Contents

• Background and scope
• Social impact assessment approach and methodology
• Economic impact assessment approach and methodology
• Illustration of impact analysis and assessment process
• Challenges
Background

• The approach and methodology builds on:
  – Earlier basin-wide assessment work under the IBFM and BDP;
  – More recent work in developing the MRC Indicator Framework and Regional Benefit Sharing Assessment; and
  – Ongoing activities under the MRC Council Study.

• The assessment approach has also been improved by factoring in the historic development trends and exogenous development, together with greater opportunities to employ spatial (GIS) analysis.

• Developed approach and methodology will be used for the social and economic assessment of both thematic and cumulative assessment.

Scope

• Drivers
  – Water resources development within the considered scenarios
  – Exogenous developments and their estimated impact on social and economic conditions in 2007, 2020 and 2040

• Spatial
  The assessments will be conducted basin-wide on all areas within the LMB impacted by water resources development, with a particular focus on those areas directly impacted by changes in mainstream hydrology, sediment, water quality and bio-resource conditions.
Social impact assessment

Objective

To determine the impacts of the considered scenarios on social conditions within the LMB, over and above the impact of exogenous development on social conditions.

The social impact of the considered scenarios and the exogenous development will be assessed against the social assessment indicators in the MRC Indicator Framework.

Social impact assessment – Linkage between indicators

- **Discipline specific indicators** are selected, which relate to the assessment indicators and which are influenced by exogenous and/or water resources development.
- The degree to which discipline specific indicator values are changed by these developments is determined through impact analysis.
- **Assessment functions** will be used to value the assessment indicators based on the quantified discipline.
Social impact assessment – Assessment sub-unit

Geographic Information System (GIS) functionality and impact relationships will be used to quantify the impact of changes in water resources development on social discipline specific indicators in each sub-unit.

Social impact assessment – Methodology

- Data assembly and analysis
  - Spatial data
    - Admin boundaries
    - Bio-zones
    - Land use
  - Existing socio-economic data
    - SIMVA 2013
    - SIMVA 2014
    - MRC socio-economic data
  - Formulation of relationships between assessment indicators and discipline specific indicators
  - Trends analysis

- Projected exogenous development without WR development
  - Population distribution
    - Pre-development 2007, 2020, 2040 by planning sub-unit
  - Pre-development situation and situations in 2007, 2020 and 2040 for discipline specific indicators and assessment indicators

- Impact assessment with water resources development
  - Impact relationships of WR on discipline specific indicators

- Impact assessment of situations in 2007, 2020 and 2040 scenarios against pre-development situation

- Assembly and spatial assessment of WR impact data

- Water resource developments and related hydrological and bio-resource impacts

- Thematic studies

- Potential mitigation measures

- Report and recommendations
  - Cumulative impacts of water resources development scenarios 2007, 2020 and 2040 on assessment indicators at community level
    - Water security
    - Food security
    - Income security
    - Health security
    - Employment
    - Gender equity
Economic impact assessment

**Objective**
- To estimate the **economic benefits** and **costs** of existing and planned water resource developments
- To evaluate the **economic impacts of interventions** (both positive and negative)
- To determine the **distribution of economic benefits and costs**, as well as economic losses, between LMB countries
- To estimate the impact on **employment and living conditions**

**Economic impact assessment – Linkage between indicators**

First, the **discipline specific indicators** will be quantified by other Council Study Teams through **impact analysis**, and then the **assessment indicators** will be **monetized** through the economic assessment.
Economic impact assessment –
Methodology

Illustration of impact analysis and
asessment process

For example, if fisheries production in a
particular area was 100 tons/year pre-
development, exogenous development
trends might be that by 2007 it was 90 tons
and, if past trends continue, by 2040 it
would be down to 80 tons without any
further water resources development. With
the water resources developments in the
considered scenarios, the analyses may
predict a 10% fall in 2020 and 20% by 2040.
Thus the assessments of socio-economic
impacts in that particular area for illustrative
purposes only would be:

<table>
<thead>
<tr>
<th>Capture fisheries, tons/year</th>
<th>Pre-dev</th>
<th>2007</th>
<th>2020</th>
<th>2040</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exogenous development</td>
<td>100.0</td>
<td>90.0</td>
<td>85.0</td>
<td>80.0</td>
</tr>
<tr>
<td>Exogenous plus water resources development</td>
<td>100.0</td>
<td>90.0</td>
<td>76.5</td>
<td>64.0</td>
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<td>Water resources development impact</td>
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<td>0.0</td>
<td>-8.5</td>
<td>-16.0</td>
</tr>
</tbody>
</table>
Summary of data and tool

Data source
– SIMVA 2011 and 2014
– MRC Socio-economic Database
– New data from Thematic and Discipline Teams

Tool
– GIS functionality
– Spreadsheet functionality

Challenges
• Some missing social data in the MRC Socio-Economic Database
• Social impact assessment with GIS and Spreadsheet functionality
• Integration of social and economic impact assessment between thematic and cumulative teams
The RTWG is requested to:

• Take note of the progress;
• Consider the proposed scope, approach and methodology of the social and economic impact assessment; and
• Provide overall feedback and guidance.

Thank You