Watershed Model Construction Workshop in Pirapora, Brazil

Week 1 (*1 day*)

March 17th: Introduction and Base Construction

Objectives:

- *Understand how the watershed model works.*
- *Comprehend the steps in building a watershed model.*
- *Identify the local area to model including characteristics and the size of the model.*
- *Learn how to construct the base of the model.*

Agenda

1. Questionnaire (30 minutes)
2. Introduction to the watershed model. (1 hour)

- *Power Point Presentation*

3. Introduction to the process with discussion from youth from Beiro Rio. (45 minutes)

Break (15 minutes)

4. Venn Diagram workgroup activity (1 hour)

- *Show relationships and linkages to groups*

Lunch

5. Workgroup – identify the watershed area (1 hour)
6. Identify the stream to model.
7. Construction process (2.5 hours)

- building the base.
- things to consider i.e. height, weight, ability to transport.

Weekly Activity: Construct the Base

Week 1 (*1 day*): Introduction and Base Construction

Workshop Support Material

Planning Material:

- Copies of maps for each individual – to work on.
- Various maps of the area including road, city, or trail maps. Coloured aerial photographs are possible. Different topographical maps with contours. ***See notes below.*
- Flip Chart
- Markers
- Various maps of the area.

- Mylar sheets
- Markers
- Enlarged Map of the area.
    - Copies of individual maps
- Several small individual maps with contour lines.

Construction Material:

- 6 mm plywood sheet
- 2cm x 5cm lumber (4 - 185cm, 4 - 125cm or 9 - 43 cm) – this is depending on the size of the model)
- Wood Glue (1kg)
- Nails
- Screws
- Aluminum Flashing
- Hammer
- Screw Drivers (2)
- Measuring Tape
- Pencils (for participants)
- Carpenter Square
- Scissors

Tools

- Hand Saw
- Saber saw, Circular Saw or Table Saw
- Hammer
- Screwdriver
- Drill and bits
- Enlarged Map – have the one from Três Marias

Space

- Well ventilated room with electricity
- Vacuum.
- Broom

***Notes: It is recommended to have a map prepared for Pirapora. The corregos identified in he report include the Corrego **Entre Rios** (demonstrating the effects of canalization) and **Nossa Senhora Aparecida Creek** (healthy creek) - you will see this under the section of Brazilian initiative in the report produced by Cathy and Barbara.*

Watershed Model Construction Workshop in Pirapora

Week 2 (*1 - 2 days*)

March 24th: Water Pollution Concerns and Building the Terrain

Objectives:

- *Identify the pollution concerns and area of asset for the community*
- *Learn how to trace and form terrain; tracing, sanding*

Agenda

Morning:

1. Mapping workshop identifies the concerns within the area (possibly 1 day).
   - Workgroups to present ideas on a map.

Lunch

2. Learn how to trace and shape contours with youth from Beiro Rio.
3. Gathering of local vegetation.

Week Activity: Building the terrain. Gathering of local vegetation.

Week 2 (1-2 days): Water Pollution Concerns and Building the Terrain

Workshop Support Material

Materials

- Styrofoam for Base
  - Three (12), 2m x 1m Styrofoam sheets that are 15mm thick
  - Three (9), 2m x 1m Styrofoam sheets that are 30mm thick
- Transportation to tour the watershed.
  - Arrange for a tour guide.
- Flip Chart
- Cascorez extra glue.
- Utility Knife
- Several weights that will assist distributing the weight and not indent the Styrofoam.
- Sand Paper 100 and 280 grit (15 sheets each)
- Car Body File (Bondo File – we have available)
- Palm Sander
- Dremmel (if possible)
- Hand Saw

Week 3 (*2 days*)

March 30th and 31st: Watershed Tour, Carving the Waterways, Landmark Features

Objectives:

- *Reinforce the local water pollution concerns*
- *Understand how to represent concerns on the model*
- *Carve the waterways.*
- *Build landmark features.*

Agenda

Day 1

1. Review and assist with construction and shaping of terrain.
2. Tour the watershed.

Understanding the local terrain, vegetation, water features, urban landmarks, and associated pollution concerns. Following the route water takes to eventually enter into a receiving environment it can include the local: lakes, streams, wetlands, estuaries, or inlets.

Lunch

3. Insert tubing and representation of storm drains.
4. Glue each level onto the base.

Day 2

1. Trace and carve streams.
2. Sand and smooth the surface.

Lunch

3. How to build and paint houses.

Week Activity: Building landmark features: houses, churches, vegetation etc.

Week 3 (*2 days*): Watershed Tour, Carving the Waterways, Creating Landmark Features

Workshop Support Material

Tools

- Construction Glue
- Large putty knife
- Small Putty knife
- Pencil
- Utility Knife
- Sand Paper 100 and 280 grit (15 sheets each)
- Car Body File (Bondo File – we have available)
- Palm Sander
- Dremmel (if possible)
- Hand Saw

Materials

- Contour map sized to watershed model
- Glue
- Plastic tubing (1 meter of small gasoline line tubing)
- Plaster
- Marker
- Styrofoam,
    - Nine (9), 2m x 1m Styrofoam sheets that are 15mm thick.
    - Six (6), 2m x 1m Styrofoam sheets that are 30mm thick.

Week 4 (*1 day*)

April 7th: Painting and Waterproofing

Objectives:

- *Add colour to the model*
- *Understand waterproofing process*
- *Learn how to build the sides.*

Agenda

1. Painting
    - Barbara to show techniques

Lunch

2. Waterproofing

Week Activity: Painting and Varnishing

Workshop Support Material

Materials

- Paint (various colours: red, brown, light blue, green, gray). Quantities depending on the terrain and size of model.
- Several paintbrushes
- Masking Tape
- Varnish (2 x 500 ml)
- Collection of some native vegetation
- Silicone
- Silicone dispenser (x 2)

Week 5 (*2 days*)

April 12th and 13th: Finishing Touches
Sides and Presentation Preparation

Objectives:

- *Finish the process of construction.*
- *Planning and strategies for development of land mark features.*
- *Preparation for presentation of the watershed model.*
- *Identifying strategies for use with environmental education.*

Agenda

1. Trim Measuring and cutting of the sides. * *see notes*
2. Making rabbet joints

Lunch

3. Placing of side on the model
4. Sealing and waterproofing
5. Making a lid

Week Activity: Painting and Varnishing

Week 5 (*2 days*): Finishing Touches Sides and Presentation Preparation

Workshop Support Material

Materials

- Local vegetation sample.
- Busha (3 or 4 fruits)
- Twigs
- Paint
- Glues
- Silicone
- Silicone dispenser (x2)
- Plywood Sheet (about 15mm in thickness)
- Measuring Tape
- Glue
- Screws
- Nails
- Varnish (2 x 500 ml)
- Representative materials for pollution.

For the Lid

- Excess 15mm plywood
- .6mm plywood
- Measuring Tape
- Glue
- Nails
- Varnish

Tools

- Screwdriver
- Saw
- Hammer
- Circular Saw, Jig Saw.
- Palm Sander
- Sand Paper (100 grit)

***Notes: The use of a carpenter shop would be beneficial to prepare the wood prior to the workshop.**