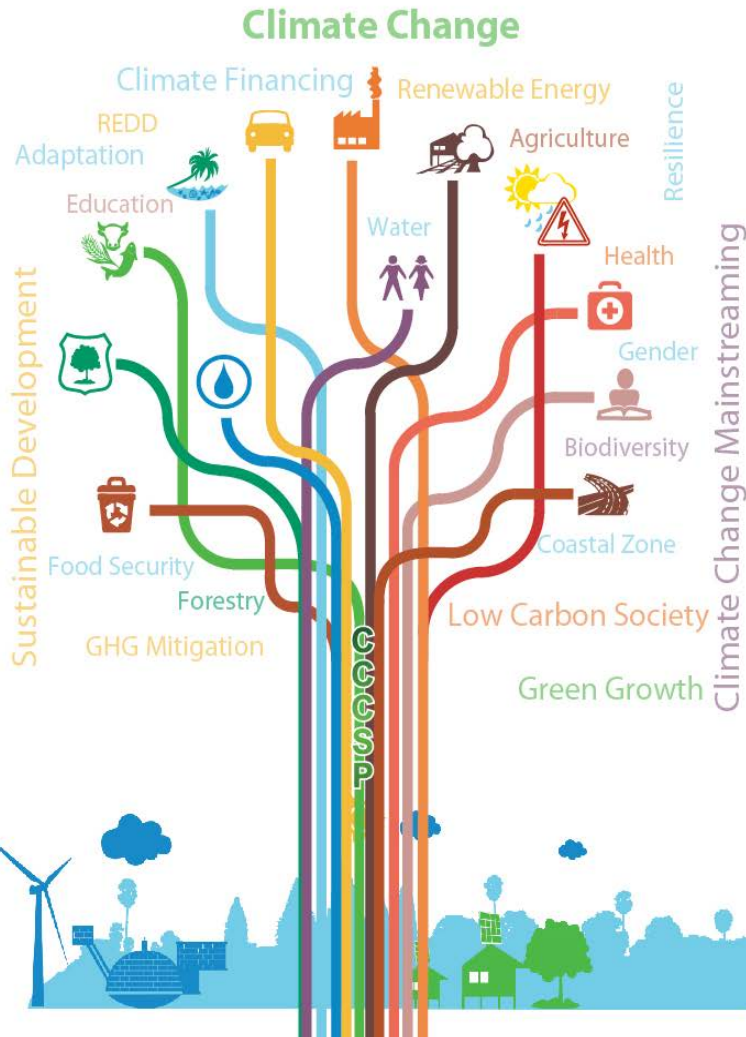


3rd National Forum on Climate Change

5 – 7 November 2013, Cambodia

“Taking Action for Sustainable Development in the Changing Climate”



Climate Change Responses in Fisheries Sector

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CAMBODIA CLIMATE CHANGE ALLIANCE

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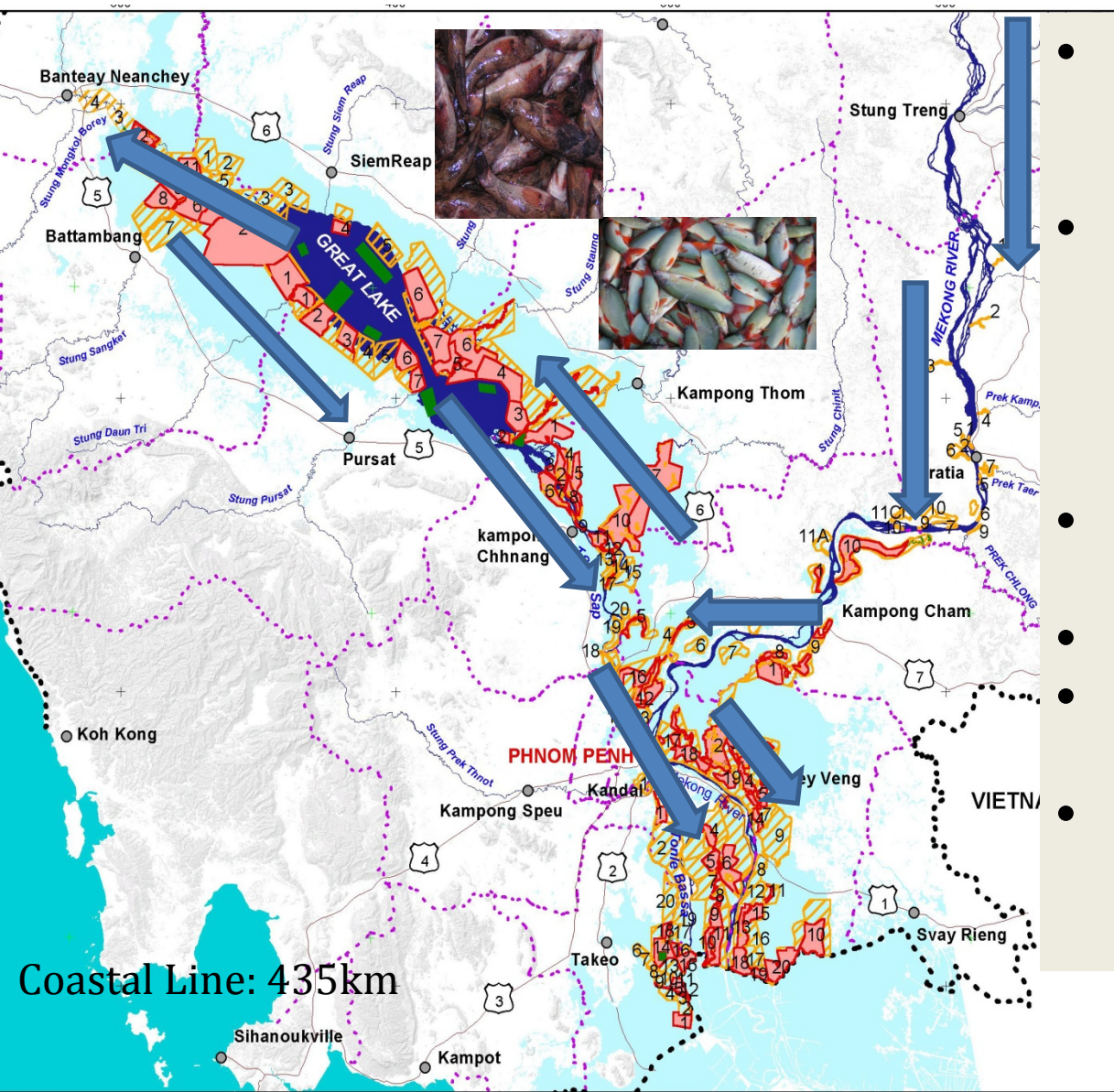


SWEDEN

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- I. Overview of Fisheries in Cambodia**
- II. Climate Change Risks and impacts to Fisheries Sector**
- III. Climate Change Strategy Plan for Fisheries Sector (*FiA-CCSP*)**
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- V. Progressed Activities and Ways forward**

Overview of Fisheries In Cambodia



- Fisheries: Inland Fisheries (Mekong & Great Lake) & Coastal.
- GL:
 - DS: total areas 3000km² & deep 0.8-1m
 - RS: extended to 15000km² & deep 10-12m
- Flooded Forest Areas 932.141 ha
- Mangrove areas 67.770ha
- more than 500 Fish Species in Cambodia & 296 for GL
- 60% of total fisheries production from GL



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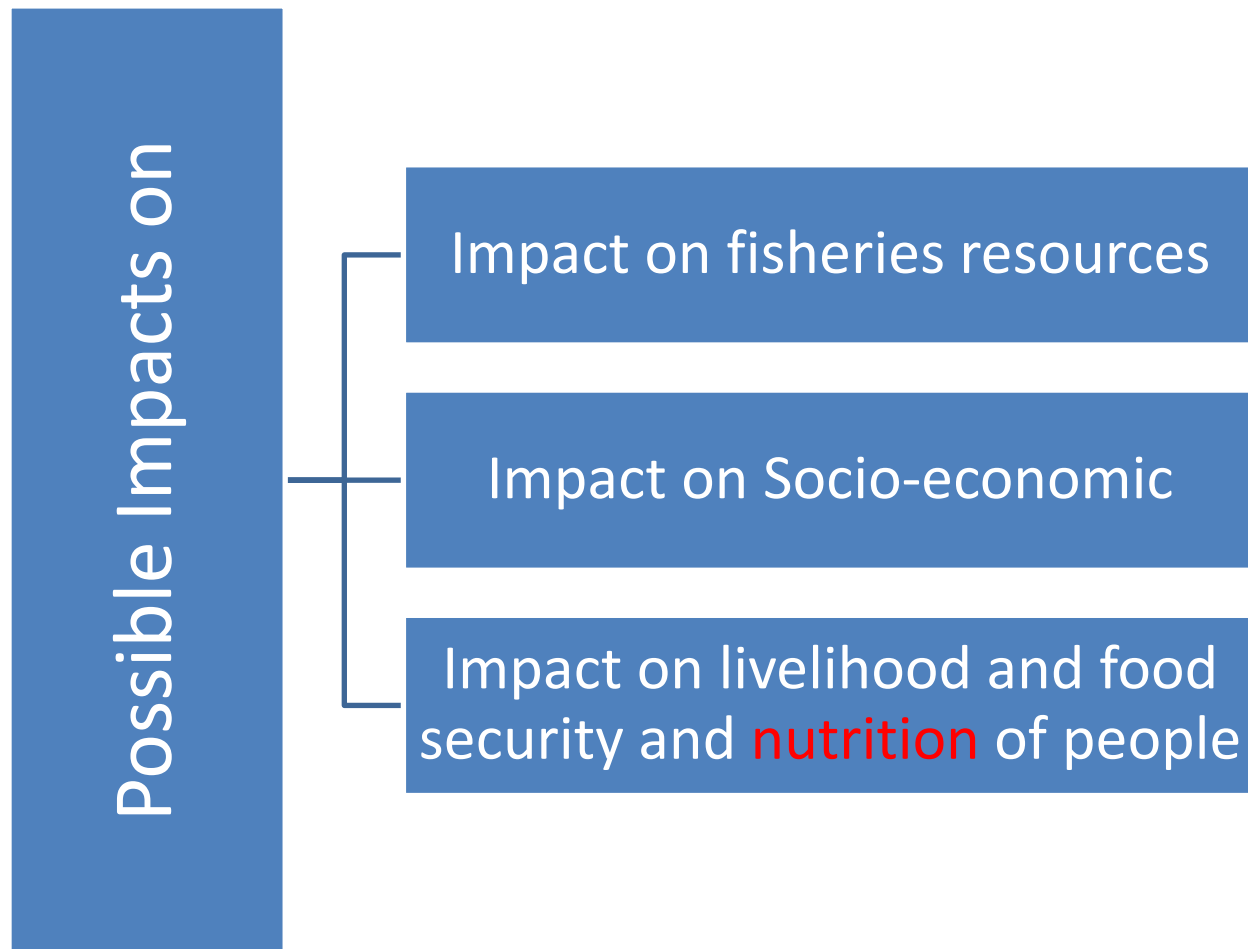


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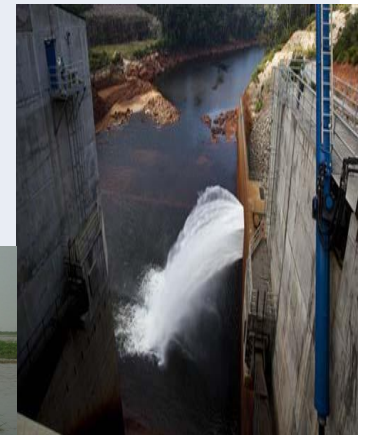
Climate Change Risk & Impacts to Fisheries Sector

Source: WorldFish Center *Climate Change and fisheries: vulnerability and adaptation in Cambodia, 2009*



Climate Change Impacts on Fisheries Resources

Predict Change Factor	Potential Impacts
Increase in water temperatures (+0.3 – +0.6 C) by 2025	<ul style="list-style-type: none">- shallower reservoirs , lake, and canals- Decrease Dissolved Oxygen- Decrease feeding ground- Slow fish grow rate- Lost spawning ground- Least fish species and diversity- Decrease Fish Stock
Rainfall in WS expect to increase (+3 to +35%) GL level expect to increase up to 2.3 m	<ul style="list-style-type: none">- Positive sign for Fisheries resources because more flooding, more habitats for fish spawning, nursing, foraging,- but its still impact to fisheries resources due to the dam development which impact for fish migration to spawn at upper Mekong.



Predict Change Factor	Potential Impacts
Runoff throughout the Mekong Basin is expected to increase by about 21%	<ul style="list-style-type: none"> - Increasing sediment loading in rivers, lakes and wetlands, with higher nutrient levels boosting fisheries productivity. But, - The effect may be offset by sediment retention behind the many dams that are likely to be constructed upstream
Extreme weather events (Storms, floods and droughts)	<ul style="list-style-type: none"> - Loss of aquaculture stocks and wild fish stocks/habitats - Destroyed fishing and aquaculture infrastructure - Higher direct risk to fishers - Change in fishery production are likely to reduce fish production - Likely to have the greatest impact on people who depend on fishing as their primary livelihood activity
Rising sea level	<ul style="list-style-type: none"> - Salt water infusion into inland and ground waters causing: <ul style="list-style-type: none"> • Damage to freshwater capture fisheries • Reduced freshwater availability for aquaculture • shift to brackish water species (high value species, e.g. sea bass, mud crab, black tiger shrimp) • Loss of coastal ecosystems such as mangrove forests: • Reduced recruitment and stocks for capture fisheries and seed for aquaculture. • Worsened exposure to waves and storm surges • Risk that inland aquaculture and fisheries become inundated.

Predict Change Factor

Extreme Events such as Storms, heat wave, floods, and droughts

Potential Impacts on Socio-Economic

It occur frequency, long and intensity causes to:

- Decrease of the fisheries contribution to national budget
- Loss of job and livelihood opportunity cause to get less income for family especially for poor family and vulnerable people.
- Increase the budget expanse from gov't to support

Potential Impacts on Livelihood and Food Securities

- Destroyed of public infrastructure and housing
- destroyed of agriculture product and production
- lack of dailly food consumption and nutrition
- Poor people face to high risk disaster
- loss of opportunity for children go to school
- loss of opportunity to find job
- Need strong support and intervention from gov't, NGOs, RED Cross and other private sector help.

FiA-CCSP

- **Vision:** *Responsible Climate Change mitigation and adaptation measurement for Sustainable fisheries resources management to increase fisheries productivity, fish stock and aquatic resources ensure food and nutrition security and contributing to poverty alleviation.*
- **Mission:** *The Fisheries Administration will lead the sector in developing necessary adaptation measures to ensure adequate resilience to the affects of climate change, and will put in place the necessary mitigation measures to minimize the sector's contribution to the cause of climate change.*
- **Goal:** *To Promote development and effective management of fisheries in response to climate change with particular focus on improvement of aquatic ecosystems, prevention of flooded and mangrove forest destruction, promotion of research study and development of aquaculture and processing as well as strengthening more effective community fisheries (CFi) management; and*

FiA-CCSP

- **Objectives:**

1. To develop and maintain a clear understanding of the way in which climate changes are likely to impact of all parts of the sector,

2. To put in place adaptation measures which adequately ensure the sustainable management of fisheries resources in such a way as they continue to support the dependence of Cambodia's population on these resources,

3. To participate actively, on a regional basis, to ensure that all measures taken to adapt to the affects of climate change are fully integrated with:

- *Other measures taken to support fisheries in Cambodia*
- *Other measures taken by neighbouring countries*

FiA-CCNAP

- **Strategic Objectives:** *To promote sustainable management and development and conservation of fisheries by strengthening awareness and capacity on climate change, appropriate actions to adapt to and mitigate climate change and active contribution to climate change initiatives at all levels, particularly at the local, national and the Mekong regional levels.*
- **Strategic 1:** *Improving fisheries productivity and production to ensure food security, promote nutrition and income generation through strengthening the management, promotion of development and conservation of fisheries resources; increase overall aquaculture production by 15% annually; promote the creation and management of community fish refuge by 75% of all communes nation- wide by 2019*

FiA-CCNAP of S1

- **Key Activities 1:** Promoting aquaculture production systems and practices that are more adaptive to climate change
 - Identifying and testing climate resilient aquaculture practices
- **Key Activities 2:** Increasing the resilience of wild fisheries resources to climate change impacts
 - Building CC Resilience capacity of Community Fisheries for effective fisheries management
- **Key Activities 3:** Promoting CC resilience livelihood diversification in CFi
 - Identifying, demonstrating and scaling out climate resilient livelihood options with in Mekong, Tonlesap and Coastal Region

Strategy 2

- **Strategy 2:** Understanding the effects and impacts of climate change on the fisheries resources and aquaculture nationwide and developing and implementing climate change adaptation and mitigation strategy for the fisheries sector;
- **Key Activities 1:** Improving understanding of the climate change impacts and vulnerability of fisheries sector in order to enhance the monitoring and planning
 - Conducting an assessment of climate change impacts on and vulnerability of Fisheries Sector throughout its value chain.
 - Developing a set of indicators and protocols for monitoring climate change implications in fisheries sector

Strategy 3

- **Strategy 3:** *Enhancing the fish and fisheries product safety by ensuring at least 80% of processors comply with and 80% of fish and fisheries products are produced under the rules and regulation of food safety and quality assurance and standard by the end of 2018.*

FiA-CCNAP of S3

- **Key Activities 1:** *Strengthening the entire value chain for the fish and fisheries products to response to the climate change and Developing climate resilience technologies to improve quality of fishery products in the fishery processing industries*
 - *Identifying and testing the climate sensitive and socially acceptable post-harvest technologies*
 - *Disseminating climate sensitive post-harvest technologies to relevant stakeholders*

Strategy 4

- **Strategy 4:** *Promoting establishment of Fisheries One Village One Product (FOVOP) to improve local fisher livelihood and wellbeing to enable their adaptation to and contribution to mitigating climate change by establishing FOVOP in at least 150 communities by 2018*
- **Key Activities 1:** *Promoting and Mapping climate resilience FOVOP*
 - Promoting and Mapping climate resilience FOVOP

Strategy 5

- **Strategy 5:** *Strengthening research study, development and dissemination of new techniques on climate sensitive and fish growing species for breeding, rearing, feed production, and new fish product processing technologies to meet the need of the market economy*
- **Key Activities 1:** *Improving research and modeling capacity for climate change impact assessment on fisheries sector*
 - Conducting studies to identify aquatic species, breeding, and feeding technologies that are more resilient to climate change impacts

Strategy 6

- **Strategy 6:** *Strengthen and enhance capacity of responsible agencies and stakeholders to coordinate interventions and develop human resource through provision of training on effects of climate change in fisheries and relevant adaptation measures*

FiA-CCNAP of S6

- **Key Activities 1:** *Developing capacity and awareness for climate change and appropriate responses in fisheries sector*
 - Conducting capacity building for fisheries officers (impacts assessment and GHG inventory and others...) and awareness raising for other fisheries stakeholders.
- **Key Activities 2:** Enhancing institutional coordination and cooperation at national, regional and international
 - Establishing network for information and knowledge sharing with NGOs, IOs, DPs and governmental technical working group on fisheries and other regional organization like ASEAN, MRC...etc.;

Strategy 7

- **Strategy 7:** Strengthening effective management and preservation of flooded and mangrove forests and their replanting in degraded areas; by the end of 2019 which:
 - 35 percent and 75 percent of flooded and mangrove forests respectively are effectively protected with boundary marked,
 - 80% of conservation areas in Tonle Sap are improved;
 - raise public awareness on the role of CFI in fisheries conservation and promote establishment and protection of conservation area in every CFI in order to ensure sustainability of fisheries ecosystems and improve fisheries productivity to contribute to adaptation and mitigation of climate change

FiA-CCNAP of S7

- **Key Activities 1:** *Strengthening existing management and conservation of key habitats to contribute to carbon sink and improve adaptation responses.*
 - *Establishing and Conducting Green House Gas (GHG) inventory in Fisheries Sector (Carbon sink and sources calculation).*
 - *Promoting REDD+ implementation in Fisheries Sector (including carbon credit)*
 - *Developing an effective management plan for the flooded and mangrove forests, sea grass and coral reefs to enhance carbon sink*

Strategy 8

- **Strategy 8:** *Promote adoption and enforcement of policy, legislation and regulation and raise technical and scientific based awareness knowledge among relevant stakeholders such as fishers and fish farmers, fish processors, and politicians;*
- **Key Activities 1:** *Integrating the climate change adaptation and mitigation (GHG) strategies into the Fisheries Development Plan and National Strategic Development Plan*
 - Integrating climate change adaptation into existing plans and legislations in fisheries sector

Strategy 9

- **Strategy 9:** *Promote environmental and ecosystem protection through control on discharge of waste from fishing boats, and destruction and burning of, encroachment into, and utilization of flooded and mangrove forests for fish processing, and water pollution as a means to contribute to reducing greenhouse gas emissions in the fisheries sector*
- **Key Activities 1:** Enhance environmental quality in Fisheries values chain and processing
 - Mapping the potential pollution by fisheries industries and activities

Strategy 10

- **Strategy 10:** *Promote gender in adaptation to and mitigation of climate change impact in the fisheries sector*
- **Key Activities 1:** *Promoting gender awareness of the climate change impacts and responses in fisheries sector*
 - Developing materials suitable for different media and capacity-development programs to promote understanding of gender issues in both adaptation and mitigation to/of climate change

FiA-CC Progress and Way Forwards

- Finalize FiA-CCSP & CCNAP by the end of 2013
- Need to integrate and implementations of CCSP & CCNAP into the FiA-FSP 10 years
- Start to implement of CC by 2014 through out most activities:
 1. Capacity Building to FiA officer at national - sub-national and CFI level for ToT and other stakeholder included women
 2. scale up of some adaptation activities has been achieved with the pilot demonstration of the project CCCA
 3. Conducting some assessment on the climate change impact and vulnerability in fisheries and aquaculture with some modeling capacity to identified the resilience of seed, feed, technology.
- Enhancing institutional coordination and cooperation at national, regional and international with DPs, other stakeholders to implementation FiA-CCNAP

Thank You Very Much !

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