

#### 4. COUNTERMEASURE SURVEY IN/AROUND THE RESERVOIR

### 4.1 Geological Survey



Drilling machine for geological investigation on October 2006



Drilling at the location of proposed overflow structure



Drilling at the location of proposed closure dike



Location of test pit in Wonogiri reservoir



Monitoring of the drilled core



Sampled drilled core at river mouth of Tirtomoyo River



#### 4. COUNTERMEASURE SURVEY IN/AROUND THE RESERVOIR

### 4.2 Garbage Trap



Garbage trap structure constructed in Keduang River. The trap successfully stopped the flow of the garbage on December 9, 2006



Garbage trap structure was broken by water pressure of big flood on December 22, 2006



Garbage removing work by hand on January 22, 2007



After flooding, garbage were brought from structure to side of river bank on January 24, 2007



Measuring of removed garbage volume on November 27, 2006



Burning of removed garbage on December 9, 2006



#### 4. COUNTERMEASURE SURVEY IN/AROUND THE RESERVOIR

### 4.3 Flume Sediment Erosion Test



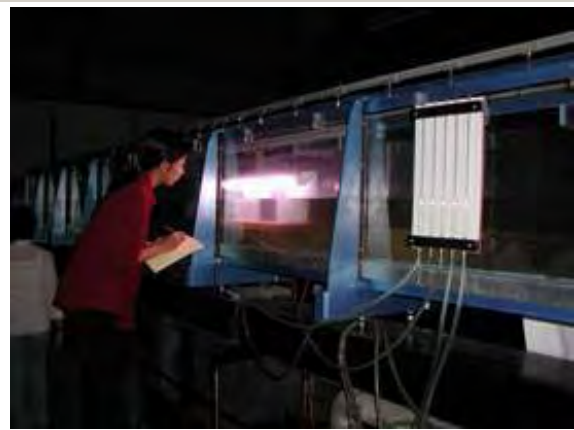
Sampling of riverbed materials in Wonogiri reservoir for flume sediment erosion test on October 26, 2004



Sampled riverbed materials for flume sediment erosion test on October 26, 2004



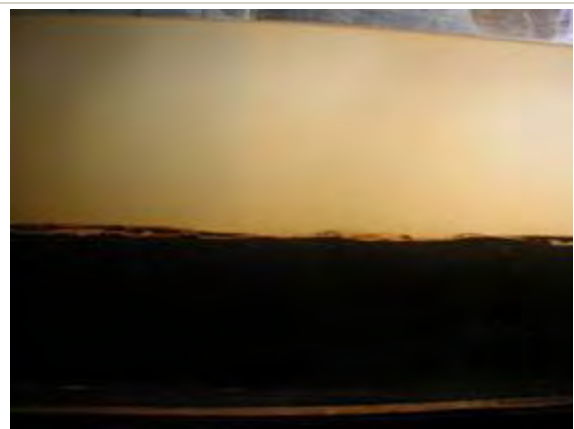
Experimental setup of flume sediment erosion test in Gaja Mada University, on November 11, 2004



Monitoring of bed fluctuation at flume sediment erosion test in Gaja Mada University on November 11, 2004



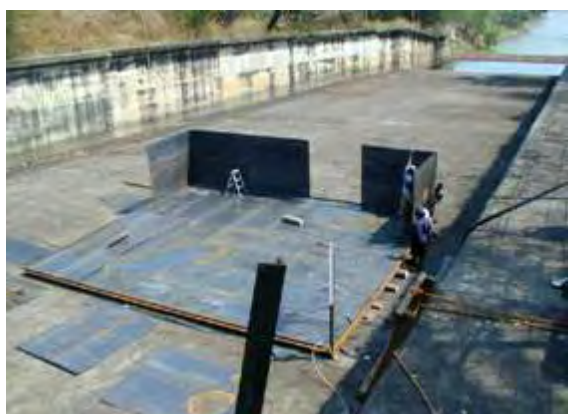
Before re-suspension of bed materials in the flume on November 11, 2004



After re-suspension of bed materials in the flume on November 11, 2004

#### 4. COUNTERMEASURE SURVEY IN/AROUND THE RESERVOIR

### 4.4 Verification Test of Hydro-suction System (1/3)



Assembly of storage tank on the spillway on September 20, 2005



Components of water jet nozzle on September 23, 2005



Components of side rotary type excavator on September 23, 2005



Components of side rotary type excavator on September 23, 2005



Launching barge into Wonogiri reservoir on September 26, 2005



High-density polyethylene pipe (Φ 400) for dredging pipe on September 26, 2005



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### 4.4 Verification Test of Hydro-suction System (2/3)



*Barge moored near the intake on September 29, 2005*



*Placing steel pipe at spillway crest on October 4, 2005*



*Examination of the appearance of Return-to-Reservoir Pipe on October 11, 2005*



*Equipment on barge on October 12, 2005*



*Inspection of Mr. NOGUCHI of JICA Advisory Committee Member on October 12, 2005*



*Technical discussion with Mr. NOGUCHI of JICA Advisory Committee Member on October 12, 2005*

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### 4.4 Verification Test of Hydro-suction System (3/3)



Discharging water from reservoir to receiver tank on October 12, 2005



Sampling water in receiver tank on October 12, 2005



Verification test of hydro-suction system at intake on October 19, 2005



Remaining sediments in the receiver tank after Test on October 24, 2005



Remaining sediments in the receiver tank after Test on October 24, 2005



View of storage tank on October 24, 2005



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### 4.5 Soil Erosion Test (1/4)



Construction of water tank at Slogohimo site (soil digging and rock foundation of lower portion of tank), tank capacity is 4 m<sup>3</sup> (2 m x 2 m x 1m)



Construction of water tank (framework made of iron bar) at Slogohimo site



Construction of water tank (casting concrete) at Slogohimo site



Construction of water tank and farm field at Slogohimo site



Construction of water tank at Sologohimo site



Construction of water tank at Sologohimo site



#### 4. COUNTERMEASURE SURVEY IN/AROUND THE RESERVOIR

### 4.5 Soil Erosion Test (2/4)



*Terrace with bare land condition on January 10, 2006*



*Terrace with bare land condition on February 19, 2006*



*Terrace with bare land condition on April 30, 2006*



*Terrace with bare land condition on May 25, 2006*



*Terrace with bare land condition on June 29, 2006*



#### 4. COUNTERMEASURE SURVEY IN/AROUND THE RESERVOIR

### 4.5 Soil Erosion Test (3/4)



*Terrace with present condition on January 10, 2006*



*Terrace with present condition on February 19, 2006*



*Terrace with present condition on April 30, 2006*



*Terrace with present condition on May 25, 2006*



*Terrace with present condition on June 29, 2006*



#### 4. COUNTERMEASURE SURVEY IN/AROUND THE RESERVOIR

### 4.5 Soil Erosion Test (4/4)



*Terrace with proposed condition on January 10, 2006*



*Terrace with proposed condition on February 19, 2006*



*Terrace with proposed condition on April 30, 2006*



*Terrace with proposed condition on May 25, 2006*



*Terrace with proposed condition on June 29, 2006*