Integrating climate change in development planning using SEA & EIA

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How does SEA relate to EIA?
What is SEA?

Definition of SEA:

- Family of *analytical* and *participatory* approaches,
- Aiming to *integrate* environmental considerations into policies, plans and programmes, and
- Evaluate their inter-linkages with *economic* and *social* considerations.
What are key elements of SEA?

- Dialogue
- Information
- DM & enforcement
SEA legislation established before 1989 (1)
SEA legislation established between 1990-1999 (2)
SEA legislation established between 2000-2009
No SEA legislation, but SEA practice (4)
Climate change & SEA

- Mitigation – SEA can have a role!
- Adaptation – SEA has the potential to integrate climate change adaptation options in government plans
- Climate change adaptation & mitigation can easily be integrated in SEA
CC - adaptation framework

- Economic Wealth
- Infrastructure and Technology
- Institutions and Services
- Information, Knowledge and Skills
- Equity
- Social Capital

Vulnerability of Vietnam to climate change

Adaptive Capacity

Willingness to adapt

Potential Impacts

Sensitivity

Climate Change

Exposure

GHG emissions

Climate Change

GHG emissions
- **Economic Wealth**
- **Infrastructure and Technology**
- **Institutions and Services**
- **Information, Knowledge and Skills**
- **Equity**
- **Social Capital**

**Decision-making**

**Adaptation**

**Vulnerability of Vietnam to climate change**

**Willingness to adapt**

**Potential Impacts**

**Adaptive Capacity**

GHG emissions → Climate Change → Exposure → Sensitivity → Potential Impacts

- Economic Wealth
- Infrastructure and Technology
- Institutions and Services
- Information, Knowledge and Skills
- Equity
- Social Capital

Adaptation framework
The adaptation – mitigation framework includes:

- GHG emissions
- Climate Change
- Exposure
- Potential Impacts
- Sensitivity
- Willingness to adapt
- Adaptive Capacity
- Vulnerability of Vietnam to climate change

Key components:

- Economic Wealth
- Infrastructure and Technology
- Institutions and Services
- Information, Knowledge and Skills
- Equity
- Social Capital

Decision-making involves:

- Mitigation
- Adaptation
The adaptation – mitigation framework consists of the following components:

- **Economic Wealth**
- **Infrastructure and Technology**
- **Institutions and Services**
- **Information, Knowledge and Skills**
- **Equity**
- **Social Capital**

**Vulnerability of Vietnam to climate change** is influenced by:

- **GHG emissions**
- **Climate Change**
- **Exposure**

**Potential Impacts** are determined by the combination of **Sensitivity** and **Adaptive Capacity**.

**Decision-making** is crucial for both **Mitigation** and **Adaptation**.

**Strategic Environmental Assessment** is the final step in evaluating the overall impact of these processes.
How to integrate CC-mitigation in SEA?

• Mitigation is relatively simple to deal with
• Identify the:
  – policy objectives for GHG reduction
  – identify opportunities to reduce GHG?
• Most important sectors:
  – agriculture / rice fields
  – industry
  – transport
  – opportunities for renewable energy sources
1. Setting the objective

- What national, regional and sector policies and plans are in place?
  - What objectives are set regarding:
    - mitigation of GHG and adaptation - safety?
  - Translate those objectives for a specific plan
    - measurable

- Objective provincial action plan: to establish climate proof province for sustainable development:
  - vulnerability (low – high) ?
  - adaptation capacity (low – high) ?

- Agree on standards or a range of acceptability
- Long term time horizon
Country specific decision-making framework

**National level**
- Forest. ↔ Agric. ↔ Energy ↔ Roads ↔ Towns

**Provincial level**
- Forestry ↔ Agric. ↔ Energy ↔ Roads ↔ Towns

**District level**
- Forestry ↔ Agric. ↔ Energy ↔ Roads ↔ Towns
National CC policy needs to be implemented

National level
Forest. ↔ Agric. ↔ Energy ↔ Roads ↔ Towns

Provincial level
Forestry ↔ Agric. ↔ Energy ↔ Roads ↔ Towns

District level
Forestry ↔ Agric. ↔ Energy ↔ Roads ↔ Towns
Climate change policy implementation

- National level:
  - Forest (↔)
  - Agric. (↔)
  - Energy (↔)
  - Roads (→ Towns)

- Provincial level:
  - Forestry (↔)
  - Agric. (↔)
  - Energy (↔)
  - Roads (→ Towns)

- District level:
  - Forestry (↔)
  - Agric. (↔)
  - Energy (↔)
  - Roads (→ Towns)
Climate change policy implementation

National level

Socio-economic development strategy / plan

Provincial level
Forestry ↔ Agric. ↔ Energy ↔ Roads ↔ Towns

District level
Forestry ↔ Agric. ↔ Energy ↔ Roads ↔ Towns
Climate change policy implementation

National level
- Socio-economic development strategy / plan

Provincial level
- Socio-economic development plan
- Land use plan

District level
- Forestry ↔ Agric. ↔ Energy ↔ Roads ↔ Towns
Climate change adaptation

National level
Socio-economic development strategy / plan

Provincial level
Socio-economic development plan
Land use plan

District level
Forestry ↔ Agric. ↔ Energy ↔ Roads ↔ Towns
Climate change adaptation

National level

Socio-economic development strategy / plan

Provincial level

Socio-economic development plan

Land use plan

District and community level

Building blocks = Adaptation (& mitigation) measures
2. Determine climate change impacts

- Select a climate change scenario(s)
  - Scenarios are available – most likely work with mid - Scenario B
  - Uncertainty is still large – be frank about it (#)
- Estimate primary climate change impacts per sector
- Estimate primary climate change impacts per land use
  - prepare flooding / drought (risk) maps
  - prepare maps with risk of salt intrusion
- Estimate for each community the primary and secondary risks of climate change (small, medium, high, x-high)
  → Prepare vulnerability map (by making use of GIS)
Accommodate uncertainty in decision making

- What we think we know is happening: Compared to historical extremes, Shifting seasons
- What is likely to happen: More extreme weather events, More pronounced seasons
- What could happen: New extremes not previously witnessed, Shifts in climate envelopes
- What is unlikely but possible: Total change in state of climate, Unforeseen climate regimes
Scale - data

- Translating CC projections to national and local level
- Linking these projections to site specific information
3a. Asses all proposed actions / measures

- Asses to what extend proposed actions and measures influences climate change risks
- Score: increase / neutral / decrease / unknown
3b. Determine adaptation options / alternatives

- Adaptation options should provide building blocks for alternatives (e.g. focus on green versus grey)
- Identify existing or new adaptation measures per:
  - sector
  - land use
  - communities / districts
  - neighbouring provinces
  - inventory of (international) CC adaptation projects
- Adaptation measures need to be combined in a coherent set of measures
3c. **Determine adaptation options / alternatives**

**Remark:**
- Adaptation options reduce the risk of CC impacts
- One can distinguish the following adaptation measures:
  - no regret measures
  - local / community level
  - district level
  - provincial level intra-provincial
  - international
How to integrate CC adaptation in SEA? (5)

4. Evaluation of all (including adaptation) alternatives

Remark: Evaluation of adaptation measures preferrably integrated into alternatives should include trade offs with other aspects, score on followig aspects:
- climate change risks
- livelihoods
- environment quality
- (social) cost benefits
Characteristics

- 2.2 M. inhabitants
- Gateway to the Mekong delta
- 2nd largest rice producer
- 1st fish producer
Objective: SEA - An Giang province Master plan 2020

Inform the An Giang government on:

Phase 1. Risks of climate change for investments planned in 2020 Master plan

Phase 2. Development of an alternative climate proof Master plan 2020 (horizon to 2050)
SEA phase 1:

Climate & Mekong scenarios

An Giang Climate change action plan

An Giang Socio economic master plan 2020

Strategic Environmental Assessment

How is climate change addressed in the existing master plan?
SEA phase 1: Participatory approach together with all departments

SEA - phase 1: Assessing risks of climate change for the investments planned in the Master plan 2020
SEA phase 2:

Climate & Mekong scenarios → An Giang Climate change action plan

Climate proof AG Socio economic master plan 2020

Strategic Environmental Assessment

How is climate change addressed in the existing master plan?
An Giang a province vulnerable to climate change and changes in the Mekong basin
Climate change impacts

Main impacts:
- Drought
- Flooding
- Temperature rise
- Salt intrusion
Impact of dams on Mekong delta

Main impacts:
- Peak flow in wet season decreases
- Flow in dry season more stable
- Sediment discharge decreases, negative impact e.g. fish production

→ Combined impacts will be considered in SEA for An Giang province
An Giang Climate change action plan 2011

**Objective:** Develop effective response to CC to reduce damage and ensure sustainable development

- Assess influence of climate change on
  - areas;
  - sectors;
  - communities;
- Develop programs and plans to respond to CC
- Identify mitigation and adaptation measures
- Ensure benefit sharing
- Start pilot projects

→ Still very general, measurable objectives in SEA
Objectives and targets:

• Sustainable development of an open economy
• Agricultural industrialization and rural modernization
• Transform manual production economy into a modern production economy
• Economic growth 12.5 % (2011-2020)
• Reduction of poor hh 1.5 – 2.0 % yr
Investments planned
Master plan 2020

Agriculture
- > irrig. area 2→3 crops
- clean agriculture

Aquaculture
- applic. of int. standards

Urban areas
- extension

Industry
- 4 new zones ~1000 ha

Infrastructure
- 1 int. seaport, 1 airport
- new prov. nat. roads
- int. railway
Investments planned
Master plan 2020

Climate change adaptation measures:
1. drinking water basins
2. construction of sluices and canals
3. develop dike system

→ Focus on grey adaptation
SEA phase 1: Lessons learned

• Province strong mandate for CC, steering districts & commun.

• Provincial climate change action plan
  – too general, no info on risks and no measurable objectives
  – scenarios for climate yes, for Mekong no

• 10 yr Master plan is guiding investments & adaptation measures
  – investments are not climate proofed
  – adaptation are technical, downstream impacts not considered
  – inter-provincial coordination nearly absent

• Strong need for an integrated (transboundary) Mekong Delta Plan

• SEA helpful to assess, how climate change is incorporated in policy-making
SEA Phase 2: Final result

A climate proof Master plan 2020
- Long term vision 2050, flexible strategy
- Different risk standards
- Adaptation measures: no regret, grey, green and social
- Ecosystem services
- Comparative analysis of the costs and benefits of the existing and the new Master plan

Province decides on adapting the Master plan!
Thank you for your attention!