CLICC

CLICC Country Level Impacts of Climate Change

NAP Caribbean Workshop, 31 May– 2 June 2017

環境省
Ministry of the Environment
Government of Japan

UN environment
United Nations
Environment Programme

The Challenge

- There is no international process for presenting information about climate impacts consistently at the national level
  - assessments use many different approaches, timescales, descriptions of sectors, etc.
  - some lack transparency in respect of assumptions and methods
  - synthesis at the country level is challenging
  - comparison of assessment results difficult
  - international cooperation on cross-border impacts difficult to assess

Consultations - > Goal

Americas, Caribbean and South Pacific	Europe and West Asia	Africa and Middle East	Asia and Australia
Brazil	France	Egypt	Australia
Costa Rica	Germany	Ethiopia	Bangladesh
Fiji	Italy	Ghana	China
Mexico	Poland	Kenya	India
Peru	Russia	Saudi Arabia	Indonesia
USA	Spain	South Africa	Japan
	Turkey	Tanzania	Nepal
	UK		Philippines
			Republic of Korea
			Vietnam

The Potential Benefits from greater consistency and transparency include:

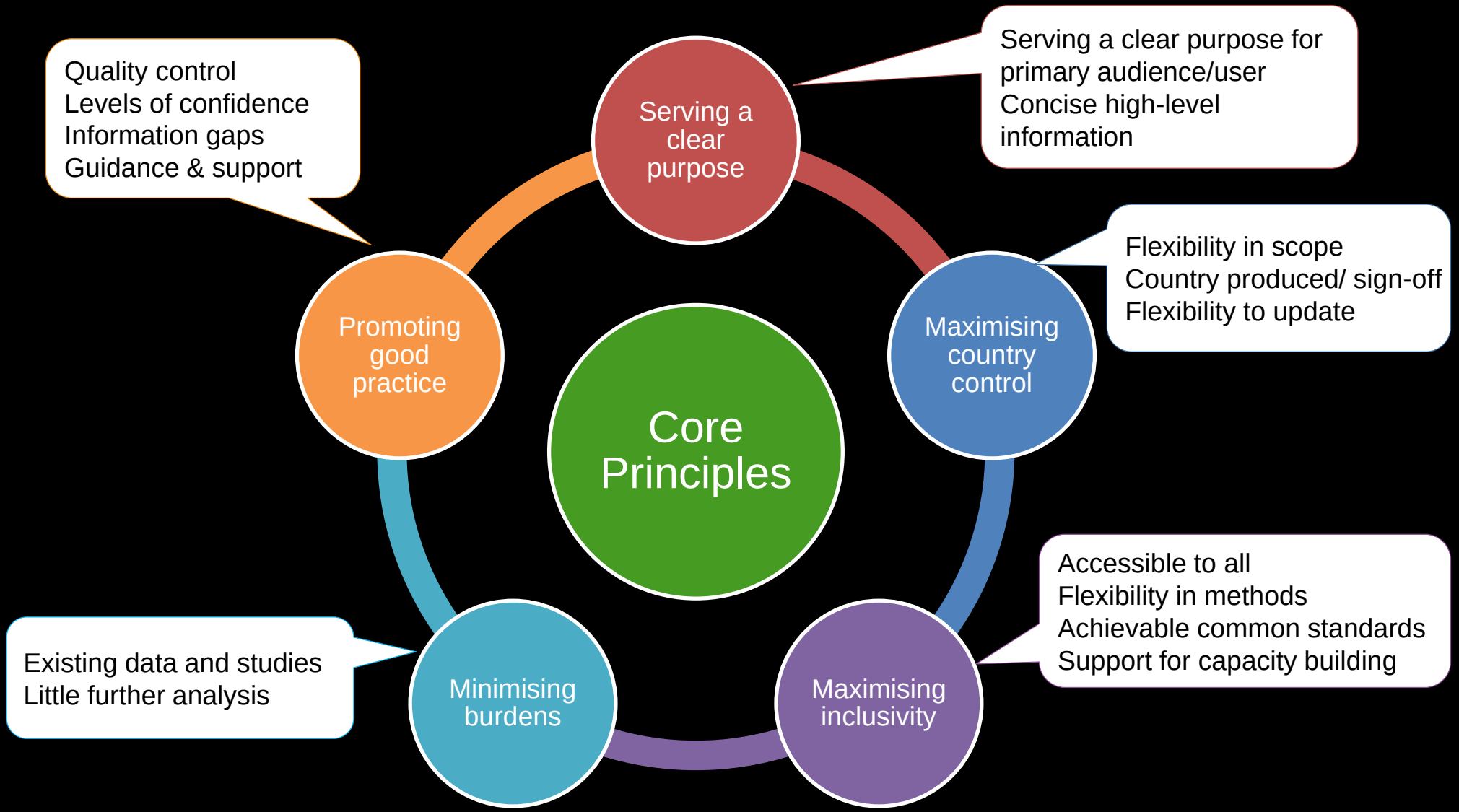
- More effective information exchange, greater shared understanding
- Enhanced collaborative research and action (mitigation and adaptation)
- Best practice, collective learning, capacity building
- Better informed country-level engagement in international climate policy processes

Aims of the initiative

- To facilitate global understanding of country-level climate impacts to support action on climate change, by informing national mitigation and adaptation planning, and international dialogue

- To promote good practice and collective learning in assessing climate impacts

CLICC: Core Principles



Technical Guidelines

- Based on Dashboard concept
- Reviewed by Pilot countries
- Accompanied by template table
- Core sectors
- Several information layers
- Focus on rating of impacts (H, M, L)
- Focus on traceability and assumptions (metadata)

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COUNTRY RESEARCH / DATA

CLICC TEMPLATES

IMPACT RATINGS

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)					
EXAMPLE Food security and food production systems	- Greater variability in crop yields due to higher temperatures and greater variability in rainfall.	Medium	High	Low-Medium	Medium	1961-1991	1.1
	-						

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)*
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	-					

META DATA & DATA QUALITY ASSESSMENT

Metadata

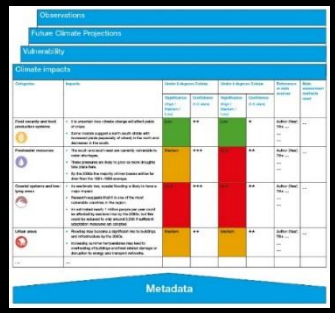
Metadata identifier	2.1-2.2
Explanation for *Impact* rating (Explanation of the impact rating given and how it relates to the specific information in question)	***EXAMPLE* Low** – Low vulnerability and low climate exposure result in a low Impact rating.
Explanation for *Confidence* rating (Explanation of the confidence rating given and how it relates to the specific information in question)	***EXAMPLE* Very low** – only 2 studies available which are of low-quality analysis with little agreement between studies or experts.
Climate projections, emissions scenarios, or models used (If relevant)	
Source(s) (e.g., document, study, report, etc.)	
Datasets (if applicable)	
Additional assumptions (if applicable and not covered by common ratings approach)	
Additional limitations (if applicable and not covered by common ratings approach)	

Data quality assessment

Dataset: *(List the dataset assessed)*		
Data Quality Criteria	**Levels**	**Score**
1. Transparency and auditability	1. Data unavailable to public	
	2. Limited summary data available	
	3. Full raw/primary data set and metadata available	
2. Verification	1. Unverified data	
	2. Limited verification checks in place	
	3. Detailed verification in place and documented	
3. Frequency of updates	1. Sporadic	
	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	
5. Spatial coverage	1. Partial national coverage	
	2. National coverage, some bias	
	3. Full national coverage, including adjacent marine areas, if and where appropriate	
	TOTAL	
Total scores should be rated as follows: 5 to 8 (Low); 9 to 12 (Medium); 13 to 15 (High)	**RATING**	

CLICC VISUALISATION

DASHBOARD

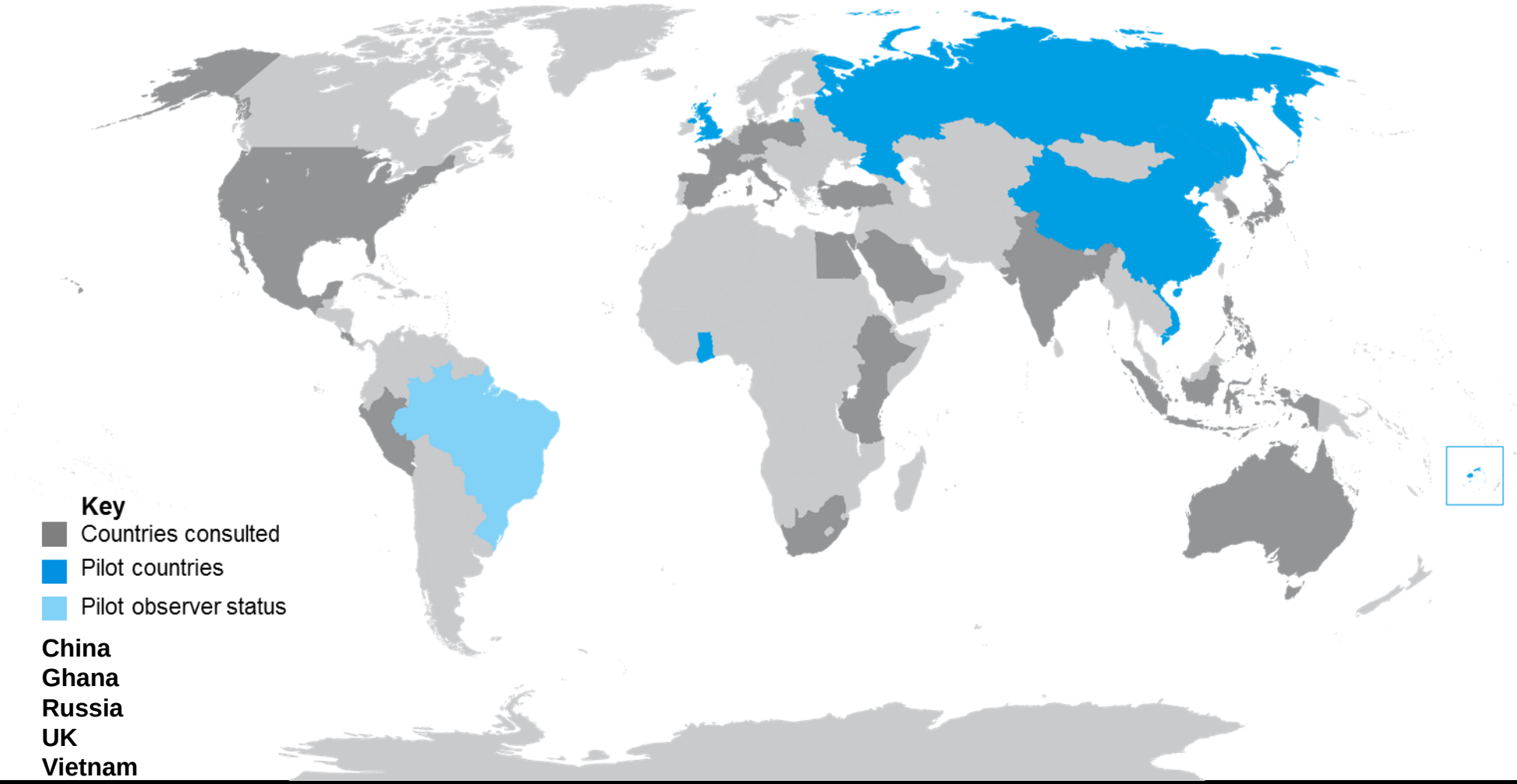


PROFILE

SEE THE CLICC LEARNNG JOURNEY

CLICC PROCESS & ENGAGEMENT

Six phase 1 Pilot countries



CLICC Phase 1 Pilots (October 2015 – March 2016)

Purpose of the CLICC Pilots

Onward refinement and demonstration of a technical approach for more consistent communication of climate change impacts and risks at the national level. This involved:

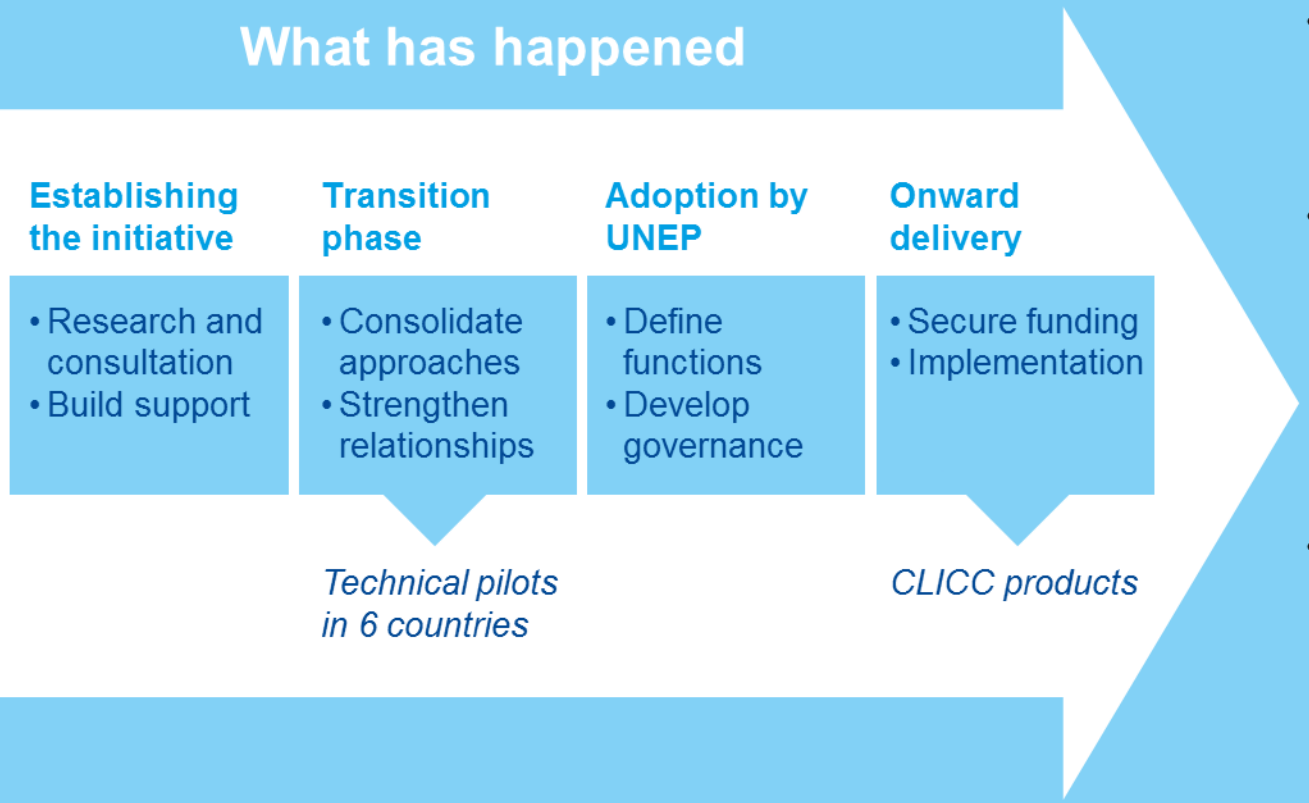
- Apply technical approaches
- Provide pilot output products
- Clarify level of resources needed by countries
- Develop and test the concept of CLICC Learning Journey
- Inform the governance needed to support CLICC longer-term

Pilot Countries (2015/2016): China, Fiji, Ghana, Russia, UK, and Vietnam.
In addition, Brazil participated as an observer.

Russia-UK Bilateral project (2016/16): applied the CLICC template
Melting Permafrost (Russia), Flooding (UK)

What happens Next?

What has happened



What happens next?

- **Workshops:** Further development of the methodology through (regional) workshops.
- **Second round of pilots**: Further refinement of the technical approach; collect and learn from pilot recommendations and; clarify future resourcing requirements.
- **Coordination and funding**: Engagement with countries and international bodies to shape arrangements for the long-term CLICC programme, aligning it with other international processes.

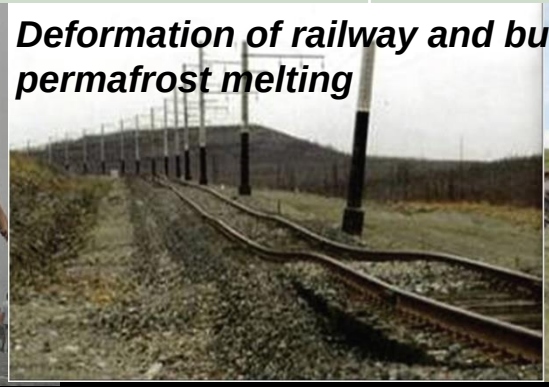
Vietnam, Russia and China

Summary of Phase 1 Pilot from Russian Federation

Sector	Global impact rating	National impact rating	Confidence rating	Data quality rating
Freshwater resources: Increase in river runoff, increase in frequency of floods	Low-High	Low-Medium	Medium-high	High
Human health: Additional morbidity and mortality from heat waves, infectious diseases	Low-High	Low-Medium	Low-High	Low-high
Terrestrial permafrost: **Melting of permafrost upper layer, destruction of sea coasts, buildings and infrastructure**	**High**	**High**	**High**	Medium

Amur basin, summer 2013

Heat wave, Moscow, 2010



Deformation of railway and buildings from permafrost melting

Summary of Further Analysis – Russian Federation

Observed climate impacts on the permafrost zone						
Sector	**Observed climate impacts**	**National impact rating**	**Confidence rating**	**Data quality rating**	**Time period**	**Metadata identifier(s)***
Coastal systems and low-lying areas	• Intensification of coastal erosion along the Arctic coast	High	Medium	High	1979-2012	1.1
	• Intensification of landslides and thermokarst processes in the permafrost zone	Low	Medium	Medium	1970-2013	1.2
Human settlements, industry, and infrastructure	• Destruction of transport infrastructure in the permafrost zone	High	High	Medium	1970-2010	1.3
	• Destruction of oil and gas pipelines in the permafrost zone	Medium	Medium	--	1990-2010	1.4
	• Destruction of buildings in the permafrost zone	High	Medium	Medium	1970-2000	1.5

Summary of Further Analysis – Russian Federation

Table 2.2. Projected climate impacts						
Sector	**Projected climate impacts**	**Impact rating**	**Confidence rating**	**Data quality rating**	**Time period**	**Metadata identifier(s)** *(Please see Annex 1)*
Coastal systems and low-lying areas	• Intensification of coastal erosion along the Arctic coast	Low	Low	--	2020-2050	2.1
Human settlements, industry, and infrastructure	• Destruction of transport infrastructure in the permafrost zone	High	Low	--	2050	2.2, 2.4
	• Destruction of buildings in the permafrost zone	High	Low	--	2045-2055	2.3, 2.4

Summary of country lessons learned (including benefits) - Russia

Lessons learned topic	Summary
Achievements and benefits	• International collaboration within the area of climate impacts and risks from climate change • Understanding of gaps in Russian national assessments of climate impacts in water resources, human health and permafrost sectors • Investigation the methods of assessing and presenting national climate impacts from different countries • Improvement of the collaboration within Russia between different scientific institution, private sector, the Government and press • A good start of the process of making information on climate change more accessible to the public and policy-makers in Russia
Technical approach	Have worked well: • The form of proposed Pilot template: main table for observed and projected climate impacts, metadata and data quality tables • The guidelines were very useful Not so well: • Methodologies for rating impacts are not very clear, further work is essential • Subdivision the impacts into "global" and "national" probably is not effective • The quality of projected climate impacts data is very difficult to evaluate • The regional assessment should be made for large countries
Cross-Pilot QA process	We satisfy with the proposed form and process of quality assessment during CLICC Pilot phase. It was useful to have comments both from CLICC central team and other Pilot country. Quality check helped to understand that: • The ratings of the most presented in Russian Pilot climate impacts are still not clear and need to be reviewed • Metadata table should be not very detailed and long, but at the same time not very brief in order to understand what information was used
Coordination and Governance in your country	The work was carrying out in Institute of Global Climate and Ecology (IGCE, Moscow) on behalf of Federal Service for Hydrometeorology and Environmental Monitoring of Russian Federation. The information presented in the First and the Second Assessment Reports on Climate Change and its consequences in Russian Federation (2018, 2014) was used for developing the Pilot template. The workload was significant, thus certain extension of national project team would be helpful.
Resources	To participate in CLICC in future Russia needs financial support for attending the workshops (Travel, DSA and TE), technical support such as Guidance and e-mail support, and additional human resources depending on future project workload

Looking forward – Recommendations and next steps for Russian Federation

Next step topic	Summary
Recommendations for a second phase of pilots	• To add more sectors in order to improve and refine the technical approach of the project • To involve more countries in order to generate more ideas and compare the level of climate impacts understanding • To work in the area of Metadata and it's level of detail • To develop the methodologies for rating impacts • To add an adaptation level
Involved in CLICC going forward	Russia would like to take part in a second round of pilots, building on the results received in the first phase. Further debates on potential users of CLICC data are essential. An analysis of their demand on climate impacts' information can help optimize the project in future.

CLICC

China's contribution to CLICC (Country Level Impacts of Climate Change)

Jiang Tong, Zhai Jianqing
National Climate Centre
China Meteorological Administration

Summary of Pilot from China

-

	Impact	Impact rating	Confidence rating	Data quality rating	Timescale
Water Resources	Decline trend	low-medium	low-medium	High	1961-2013
	Decline trend	low-medium	low-medium	Medium	2016-2050

Summary of country lessons learned (including benefits) - China

Lessons learned topic	Summary
Achievements and benefits	we learned how to assess climate change impacts between countries and more information from other countries
Technical approach	CLICC template worked better than metadata tables, as data tables can not include different situation of each county
Cross-Pilot QA process	this is good way to cross-pilot process
Coordination and Governance in your country	we have a team working closely.
Resources	Communication is so important to put the principles to practice.

Looking forward – Recommendations and next steps for China

Next step topic	Summary
Recommendations for a second phase of pilots	Hope to shape a new working groups and scientific commission...and more countries can be included.
Involved in CLICC going forward	Yes, We will join a meeting both in Paris and Nairobi.

Summary of Phase 1 Pilot from Vietnam

Sector	Observed climate impacts	Global impact rating	National impact rating	Confidence rating	Data quality rating	Time period	Metadata identifier
Fishery	The impact of climate change on fishing due to storm, tropical low pressure	Medium	Medium	Medium	Medium	2001	**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**

Summary of Phase 1 Pilot from Vietnam

Sector	Projected climate impacts	Impact rating	Confidence rating	Data quality rating	Time period	Metadata identifier
Fishery	Profit from fishery and aquaculture would be reduced due to change of temperature	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 yield will be reduced.**	**High**	**Medium**	**Medium**	**2030; 2050**	**2.2 – 2.4**

Summary of country lessons learned (including benefits) - Vietnam

Lessons learned topic	Summary
Achievements and benefits	- Initial preparation step for the NCA - Capacity building
Technical approach	- The threshold for global impact for economic is clear and easily applied to rate the impact level. - Confidence ratings and Data quality scoring provided in the Guideline have been applied consistently for all metadata among countries - It's still unclear about the threshold of climate change impacts on environment or social impact rating.
Cross-Pilot QA process	Comments could support each country to revise and make all our information given in the report more transparent and better understanding.
Coordination and Governance in your country	Regular meeting have been organized for senior experts and our colleagues.
Resources	40 man days. 15 pers. and 2 organisations have been consulted

Looking forward – Recommendations and next steps for Vietnam

Next step topic	Summary
Recommendations for a second phase of pilots	- Detailed quality assurance (QA) and Metadata transparency should be considered.
Involved in CLICC going forward	a) Take part in a second round of pilots b) Guide or mentor other countries undertaking a pilot c) Participate in technical working groups or committees d) Help identify and apply for co-funding to support CLICC going forward

What Countries thought about the Pilots

'We have a better understanding of the gaps in our assessments of sectors'

'We built the capacity of national institutions'

'It was very useful to see how other countries reported on similar issues'

'The template worked very well'

'Reporting national climate impacts was very consistent, but we kept our own flexibility'

'We improved the cooperation between our high level policy makers and our national climate experts'

'I liked the international collaboration and the country-driven approach'

Observed climate impacts

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	TOTAL	
Total scores should be rated as follows: 5 to 8 (Low); 9 to 12 (Medium); 13 to 15 (High)	**RATING**	

Observations

Future Climate Projections

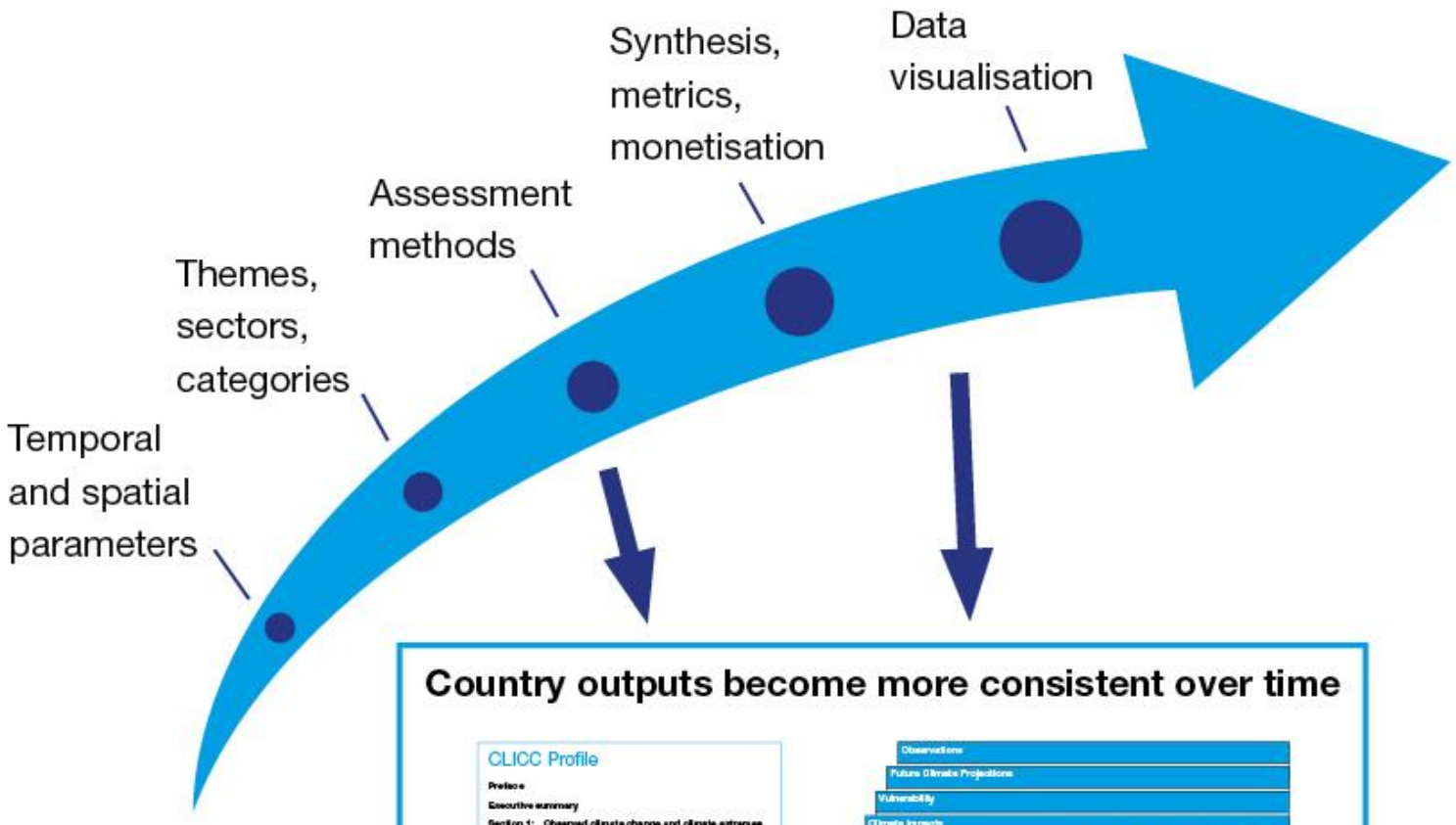
Vulnerability

Climate impacts

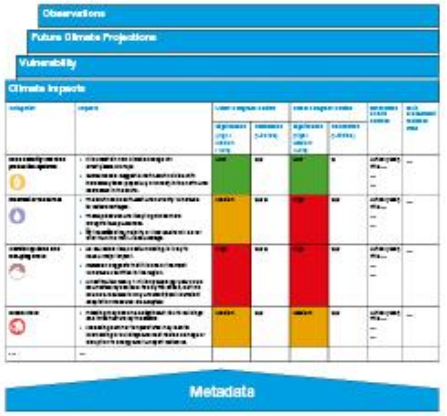
Categories	Impacts	Under 2 degrees Celsius		Under 4 degrees Celsius		References or data sources	Main assessment methods used
		Significance (High / Medium / Low)	Confidence (1-5 stars)	Significance (High / Medium / Low)	Confidence (1-5 stars)		
Food security and food production systems	• It is uncertain how climate change will affect yields of crops. • Some models suggest a north-south divide with increased yields (especially of wheat) in the north and decreases in the south.	Low	**	Low	*	Author (Year) Title … … …	…
Freshwater resources	• The south and south-east are currently vulnerable to water shortages. • These pressures are likely to grow as more droughts take place here. • By the 2080s the majority of river basins will be far drier than the 1961–1990 average.	Medium	***	High	**	Author (Year) Title … … …	…
Coastal systems and low-lying areas	• As sea levels rise, coastal flooding is likely to have a major impact. • Research suggests that it is one of the most vulnerable countries in the region. • An estimated nearly 1 million people per year could be affected by sea level rise by the 2080s, but this could be reduced to only around 5,500 if sufficient adaptation measures are adopted.	High	***	High	**	Author (Year) Title … … …	…
Urban areas	• Flooding may become a significant risk to buildings and infrastructure by the 2050s. • Increasing summer temperatures may lead to overheating of buildings and heat related damage or disruption to energy and transport networks.	Medium	**	Medium	**	Author (Year) Title … … …	…
…	…						

Metadata

Countries participate in long-term process of method review to establish preferences and agreements



Country outputs become more consistent over time



CLICC Profile

Preface

Executive summary

Section 1: Observed climate change and climate extremes

Section 2: Future climate projections

Section 3: Impacts of climate change

3.1. Food security and food production systems

3.2. Freshwater resources

3.3. Coastal systems and low-lying areas

3.4. Urban areas

... ...

Section 4: Vulnerability to climate change

Section 5: Adaptation to climate change

Section 6: Planned work, research gaps and future research

Section 7: Communication, education and awareness

Section 8: Conclusions and recommendations

Annexes **Annex 1: References, data sources and metadata**