Social Assessment Methodology for Water Resources Development in the Lower Mekong Basin

Social Assessment Team

Mekong River Commission Secretariat

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1. Stated Objectives for Social Development in the BDP Assessment

- Maintain livelihoods of vulnerable resource users
- (Create) Increased employment generation in water related sectors
- Enough?

2. Key question to be answered

- How many people,
- who lives where,
- will be negatively/positively affected how much
- through the impacts on
  - fish and aquatic resources, environment, irrigation, and economic opportunities
  - by changes predicted in the scenarios for water resources development
- How are those affected people likely to cope and adjust
- over time –
- what strengths and weaknesses do they have ?

3. Assignment

- Develop the baseline information of people's dependence on river resources in different locations of the LMB
- Develop the baseline information on people's vulnerability and resilience to changes and impacts from the water resources development

4. Approach

- Unfold ’dependency’ on river and aquatic resources and select indicators
- Unfold ’vulnerability’ and select indicators for
  - Exposure
  - Sensitivity
  - Resilience
- Use GIS as database organizer and analytical tool
- Develop this into a flexible GIS tool that can be used for scenario creation (trend analysis) and visioning in stakeholder consultations

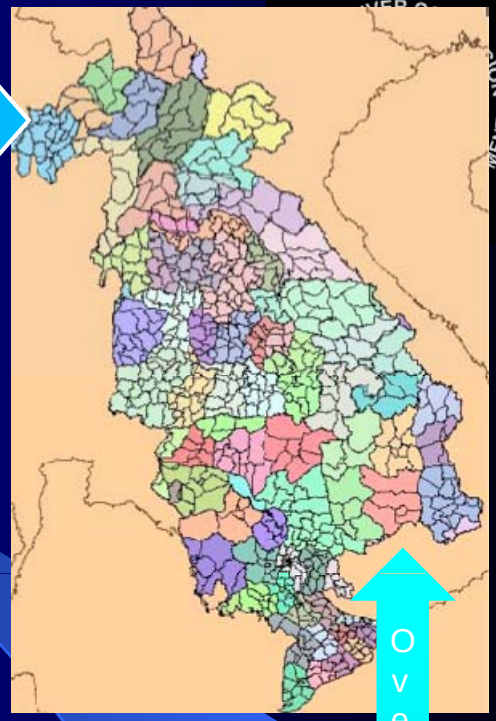
Baseline

Dependency on water and aquatic resources

- % Part-time fishers
- % Full-time fishers
- Collection OAA/P
- Consumption
- Floodplain location
- Proximity to rivers

Spatial analysis - GIS layers

- Province level data be downscaled
- District is the basic geographical unit
- Survey and case study data be up scaled- extrapolated

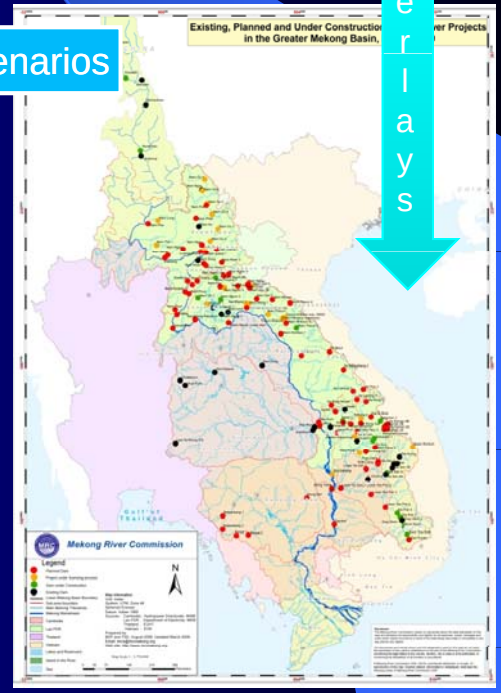


Vulnerability

Resilience + Sensitivity + Exposure

Impact scenarios

Overlays



Spatial analysis - GIS layers

Social scenarios

Spatial analysis - GIS layers

- Poverty
- Food security
- Health
- Nutrition
- Education
- Seasonality/ alternative food/income
- Access to services
- Other variables

- Area based data variables on
- impacts on fish, OAAs
- impacts on wetlands
- impacts on rice/irrigation
- Impacts on flooding
- Impacts on coastal zone

Different sets of assumptions

- Population, economic growth
- Human development
- ctural change
- ization

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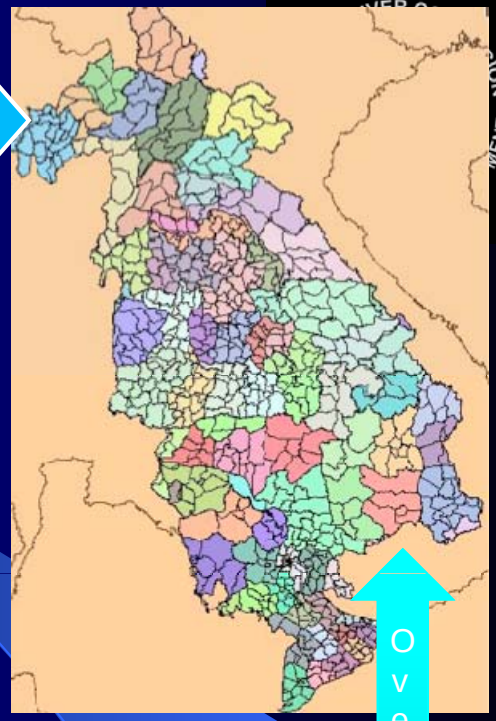

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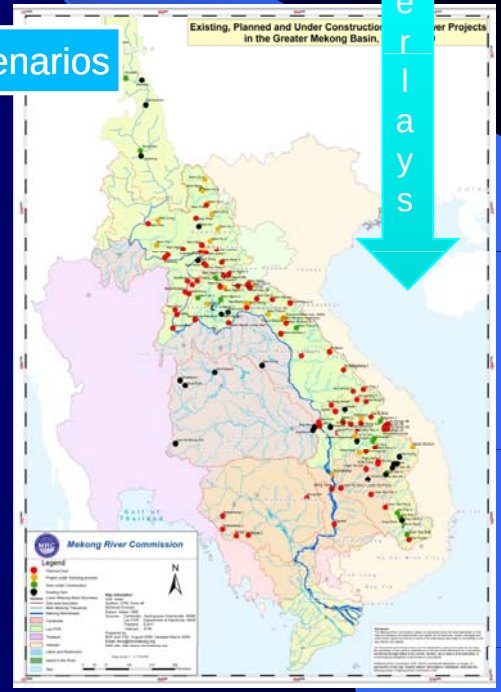

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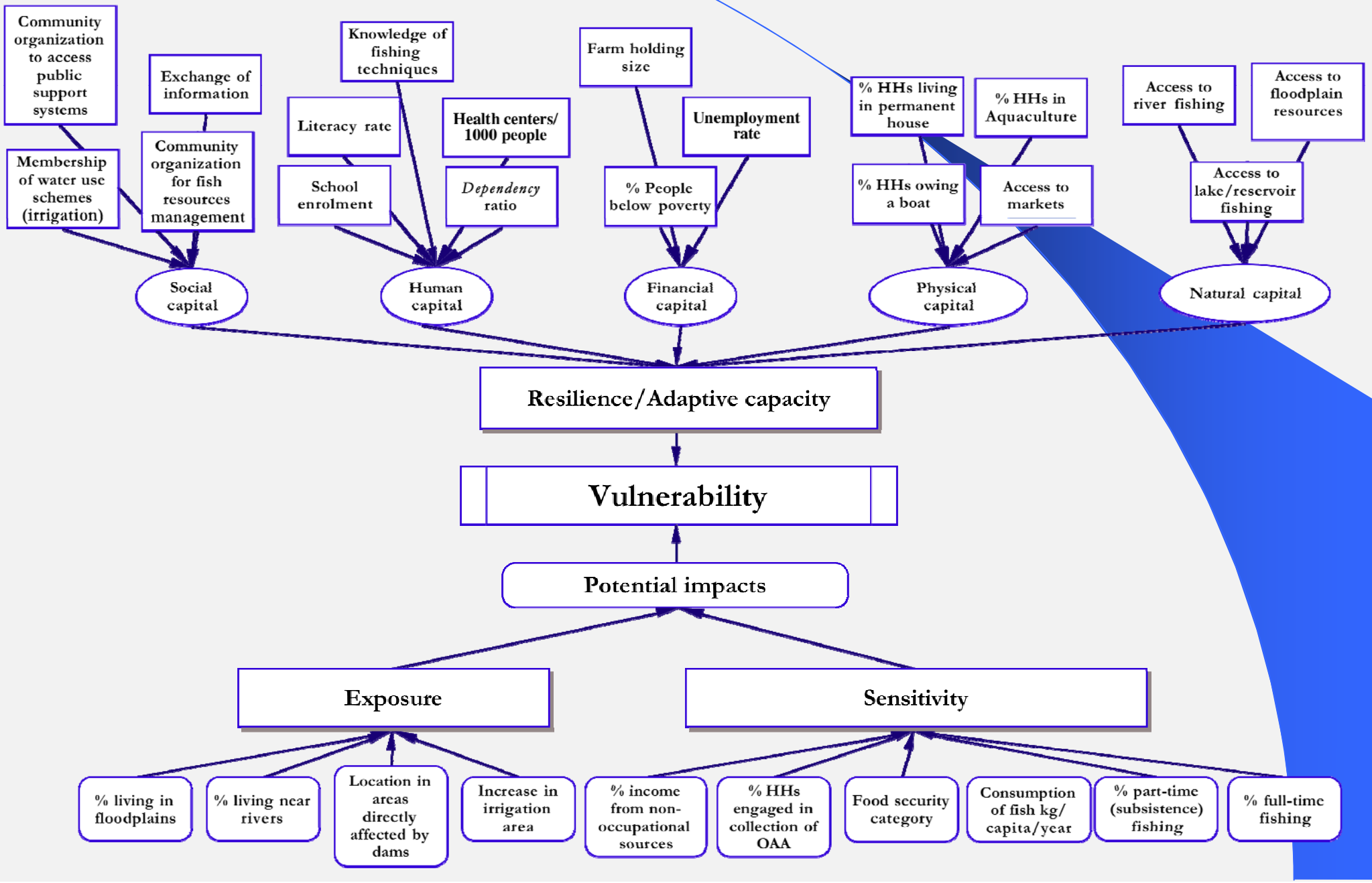
Variables in a Sustainable Livelihoods framework



Baseline

Dependency
on water and
aquatic resources

- % Part-time fishers
- % Full-time fishers
- Collection OAA/P

5. Fisheries

- In-depth studies of Mekong fisheries highlight that its importance is under-estimated in government statistics
- Actual level of participation in the fisheries obscured by occupational classes (farmer or fisher) that do not capture subsistence/part-time fishing
- Essential to use fisheries surveys and case studies, triangulate with government statistics
- Importance of collection of other aquatic animals (OAA)

- Key data sources
- Fisheries Sector Reviews, Lao PDR, Vietnam, Thailand, MRC 2008
- The magnitude of capture fisheries and aquaculture in the Mekong Delta in Viet Nam. MRC Technical Paper No. XX, Mekong River Commission, XX pp. 2008
- Socio-economics of the fisheries of the lower Songkhram River Basin, northeast Thailand, MRC Technical Paper, No. 17, January 2008
- Luangprabang Fisheries Survey, AMFC/MRC and LARReC/NAFRI; Vientiane, 2000
- An Giang Fisheries Survey, AMFC/MRC and RIA 2;Vientiane, 2001
- Tra Vinh Fisheries Survey, AMFC/MRC/RIA2 2001

Baseline

Dependency
on water and aquatic resources

- Consumption

5 And Fish consumption

- Well documented in Technical Paper that synthesize 19 studies
- Covers fish – fresh and processed
- Provincial level consumption estimates are extrapolated from fisheries surveys and case studies
- ! Not broken into migratory/non-migratory species

- Key data sources
- Consumption and the yield of fish and other aquatic animals from the Lower Mekong Basin. MRC Technical Paper No. 16, 2007
- Living Standards surveys (VHLSS Vietnam 2004, 2004 Cambodia Socio-Economic Survey (CSES 2004); Lao PDR Household Living Standard Survey 2006, Thailand Household Socio-Economic Survey 2000 (?)

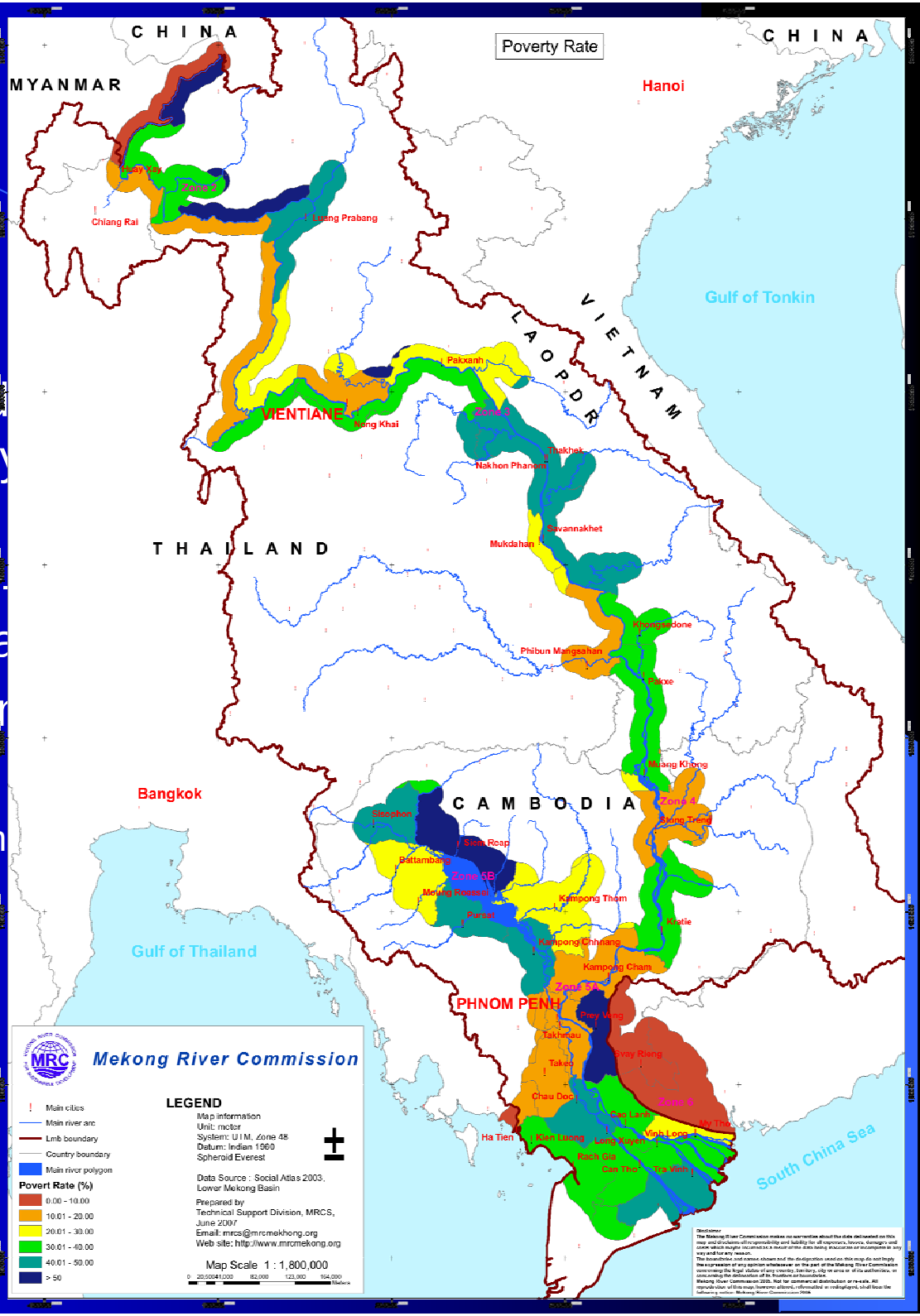
Baseline

Dependency
on water and aquatic resources

- Floodplain location
- Proximity to rivers

- Population living in flood
  high percentage are very
  resources
- Proximity to main rivers
  changes in water flows a
- Special focus on location
- Key data sources
- GIS layers – floodplains, settlem
  rivers

Example: using buffer-zone around rivers and floodplains



Baseline

Dependency
on water and aquatic resources

- % Part-time fishers
- % Full-time fishers
- Collection OAA/P
- Consumption
- Food security
- Floodplain location
- Proximity to rivers

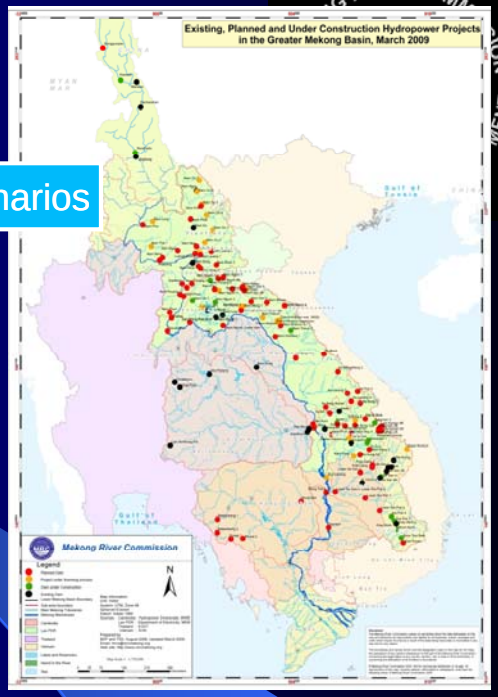
7. Example Multivariate analysis - clustering

District	% part-time fishers	% Full-time fishers	Consumption kg/capita/year	Food security – scale of 1-10	Cluster rank or value
District x	32	2	25	6	2
District y	65	7	52	4	1
District z	18	1	23	7	3

8. Vulnerability

Exposure

Impact scenarios



Need for spatial information on impacts on:

- Fish and OAA
  - Migratory fish resources
  - Black fish and OAA resources
- Wetlands
  - Changes in productivity by area unit
  - Changes in access – restrictions, transformation to farmland
- Rice/irrigation
  - Increases in irrigation areas –
- Flooding
  - Reductions/increases in flooded areas and durations
- Impacts on coastal zone – saline intrusion
- Climate change – to be decided whether to include

8. Kinds of possible impacts

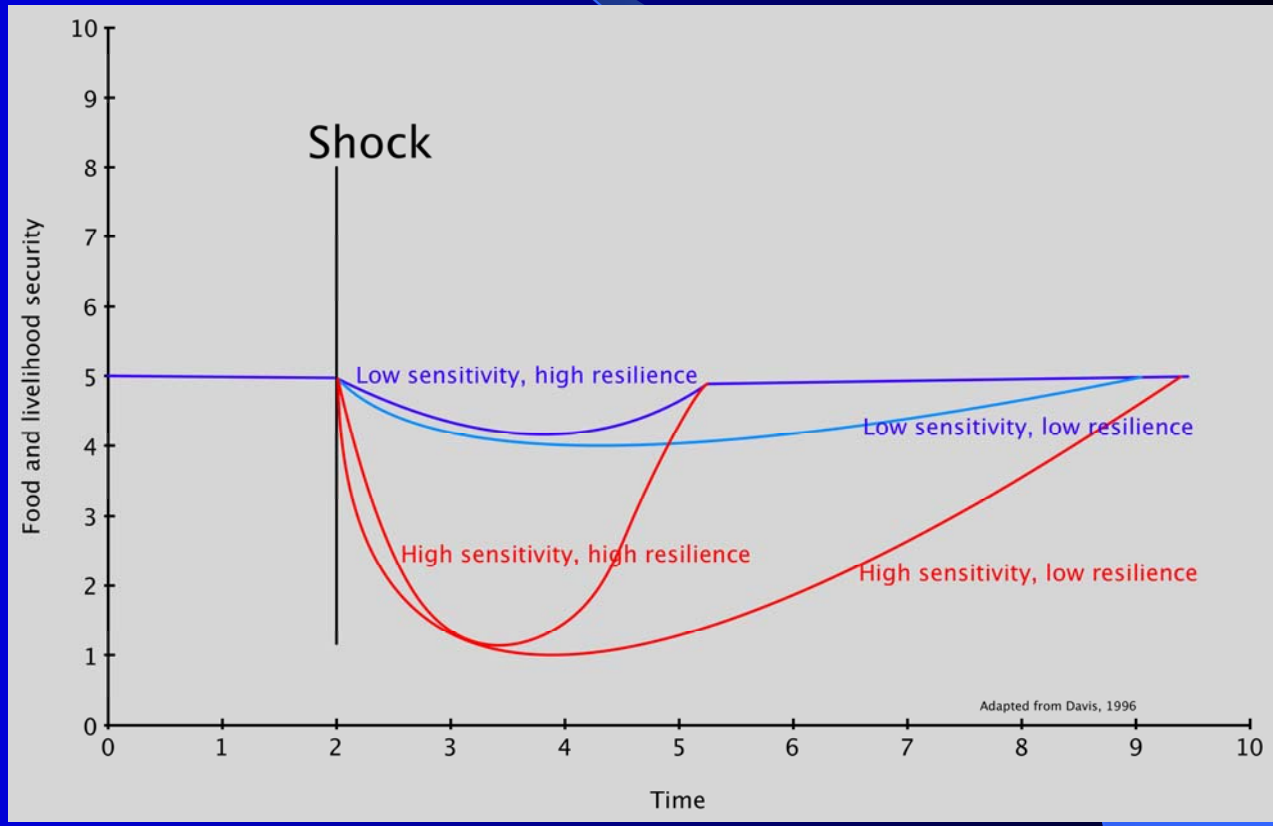
Fisheries	Sudden significant decrease in fish catches, changes in timing of fisheries
Agricultural	Change in planting/harvesting cycles
Covariate economic impacts	E.g. related to closures of medium-large fishing operations
Adverse unsustainable coping strategies	Overfishing of certain species, distress sale of capital assets negatively affecting future earnings
Social impacts	Disputes about access to natural aquatic resources, land disputes due to appropriation of open access floodplains to rice fields
Health and diseases	Decrease in protein intake, increase in water-borne diseases

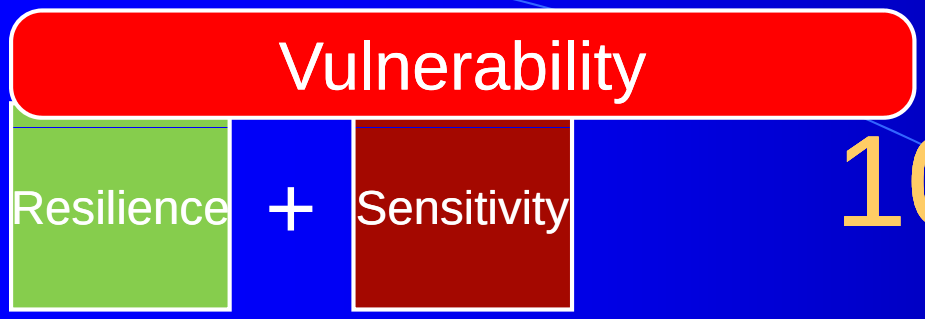
9. Sensitivity and resilience variables

Vulnerability

Resilience + Sensitivity

- **Sensitivity**
  - Dependency value/rank
  - Seasonality
  - Food security
  - Poverty rate
  - Alternative food/income
- **Resilience**
  - Access to social services
  - Access to markets
  - Education level
  - *Dependency* ratio
  - Access to aquaculture
  - Other variables





10. Food Security

- A number of Food Security analyses are available
- The results (values) from Food Security studies will be used

- Example Lao PDR:
- "It is estimated that around 157,000 (±20,000) households, or 24 percent of the people in rural Lao PDR, would become food insecure if fishing, hunting and gathering were less productive or reduced (Taking into account how much the household diet depends on natural resources and their capacity to cope with the loss of these resources).

11. Comparable approaches used by others

- District Vulnerability Analysis Lao PDR 2005
- Poverty Atlas of Lao PDR
- Geospatial Vulnerability-Exposure-Sensitivity-Resilience (VESR) 2009

12. Some outputs of baseline social assessment

- GIS layers with tabular data values
  - Dependency layer
  - Exposure layer
  - Sensitivity layer
  - Resilience layer
  - Combined vulnerability layer
  - Other combinations

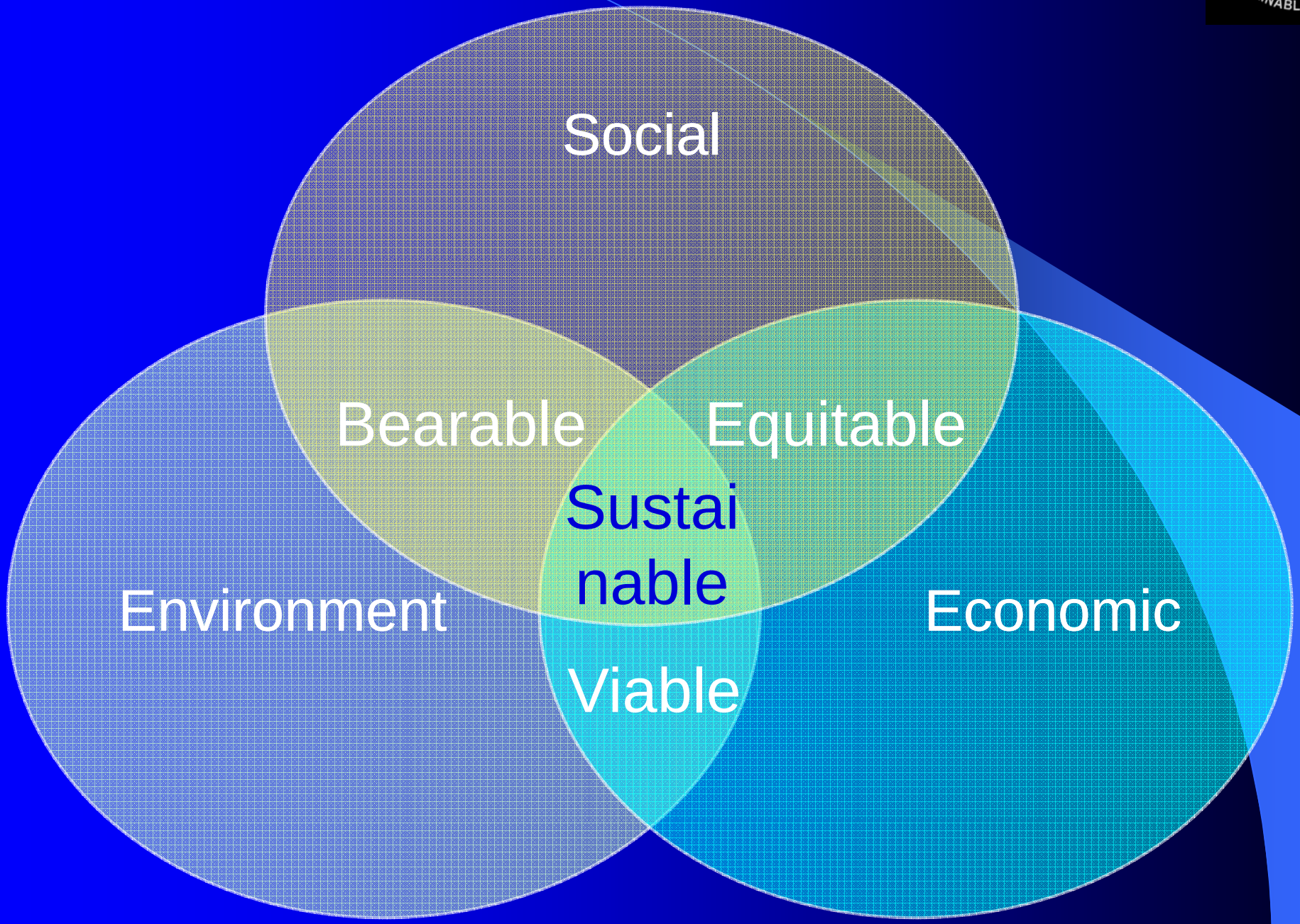
13. Creating Social Scenarios (Trend Analysis)

Different sets of assumptions
- Population, economic growth
- Human development
- Structural change
- Urbanization

- Changing the parameter values for dependency, exposure, sensitivity, resilience, according to
  - Linear trends
  - Assumptions about the future

- Possibility of applying different assumptions to different localities

The BDP assessment's overlapping dimensions



14. How we can make this assignment participatory?

- Virtual Forum
- Information of the baseline will consist of existing knowledge of stakeholders
- Possible further studies at the field level in the longer term
- Trend Analysis and changes/impacts assessment with working groups and stakeholders
- Series of BDP Forums at regional, transnational, national and tributary level
- Possibility in organizing a social working group in each of the countries and meet periodically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Thank You