# London Convention Guidelines for Assessment of Dredged Material

WEDA Brazil Chapter Meeting
Rio de Janeiro
December 12, 2007

# London Convention 1972 & 1996 Protocol

- International treaty to control ocean dumping of wastes
- Brazil is a signatory
- Prohibits the dumping of materials into the ocean, with exceptions
- Dumping requires permits

# London Convention of 1972: Annex 1 - Black List

A complete prohibition of dumping of the following:

1. Organohalogen compounds*
2. Mercury and mercury compounds*
3. Cadmium and cadmium compounds*
4. Persistent plastics/persistent synthetic materials*
5. Crude oil and its wastes, refined petroleum products and residues*
6. High-level and low-level radioactive wastes
7. Biological and chemical warfare agents
8. Industrial wastes
9. Incineration at sea

* This Annex does not apply to wastes or other materials containing trace contaminants.

# 1996 Protocol: ANNEX 1 (Wastes or Other Matter that may be Considered for Dumping)

1. Dredged material;
2. Sewage sludge;
3. Fish waste, or material resulting from industrial fish processing operations
4. Vessels and platforms or other man-made structures at sea;
5. Inert, inorganic geological material;
6. Organic material of natural origin, and;
7. Bulky items primarily comprising iron, steel, concrete, and similarly unharmful materials for which for concern is physical impact, and limited to those circumstances where such wastes are generated at locations, such as small inlands with isolated communities, having no practicable access to disposal options other than dumping.
8. Carbon dioxide streams from carbon dioxide capture processes for sequestration. (into a sub-seabed geological formation)

# Implementation of the London Convention & Protocol

- Objectives stated in the Treaty
  - "protect and preserve the marine environment from all sources of pollution
  - and take effective measures, according to their scientific, technical and economic capabilities, to prevent, reduce and where practicable eliminate pollution caused by dumping or incineration at sea of wastes and other matter."
- Key to implementation: Waste Assessment Guidelines

# Waste Assessment Guidance: Specific Guidelines for Assessment of Dredged Material

- Dredging essential
  - to maintain ports, harbors, marinas and inland waterways;
  - for the development of port facilities; flooding mitigation; removal of sediments from structures, basins and water intakes.
- Dredged material worldwide is, by nature, similar to undisturbed sediments in inland and coastal waters.
- A smaller proportion of dredged material, however, is contaminated by human activity.

# Evaluation of Need for Dredging and Disposal

CAPITAL DREDGING - for navigation, to enlarge or deepen existing channel and port areas or to create new ones

MAINTENANCE DREDGING - to ensure that channels, berths or construction works are maintained at their designed dimensions; and

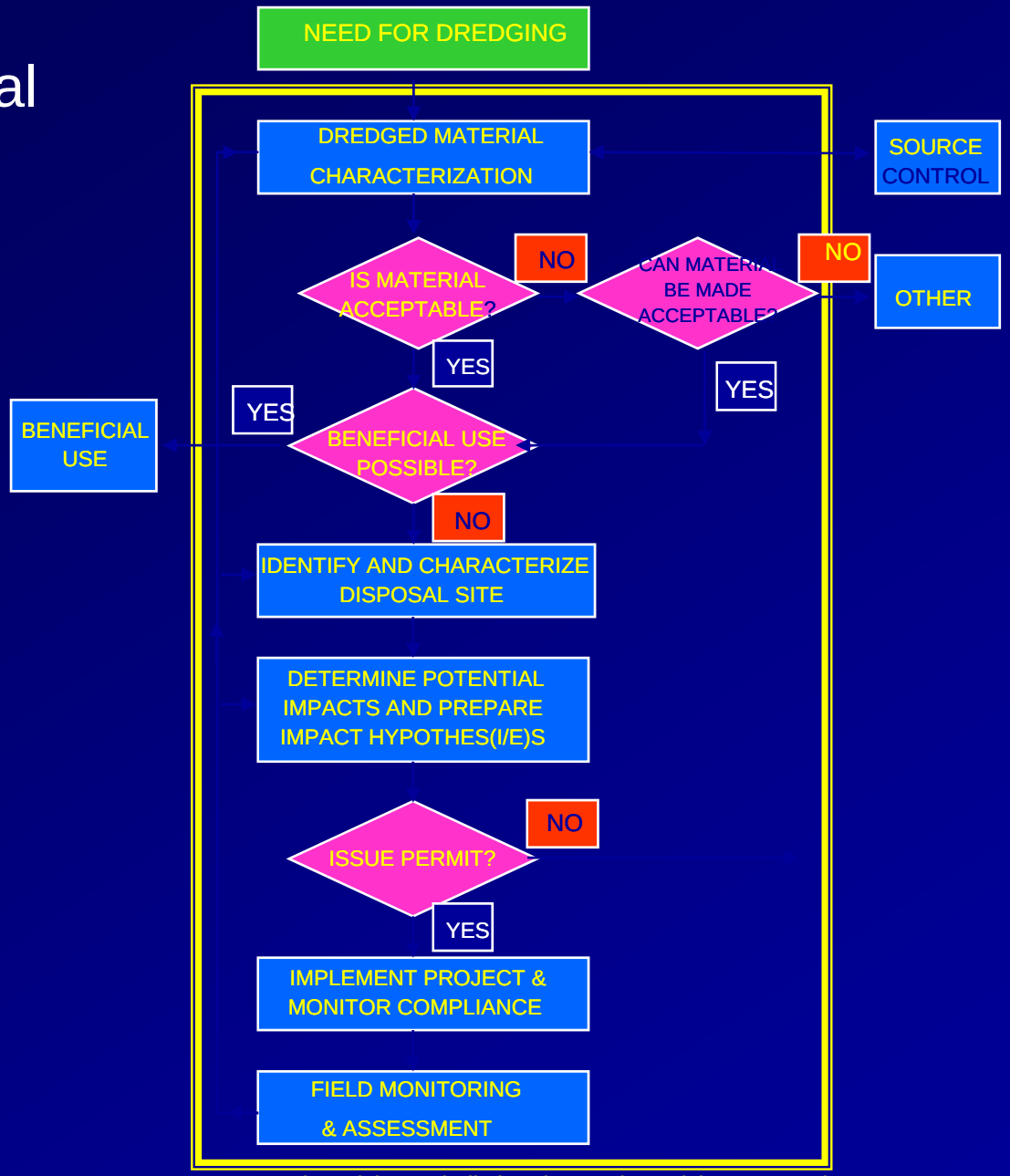
CLEAN UP DREDGING - deliberate removal of contaminated material for human health and environmental protection purposes.

# Dredged Material Waste Assessment Guidelines

Components are:

1. Waste prevention audit and evaluation of disposal options
2. Dredged material characterization
3. Is material acceptable for sea disposal?
4. Identify and characterize dump-site
5. Determine potential impacts and prepare impact hypothesis(es)
6. Issue permit
7. Implement project and monitor compliance
8. Field monitoring and assessment (monitoring)

# Dredged Material Assessment Framework



# Waste Prevention Audit

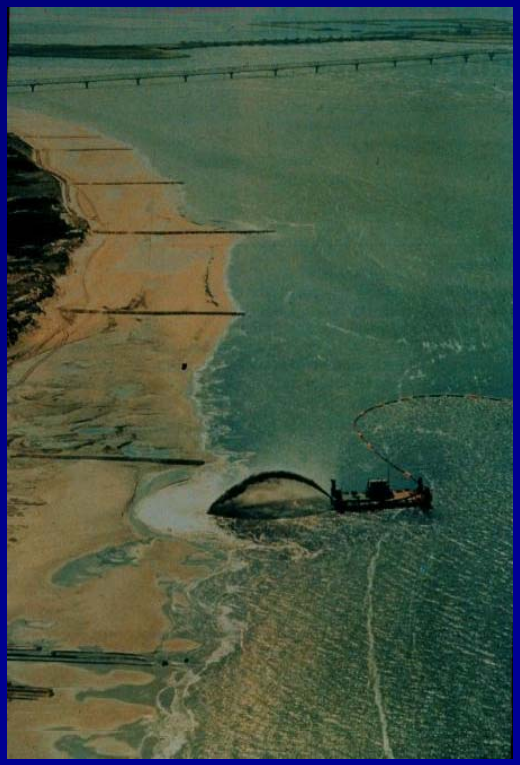
For dredged material, the goal of waste management should be to identify and control the sources of contamination.

## SOURCE CONTROL STRATEGY

1. The continuing need for dredging;
2. Contaminant hazards and sources;
3. Existing source control program and other regulations or legal requirements;
4. Technical and economic feasibility;
5. Effectiveness of measures taken; and
6. Consequences of not implementing contaminant reduction.

# Management Options

- Reduce or control impacts to a level that will not constitute unacceptable risks
- Treatment
- Disposal management techniques
- Methods of containing dredged material in a stable manner



# Dredged Material Characterization

Physical characterization

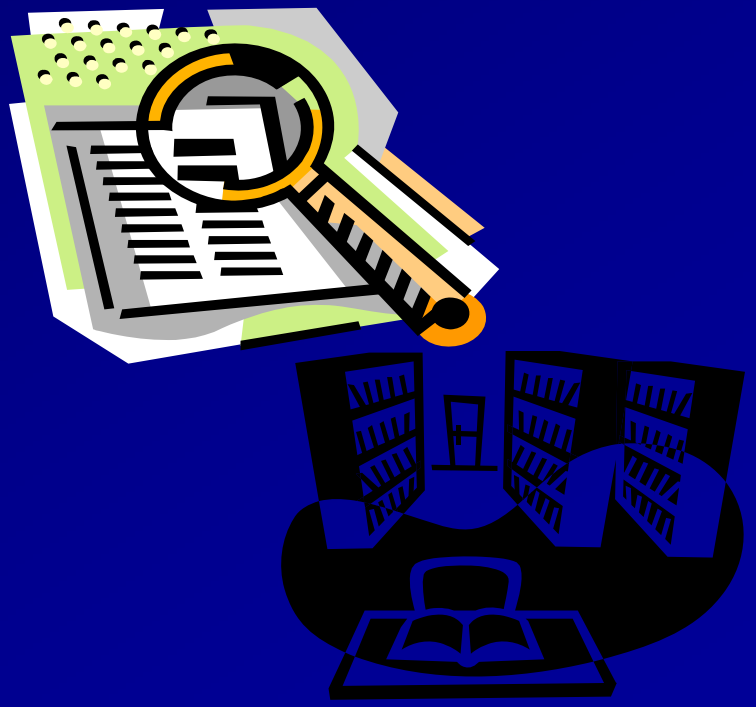
- The basic physical characteristics required are the amount of material, particle size distributions, and specific gravity.

Exemptions from detailed characterization

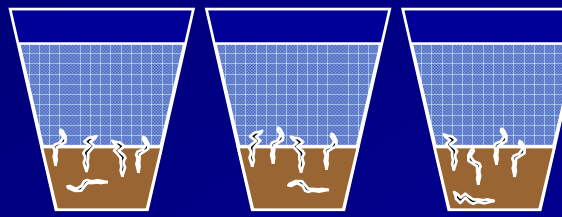
- Dredged material is excavated from a site away from existing and historical sources of appreciable pollution, so as to provide reasonable assurance that the
  - dredged material has not been contaminated, or
  - dredged material is composed predominantly of sand, gravel and/or rock, or
  - dredged material is composed of previously undisturbed geological materials.

# Chemical Characterization

- Available information
- Contaminant routes / sources
- List of chemicals of concern



# Biological Characterization



Biological tests should incorporate:

- Acute toxicity
- Chronic toxicity and sub-lethal effects
- The potential for bioaccumulation
- The potential for tainting at and in the vicinity of the disposal site.

Note: If insufficient information available for assessment material shall not be dumped.

# Action List and Action Levels
## A screening mechanism to determine if material is acceptable for dumping

- Action List:
  - Selection of substances: priority given to toxic, persistent, and bioaccumulative substances.

- Action Levels-Specify an upper and lower level
  - Wastes containing specified substances, or causing biological responses, *exceeding* the relevant upper level shall not be dumped, unless made acceptable.
  - Wastes which contain specified substances, or which cause biological responses, *below* the relevant lower levels should be considered to be of little environmental concern.
  - Wastes, which contain specified substances, or which cause biological responses, *below* the upper level but *above* the lower level require more detailed assessment before their suitability for dumping can be determined.

# Dump-Site Selection

Site Selection Considerations:

- Physical, chemical and biological characteristics of the water-column and the seabed
- Location of amenities, values and other uses of the sea in the area under consideration
- Assessment of the constituent fluxes associated with dumping in relation to existing fluxes of substances in the marine environment
- Economic and operational feasibility

# Permit and Permit Conditions

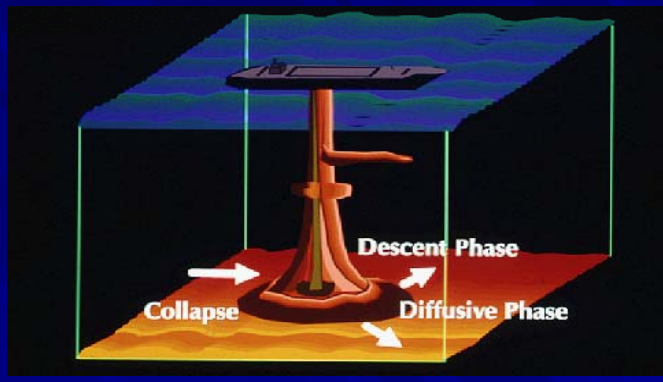
- The types, amounts and sources of materials to be dumped
- The location of the dump-site(s)
- The method of dumping
- Monitoring and reporting requirements

# Compliance Monitoring and Field Monitoring

Results of monitoring:

- Modify or terminate the field-monitoring program
- Modify or revoke the permit
- Redefine or close the dump-site
- Modify the assessment basis

# Dredged Material WAG




Components are:

1. Waste prevention audit and evaluation of disposal options
2. Dredged material characterization
3. Is material acceptable?
4. Identify and characterize dump-site
5. Determine potential impacts and prepare impact hypothesis(es)
6. Issue permit
7. Implement project and monitor compliance
8. Field monitoring and assessment (monitoring)

# No Wetlands, No Seafood