CLICC

Country Level Impacts of Climate Change (CLICC) Project

VIET NAM – 3/2016

The CLICC templates are the result of a pilot study designed to test the feasibility of presenting country-level climate impacts information in a consistent and transparent manner. These CLICC pilot products are just the start of the CLICC process. The CLICC template is under continuous development and will improve over time.

Table 1: Proposed template for recording and presenting <u>Observed</u> climate impacts

Observed climate impacts							
Sector	**Observed climate impacts**	**Global impact rating** (High / Medium/ Low) *(Please see Technical Guidelines Section 4.2 for rating method)*	**National impact rating** (High / Medium/ Low) *(Please see Technical Guidelines Section 4.2 for rating method)*	**Confidence rating** (Very low / Low / Medium / High) *(Please see Technical Guidelines Section 5.1.1 for rating method)*	**Data quality rating**(Low / Medium / High) *(Please see Technical Guidelines Section 5.1.2 for rating method)*	**Time period**	**Metadata identifier(s)** *(Please see Annex 1 below and Technical Guidelines Section 6 for further details)*
		(In order to embrace variation and uncertainties, ratings can include a range, e.g. Low-Medium, Medium-High, or Low-High)					
Agricultural							
Fishery	• Reduce aqua-cultural productivity and quality, degradation of farming-environment and damage fishing equipment changes in temperature, precipitation, natural disasters etc.	Medium	Medium	Medium	Medium	2001-2006	1.1
Food security and food production systems	• Greater variability in rice crop yields due to storm and flood	Medium	Medium-high	Medium-High	Medium	1986-1990	1.2
	• Greater variability in rice crop yields due to drought	High	High	Medium-High	Medium	1986-1990	1.2
Livestock	• Greater variability in livestock due to storm and flood	Medium	Medium	Medium	Medium	1986-1990	1.2

Table 2: Proposed template for recording and presenting _projected_ climate impacts

Projected climate impacts						
Sector	**Projected climate impacts**	**Impact rating** (High / Medium/ Low) _(Please see Technical Guidelines Section 4.3 for rating method)_	**Confidence rating** (Very low / Low / Medium / High)_(Please see Technical Guidelines Section 5.1.1 for rating method)_	**Data quality rating**(Low / Medium / High) _(Please see Technical Guidelines Section 5.1.2 for rating method)_	**Time period**	**Metadata identifier(s)**_(Please see Annex 1 below and Technical Guidelines Section 6 for further details)_
		(In order to embrace variation and uncertainties, ratings can include a range, e.g. Low-Medium, Medium-High, or Low-High)				
Agricultural						
Fishery	• Profit from fishery and aquaculture would be reduced due to change of temperature[1]	High	Medium	Medium	2050	2.1
	• Profit from fishery and aquaculture would be reduced due to change of precipitation	High	Medium	Medium	2050	2.1
	• Profit from fishery and aquaculture would be reduced due to storm	High	Medium	Medium	2050	2.1
Food security and food production systems	• Rice and maize yields could be reduced.	High	Medium	Medium	2030; 2050	2.2 – 2.5

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[1] A reduction of profit of fishery sub-sector caused by a reduction of aqua-cultural productivity and quality as well as a degradation of cultivation areas.

Annex 1: Metadata table

Metadata for Table 1

Fishery

Metadata	
Metadata identifier	1.1. Report: Impacts of Climate Change to Aquaculture and Fishing
Explanation for *Impact* **rating**(Explanation of the impact rating given and how it relates to the specific information in question)	**1. The impact of climate change on fishery:** *Medium* The report stated that: In Vietnam, currently, there have been no adequate studies on the impacts of climate change on the exploitation of marine products. However, the potential impacts of climate change may be very large because of latent risks and challenges in the field of fishing. These impacts were partly shown through the statistic of storm damages that affect to the coastal fishermen communities in recent years. According to the statistic from 2001 to 2006, there were 193 people dead and 1729 boats sank or broken due to disasters. Raising temperatures can reduce fish production in ponds; arising out of multiple species diseases. In recent years due to a degradation of farming-environment and the extreme changes of weather phenomenon has killed mass of prawn in most provinces. This disease typically occurs and spreads very fast and wide, so it is a high risk. Drought and flooding have affected the aquaculture in many areas, such as in Central Vietnam, where experience the most severe drought. Many fish pond were abandoned because there was no water to supply the farming process. Some ponds have not survived until the harvest time and they have depleted water in the pond, so people have to leave early harvest or livestock. Shrimp and fish less than commercial size priced are too cheap or as feed for cattle and poultry. Storm phenomenon also makes aquaculture in coastal areas affected, completely devastating levee system of ponds and cages in the sea, so the losses are unavoidable.
Explanation for *Confidence* **rating** (Explanation of the confidence rating given and how it relates to the specific information in question)	**1. Fishery:** *Medium* *The report is an official report submitted to the Ministry of Agriculture and Rural Development of Vietnam.*
Climate projections, emissions scenarios, or models used (if relevant)	Agriculture
Source(s) (e.g., document, study, report, etc.)	1. Report: Impacts of Climate Change to Aquaculture and Fishing http://webcache.googleusercontent.com/search?q=cache:9rrsRaXrQ9MJ:www.biodiversity-day.info/uploads/media/3._MOFI_CC_Fishery_Aquaculture_Paper_V.doc+&cd=3&hl=vi&ct=clnk
Datasets (if applicable)	
Additional assumptions (if applicable and not covered by common ratings approach)	N/A
Additional limitations (if applicable and not covered by common ratings approach)	N/A

Data quality assessment		
Dataset: *(List the dataset assessed)*	1.1 Impacts of Climate Change to Aquaculture and Fishing	
Data Quality Criteria	**Levels**	**Score**
1. Transparency and auditability	1. Data unavailable to public	
	2. Limited summary data available	2
	3. Full raw/primary data set and metadata available	
2. Verification	1. Unverified data	
	2. Limited verification checks in place	2
	3. Detailed verification in place and documented	
3. Frequency of updates	1. Sporadic	1
	2. Every 3-5 years	
	3. Annual or biennial	
4. Security	1. Future data collection discontinued	
	2. Future data collection uncertain	
	3. Future data collection secure	3
5. Spatial coverage	1. Partial national coverage	
	2. National coverage, some bias	2
	3. Full national coverage, including adjacent marine areas, if and where appropriate	
	TOTAL	10
Total scores should be rated as follows: 5 to 8 (Low); 9 to 12 (Medium); 13 to 15 (High) **RATING**		Medium

Metadata the Table 1
Food security

Metadata	
Metadata identifier	1.2. Synthesis Report: Inventory, evaluation and use of Vietnam agricultural climate resources
Explanation for *Impact* **rating**(Explanation of the impact rating given and how it relates to the specific information in question)	**Global** **1. Greater variability in crop yields due to storm and flood:** *Medium* *– The report stated that the loss was estimated around 186,365 billion VND (approx.. £23,414,221)* **2. Greater variability in crop yields due to drought:** *– The report stated that the loss for Center of Vietnam was 150.000 tons of rice. The loss is estimated around 210 billions VND or £26,383,636.4 in terms of monetary value. The loss for the whole country was estimated based on the ratio of area of rice field in the Center of Vietnam compared to the total area of rice field in Vietnam. It could be higher than £100 billions then the impact was High;* **3. Greater variability in livestock due to storm and flood:** *– It is indicated in the report that the average annual loss in period of 20 years from 1981 to 2000 was 181,140 cattle (approx. £19,344,105); The impact was medium.* **National impact** The National threshold was determined based on the ratio of Vietnam GDP/Global GDP of 2015, which is 186,205/399,116 = 0.47. Then we have the following threshold for rating the national impact:

National class of observed impacts	Economic
High	**Major damage and disruption** *(~ £ 50 million)*
High-Medium	**Sub-Major damage and disruption** *(~ £ 20 million)*
Medium	**Moderate damage and disruption**(*~ £ 5 million)*
Low-Medium	**Major damage and disruption** *(~ £ 2 million)* **Minor damage and disruption** *(~ £ 0.5 million)*

Explanation for *Confidence* **rating** (Explanation of the confidence rating given and how it relates to the specific information in question)	**1. Food security and food production systems:** *Medium-high* *– The data and results were approved by national experts.* **2. Livestock:** *Medium* *– The data and results were approved by national experts. The loss was mentioned for main livestock such as cow, buffalos etc. excluding ducks, chicken etc.*
Climate projections, emissions scenarios, or models used (if relevant)	
Source(s) (e.g., document, study, report, etc.)	Synthesis Report: Inventory, evaluation and use of Vietnam agricultural climate resources. (In Vietnamese language)
Datasets (if applicable)	- Crop/yield losses due to floods, drought; livestock losses due to storms and floods.

Metadata	
Additional assumptions (if applicable and not covered by common ratings approach)	N/A
Additional limitations (if applicable and not covered by common ratings approach)	N/A

Data quality assessment		
Dataset: *(List the dataset assessed)*	1.2. Synthesis Report: Inventory, evaluation and use of Vietnam agricultural climate resources	
Data Quality Criteria	**Levels**	**Score**
1. Transparency and auditability	1. Data unavailable to public	
	2. Limited summary data available	2
	3. Full raw/primary data set and metadata available	
2. Verification	1. Unverified data	
	2. Limited verification checks in place	2
	3. Detailed verification in place and documented	
3. Frequency of updates	1. Sporadic	1
	2. Every 3-5 years	
	3. Annual or biennial	
4. Security	1. Future data collection discontinued	
	2. Future data collection uncertain	2
	3. Future data collection secure	
5. Spatial coverage	1. Partial national coverage	
	2. National coverage, some bias	2
	3. Full national coverage, including adjacent marine areas, if and where appropriate	
	TOTAL	9
Total scores should be rated as follows: 5 to 8 (Low); 9 to 12 (Medium); 13 to 15 (High) **RATING**		Medium

Metadata for Table 2

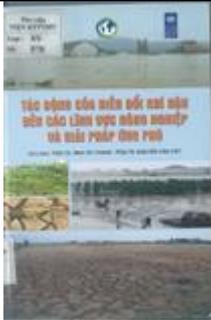**Fishing**

Metadata	
Metadata identifier	2.1 Economic evaluation of climate change impacts for fishery sector in northern area of Vietnam and proposed measures to minimize damage due to climate change
Explanation for *Impact rating* (Explanation of the impact rating given and how it relates to the specific information in question)	**1. Fishery:** *High* *The impacts of storm, temperature changing and change of precipitation on fishery sector in northern area is considered as high because the vulnerability levels mostly in the range of 0.5 to 0.9.* *The mentioned impacts of climate change have affected to the fishery. The increase of temperature, precipitation and storm impacts on the fishery production. Until 2050, total estimation of damage due to increase of temperature, precipitation and storm will be up to 584 billion VNDs (in which: Another factor that affects to the fishery caught is the policy – 1997 offshore fishing program. According to the estimated results, this policy has a negative impact on caught production, decreasing by 14, 12 tons of fisheries each year.*
Explanation for *Confidence rating* (Explanation of the confidence rating given and how it relates to the specific information in question)	**1. Fishery** *Expert-judgement was used to rate confidence as High. The report assess the impact for the North of Vietnam and it was estimated for the whole country.*
Climate projections, emissions scenarios, or models used (if relevant)	
Source(s) (e.g., document, study, report, etc.)	2.1 Economic evaluation of climate change impacts for fishery sector in northern area of Vietnam and proposed measures to minimize damage due to climate change. (The report is in Vietnamese language).
Datasets (if applicable)	N/A
Additional assumptions (if applicable and not covered by common ratings approach)	N/A
Additional limitations (if applicable and not covered by common ratings approach)	N/A

Data quality assessment		
Dataset: *(List the dataset assessed)*	2.1 Economic evaluation of climate change impacts for fishery sector in northern area of Vietnam and proposed measures to minimize damage due to climate change	
Data Quality Criteria	**Levels**	**Score**
1. Transparency and auditability	1. Data unavailable to public	
	2. Limited summary data available	2
	3. Full raw/primary data set and metadata available	
2. Verification	1. Unverified data	
	2. Limited verification checks in place	2
	3. Detailed verification in place and documented	
3. Frequency of updates	1. Sporadic	1
	2. Every 3-5 years	
	3. Annual or biennial	
4. Security	1. Future data collection discontinued	
	2. Future data collection uncertain	
	3. Future data collection secure	3
5. Spatial coverage	1. Partial national coverage	
	2. National coverage, some bias	2
	3. Full national coverage, including adjacent marine areas, if and where appropriate	
	TOTAL	10
Total scores should be rated as follows: 5 to 8 (Low); 9 to 12 (Medium); 13 to 15 (High)	**RATING**	Medium

Metadata for Table 2

Food security

Metadata	
Metadata identifier	2.2. Impacts of Climate Change on Agricultural Sector and Response Measures
Explanation for *Impact* rating(Explanation of the impact rating given and how it relates to the specific information in question)	**2. Food security and food production systems:** *High* The information in the metadata does not fit within the table presented in the Guideline. The information provided is that if areas for rice cultivation remain unchanged, compared with the potential rice yield in 2030 and 2015 rice yield will decrease 8.73 % and 15.24 % , respectively. By 2050, maize yields could shrink by 781.9kg per ha, resulting in a production decline of 880.4 thousand tons, soybean yields fall by 214.81 kg/ha or 37,0010 tons of production.
Explanation for *Confidence* rating(Explanation of the confidence rating given and how it relates to the specific information in question)	**2. Food security and food production systems:** *Expert-judgement was used to rate confidence as Medium.*
Climate projections, emissions scenarios, or models used (if relevant)	
Source(s) (e.g., document, study, report, etc.)	2.2. . Impacts of Climate Change on Agricultural Sector and Response Measures. (The book is in Vietnamese language and only hard-copy is available).

Metadata	
Datasets (if applicable)	- Crop/yield losses due to impacts of climate change in 2030 and 2050
Additional assumptions (if applicable and not covered by common ratings approach)	N/A
Additional limitations (if applicable and not covered by common ratings approach)	N/A

Data quality assessment		
Dataset: *(List the dataset assessed)*	Crop/yield losses due to impacts of climate change in 2030 and 2050	
Data Quality Criteria	**Levels**	**Score**
1. Transparency and auditability	1. Data unavailable to public	
	2. Limited summary data available	2
	3. Full raw/primary data set and metadata available	
2. Verification	1. Unverified data	
	2. Limited verification checks in place	2
	3. Detailed verification in place and documented	
3. Frequency of updates	1. Sporadic	
	2. Every 3-5 years	2
	3. Annual or biennial	
4. Security	1. Future data collection discontinued	
	2. Future data collection uncertain	
	3. Future data collection secure	3
5. Spatial coverage	1. Partial national coverage	
	2. National coverage, some bias	2
	3. Full national coverage, including adjacent marine areas, if and where appropriate	
	TOTAL	11
Total scores should be rated as follows: 5 to 8 (Low); 9 to 12 (Medium); 13 to 15 (High)**RATING**		Medium

Metadata	
Metadata identifier	2.3. Climate Change and Agriculture. 2.4. Climate Change and Agriculture in Vietnam
Explanation for *Impact rating* (Explanation of the impact rating given and how it relates to the specific information in question)	**2. Food security and food production systems:** *High* The information in all metadata does not fit within the table presented in the Guideline. The information provided is about the impact caused by natural disasters such as storms, floods and drought on yield, assessment of social costs due to an increase of investment to cope with Climate Change etc. Based on all information, the vulnerability is high and the exposure is medium. The information provided is that if the sea-level rise 1m, rice cultivation in the Mekong Delta and Ho hi Minh is at risk of losing 40.5% of the region's

Metadata	
	total yield. According to the medium climate change scenario, the spring rice yield could decrease by 716.6kg.ha by 2050, which means spring rice production could decline by 2.16 million tons, while summer-autumn rice production could decline by 795 kg/ha. This would cause a general decline in production of 1,475,000 tons. Agricultural cultivation will be limited due to the impact ò sea level rises on grain production, which poses a threat to animal feed production. Higher temperatures make plants and grow quicker, which means they lose their nutrients more quickly. Based on all information, the vulnerability is high and the exposure is medium.
Explanation for *Confidence* rating(Explanation of the confidence rating given and how it relates to the specific information in question)	**2. Food security and food production systems:** Expert-judgement was used to rate confidence as Medium.
Climate projections, emissions scenarios, or models used (if relevant)	Climate Change, Sea level rise scenarios for Vietnam, version 2012
Source(s) (e.g., document, study, report, etc.)	2.3. Climate Change and Agriculture. (The book is in Vietnamese language and only hard-copy is available) 2.4. Climate Change and Agriculture in Vietnam. (The book is in Vietnamese language and only hard-copy is available)
Datasets (if applicable)	- Rice Crop/yield losses due to impacts of climate change in 2030 and 2050
Additional assumptions (if applicable and not covered by common ratings approach)	N/A
Additional limitations (if applicable and not covered by common ratings approach)	N/A

Data quality assessment		
Dataset: *(List the dataset assessed)*	Crop/yield losses due to impacts of climate change in 2030 and 2050	
Data Quality Criteria	**Levels**	**Score**
1. Transparency and auditability	1. Data unavailable to public	
	2. Limited summary data available	2
	3. Full raw/primary data set and metadata available	
2. Verification	1. Unverified data	
	2. Limited verification checks in place	2
	3. Detailed verification in place and documented	
3. Frequency of updates	1. Sporadic	
	2. Every 3-5 years	2
	3. Annual or biennial	
4. Security	1. Future data collection discontinued	
	2. Future data collection uncertain	
	3. Future data collection secure	3
5. Spatial coverage	1. Partial national coverage	
	2. National coverage, some bias	2
	3. Full national coverage, including adjacent marine areas, if and where appropriate	
	TOTAL	11
Total scores should be rated as follows: 5 to 8 (Low); 9 to 12 (Medium); 13 to 15 (High)**RATING**		Medium