WGEA Research Project on Environmental Data: Resources and Options for Supreme Audit Institutions

10th Annual EUROSAI WGEA Meeting
Nissi Resort, Cyprus
23 – 25 October 2012

Agenda

- Project objectives, approach, and status
- Main ways that auditors use environmental data
- Key sources for environmental data
- Assessing data quality
- Options for SAIs when data are lacking
- Future directions: potential new trends
- Conclusions
- Project team and contact information
- Questions

Project Objectives

- Describe the main ways that auditors use environmental data

- Broadly identify key sources of environmental data available to SAIs and key considerations when using such data

- Identify tools and methods SAIs may use when high-quality environmental data are lacking

Project Approach and Status

- Detailed analysis of case studies of use of environmental data by other SAIs (97 potential, 16 in final report), partly based on special questionnaire
- Detailed analysis of selected sources of environmental data (56 in final report)
- Direct consultation with other SAIs
  - Workshop at WGEA meeting in Buenos Aires
  - WGEA Steering Committee and project subcommittee
- Internal quality reviews and editorial review
- Final report now being prepared for publication

Main Ways that Auditors Use Environmental Data

- **To plan audits**
  - Identify potential audit topics or modify audit's scope
- **To conduct audits**
  - Assess progress against targets or compliance with laws
  - Evaluate practices for assessing and managing environmental risks
  - Evaluate practices for managing environmental data
- **To provide context for audit findings**
  - Highlight audit findings, such as the impacts of program weaknesses
- **Note: Audited entities generally bear the responsibility to generate or collect environmental data related to their programs.**

Assess Progress
Case Study: Bhutan

- **Objective:** To assess government's management of select rural water supply and sanitation projects

- **Environmental data used:**

  - Data on implementation of planned schemes and preliminary surveys of water resources

 - Water quality tests and monitoring records

Case Study: Bhutan
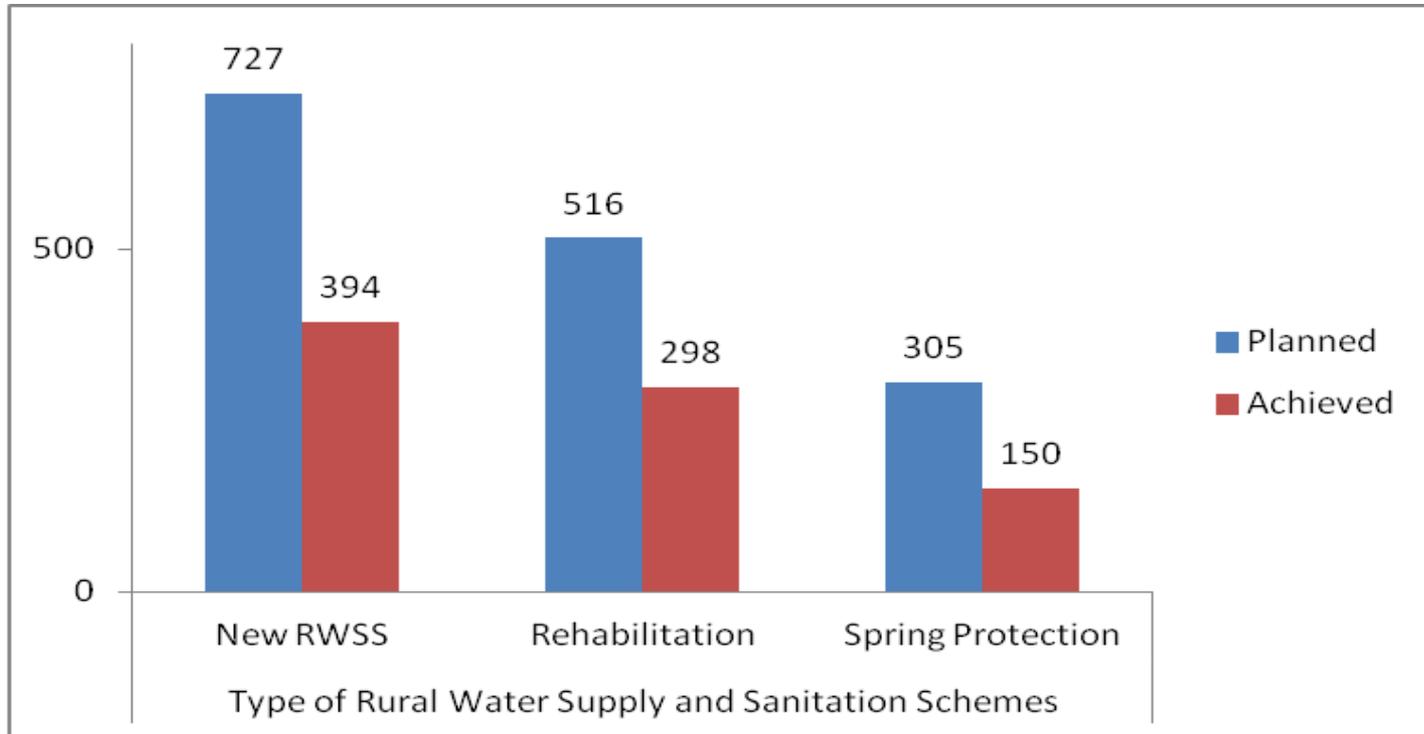
Comparison of the number of planned rural water supply and sanitation schemes with the number actually achieved

Evaluate Emergency Management
Case Study: Tanzania

- **Objective:** To evaluate government responses to flood emergencies and management over time

- **Environmental data used:**
  - Government data on flood management activities
  - Photographs of flooded areas and flood prevention structures from the 1990's and 2000's

Case Study: Tanzania
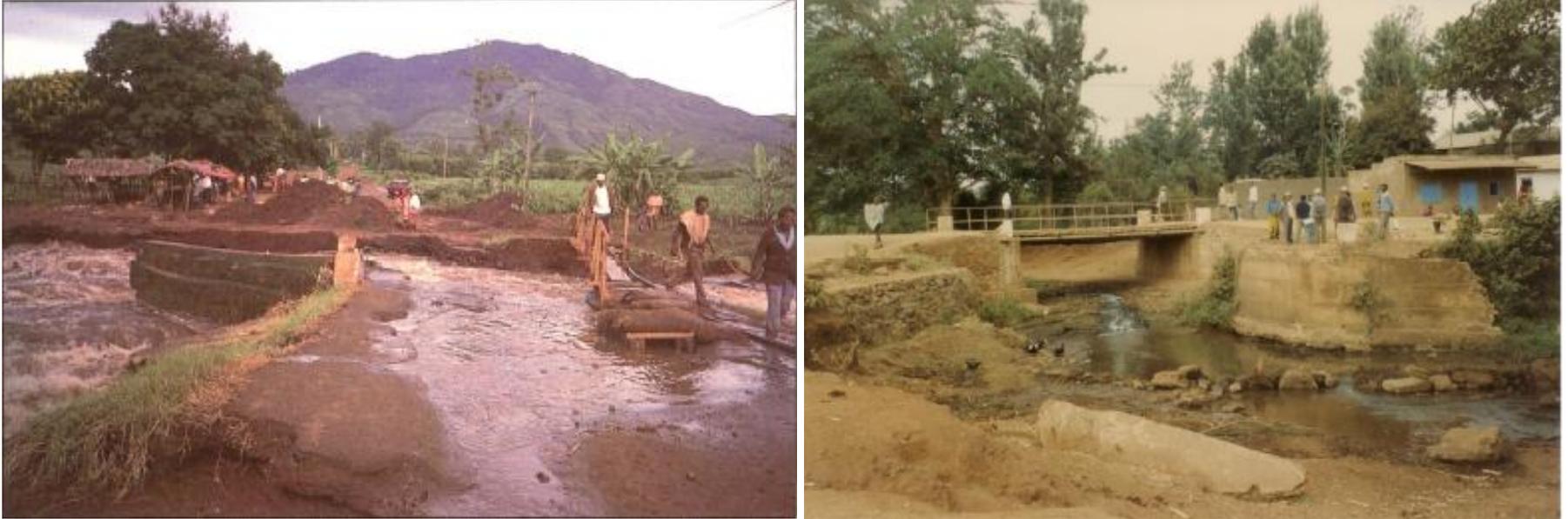
Source: Tanzania National Audit Office.

Left: The remains of the Mrara Bridge after floods in 1990 washed it away

Right: The same place a few months later, depicting pieces of concrete from the original bridge in the foreground

Sources of Environmental Data

- Four categories of data sources:
  - **National** – the characteristics of a single country
  - **Regional** – the characteristics of a geographic region or economic-political association
  - **Global** – cover most of the world
  - **Spatial** – describe the spatial distribution of phenomena – many geographic scales
- Detailed descriptions of data sources – one page per source
- Excel spreadsheet to search and select data sources

Data Quality

Characteristics of High-Quality Data

Derived from work of statistical agencies:

- Relevance

- Accuracy and reliability

- Timeliness and punctuality

- Accessibility and clarity

- Coherence and comparability

- Availability of metadata (data about data)

Data Quality
Assessing Data Quality

Key question: Are the data sufficient and appropriate?

Key considerations:
- Expected importance in the final report
- Data reliability results from previous examinations
- Data supported or not by complementary information
- Sensitivity of the topic

SAIs can use several methods to assess quality, including international standards.

Options For SAIs When Data Are Lacking

- **Options when related data are available**
  - Use related data to estimate unavailable data
  - Use models that combine data and identify trends
- **Options when no high-quality or related environmental data exist**
  - Use the absence of data as audit's central message
  - Use opinions from experts or other relevant parties as the basis for findings
  - Develop alternative data to meet audit's needs

Using Estimates
Case study: Croatia and Slovenia

- **Objective:** To evaluate Croatia and Slovenia's compliance with the Convention on Biological Diversity

- **Environmental data used:**

  – Estimates of the growth rate of the endangered brown bear, wolf, and lynx

  – Estimates made by experts

  – Other indicators, such as damage to property and the spread of bears to new areas

Absence of Data as Central Message
## Case Study: Canada

- **Objective:** To assess how the federal government monitored and assessed responses to oil and chemical spills in the ocean and the Gulf of St. Lawrence

- **Environmental data used:** pollution incident reporting database

- **Findings:**
  - Data entry errors, and lack of a quality assurance system to detect such errors
  - Inconsistent data on oil spills, which were not centrally collected
  - The Canadian Coast Guard lacked data on oil spill risks and its capacity to respond

Development of Alternative Data
Case study: Paraguay

- **Objective:** To determine tanneries' effects on water quality and compliance with environmental laws

- **Environmental data used:** physical observations by SAI of sites affected by tanneries in a local jurisdiction

- **Findings:**

    - Foul odors, and solid residues and liquid waste in the waters

    - Existing conditions negatively affected the immediate surroundings as well as the city

Future Directions
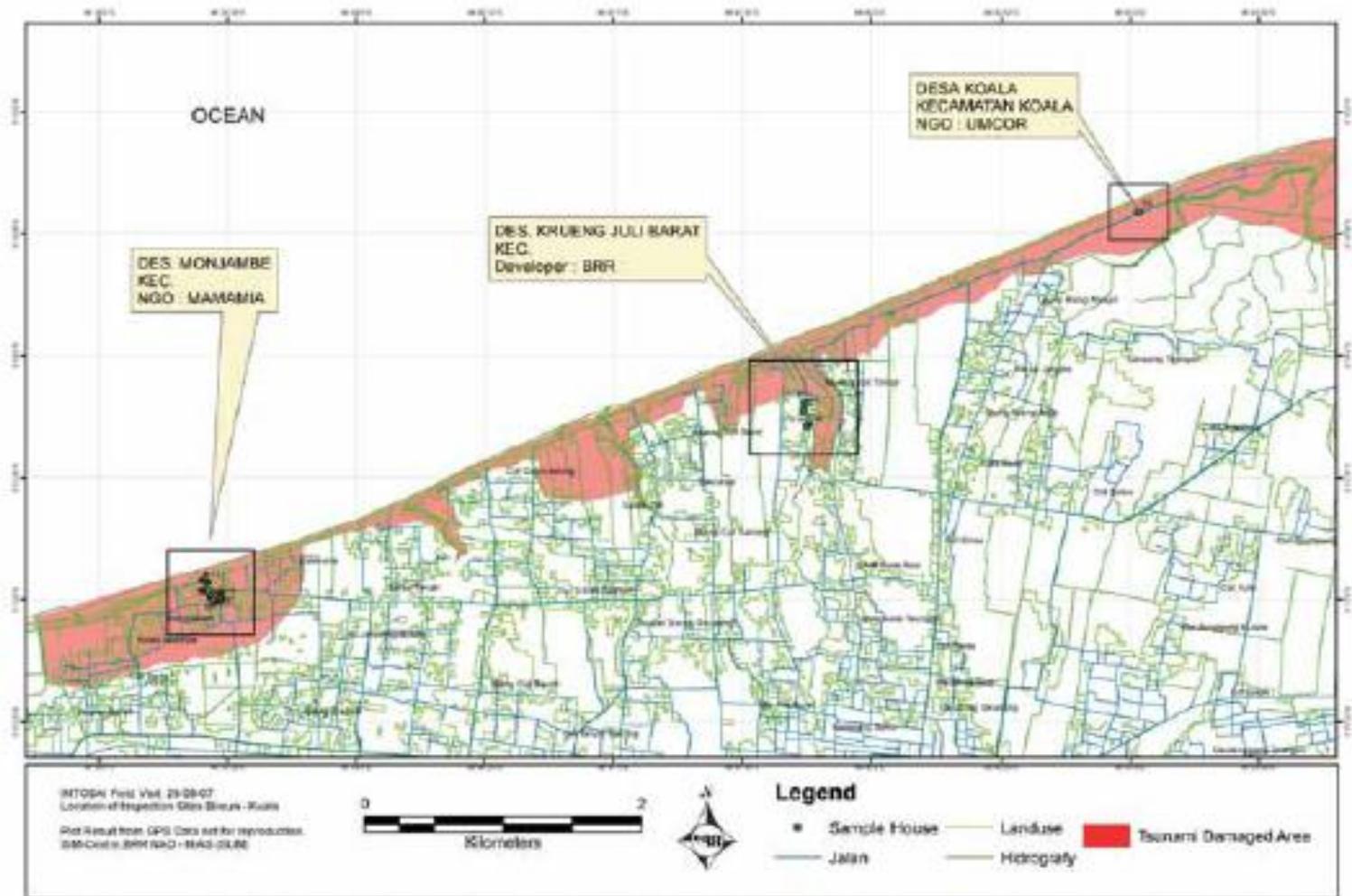
Source: Joint Board of Geospatial Information Societies and United Nations Office for Outer Space Affairs. 2010.

Conclusions

- Environmental data has often caused problems for SAIs in the past.

- However, environmental data continues to be both an important source of information and a challenge for SAIs.

- We hope the results of this research project can be a resource for SAIs.

List of Case Studies

- SAI of Bhutan, *Drinking Water Supply and Sanitation Audit* (2011)
- SAI of Tanzania, *A Performance Audit of the Management of Prevention and Mitigation of Floods at Central, Regional and Local Levels of the Government of Tanzania: A Case Study of Floods in Babati* (2007)
- SAIs of Croatia and Slovenia, *Audit Report of the Court of Audit of the Republic of Slovenia and the State Audit Office of the Republic of Croatia on the Conservation of Biodiversity on the Area of the Planned Regional Parks Snežnik and Kočevsko Kolpa and in Risnjak National Park* (2007)
- SAI of Canada, *Report of the Commissioner of the Environment and Sustainable Development: Chapter 1—Oil Spills from Ships* (2010)
- SAI of Paraguay, *Contamination of the Guazu Stream by Tanneries* (2007)

Project Team

- Office of the Auditor General of Canada:
  - Adam Kennedy, Mark Kepkay, Mark Lawrence, Carolle Mathieu, and Peter Morrison (lead)
- US Government Accountability Office:
  - Rob Grace, Barb Patterson (lead), Lisa Van Arsdale, and Marie Webb
- Subcommittee members:
  - Botswana, Estonia, Namibia, New Zealand, Poland, and Tanzania

Contact information

- Draft report available on WGEA website:
  - http://www.environmental-auditing.org/
- Contacts for project team:
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Questions?