)

Evaluation Meeting with the Representatives -3 (August 30th, 2007)

Evaluation Meeting with the Representatives -4 (August 30th, 2007)

* Shooting date is in parenthesis