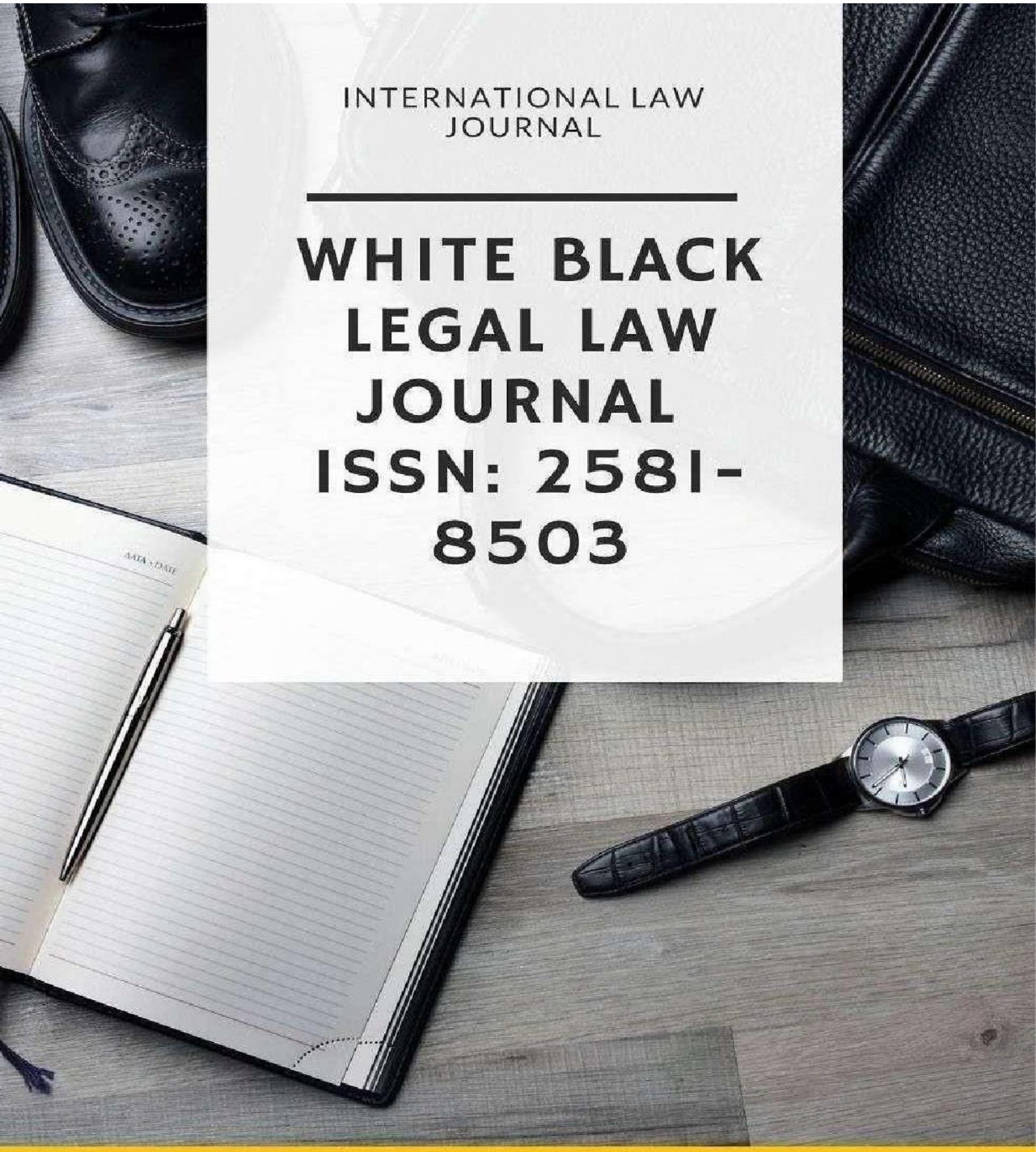

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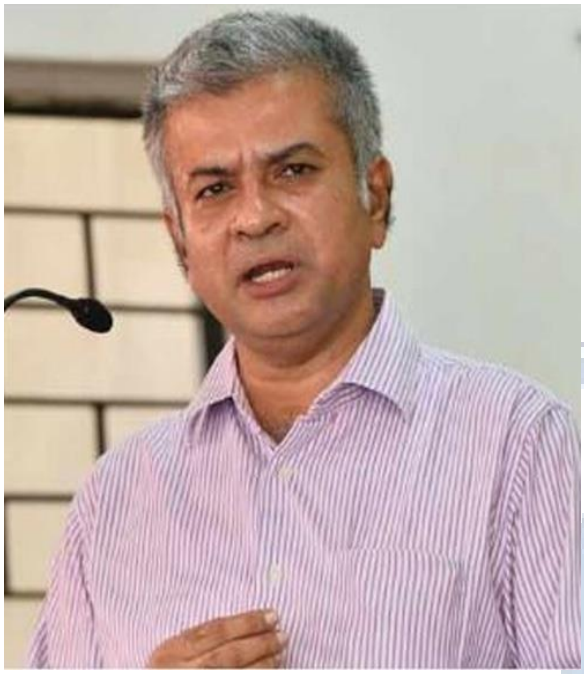

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ABOUT US

WHITE BLACK LEGAL is an open access, peer-reviewed and refereed journal providededicated to express views on topical legal issues, thereby generating a cross current of ideas on emerging matters. This platform shall also ignite the initiative and desire of young law students to contribute in the field of law. The erudite response of legal luminaries shall be solicited to enable readers to explore challenges that lie before law makers, lawyers and the society at large, in the event of the ever changing social, economic and technological scenario.

With this thought, we hereby present to you

AN ANALYSIS OF FIFTH ASSESSMENT REPORT OF INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC)

AUTHORED BY - ANKIT CHAUDHARY & DR. AMIT DHALL

ABSTRACT

Climate change seems to be a unique phenomenon owing to the numerous controversies surrounding it. This is why there exists a great divide between environmentalists and their challengers over the issue of climate change. In order to enhance understanding over the issue of climate change, a number of international agencies have been formed. One of the most proactive agencies that have immense contribution to the issue is the Intergovernmental Panel on Climate Change (IPCC). This scientific intergovernmental body was established in 1988 by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO). Following its endorsement by the UN General Assembly the same year, IPCC became one of the organizations under the auspices of the UN. Its core responsibility is to review and assess scientific, socio-economic and technical information related to climate change and prepare assessment reports for the United Nations Framework Convention on Climate Change (UNFCCC). Its reports focus on the risks of human-induced climate change, as well as, its potential socio-economic and environmental impacts. As such, IPCC reports propose the most appropriate mitigation approaches to climate change. Since its inception, IPCC has contributed immensely to the assessment of climate change. This paper provides a comprehensive analysis of IPCC's 5th assessment report contribution to the climate change.

INTRODUCTION TO INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC)

The Intergovernmental Panel on Climate Change2 is an intergovernmental body of the United Nations that is dedicated to providing the world with objective, scientific information relevant to

[1] LLM (IEL) A0851719004

[2] Hereinafter referred as "IPCC"

understanding the scientific basis of the risk of human-induced climate change, its natural, political, and economic impacts and risks, and possible response options[3]. The IPCC was established in 1988 by the World Meteorological Organization[4] and the United Nations Environment Programme[5] and was later endorsed by the United Nations General Assembly.

Membership is open to all members of the WMO and UN. The IPCC produces reports that contribute to the work of the United Nations Framework Convention on Climate Change[6], the main international treaty on climate change. The objective of the UNFCCC is to "stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic (human-induced) interference with the climate system". The IPCC's Fifth Assessment Report was a critical scientific input into the UNFCCC's Paris Agreement[7] in 2015.[8]

The IPCC has three working groups[9]:

1. ***Working Group I***, dealing with the physical science basis of climate change.
2. ***Working Group II***, dealing with impacts, adaptation and vulnerability.
3. ***Working Group III***, dealing with the mitigation of climate change.

WHAT IS FIFTH ASSESSMENT REPORT?

The Fifth Assessment Report[10] is the latest in a series of reports from the IPCC assessing scientific, technical, and socio-economic information regarding climate change. It was released in three installments over the course of 2013 and 2014, and an additional synthesis report was published in November 2014. More than 830 scientists are involved in writing the reports and hundreds more will review and edit the draft reports.

[3] https://www.ipcc.ch/
[4] Hereinafter referred as “WMO”
[5] Hereinafter referred as “UNEP”
[6] Hereinafter referred as “UNFCCC”
[7] The Paris Agreement was aimed at strengthening the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.
[8] https://en.wikipedia.org/wiki/Intergovernmental_Panel_on_Climate_Change
[9] The working groups produces comprehensive assessments, reports on special topics, and methodologies. The groups do this work by assessing "on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis" of the topics.
[10] Hereinafter referred as “AR-5”

This is the most significant report from the IPCC since its last major review, the 4th Assessment Report in 2007. Its assessment of the state of the climate is the most comprehensive ever written and it provides a strengthened body of evidence of man-made climate change. Over the entire process, 830 experts from over 80 countries reached these conclusions by reviewing over 30,000 published research papers. The findings are agreed by governments of the member countries.

The AR5 provides an update of knowledge on the scientific, technical and socio- economic aspects of climate change.

AR5 is broken up into three sections, or working groups:

- Working Group[11] I provide a comprehensive assessment of the physical science basis of climate change: Summary for policy makers[12].
- Working Group II assesses the scientific, technical, environmental, economic and social aspects of vulnerability to climate change as well as consequences for ecological systems, socio- economic sectors and human health[13].
- Working Group III assesses all relevant options for mitigating climate change through limiting or preventing greenhouse gas emissions and taking actions to remove them from the atmosphere.[14]
- The syntheses report[15].

Each working group report has a Summary for Policymakers[16] that distills the key points from the hundreds of pages found in the respective full report. The Summary for Policymakers tends to be of most interest to the media and non-scientists.

[11] Hereinafter referred as "WG"

[12] Released on Sept. 27, 2013.

[13] Released on March 31, 2014.

[14] Released on April 11, 2014.

[15] Released Nov. 2, 2014

[16] The Summary for policymakers (SPM) is a summary of the Intergovernmental Panel on Climate Change (IPCC) reports intended to aid policymakers. The form is approved line by line by governments: "Negotiations occur over wording to ensure accuracy, balance, clarity of message, and relevance to understanding and policy.

ANALYSIS OF IPCC WORKING GROUP I: PHYSICAL SCIENCE BASIS OF CLIMATE CHANGE

The working group I contribution to the fifth assessment report of the IPCC provides a comprehensive assessment of the physical science basis of the climate change since 2007 when the fourth assessment report was released. The full text of *Climate Change 2013: The Physical Science Basis* was released in an unedited form on Monday, 30 September 2013. It was over 2,000 pages long and cited 9,200 scientific publications.[17]

The Physical Science Basis" is the contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. This comprehensive assessment of the physical aspects of climate change puts a focus on those elements that are relevant to understand past, document current, and project future climate change. The assessment builds on the IPCC Fourth Assessment Report[18] and the recent Special Report on Managing the Risk of Extreme Events and Disasters to Advance Climate Change Adaptation[19] and is presented in 14 Chapters and 6 Annexes. The chapters cover direct and proxy observations of changes in all components of the climate system, they assess the current knowledge of various processes within, and interactions among, climate system components, which determine the sensitivity and response of the system to changes in forcing, and they quantify the link between the changes in atmospheric constituents, and hence radioactive forcing, and the consequent detection and attribution of climate change. Projections of changes in all climate system components are based on model simulations forced by a new set of scenarios. The report also provides a comprehensive assessment of past and future sea level change in a dedicated chapter. Regional climate change information is presented in the form of an Atlas of Global and Regional Climate Projections (Annex I). This is complemented by Annex II: Climate System Scenario Tables and Annex III: Glossary.[20]

The primary purpose of this Technical Summary[21] is to provide the link between the complete assessment of the multiple lines of independent evidence presented in the 14 chapters of the main report

[17] https://www.ipcc.ch/

[18] Hereinafter referred as "AR4"

[19] Hereinafter referred as "SREX"

[20] Ottmar Edenhofer, "Renewable energy sources and Climate Mitigation", 252 (2011)

and the highly condensed summary prepared as the WGI Summary for Policymakers. The Technical Summary thus serves as a starting point for those readers who seek the full information on more specific topics covered by this assessment. This purpose is facilitated by including pointers to the chapters and sections where the full assessment can be found. Policy- relevant topics, which cut across many chapters and involve many interlinked processes in the climate system, are presented here as Thematic Focus Elements, allowing rapid access of this information.

An integral element of this report is the use of uncertainty language that permits a traceable account of the assessment. The degree of certainty in key findings in this assessment is based on the author teams' evaluations of underlying scientific understanding and is expressed as a level of confidence that results from the type, amount, quality, and consistency of evidence and the degree of agreement in the scientific studies considered. Confidence is expressed qualitatively. Quantified measures of uncertainty in a finding are expressed probabilistically and are based on a combination of statistical analyses of observations or model results, or both, and expert judgment. Where appropriate, findings are also formulated as statements of fact without using uncertainty qualifiers.

The Technical Summary[22] is structured into four main sections presenting the assessment results following the storyline of the WGI contribution to AR5: Section TS.2 covers the assessment of observations of changes in the climate system; Section TS.3 summarizes the information on the different drivers, natural and anthropogenic, expressed in terms of radioactive forcing; Section TS.4 presents the assessment of the quantitative understanding of observed climate change; and Section TS.5 summarizes the assessment results for projections of future climate change over the 21st century and beyond from regional to global scale. Section TS.6 combines and lists key uncertainties from the WGI assessment from Sections TS.2–TS.5. The overall nine Thematic Focus Elements[23], cutting across the various components of the WGI AR5, are dispersed throughout the four main TS sections, are visually distinct from the main text, and should allow

[21] Technical Summary means a detailed report provided upon completion of various assignments, reports etc as further detailed in each individual Work Package.

[22] Hereinafter referred as "TS"

[23] Hereinafter referred as "TFE"

stand-alone reading. The basis for substantive paragraphs in this Technical Summary can be found in the chapter sections of the underlying report. These references are given in curly brackets.[24]

A concise overview of Working Group I's findings was published as the *Summary for Policymakers* on 27 September 2013. The level of confidence in each finding was rated on a confidence scale, qualitatively from ***very low*** **to** ***very high*** and, where possible, quantitatively from ***exceptionally unlikely*** **to** ***virtually certain.***

Likelihood scale used in the report

Term	**Likelihood of the outcome**
Virtually certain	99–100 % probability
Extremely likely	95–100 % probability
Very likely	90–100 % probability
Likely	66–100 % probability
More likely than not	50–100 % probability
About as likely as not	33 to 66% probability
Unlikely	0–33 % probability
Very unlikely	0–10 % probability

[24] Ottmar Edenhofer, "Renewable energy sources and Climate Mitigation", 254 (2011)

Extremely unlikely	0–5 % probability
Exceptionally unlikely	0–1 % probability

Key Findings of Working Group- I

- Our understanding of the climate system has continued to strengthen. Sea and air temperatures are rising, ice from glaciers and Polar Regions is being lost, and sea level is rising. For example, global average air temperature has risen by 0.85°C since the beginning of the 20th century.

- Scientists are more certain than ever that increasing global temperature since 1950 has been caused primarily by rising emissions of greenhouse gases as a result of human activities.

CO_2 concentration in the atmosphere has increased by 40% since the beginning of the industrial revolution, primarily from the burning of fossil fuels.

- A warming climate is increasing the frequency and severity of many extreme weather events and is changing rainfall patterns, creating risks for human well-being, the economy and the environment. For example, coastal flooding has increased since 1970, exacerbated by rising sea levels. If emissions continue to increase unabated average global sea level could rise by nearly 1 meter by 2100.
- Continued emissions of greenhouse gases will cause further warming and changes in all components of the climate system. Limiting climate change will require substantial and sustained reductions of greenhouse gas emissions.

ANALYSIS OF IPCC WORKING GROUP II: ASSESSING THE IMPACTS, ADAPTATION, STRATEGIES AND VULNERABILITY RELATED TO CLIMATE CHANGE

The climate change is impacting & risking the earth, bringing a mixture of risks and benefits. There are two ways of dealing with it: adapting to the changes (adaptation) or reducing the severity (mitigation)[25]. The working group II report provides answers to such questions which enshrines the impacts, adaptation, strategies and vulnerability in respect to the climate change.

-What Impacts have been observed in Climate Change?

Climate change has had clear impacts on natural systems. For instance, changing precipitation and snow and ice melting are altering water resources. This has affected the geographic ranges, seasonal activities, migration patterns and abundance of many species, whether terrestrial, freshwater or marine.

Climate change already has also had some observable impacts on human systems for which we are not well prepared. It has more negative impacts on crop yields than positive ones. The people who are the poorest are also the least able to prepare and adapt, and thus the most vulnerable. However, impacts on human health are so far relatively small.[26]

-What are the drivers of climate change-related risk?

The risk of impacts related to climate change results from the interaction between climate-related hazards and the vulnerability and exposure of human and natural systems, which are all driven by changes in both the climate system and socioeconomic processes including adaptation and mitigation.[27]

[25] Michael Stephenson, "Energy & Climate Change", 54 (2018)

[26] Tomoyo Toyota & Ryo Fujikura, "Climate change mitigation and Development Cooperation", 35 (2012)

[27] Tomoyo Toyota & Ryo Fujikura, "Climate change mitigation and Development Cooperation", 38 (2012)

-How is adaptation to climate change implemented?

Throughout history, people and societies have adjusted to climate variability and coped with its extremes with varying degrees of success. Currently, some adaptation processes are being planned but few of them are being implemented.

Climate-change adaptation is an iterative process with multiple feedbacks that require adjustments. There are currently very few assessments of the actions implemented and their effects. The adaptation and mitigation measures[28] that will be chosen in the near-term will affect the consequences of climate change throughout the 21st century and beyond.

Projections of climate change risks depend heavily on the development pathways considered. For instance, there are less risks and needs for adaptation in pathways where a lot of mitigation actions are taken than where carbon emissions continue to increase. However, the vulnerability, exposure, and responses of interlinked human and natural systems are difficult to predict.

-What are the main risks related to climate change?

The eight main categories of identified risks are as follows:-

(1) Flooding, storms and sea-level rise in low-lying coastal zones and islands

(2) Food insecurity and breakdown of food production chains

(3) Inland flooding in large urban zones.

(4) Insufficient access to drinking water and lack of irrigation water affecting agriculture

(5) Breakdown of infrastructure networks due to extreme weather events

(6) Loss of marine and coastal ecosystems, their biodiversity and the services they provide

(7) Mortality and morbidity during periods of extreme heat

(8) Loss of terrestrial and inland water ecosystems, their biodiversity and the services they provide.[29]

[28] Example-CO_2 Emission Reductions

[29] Ottmar Edenhofer, "Renewable energy sources and Climate Mitigation", 257 (2011)

Many key risks pose particular challenges for the least developed countries. The precise level of climate change that would trigger abrupt and irreversible change remains uncertain, but the higher the global temperature gets, the more risk there is.

- **In urban areas**, global risks are concentrated and are expected to affect people, assets, economies, and ecosystems;
- **In rural areas**, they are expected to disproportionately affect the poorest (such as female-headed households) and those with limited access to land or to modern agriculture, infrastructure and education.

The slowdown in economic growth due to climate change will make poverty reduction more difficult, further erode food security. It will prolong and create poverty traps, particularly in urban areas and hotspots of hunger. Climate change can indirectly increase the risk of violent conflicts, civil war and inter-group violence, by amplifying conflict causes such as poverty and economic shocks.

Increasing efforts to mitigate and adapt to climate change imply an increasing complexity of interactions, particularly between water, energy, land use, and biodiversity, but tools to understand and manage these global interactions remain limited. By reducing climate change through mitigation, the scale of the adaptation needed can be reduced; but under all scenarios of adaptation and mitigation, there are still some risks of adverse impacts.

-How can we manage future risks?

A first step towards adaptation to future climate change is reducing vulnerability and exposure to present climate variability. The capacity of social, economic, and environmental systems to cope with climate change is known as resilience. Strategies and actions are currently available to increase this resilience. Prospects for doing so are fundamentally linked to what the world accomplishes in terms of sustainable development through mitigation actions.

Transformations in economic, social, technological, and political decisions and actions can enable climate-resilient pathways. Specific examples are presented in table SPM.1 of the IPCC report.

However, poor planning, overemphasizing short-term outcomes, or failing to sufficiently anticipate consequences can result in mal-adaptation.[30]

Key Findings of Working Group- II

- There is now even more evidence that climate change presents serious risks to the world.

- Species and ecosystems are already being significantly affected by climate change and this is projected to continue. For example, the Great Barrier Reef's coral reef systems could be eliminated by mid-to late-century under current rates of ocean warming and acidification.
- Climate change is having a negative impact on crop and agricultural food production. For example, marked decreases in water flows in the Murray-Darling Basin could occur if projections of severe dry conditions are realized.
- Climate change has serious risks for human health. For example, an increased number of hot days is one of the most direct consequences of global warming and this can increase excess heat related deaths. Hot days in Melbourne, for example, are expected to increase by 20-40% by 2030.

ANALYSIS OF IPCC WORKING GROUP III: CLIMATE CHANGE MITIGATION

The third working group assessed the climate change mitigation, defined as the human interventions that reduce greenhouse gases emissions. The working group III thus provides the practical measures to limit the global warming in mitigating the climate change. It provide answers to the questions in order to mitigate the climate change.

[30] Tomoyo Toyota & Ryo Fujikura, "Climate change mitigation and Development Cooperation", 35 (2012)

-What is projected by emission scenarios?

For scenarios, without mitigation efforts beyond those in place today, greenhouse

gas concentrations would reach 750 to over 1300 PPM[31] CO_2eq by 2100 (versus 400 PPM now). Global surface temperature would increase by 2.5 to 7.8 °C over pre-industrial levels (*high confidence*).

Greenhouse gases emissions are expected to continue to grow in all sectors except agriculture, forestry and other land uses (*robust evidence, medium agreement*). By 2050, the emissions from the energy supply sector are projected to triple compared to 2010, mainly from the electricity used in buildings and industry. Emissions from transport and buildings are projected to almost double, unless improvements in energy efficiency are accelerated (*medium evidence, medium agreement*).

Scenarios limiting CO_2eq concentrations to about 450 PPM by 2100 – necessary to limit global warming to 2°C above pre-industrial levels – require greenhouse gas emissions that are 40% to 70% lower in 2050 than in 2010, and near zero in 2100. This requires large-scale global changes in the energy supply sector (*robust evidence, high agreement*).

Scenarios that exceed 650 PPM CO_2eq by 2100 are *unlikely* to limit global warming to 2°C above pre-industrial levels.

-How can climate impact mitigations objectives best be reached?

If mitigation efforts are delayed, it would be more difficult to limit global warming to 2°C and the range of options would be more limited (*high confidence*). Infrastructure development and long-lived products can lock a society into a pathway of high greenhouse gas emissions, something that can be difficult and costly to change. This reinforces the importance of early action for ambitious mitigation (*robust evidence, high agreement*).

[31] Stands for “Parts per million”

Since most greenhouse gases accumulate over time and mix globally, climate change can only be effectively mitigated if collective actions are taken at the global scale. International cooperation is needed to help developing and spreading environmentally sound technologies.
In order to accurately estimate the benefits of mitigation, the full range of possible impacts of climate change need to be taken into account by social, economic and ethical analyses.

-What are the possible mitigation measures?

Major options needed to reach the maximum concentration objective of 450 PPM CO_2eq include:

1. Replacing coal-fired power plants with modern, highly efficient natural gas power plants, provided that natural gas is available and that gas leaks are kept low during extraction and distribution;
2. More efficient energy use, as well as tripling to nearly quadrupling the share of zero- and low-carbon energy sources by the year 2050; this includes renewable, nuclear energy, fossil energy with CO_2 capture and storage (CCS), and Bio-energy with CCS (BECCS).
3. Reducing CO_2 emissions in all transport modes, through technical improvements, behavioral changes, as well as new infrastructure and urban redevelopment investments.

-Would de-Carbonizing and CO2 storage technologies be effective mitigation tools?

The energy supply is currently largely dominated by carbon intensive fossil fuels. Decarbonising[32] it, is a key requirement to stabilize emissions below 580 ppm CO by 2100 (*robust evidence, high agreement*). However in the near-term, there may be more to be gained by increasing energy efficiency than by decarbonising energy supply.

[32] Means reducing the amount of carbon it releases

Carbon Storage technologies currently exist, but there is a need for regulatory incentives to deploy them on a large scale. Combining Bio-energy with carbon capture and storage[33] can bring net negative emissions.

-How can individuals contribute to the reduction of greenhouse gas emissions?

Individuals could substantially lower emissions by changing their diet, reducing food waste, and modifying consumption patterns such as mobility demand and modes, energy use in households, choice of longer-lasting products. Such changes in behavior may improve energy efficiency by 20 to 30 % in 2030 (*medium evidence, medium agreement*).

In developed countries, lifestyle and behavioral changes could reduce energy demand in buildings by up to 20% in the short term and by up to 50% by mid-century.

-What would be the cost of climate change mitigation?

If all countries would begin mitigation measures immediately and on the same basis, reaching concentrations of about 450ppm CO_2eq by 2100 entails losses in global consumption of 1 to 4% in 2030, 2 to 6% in 2050, and 3 to 11% in 2100. This is quite small considering that global consumption should grow anywhere from 300% to over 900% during this century. Delaying mitigation would increase the costs.

The distribution of the costs would vary: the majority of mitigation efforts would take place in countries where future emissions are expected to be highest, as well as in sectors where key mitigation technologies are effective.

Mitigation measures entail a wide range of possible adverse side-effects as well as co-benefits, which have not been well quantified. For instance, the land used to plant trees as carbon sink cannot be used for human food, animal feed or Bio-energy crops.[34]

-How will mitigation affect the energy industry?

[33]Hereinafter referred as "BECCS"

[34] Ottmar Edenhofer, "Renewable energy sources and Climate Mitigation", 262 (2011)

- Revenues from the export of coal and oil are expected to decrease (*high confidence*). The effect on natural gas exports is more uncertain.

- Nuclear energy could make an increasing contribution to low-carbon energy supply, but a variety of barriers and risks exist (*robust evidence, high agreement*). New technologies addressing some of these issues are being investigated and progress has been made in nuclear safety and waste disposal.
- Methane**,** Bio-fuels and electricity produced from low-carbon sources are already increasing their share in the transport sector; hydrogen fuels from low-carbon sources are an option for the longer term.

Key Findings of Working Group- III

- CO_2 emissions from fossil fuel combustion and industrial processes contributed to about 78% of the total greenhouse gas emission increase from 1970-2010, with a similar percentage contribution from 2000-2010. De-carbonising electricity generation is a key component of mitigation.
- Mitigation scenarios that are likely to keep global temperature down to less than 2°C, relative to pre-industrial levels, include large-scale changes in energy systems and potentially land use.
- In order to keep global CO_2 levels to 450 ppm, the use of renewable energy will need to almost quadruple.
- International cooperation is required to effectively mitigate greenhouse gas emissions.

ANALYSIS OF SYNTHESIS REPORT

The synthesis report distils and integrates the findings of the three working group contributions to the 5^{th} assessment report of IPCC. Launched on 2 November 2014, the Synthesis Report

integrates the assessment of past changes in climate as well as projections for the future from the three working group reports already released and two special reports brought out in 2011.[35]

- Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history.
- The continued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems.
- To provide a two-in-three chance or higher of keeping warming below 2°C will require limiting total CO_2 emissions since 1870 to about 2900 gig tons. Two thirds of this amount had already been emitted by 2011. However, the remaining fossil carbon reserves (like coal, oil and gas) far exceed this remaining budget. The clear conclusion is that most fossil fuels have to stay in the ground.
- By the end of the 21st century, it is very likely that more than 95% of the ocean area worldwide will experience sea level rise.
- In urban areas, climate change is projected to increase risks for people, economies and ecosystems, including risks from heat stress, storms and extreme precipitation, inland and coastal flooding, water scarcity, sea-level rise, and storm surges.
- Rural areas are expected to experience major impacts on water availability and supply, food security, infrastructure, and agricultural incomes.

[35] https://www.ipcc.ch/

- In order to have any real chance of staying at or below 2°C, annual investments in low carbon electricity and energy efficiency will need to rise by several hundred billion dollars per year before 2030.
- Without additional efforts to reduce emissions, global emissions growth will continue. If global emissions continue to rise on a "business as usual" basis global temperature will rise between 3.7 to 4.8 degrees C above preindustrial levels by 2100. This level of temperature increase would be catastrophic. That means we are heading towards catastrophic temperature rise.
- We have the ability to tackle climate change and to build a more prosperous, sustainable future.

CONCLUSION

The Intergovernmental Panel on Climate Change (IPCC) is the most authoritative international body on climate science. The IPCC's Assessment Reports provide a comprehensive summary of climate change, from the physical science to its impacts and how to tackle it. These reports inform our understanding of climate change and its implications for nations around the world, including Australia. The IPCC's latest report – the Fifth Assessment Report (AR5) – is the most comprehensive assessment of climate change undertaken ever. It involved thousands of contributing experts, including over 800 Lead Authors from more than 80 countries. This report was the most significant report from the IPCC since its last major review, the 4th Assessment Report in 2007. Its assessment of the state of the climate is the most comprehensive ever written and it provides a strengthened body of evidence of man-made climate change.

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