I. Methodology and approach

1. Resource economic valuation
   → How would costs & benefits change (time & space) for the various scenarios?

2. Macro-economic assessment
   → How will GDP related indicators change?
II. Method: Resource Economics

Resource economic valuation → Cost & benefits of

- Crop production
- Hydropower
- Fisheries
- Wetlands
- Navigation
- Floods
- Salinity
- Erosion

Net present value (NPV) for period until 2040 = 23 years costs & benefits in today’s values
II. Method: Resource Economics

Resource economic valuation → Cost & benefits of

- Crop production
- Hydropower
- Fisheries
- Wetlands
- Navigation
- Floods
- Salinity
- Erosion

Data provided by
- Modelling team
- BioRA team
- Thematic teams
- Gaps: MERFI database
II. Method: Macro-Economics

Macro-economic assessment

• How will GDP change for each scenario?

MRC sector growth

- Agriculture
- Power generation
- Fisheries
- Food production
- Navigation
## II. Method: Macro-Economics

<table>
<thead>
<tr>
<th>Strategic Indicators</th>
<th>Assessment Indicators</th>
<th>Unit</th>
</tr>
</thead>
</table>
| Economic performance of MRC sectors | ▪ Economic value of irrigated agriculture:  
▪ Economic value of recession agriculture  
▪ Economic value of lowland rain fed agriculture  
▪ Economic value of hydropower production  
▪ Economic value of mainstream navigation  
▪ Economic value of flood damage  
▪ Economic value of drought damage  
▪ Economic value of capture fisheries  
▪ Economic value of reservoir fisheries  
▪ Economic value of aquaculture  
▪ Economic value of river bank gardens | all in US$M/year |

[www.mrcmekong.org](http://www.mrcmekong.org)
## II. Method: Macro-Economics

<table>
<thead>
<tr>
<th>Strategic Indicators</th>
<th>Assessment Indicators</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic performance of MRC sectors</td>
<td>▪ Economic value of upland forestry</td>
<td>all in</td>
</tr>
<tr>
<td></td>
<td>▪ Economic value of flooded forests</td>
<td>US$M/year</td>
</tr>
<tr>
<td></td>
<td>▪ Economic value of wetlands, key habitats and conservation areas</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Economic value of sand mining</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Economic value of productive activities in areas affected by salinity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Economic value of assets in locations affected by river bank erosion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Economic expenditure on tourism and recreation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Aggregate economic value (from above)</td>
<td></td>
</tr>
</tbody>
</table>

Aggregate economic value (from above) all in US$M/year
II. Method: Macro-Economics

• How will GDP change for each scenario?

MRC sector growth
- Agriculture
- Power generation
- Fisheries
- Food production
- Navigation

→ Analysis based on Input-Output tables
II. Method: Macro-Economics

Macro-economic assessment

• How will GDP change for each scenario?

• How sustainable is GDP growth?

MRC sector growth

Natural capital

Financial capital

Built capital

Human capital
II. Method: Macro-Economics

→ Assessing how **sustainable** the economic system operates by looking at it’s input related foundations

\[ \text{Economic system} \]

Annual production = GDP

- Natural capital
- Financial capital
- Built capital
- Human capital
## II. Method: Macro-Economics

### Macro-economic assessment

<table>
<thead>
<tr>
<th>In 2010 prices</th>
<th>Economic system</th>
<th>Natural Capital</th>
<th>Human Capital</th>
<th>Financial Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>$63.1b</td>
<td>$412.1b</td>
<td>$0.5b</td>
<td>$30.2b</td>
</tr>
<tr>
<td></td>
<td>($184b - $640b)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>$80.2b</td>
<td>$295.1b</td>
<td>$0.7b</td>
<td>$58.9b</td>
</tr>
<tr>
<td></td>
<td>($141b - $449b)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$17b</td>
<td>-$117b</td>
<td>$0.2b</td>
<td>-$28.7b</td>
</tr>
</tbody>
</table>

- I. Conversion Multiplier 6.9
- Sustainable Development 0–1
- II. Dependency on Natural resources

- Labour productivity
- Financing costs
- Credit rating
III. Data needs

• Resource economics → Cost benefit Analysis
  – Mostly informed by other CS teams
  – MERFI database of over 500 previous valuations

• Macro-economics
  – Socio-economic analysis (Dr John Ward)
  – Input-Output tables (OECD & World Bank)
  – Green growth (National agencies, World Bank & IMF)
IV. Limitations

‘Static’ approach neglects...

• ...important feedbacks
  – More growth means more investment
  – More scarcity means adaptation (i.e. crops, irrigation)
  – Effect between sectors (price and production effects)

• ...important spatial effects
  – Migration as pressures change

• ...important temporal effects
  – Income changes affect the value of natural resources