

# ***Global Resource Pack***

## ***IPCC Assessment Report 5, Working Group 1***

### **Background:**

The reports of the Intergovernmental Panel on Climate Change (IPCC) serve in many respects to underpin the international community's understanding of climate change and related issues. The IPCC's reports are considered the most authoritative scientific assessments on climate change in the world and are produced through the involvement of thousands of scientists worldwide. The IPCC does not conduct its own research. Instead, scientists from universities, think tanks, businesses and nonprofit groups around the world assess and synthesize the most recent climate change-related science, on a volunteer basis. The IPCC's Fifth Assessment Report (AR5) will be its first assessment report since 2007 (AR4), the year the IPCC won the Nobel Peace Prize.

AR5 will be launched in four separate installments during 2013 and 2014 and has the potential to significantly enhance the public debate about climate change, providing NGO's with a number of opportunities and challenges. Assessment Reports contain a Summary for Policy-Makers (SPM's) which are intended to aid policy-making and are negotiated line by line by governments. The final product, AR5, will also be endorsed unanimously by the world's governments. This government ownership of IPCC reports provides NGO's with tremendous advocacy opportunities to encourage governments to take the actions necessary to slow the very climate change their own reports detail. These report releases also come at a key time during the UN climate change negotiations, as governments have committed to negotiating a new, international climate change treaty by 2015.

The coming release of the latest IPCC report will be only the fifth time in the organization's twenty-four year history that it has published an assessment report, and its launch will be an important opportunity for many sectors of society, including NGO's focused on climate change, to communicate its findings and – most importantly - their relevance for policy makers, the private sector, local communities and our shared environment.

### **Key Dates:**

*Working Group 1: Will focus on the physical science basis of the climate system and climate change. It will take place 23-26 September 2013 in Stockholm, Sweden. **The Summary for Policy Makers (SPM) will be released at 10am Stockholm time on Friday, 27 September and the press conference will be webcast. The full report from Working Group I is expected to be released on 30 September.***

Working Group 2: Will focus on impacts, vulnerability and adaptation, and take place 25-29 March 2014 in Yokohama, Japan.

Working Group 3: Will address mitigation options and take place 7-11 April 2014 in Germany.

The final installment will be a “synthesis report” which brings together the work of the three working groups into one report. This will be released during a meeting on 27-31 October 2014 in Copenhagen, Denmark.

### **IPCC AR5 Overview:**

Overall, AR5 provides more certainty in many respects, and a more detailed understanding of climate change than previous reports, rather than any single new finding or advancement that might dominate global media coverage.

Rather than many new, groundbreaking findings, what the report largely shows is that certainty over the causes and effects of climate change have increased.

According to the report, scientists are now more certain than ever that human activity is responsible for the majority of global warming since 1951. The report also shows that:

- sea level rise has accelerated;
- the rate of arctic sea ice retreat has doubled;
- the melting of glaciers and ice sheets is faster than before, and,
- the oceans are acidifying.

In short, climate change is real, it's happening now and humans have caused the bulk of it. AR5 makes clear that a rapid reduction of greenhouse pollution will help the world avert the worst of climate change, but without aggressive mitigation strategies, global temperature rise will likely exceed 2°C by 2100.

These findings beg the question, how should governments address the growing crisis and prevent catastrophic warming?

NGO's have a unique role to play in communicating about AR5 and its findings – and in answering this question. Many organizations, governments and the IPCC itself will focus primarily on communicating the science, explaining it and making it accessible.

NGO's, embracing their traditional advocacy role, should take an additional step and consider focusing their communications efforts on what the findings contained within AR5 mean for policy makers, political leaders, the private sector, local communities and our shared environment.

### **Key Findings**

The following represent some of the key findings from AR5, or the most noteworthy items contained within the Working Group I report. It is worth keeping in mind several important points when considering this section;

- 1) These key findings are generally global in nature. While they will be relevant in many cases, there may be other situations when communication and advocacy is best supported using regional breakdowns of AR5 that paint a clearer and more locally relevant picture.
- 2) To this end we have produced a regional breakdown of AR5 entitled "[Region by Region; The Science of AR5 WG1 and the Consequences](#)". This document provides 18 regional briefs, which breakdown AR5 and other widely available climate science into the same regional designations used in AR5. These regional breakdowns are complementary to this global resource pack and designed to assist groups with making AR5 more locally relevant.
- 3) It may also be worth familiarizing yourself with "Region by Region" because in some cases global averages may be quite different from what is happening locally. In other words, if particular extreme weather events are thought to be happening less frequently globally, that may be of cold comfort to your country if in your region the incidence of those same weather events is actually higher, contrary to the global average.
- 4) Climate science has advanced, and therefore changed considerably since 2007. This includes new data and modeling techniques, better measurements across the earth's surface and even significant advances in computing power. While these changes have largely brought greater certainty to the field, in some cases there is greater uncertainty now than previously thought.

With this in mind, here are some of the key findings from AR5 WG1:

- **Scientists are now 95% to 100% certain** that humans have caused the majority of climate change since the 1950's. This is an increase in certainty from 2007 (90% to 100%) and a significant increase since 2001 when scientists were at least 66% certain.
- Without an aggressive mitigation strategy that sees greenhouse gas emissions stabilize this century, global **temperature looks set to significantly exceed 2°C** warming above pre-industrial levels by 2100 – crossing a threshold into catastrophic warming with devastating global consequences.
- If we look at global warming in terms of decades, the three most recent decades have all been warmer than all preceding decades (since 1850).
- The **period covering 1983 - 2012 was very likely the warmest 30-year period in 800 years** and likely the warmest of the past 1400 years.
- Since 1950 both the atmosphere and the ocean have warmed, the **extent and volume of snow and ice have diminished and sea levels have risen**. Many of these changes are happening much more quickly than in the past.
- The melting of glaciers and ice sheets in the last decade has been several times faster than the melting during the 1990's.
- **The area covered by Arctic sea ice has shrunk in every season and every decade since 1979**. The climate models predict that with continuing high emissions, we can expect nearly ice-free Arctic summers by 2050

- **Sea level rise has accelerated**, rising almost twice as fast from 1993 to 2010 than it did from 1901 to 2010.
- It is also very likely that the rate of sea level rise during the 21st century will exceed the rate observed from 1971-2010 under all scenarios in AR5.
- **The oceans are acidifying** and have been since the beginning of the industrial era, with devastating consequences for coral reefs and millions of people who rely on reef fish for protein.
- The **frequency and intensity of heavy precipitation events will increase** at the global scale.
- **The top 700 meters of the oceans, which take up the vast majority of the heat trapped by greenhouse gases, have been warming since the 1970's.** This ocean warming may be contributing to the fact that during the last 15 years, surface temperatures - the air above land and the top of the ocean - have risen slowly compared to previous recent decades. Decades of slower warming are not unusual, they have occurred before, and the IPCC emphasizes that despite the possibility of such "speed bumps" there is no doubt about long-term warming trends. Warming is likely to pick up again in the near future.
- There's strong evidence **that temperature extremes, including warm days and heat waves, have become more common** since 1950.
- Scientists don't have enough data to make conclusive statements about an increase in flooding globally in the last few decades. However, when looked at regionally, the picture is more mixed. **Some regions are projected to experience an increase in flooding events**, such as parts of New Zealand, Australia, Central America, China, Mongolia, Northern Europe, and Western North America.
- In the case of **droughts**, global trends are difficult to identify, however, regional trends are clearer and some areas are experiencing more severe and more frequent droughts, for example Mediterranean and West African regions.
- In the case of **tropical storms**, recent data suggest that the frequency of Category 4 and 5 storms are projected to increase globally.
- AR5 slightly increases the range of **climate sensitivity**, expanding it on the lower end of the range. Climate sensitivity refers to how much the planet would warm if the amount of atmospheric CO<sub>2</sub> doubled. **In AR4 the best estimate for sensitivity from a doubling of CO<sub>2</sub> was 3 degrees Celsius and that is unchanged in AR5.** A lower sensitivity means that warming of 1.5C is now considered possible. But this best case scenario is deemed no more likely than the worst case scenario of 4.5C warming. Unfortunately the climate sensitivity revision in AR5 is small and doesn't change things much. **Emissions are skyrocketing towards the worst-case scenario examined by AR5, which will be catastrophic no matter the exact level of climate sensitivity.** On the other hand, the good news is that this revision does increase our confidence that we can keep warming under the 2 degree C threshold if we get on the right path, that we're not already committed to going over that threshold in the next few years.
- **For the first time, the IPCC report contains an assessment of our remaining 'carbon budget'.** To have a two-thirds chance of staying below 2 degrees C of global warming, we need to add no more than one trillion tonnes of carbon to the

atmosphere, relative to preindustrial levels, the report says. By 2011 we had used up half of that budget, and scientists say unless emissions are cut rapidly, we will burn the remaining amount over the next thirty years. The report will also warn that the budget may be smaller than we think. 'Known unknowns' in the climate system, like methane emissions from permafrost, may mean the budget is tighter. Burning less and coming in under-budget would improve the odds of staying below 2 degrees C. The budget also means that the faster we get to grips with emissions, the more time we'll have to reduce them. Because carbon dioxide stays in the atmosphere, the IPCC warns, unless we can suck it back out climate change is essentially irreversible on a human time scale. Once we've spent the budget, it's gone.

- **AR5 confirms that climate models are right on the money when it comes to the big picture.** Sometimes the models do miss the exact timing of short-term fluctuations in just part of the picture, such as the current levels of surface warming which were slightly slower than the trends we saw until recently. But the models do predict such occasional "speed bumps" in surface temperatures. They just don't always get the timing right. The report tells us that, over the long term, the models match the observed long-term trend in the warming of surface temperatures.

Additionally, for ad-hoc support with rebutting misinformation about AR5 and for access to a Questions & Answers document which seeks to explain many of the key elements of AR5 and which could be a useful aid in conversations with those mis-communicating the AR5 findings, please contact Christian Teriete at [christian.teriete@gmail.com](mailto:christian.teriete@gmail.com) or Ria Voorhaar at [riabee@gmail.com](mailto:riabee@gmail.com).

### **Global Talking Points:**

We have put together some global topline messages to help with your IPCC reporting. Communicating AR5 is likely to be most effective if output is focused on what the science means at the local level; both climate impacts and the political implications of the IPCC report. Local impact and success stories can help make communications about AR5 more relevant and engaging for targeted audiences.

### ***The Science***

- The IPCC Report shows with extreme certainty that climate change is real, caused by human activity and requires urgent action. According to the IPCC, sea levels are rising, precipitation patterns are changing, sea ice is declining and oceans are acidifying - all with grave consequences for our communities, environments and economies. Some regions of the world will experience more frequent or more intense droughts, floods or storms.
- If we look at global warming, the three most recent decades have all been warmer than all preceding decades since the industrial revolution. The period covering 1983 - 2012 was very likely the warmest 30-year period in 800 years, and likely the warmest of the past 1400 years.

- This is the most comprehensive, authoritative and scrutinized report on climate change that has ever been written. Prepared by over 800 of the world's leading experts from all corners of the globe it is the most encompassing assessment of scientific knowledge on climate change.

### ***What it means***

- Climate change is impacting people here and now, but the consequences will be even worse in the future if action is not taken. Therefore the focus must now be on ensuring comprehensive government action that averts the worst impacts of climate change.
- For the first time, the IPCC report identifies a global level for carbon dioxide emissions that the world cannot exceed if we are to meet the international goal of preventing devastating levels of global warming. While the new IPCC report comes with good news saying that strong action can still keep warming within the 2 degrees C danger-threshold, it also states clearly that the world is currently headed for a much higher temperature rise.
- Governments must urgently implement plans to reduce emissions or the dangerous impacts already affecting vulnerable communities will become even more widespread.

### ***Urgent Action***

- Governments must make necessary funding available to increase resilience and support vulnerable communities suffering the most from the impacts of climate change happening now. More funding would be available if governments phased out inefficient fossil fuel subsidies and instead provided incentives for and access to clean, renewable energy for all.
- Most known fossil fuel reserves must stay in the ground if we want to guarantee a safe climate future, so governments should divert investments from new fossil fuel development towards clean, renewable energy and innovative solutions to use energy more efficiently. The solutions exist and taking action makes sense, delivering important benefits for communities, economies and the environment they depend on.

### ***Managing Risk***

- Climate action is also about risk-management. The science tells us that that risks are huge, and our actions have to match what is effectively the biggest challenge of our generation.
- Climate action is necessary to stave off this challenge, and to create a fairer, healthier and happier place for future generations. The longer we delay real action, the more expensive addressing climate change will get.

### **Draft Blog/Op-ed:**

The following text is meant to be useful for groups drafting blogs or op-eds around the launch of AR5 WG1 in Stockholm in September or thereafter. Obviously this text is most effective when personalized and made locally and regionally relevant by a partner and is not meant to be used as is.

### ***DRAFT OP-ED: THE DEBATE IS OVER, LET THE ACTION BEGIN***

*Important news for people who don't like to end up in flames: The Intergovernmental Panel on Climate Change (IPCC), the world's premier scientific organization focused on climate change, has said it is an extreme certainty that humans have caused the majority of climate change since 1951. Their report, from Working Group I, the first of a four stage process to release their Fifth Assessment Report (AR5), also shows that the planet is heating up, sea level rise has accelerated, the rate of arctic sea ice retreat has doubled, the melting of glaciers and ice sheets is faster than before, and the ocean is acidifying.*

*AR5 confirms that climate change is real, it's happening now and humans have caused the bulk of it. Or in other words: the house is definitely on fire, things are quickly getting worse, and it's up to us to save lives. So how about moving the debate from "is it happening?", and "are humans responsible?", to the more important question of what to do about climate change? More specifically, what will governments do about it? Considering that this new report largely confirms what we already knew, that there is really no more time to waste, what will governments do before millions are caught in the flames?*

*Is this choice of metaphor too dramatic? Is AR5 is just another boring science report, unlikely to kick governments into action? Simply put, no. The IPCC is a unique body in that it is essentially wholly owned by governments. They negotiate, line by line, the so-called Summary for Policy Makers (SPMs) which accompanies each report, ensuring the link between the science and the policy. The final product, the full report, is not final until it's approved by all governments.*

*So when we are encouraging our governments to act on climate change with urgency, and substantiate that call for action by pointing to the IPCC's latest report, we are essentially asking them to address what their own report highlights as the only reasonable option: saving lives of course, as long as we can still fight the fire.*

*A government getting the IPCC report and failing to take urgent action is like a fire brigade getting an emergency call and failing to send fire-fighters. Neither can governments duck a report that's clearly addressing them, nor can they ignore the fact that they have a responsibility to act.*

*So what can governments do, and how hard do they have to try?*

*For starters, they have already agreed that nations should work together to keep global temperature rise below 2°C – an important threshold beyond which many think climate change will spin out control and threaten human civilization as we know it. A sensible approach: try to control the fire. They have also agreed to negotiate a new international climate change treaty by 2015 with long-term goals for emission reduction targets that would put us on track to stay below 2°C. But that treaty would not take effect until 2020, and if we wait to ramp up our efforts to cut emissions till then, it will either be too late or too costly to do what can be done more easily and cost-effectively if we act now. Wait with saving lives till the fire gets worse? Not exactly the most sensible approach.*

*So if governments were to take their own emergency call – the new IPCC report – seriously, they would immediately begin or accelerate the shift towards 100% clean, renewable energy, and make funding available to support vulnerable communities suffering the most from climate impacts today.*

*Where will they get the money, in this age of austerity? Some could come from the phase out of dirty fossil fuel subsidies and other perverse tax incentives which subsidize polluting forms of energy rather than clean ones. Governments should also ban new fossil fuel development like coal power plants and divert their investments towards clean, renewable energy and innovative solutions to use energy more efficiently.*

*Anything else would be like pouring more oil into the fire – oil bought from the arsonists who started the fire in the first place. A government that's still promoting fossil fuels over renewables in light of the new IPCC report is like a fire-fighter who is actively fanning the flames with his left hand while hesitantly trying to extinguish them with his right hand – not exactly the sort of brave hero we need who risks his own life to save the lives of others.*

*We can still prevent the worst effects of climate change and leave our children, and their children with a decent planet. But we need governments that act like fire-fighters and not like arsonists, who waste no time to act and save lives, rather than getting lost in debate about how bad the fire is, or who needs to firefight how much. We need to make sure they hear the emergency call that is AR5, and that they take the right actions in good time.*

*It's probably a good idea to pick up the phone and give the local MP and the Prime Minister's office a ring, just in case they missed the call from the IPCC as they were busy discussing the joys of burning things with fossil fuel lobbyists on the other line.*

### **Sample Tweets: #debateisover**

The following draft tweets might be useful for partners around the release of AR5. The tweets link to the IPCC home page, but the bitly URLs could easily be replaced with a URL pointing to relevant content on your website or topical news stories on media sites.

For Tweets related to IPCC AR5, a number of hashtags are in use already and/or being pushed by various groups. A theme that several groups are hoping to push is centered



around the notion that the #debateisover. Other hashtags in use are #IPCC, #AR5 and #IPCCAR5.

The science is clear & the #debateisover. #IPCCAR5 95% certain humans caused majority of #climatechange since 1950s <http://bit.ly/KBXwP>

What does 95% certainty mean? Scientists as certain on climate change as they are that smoking kills: <http://bit.ly/16Am0RT> #IPCC

It's real, it's happening & humans have caused majority of it. @IPCC\_CH release latest #climatechange report <http://bit.ly/KBXwP> #AR5

800+ authors, 9000+ publications & 2M GB of data; #IPCC #AR5 is biggest, strongest & most robust #climate report yet <http://bit.ly/184KGWC>

Rising sea levels, melting glaciers & acidifying oceans. #IPCCAR5 report paints stark picture of #climatechange <http://bit.ly/KBXwP>

#IPCC #AR5 expected to offer stark warning of 26-81cm of sea-level rise - 136 coastal cities at risk <http://bit.ly/14KgFuK>

Arctic sea-life vulnerable to increasing ocean acidification #IPCC likely to say, fishermen already troubled <http://bit.ly/19AIRj7>

The science is clear & the #debateisover. Now govt must act to avert worst impacts of #climatechange <http://bit.ly/KBXwP>

#AR5 report by #IPCC finds world will pass 2°C without aggressive mitigation. Governments must sit up and listen. <http://bit.ly/KBXwP>

For most businesses the science is settled and the #debateisover. #Climate change is "mother of all risks" <http://t.co/YZIJz9mYrH> #IPCC

UN Chief: 'Our planet & scientists sending clear message', #IPCC report must shake world leaders into #climate action <http://bit.ly/1bFamgh>

### **Sample Facebook Posts:**

The following draft Facebook posts might be useful for partners around the release of AR5.

1) Today the IPCC released its most comprehensive climate science review to date, making clear that change is happening, that the effects are getting worse and that urgent action is needed keep warming below 2°C. The debate is over. Now it is time to act.

2) The science is clear and the debate is over. The IPCC's latest review of climate change science shows it's happening, it's getting worse and scientists are 'virtually certain' that humans caused the majority of it since the 1950s.

3) Today's IPCC release offers the most comprehensive review of climate change to date and warns that without aggressive mitigation policies the world will pass 2°C threshold of warming. It is now time for governments to sit up, listen and act.

4) Sea levels are rising, precipitation patterns are changing, sea ice is declining and oceans are acidifying. In its most comprehensive review of climate change to date, the IPCC paints a stark picture of our warming world.

5) The latest IPCC report shows scientists are extremely certain humans have been a major cause of global warming since the 1950s. It is time we stopped asking 'is it happening?' and 'are we causing it?' and start asking what we can do about it.

**For more information on AR5, this resource guide, or to request additional material, please contact;**

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