

# THE WORKING GROUP II

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## CONTRIBUTION TO THE IPCC'S FIFTH ASSESSMENT REPORT

Main messages and lessons learned

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# CLIMATE CHANGE 2014:

## IMPACTS, ADAPTATION, AND VULNERABILITY

2 Parts

30 Chapters

308 Authors (70 countries)

50492 Review Comments



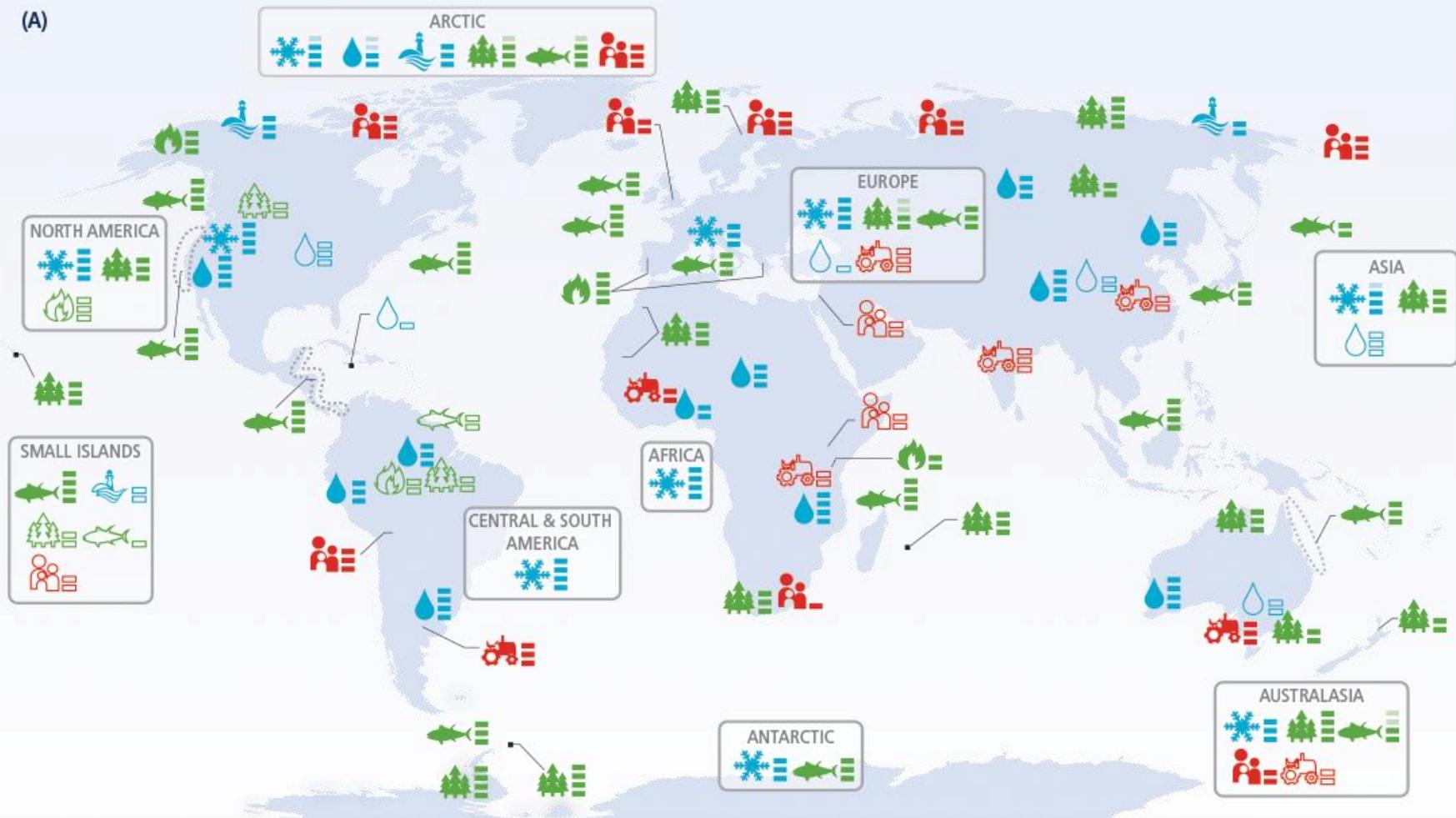
An underwater photograph of a coral reef. The water is a deep, dark green. In the center, there is a prominent, white, fan-shaped coral specimen. The surrounding reef is composed of various types of coral, including branching and table corals, in shades of brown, orange, and green. The overall scene suggests a healthy but potentially stressed marine ecosystem.

# WIDESPREAD OBSERVED IMPACTS

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# A CHANGING WORLD

(A)



**Confidence in attribution to climate change**

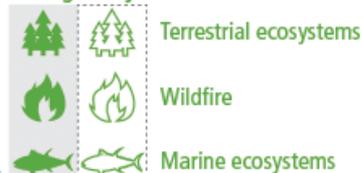


**Observed impacts attributed to climate change for**

**Physical systems**



**Biological systems**



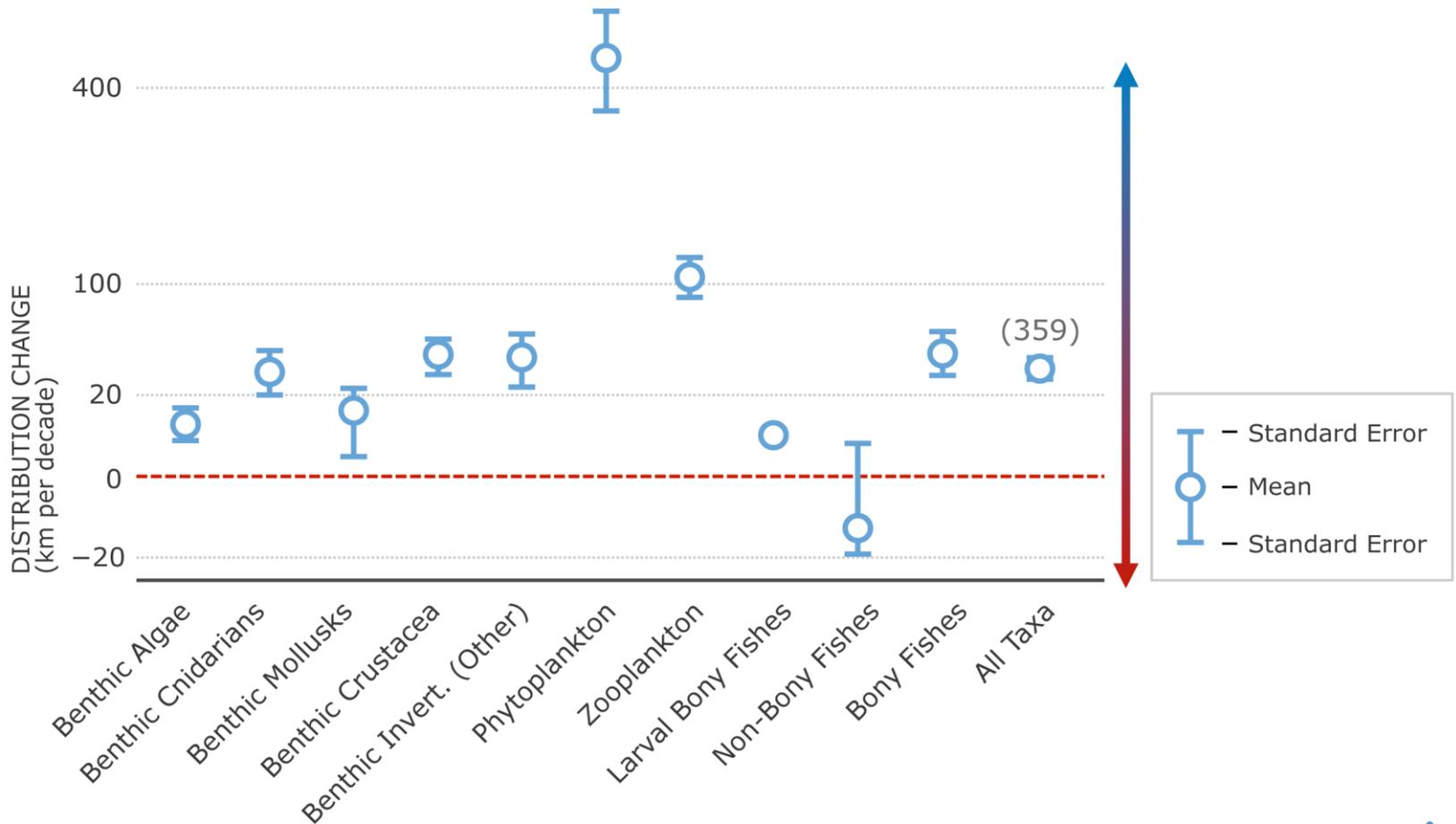
**Human and managed systems**



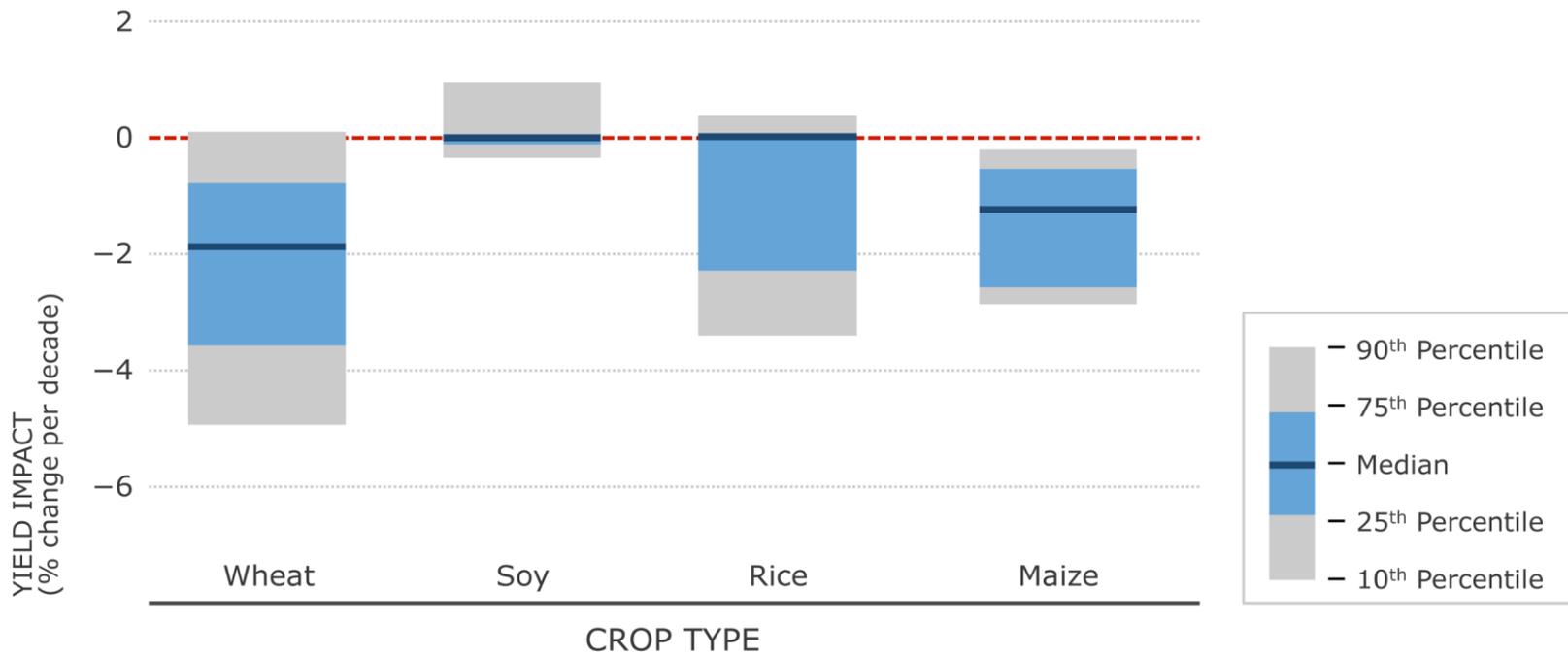
□ Regional-scale impacts

Outlined symbols = Minor contribution of climate change  
Filled symbols = Major contribution of climate change

Many terrestrial, freshwater, and marine species have shifted their geographic ranges, seasonal activities, migration patterns, abundances, and species interactions in response to ongoing climate change.



Based on many studies covering a wide range of regions and crops, negative impacts of climate change on crop yields have been more common than positive impacts.



A photograph of a city street completely flooded with water. The water is dark and reflects the surrounding buildings and sky. On the left, a tall, multi-story brick building with many windows lines the street. On the right, another tall building with a modern facade and a glass canopy over the entrance is visible. In the distance, a person in a red jacket is wading through the water, and a dark car is partially submerged. The sky is overcast and grey.

# VULNERABILITY AND EXPOSURE AROUND THE WORLD

Impacts from climate related extremes, such as heat waves, droughts, floods, cyclones, and wildfires, reveal significant vulnerability and exposure of some ecosystems and many human systems to current climate variability



Climate related hazards exacerbate other stressors, often with negative outcomes for livelihoods, especially for people living in poverty.

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# VULNERABILITY AND EXPOSURE

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## AROUND THE WORLD

A group of people are engaged in planting mangrove saplings in shallow water. In the foreground, a person in a red shirt and a straw hat uses a long pole to assist in planting a sapling. Another person in a yellow shirt is bent over, also working with a sapling. In the background, several other people are visible, some standing and some working. The water is shallow and clear, and the sky is overcast with grey clouds. The overall scene depicts a community-based environmental activity.

Adaptation experience is accumulating across regions in the public and private sectors and within communities. Governments at various levels are starting to develop adaptation plans and policies to integrate climate change considerations into broader development plans. However, implementation of responses is still limited

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**ADAPTATION IS**

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**ALREADY OCCURRING**



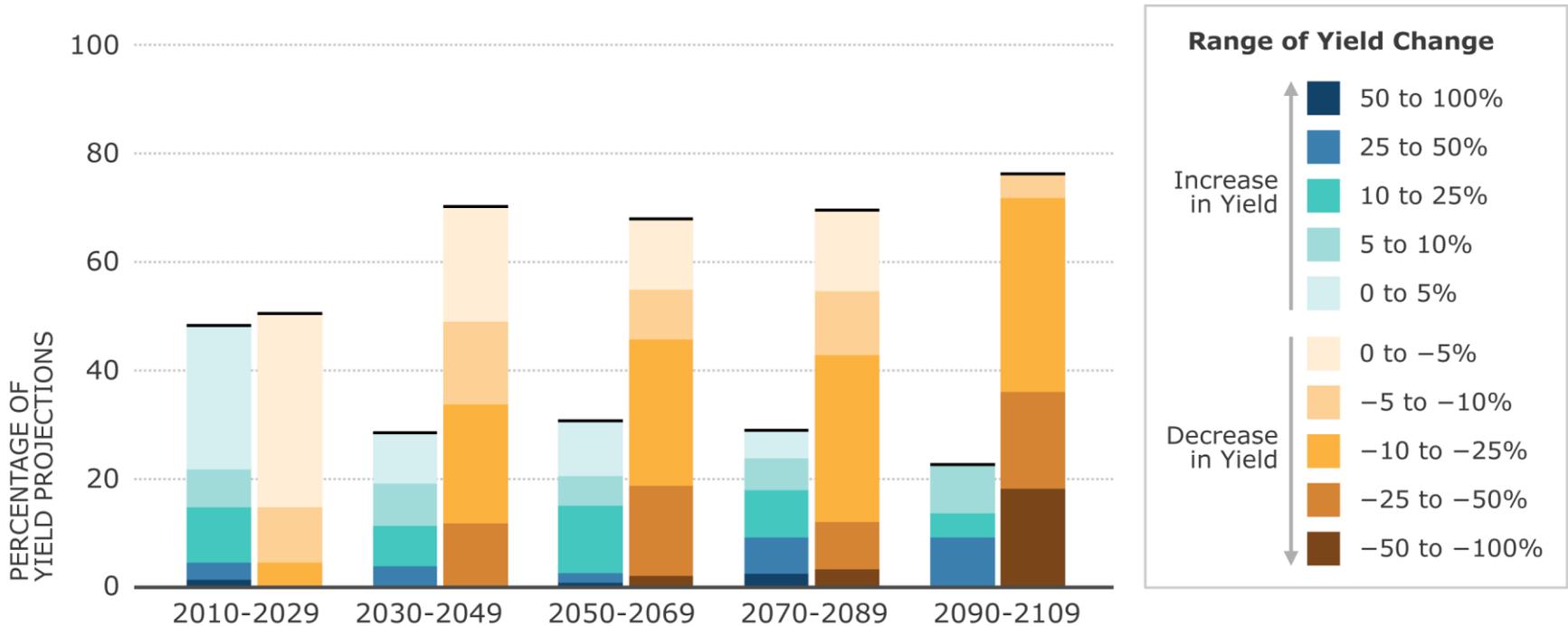
INCREASING MAGNITUDES  
OF WARMING INCREASE  
THE LIKELIHOOD OF

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**SEVERE AND  
PERVASIVE IMPACTS**



# Greater warming enhances the risk of widespread yield reduction for major crops (wheat, rice, maize)



Projections include different emission scenarios, tropical and temperate regions, adaptation and no-adaptation cases combined

# Effective adaptation options can reduce the risks associated with climate change

## POLAR REGIONS

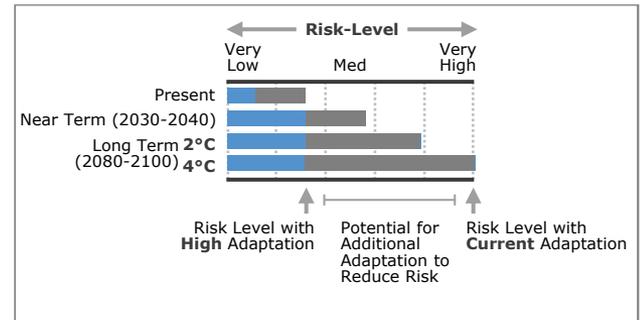
Risks for Ecosystems



Risks for Health and Well-Being



Unprecedented Challenges, Especially from Rate of Change

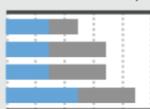


## NORTH AMERICA

Increased Risks from Wildfires



Heat-Related Human Mortality



Damages from River and Coastal Urban Floods

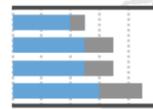


## EUROPE

Increased Flood Losses and Impacts

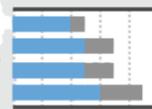


Increased Water Restrictions



## EUROPE

Increased Losses and Impacts from Extreme Heat Events

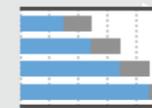


## ASIA

Increased Flood Damage to Infrastructure, Livelihoods, and Settlements



Heat-Related Human Mortality



Increased Drought-Related Water and Food Shortage



## THE OCEAN

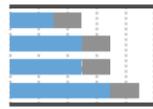
Distributional Shift & Reduced Fisheries Catch Potential at Low Latitudes



Increased Mass Coral Bleaching and Mortality



Coastal Inundation and Habitat Loss



## CENTRAL AND SOUTH AMERICA

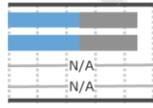
Reduced Water Availability and Increased Flooding and Landslides



Reduced Food Production and Quality



Spread of Vector-Borne Diseases

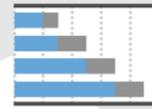


N/A

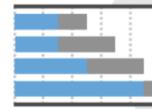
N/A

## AFRICA

Compounded Stress on Water Resources



Reduced Crop Productivity and Livelihood and Food Security



Vector- and Water-Borne Diseases

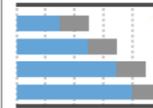


## SMALL ISLANDS

Loss of Livelihoods, Settlements, Infrastructure, Ecosystem Services, and Economic Stability



Risks for Low-Lying Coastal Areas

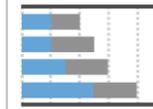


## AUSTRALASIA

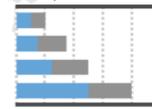
Significant Change in Composition and Structure of Coral Reef Systems



Increased Flood Damage to Infrastructure and Settlements



Increased Risks to Coastal Infrastructure and Low-Lying Ecosystems



## Some considerations from the perspective of a WGI “refugee”

- WGII covered a hugely (excessively?) wide and diverse range of topics
  - The quality of chapters was not always homogenous
  - It was very difficult to have a full view of the whole of the WGII activities

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- Future IPCC reports may require a more integrated vision (and structure?)
- The IPCC reports appear to still be predominantly documents written by scientists for scientists
  - If the aim is to be society-relevant, the end-user perspective needs to be better integrated

A group of people, including children and adults, are engaged in planting mangrove saplings in shallow, clear water. The scene is set outdoors under a sky with large, white and grey clouds. The water is a light turquoise color, and the ground is sandy. In the background, a line of trees is visible on the horizon. The text 'THANK YOU' is overlaid in large, bold, yellow capital letters across the center of the image.

THANK YOU

[ipcc-wg2.gov/AR5](http://ipcc-wg2.gov/AR5)