

5th Assessment Report of IPCC: Pros & Cons

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The IPCC tabled the 1st part of its 5th assessment report at the end of the last week of September 2013 in Stockholm and published it in the October 2013.

Scientific basis of climate change reinforced that human activities are the main cause for global warming. The researchers have always acquired better understanding of the climate system. But anyone who expects spectacular results may be disappointed. The scientific messages are the climate change occurs and the main cause is the CO₂ which is released in the atmosphere through human activity.

The IPCC researchers specify concrete now with 95% probability to be safe that since the middle of the past hundred years the increased temperature due to human activities had been still 90%.

In the new report the statements have changed with reference to the so-called climate sensitivity. The value specifies how much the global average temperature at the earth proximity would rise if CO₂ content would be doubled in the atmosphere. In 2007 IPCC specified climate sensitivity ranging from 2°C to 4.5°C. But 2°C goal now with smaller efforts is attainable as clarified in Berlin. The range between 1°C to 4.5°C is within the probability area. As extreme improbability the scientists grade the climate sensitivity of below 1°C than very much improbability over 6°C. Finally one knows also where the additional heat absorbed from the atmosphere remains in the climate system of the earth – namely 90% in the seas. The UN expert panel said in Yokohama, Japan on the impact of climate change that soaring carbon emissions will amplify the risk of conflict, hunger floods and mass migration in this century. The second volume of the 5th assessment by IPCC gives a stark message to policymakers that increasing magnitudes of warming will increase the likelihood of severe, pervasive and irreversible impacts while making recommendations.

The final part of the report is expected to say the goal of limiting global warming to 2°C is feasible if emissions are swiftly checked and reversed. Over 230 scholars contributed to this report. Most scenarios for meeting the 2°C targets entails a tripling to nearly a quadrupling in the share of energy from renewable and also fossil sources whose carbon polluting emissions are to be controlled by applying improved sophisticated technol-

ogies. As per expert panel the world has a likely chance of meeting the UN's warming limit of two degrees Celsius if it cuts annual greenhouse gas emissions 50-70 percent by 2050, especially from energy. The longer it takes to switch from carbon polluting fuels to clean energy sources, the harder and more expensive will be to reach the target, the experts said. The cochairman of the UN expert group that compiled the document said "many different pathways lead to a future within the boundaries set by two degrees Celsius goal. All these require substantial investments." The report is the third and final chapter of a mammoth overview by UN's Intergovernmental Panel on Climate Change (IPCC) – its first since 2007.

The worldwide climate change intensifies the danger for health, economic projections as also nutrition and water supply for millions of people after the new report of IPCC. The loss of biodiversity and damages of human being in the low sea level lying area are the key risks as per the report. The experts express in the new study the caution to the consequences than previously by chance the migration of refugees. The trend of global warming is unequivocal – the report says.

In its most recent report the working group II of IPCC directs attention to the risks of global warming and urges on the steady reduction of CO₂ emissions. More than 300 experts have advised in the report and concluded in Japanese City of Yokohama. It includes separate chapters on Africa, Asia and Latin America while the trends are similar their impacts. Their impacts will be felt differently in different countries. The climate change is a big challenge for the risk management, said Christopher Field of the cochairman of the Working Group II. As because the climate change is often integrated with other challenges it increases the risk. We live in time period of manmade (anthropogenic) climate change – emphasized Vincent Barros the co-worker of Mr. Field as joint chief. In many cases, we are not prepared with climate related risks with which we are already confronted. The corresponding investments can pay today and in future also warns Barros. Field emphasized adaptation in climate change is no exotic agenda which has not yet been put to the test it gives only experience.

Also when the most devastating consequences and

the biggest adaptation requirement cover up higher latitudes then Europe is also affected. Adaptation standards to climate change could help mitigate the most of the accepted damages as for the overflowing in Europe the costs for that were high – says the IPCC. It is all the same which climate scenario we estimate, the water costs will raise – says the report.

Warning systems must be directed in Europe in order to warn ahead against the extreme heat waves. Before all southern Europe is affected of the heat, there it generates the most unfavourable effects on health, agriculture and forestry, energy generation and use transport system, tourism the work productivity and building stability.

“Few of the global consequences reached over many generations. The poor and vulnerable are mostly faced with these” says the chief of the World Meteorological Organization, Michel Jarraud. The temperatures would presumably rise to 0.3°C to 4.8°C upto the end of the 21st century. The lower of the scale would only reach when the governments reduce drastically the emission of the greenhouse gases.

A rise of 2°C above the average temperature level of preindustrial time would do away with the 0.2% to 2% of the global economic performance. The limitation to 2°C is the goal of the world body however it is valid in view of the steady rising greenhouse gas emission is scarcely to be achieved.

Assessment report compiled on hundreds of experts over four years should give the governments criteria for this business when they meet in Paris in 2015 on World Climate Summit in order to deal with a new worldwide binding climate protection agreement. Previous preparatory meetings in Paris have however brought little progress.

The world Climate Council IPCC called upon the States to remodel their economy. It placed in Audimax of TV Berlin how the global climate warming should be limited. The council advocated energy efficiency as also CO₂ poor energy technology as the solar, wind, water energy and thermal power plants with CO₂ separation and nuclear energy.

It gives many things to do as emphasized by Rajendra Pachauri, the chairman of the IPCC. The worldwide emission of greenhouse gas has accelerated. The global climate emissions increased every year on an average

1.3% from 1970 to 2008 and from 2000 to 2010 in steps around 2.2%. This increased tempo exists because of increased energy requirement due to economic as also population growth. The financial and economic crises retarded very meagerly this trend.

Many countries performed to some extent already certainly in order to limit greenhouse gas. Without further standards the average worldwide temperature upto 2100 however can rise from 3.7°C to 4.8°C. Then the global climate protection enters into position. Certainly the world body agreed in 2010 in climate summit in Cancun, Mexico that upto 2100 an average global warming of 2°C is still acceptable, this goal can however on the basis of at least increased emission already in 2030 becomes out of range as said by Pachauri.

The working group III of the climate council IPCC has clarified now in its part report as to how the 2° grade goal however gets achieved. This recommends the economy to decarbonise therefore to clearly reduce the dependence on fossil energy sources. The necessary investment upto 2029 for that appears to be overlooked. “It does not cost the world to save the planet” – says Offmar Edenhoffer of Potsdam Institute for Climate following research (PIK) and Vice Chairman of IPCC Working Group III.

The world climate council recommends in efficient techniques as well as the heat reduction of buildings yearly upto 2029 to invest over 300 milliard dollar more than previously and to rebuild the energy economy. This rebuilding costs money and saves however simultaneously the expenses. Therefore about 14.7 milliard\$ more than as yet should be invested in renewable energy, thermal power plants and with CO₂ capture and storage technique as also the nuclear energy. The centre of gravity lies for the working group on the renewable energy carriers. Simultaneously nearly 30 milliard \$ less coal power works without carbon capture and storage should be spent and nearly 70 milliard less for the acquiring of fossil raw materials. For comparison yearly 1200 milliard \$ are invested worldwide in energy system.

The investments in energy efficiency and the remodeling the energy supply would slow down the economic growth upto 2100 yearly around 0.06 percent, opines Edenhofer.

The implication of nuclear energy was debatable in Berlin. Federal economic minister Gligmar Gabriel does not hold it a good idea to exchange the green house gas emission in atmosphere against the underground stor-

age of atomic wastes. Also the IPCC working group III views the nuclear energy doubtful.

Certainly we understand that “we are pioneer but not as decider” clarifies Edenhofer. Now the policy makers must meet the only right decisions. If all states wanted to reduce greenhouse gas emission and introduce a uniform price for such emissions, then the climate researchers have the best option for climate protection. To that the industrialized countries must support with that the developing and underdeveloped countries in order to be able to introduce energy efficient key technologies. Gabriel however sees little preparedness to work together. “That does not mean that we should stop the worldwide negotiations” says the minister. These could only be successful when the states see that climate protection and successful economy do not present any contradiction. Here Germany stands bound to be outrider and model.

However it gives up-to-date a trustworthiness. German admitted to reduce the warming due to greenhouse gas in 2020 by 40% than in 1990. For the time being the reduction lies at 24% as per decided standard to attain by 2020. In order to plug the gap, Germany wants in this year still to work out an immediate programme for the restraining of CO₂ emission.

India will be vulnerable to impacts of climate and so must take a whole range of measures to handle this impact. Dr R K Pachauri, chairman of Intergovernmental Panel on Climate Change (IPCC) remarked on 2 November 2014. The Synthesis Report, the concluding installment of the Fifth Assessment report was released in October 2014 from Copenhagen. The synthesis report integrates the findings of IPCC Fifth Assessment Report of three volumes produced by over 800 scientists and released over the past 13 months – the most comprehensive assessment of climate change ever undertaken.

Giving an overview of the Synthesis Report, Dr. Pachauri said “We need to start working on climate change through combination of adaptation and mitigation. The sooner we do it, the better and the more effectively we implement these measures to an extent that it is increasingly becoming more challenging. The cost of inaction would be substantially higher if we do not act and that will impact the human society to a greater extent.”

Amid rising emissions the representatives from over 190 nations began talks at the UN climate summit in the capital of Peru, Lima on a new ambitious and bind-

ing deal to cut global carbon emissions ahead of next year’s (2015) deadline. The 12-day meeting has to agree on a draft agreement which would form the cornerstone of a historic deal to be signed in Paris in December 2015 and take effect by 2020.

The Peru summit comes weeks after US President Barack Obama and his Chinese counterpart signed a historic deal in November 2014 under which the US would reduce emissions by 28% by 2025 and China would reduce emissions by 2030.

It may also be noted that flights and hotels for the entire 9000 delegates from 190 countries attending the UN climate conference here will generate almost 29000 tonnes of carbon dioxide according to an estimate by a group campaigning on behalf of green energy developers. According to Project Developer Forum the 29000 tonnes of carbon dioxide is roughly equivalent to emissions produced by the entire Pacific island state of Kiribati in six months.

Benny Peiser of the climate-skeptic Global Warming Policy Foundation described the 12 day climate summit in the Peruvian capital as the “green blob’s annual ritual and an expensive” form of mass tourism never mind the carbon footprint.

After playing a proactive role in the Lima climate conference in Peru, India is optimistic that a new global agreement would be drafted this year at the Paris climate conference containing a complete plan for pre-2020 actions for cutting greenhouse gas emissions.

The UN Climate conference to be held in Paris from November 30 to December 11 of this year is tasked with finalizing a global agreement designed to cut greenhouse gas emissions. In the Lima conference India had suggested the need for having differential responsibility for countries to reduce emissions on the basis of two parameters historical responsibility and status of development. The developed world cannot do away with its historical responsibility so they have to do more and provide finance and technology.

The results of the world conference in Lima

- The final document of 190 countries of the agreement of the world climate convention (COP20) is named 'Lima Call' for climate action
- After that The invitation to all the agreeing countries is repeated, national emission reduction concepts to be placed. Those who are in this situation should do that by the end of the first quarter of 2015.
- The UN climate secretariat (UNFCCC) publish the

objectives and by November 2015 draw up a report which would be represented in the incoming comprised reduction objective

- An agreement model on the basis of preparation in Lima for the world conference in Paris to be placed in December 2015.

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Philae lands on Comet “Tschuri”

Thomas Reiter Director for manned space journey and management of the European Space Journey Association (ESA) marked with figure 50-50 the success prospect of Rosetta Space Mission. On the last Wednesday, 12 November 2014 shortly after 17 hours (MEZ) it was then officially announced for the first time in the history of space journey a space probe landing on a comet had been successful. The journey of 67 p/Churyumov-Gerasimenko in short Tschuri had lasted for ten years. The comet measured in diameter approximately 4 km and moved with about 135000 km/hr.

The comet was discovered in 1969 by Russian astronomers Klim Ivanovich Churyamov and Svetlana Ivanova Girasimenko and is named after them.

In June 2011 Rosetta was placed in an art of artificial hibernation out of which it again woke up in January 2014. In August Rosetta rotated around the orbit of the comet. The instrument carrier Philae took off the probe approximately 7 hours before its landing, although a problem on board was observed. The cold gas nozzle above on the power unit did not evidently function – said Stephan Ulamaec who is competent for the landing at the German Centre for Air and Space Journey. However the landing was successful. Tschuri should give information about how the

solar system has developed. The experts come to an end that it is put together as nebula out of which before 4.6 milliard years the sun and its planets have been built.

After turbulent landing the Philae laboratory of Rosetta Mission is now on the surface of the comet Tschuri, the first experiment has been executed and is placed in artificial hibernation due to deficiency of energy.

There was exuberance in the control centre of the European Space Organization (ESA) . When on the last Wednesday the 12 November 2014 at 17 hrs MEZ the landing of Rosetta on the comet Tschuri was proclaimed. However the joy lasted shortly. Quickly it was not once clear whether Philae would be able to stand at all on the surface.

Why? One after another two of the three redundant landing mechanisms broke down. Already before the landing could stand firm, the jet which Philae should have pressed the comet did not function. With the first contact with Tschuri two harpoons should then ignite and re-hooked on surface clawed. None of the two has disengaged. The Philae finally still certainly could land, lay on the third and the last mechanism, and in elastic damper. Its duty with recoil to absorb so much kinetic energy that
