THE GLOBAL GOAL ON ADAPTATION

SOME PROPOSALS FOR PROGRESS

CSE

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1. Introduction

Climate change has negative impacts on human societies and economies. For example, between 1997 and 2016, extreme weather events caused more than 500,000 deaths and economic losses of around US $3 trillion.[1] Looking ahead, for every degree increase in global average temperature, crop yields for rice, wheat, corn and soya bean are estimated to reduce by 3–7 per cent.[2] The Intergovernmental Panel on Climate Change (IPCC) report on 1.5°C indicates that coral reefs will decline by 70–90 per cent at 1.5°C of warming, with near complete losses at 2°C.[3] The IPCC report also refers to a potential decrease of about 1.5 million tonnes in global annual catch for marine fisheries at 1.5°C of global warming; at 2°C this estimate increases to 3 million tonnes.[4]

The exacerbation of health risks like heat exposure, diarrhoea, malaria and childhood undernutrition is estimated to result in 250,000 additional deaths per year between 2030 and 2050.[5] These impacts are not evenly spread across populations. The IPCC identifies 'disadvantaged and vulnerable populations, some indigenous peoples, and local communities dependent on agricultural or coastal livelihoods' as those who bear a disproportionately higher risk of adverse consequences of global warming of 1.5°C and beyond.[6]

The UN Framework Convention on Climate Change (UNFCCC) sought to set a limit on anthropogenic climate change. This was expressed as a goal to limit the increase in the global average temperature to well below 2°C, and to pursue efforts to limit the temperature increase to 1.5°C, above pre-industrial levels. However, even if this limit is adhered to, climate risks and impacts will increase significantly in the coming decades. Since the impacts of climate change are already occurring and expected to rise in the future, planning to adapt to climate change, while continuing to work toward broader economic and social goals, is essential.

This policy brief looks at the 'global goal on adaptation'—currently defined in the broadest terms in the Paris Agreement. It finds that the effort to define this goal is currently stalled because of the technical difficulty in measuring adaptation. Because of this stall, the support that was promised for adaptation in developing countries has not been delivered.

To resolve the deadlock, this brief proposes some shifts in thinking. These are:
i) providing support to assess adaptation needs and mainstream adaptation into domestic planning processes,
ii) mobilizing adaptation finance despite uncertainty in needs, and
iii) focusing on critical sectors to enable prioritized action.

2. The goal on adaptation

The Paris Agreement establishes a global goal on adaptation in Article 7. The goal is to enhance adaptive capacity, strengthen resilience and reduce vulnerability to climate change (Article 7.1). The Article also lays down some principles to guide progress towards the goal. It recognizes the needs of developing countries that are particularly vulnerable to the adverse effects of climate change (Article 7.2). It also recognizes that adaptation involves costs, and that these costs may rise depending on the success of mitigation actions (Article 7.4). It places communities at the centre of the adaptation challenge. This is both in terms of framing the problem—vulnerable groups, communities and ecosystems—as well as the solution—combining traditional knowledge and local knowledge systems with the best available science (Article 7.5).

It is evident that an adaptation goal is inherently different from a mitigation goal. Even the earliest mitigation goals were generally recognizable quantities (total or per capita emissions, maximum global average temperature rise etc.). The adaptation goal is, as written, a qualitative aspiration: an outline that is yet to be coloured in. How is it to be defined?

The Agreement does not provide such a definition, but it provides for a process to progressively do so. Article 7 mandates that Parties engage in domestic adaptation planning processes, including formulating and implementing National Adaptation Plans (NAPs), assessing climate change impacts and vulnerability, and 'monitoring and evaluating and learning' from their NAPs (Article 7.9). At the international level, Parties are to submit Adaptation Communications (ACs) on a regular basis, and update them periodically (Article 7.10).* These ACs will form the basis for a review, as part of the global stocktake, of the

THE ADAPTATION GOAL IS A QUALITATIVE ASPIRATION THAT STILL NEEDS TO BE DEFINED

* It is implied that Parties' ACs should build on their NAPs. The timeline is undefined, but the Article states that ACs are to be submitted/updated 'in conjunction' with Adaptation Plans, Nationally Determined Contributions (NDCs) and/or national communications. NDCs are required to be submitted every five years (Article 4.9) based on 'common time frames' to be decided on by the COP (Article 4.10).

progress toward the global goal on adaptation (Article 7.14[d]).** In the interests of equity, 'continuous and enhanced international support' is to be provided to developing countries to implement these planning and reporting requirements (Article 7.13). The adequacy and effectiveness of this support will also be reviewed as part of the global stocktake (Article 7.14[c]).

THE CHALLENGE IN QUANTIFYING ADAPTATION NEEDS WAS IDENTIFIED EVEN BEFORE THE PARIS AGREEMENT

The basic structure of the process to define the global goal on adaptation can hence be summarized as follows:
i) Countries will identify adaptation needs through domestic planning processes and communicate them at the international level.
ii) The sum of the needs so identified will become a global adaptation goal.
iii) Developing countries are to be supported both in identifying needs as well as achieving their portion of the goal.
iv) Progress made on achieving the goal is to be reviewed periodically (at least every five years).

This seemingly simple structure runs into several technical and political problems, as we discuss below:

3. The current state of the international adaptation goal process

3.1. Assessment of needs

The challenge in quantifying adaptation needs was identified even before the Paris Agreement. For example, UNEP reported in 2014 that measuring the adaptation gap is a major challenge because different societies and groups within a society will vary in their preferences with regard to both the goal and the means of measuring progress towards it.[7] This difficulty is acknowledged in the decision implementing the Paris Agreement (Decision 1/CP.21). To try and resolve it, in Section III of the Decision, the Conference of the Parties (COP) requests its Adaptation Committee to 'consider methodologies for assessing adaptation needs with a view to assisting developing country Parties, without placing an undue burden on them' (paras 41–46).

Since the Adaptation Committee took on this mandate, progress on the issue of methodologies has been slow. Background notes were prepared for the

** The global stocktake, defined by Article 14 of the Paris Agreement, is a mechanism to review progress towards the goals of the Agreement, considering 'mitigation, adaptation and the means of implementation and support'. It is to occur every five years beginning in 2023.

consideration of the Committee in 2017 and 2018, based on submissions from Parties and a review of existing methodologies to assess adaptation needs. In both years, the same basic conclusion was reiterated—that several methodologies exist, but that using any of them to build a global goal is difficult.[8]

The reasons for this difficulty are many. Two of the key difficulties are i) the trade-off between detail and aggregation, and ii) the question of whether to measure activities or results.

Regarding the first, it is difficult to measure needs in a way that emphasizes local context and also allows for aggregation at the global level.[9] This is reflected in the fact that, in the lead up to the Paris Agreement, although more than three-quarters of the countries had an adaptation component in their Intended Nationally Determined Contributions (INDCs), the UNFCCC Secretariat found it difficult to aggregate that information meaningfully.[10]

Regarding the second, there is a debate on whether to measure 'activities' or 'results'. The first option entails measuring activities that are, in theory or through past experience, identified as improving adaptive capacity. Many such activities are already being measured, and do not require the development of new metrics or methods. However, their actual impact on adaptive capacity is unclear. This requires the measurement of 'results', i.e. measuring the impact of a given activity on adaptive capacity. This involves treating adaptive capacity as a quantity which is distinct from activities that affect it. In practice, this approach is difficult to implement and is 'unlikely to be reliable or comparable at the national level or consistent across countries'.[11]

3.2. Assessment of support

The Paris Agreement, as discussed above, requires 'continuous and enhanced international support' to be provided to developing countries in setting and working toward a global adaptation goal. The most obvious form of support is finance. In a dedicated article on finance, the agreement requires that developed countries 'shall provide financial resources to assist developing country Parties with respect to both mitigation and adaptation' (Article 9.1).

SUPPORT FROM DEVELOPED TO DEVELOPING COUNTRIES SHOULD BE BALANCED BETWEEN MITIGATION AND ADAPTATION

3.2.1. Basic commitments on support in the Paris Agreement and Decision

The article requires developed countries to 'take the lead in

mobilizing climate finance from a wide variety of sources, instruments and channels', while emphasizing the importance of public funds (Article 9.3). The provision of finance is supposed to strike a balance between adaptation and mitigation (Article 9.4). Developed countries are required to report biennially on public finance to be provided in the future (Article 9.5), and finance already 'provided and mobilized through public interventions' (Article 9.7).* These reports will also feed into the global stocktake envisioned in Article 14 (Article 9.6).

DISCUSSIONS ON ADAPTATION SUPPORT HAVE AVOIDED FOCUSING ON DEVELOPED COUNTRIES' UNDER-PERFORMANCE ON PARIS PROMISES

As mentioned earlier, the Paris Agreement also contains various decisions associated with the implementation of the Agreement. In its decisions relating to finance, Decision 1/CP.21 requires that the COP shall set a new collective quantified goal from a floor of US $100 billion per year, taking into account the needs and priorities of developing countries (para. 53).** In order to drive progress toward this goal, the Decision requests the Adaptation Committee and the Least Developed Countries (LDC) Expert Group, in collaboration with the Standing Committee on Finance, to develop methodologies and make recommendations relating to:

i) the necessary steps to facilitate the mobilization of support for adaptation in developing countries (para. 45[a]), and
ii) reviewing the adequacy and effectiveness of adaptation and support (para. 45[b]).

3.2.2. Current state of discussions on support for adaptation

The state of discussions on the question of support is captured in a joint report by the Adaptation Committee and the LDC Expert Group in 2017.[12] Regarding steps to mobilize finance, the report states that such steps can be taken by both providers and recipients of support, and proceeds to make separate recommendations on this basis.

The recommendations to recipients are divided in two parts. These are:

i) 'creating an enabling environment', and
ii) 'assessing and prioritizing adaptation support needs'.

Creating an enabling environment, in brief, requires developing policies and

* Article 9.7 particularly emphasizes transparency and consistency in reporting on public funds, and requires this reporting to follow 'modalities, procedures and guidelines' that are to be prescribed by the COP.
** In line with the requirement of Article 9.4 that finance provided must be balanced between adaptation and mitigation, it is generally considered that this translates into a target for adaptation finance of US $50 billion per year by 2020..

regulations, strengthening institutions, strengthening national public financial management systems and establishing national implementing entities. 'Assessing and prioritizing needs' is somewhat self-explanatory and closely tied to the discussion in the previous section on adaptation needs. This part of the report is interesting because it asserts that '*once support needs are known,* developing countries could develop strategies for the implementation and mobilization of support, and translate their needs into bankable projects' [emphasis added].

Any comparable advice for providers of support is missing. The report largely confines itself to noting efforts already being made. Even where it acknowledges certain concrete targets, such as the US $100 billion required annually for climate finance by 2020 (half of which should go toward adaptation), it does not make clear the gap in meeting those targets. To the contrary, it attempts to paint a picture of progress through statements such as 'an analysis of the Organisation for Economic Co-operation and Development indicates that the amount of public adaptation finance (bilateral and attributed multilateral) is projected to at least double in volume between 2013–2014 and 2020.' This may be so, but it still falls well short of the Paris target.

These selective silences reflect the old political disagreement on how much support is due, and when. The report hints at this disagreement. It notes that some Parties see the mobilization of support (such as finance) as highly dependent on mitigation efforts taken until 2030 because the different temperature pathways and related impact risk scenarios will come into effect only after 2030. Other parties disagree—they believe that adaptation needs can be ascertained, in the present, by comparing the current progress on the temperature goal with currently available estimates of adaptation costs based on different temperature scenarios. In other words, some parties believe that action on support is only required once adaptation needs are estimated with a high degree of certainty. Other parties believe that the need for support is already clear, starting today.

3.3. The impasse between assessing adaptation needs and support

This brief review of the state of knowledge and discussions on estimating adaptation needs and support shows the development of a dilemma. There is a lack of technical and political consensus on how to assess and aggregate adaptation needs. Without such an assessment, a global goal is considered impossible. Without such a defined goal, there is a resistance to deliver on the obligation to support developing countries.

MANY COUNTRIES BELIEVE THAT SUPPORT FOR ADAPTATION CANNOT BE DELAYED

To attempt to resolve this impasse, we need to identify why the idea of a 'global goal' was proposed in the first place.

4. The original proposal for the global goal

THE AFRICAN GROUP OF NEGOTIATORS' PROPOSAL EMPHASIZED THAT INACTION DUE TO COMPLEXITY CANNOT BE CONDONED

The global goal began as a proposal made in 2013 by the African Group of Negotiators (AGN) during negotiations under the Ad-hoc Working Group on the Durban Platform for Enhanced Action (ADP).[13] The proposal[14] laid out the following basic elements of the goal:

- the temperature goal of the UNFCCC has a 'concomitant level of climate impacts and costs', which may change depending on the level of mitigation effort by Parties,
- these costs shall constitute the global goal on adaptation,
- finance and technology support for adaptation will be decided for each commitment period based on the temperature scenario resulting from Parties' commitments on mitigation, finance and technology support.

Other proposals identified similar basic principles, but with varying emphasis. For example, the EU proposal wanted the Paris Agreement to i) recognize the global adaptation objective as 'the achievement of climate resilient sustainable development for all Parties'; ii) reinforce the commitments of all Parties to continue to formulate, plan and implement measures to facilitate adaptation in the context of increasing the climate resilience of their national sustainable development; iii) call for parties to communicate these through their National Communications; and iv) call to assist the efforts of those countries that need it and are particularly vulnerable to the adverse effects of climate change, including through provision of financial and technical support (including for capacity building).[15]

However, the AGN proposal was noteworthy because it went beyond these generalities. It acknowledged that the computation of adaptation costs is complex due to the 'spatial dimensions of adaptation (local, sub-regional, national, regional)'. Most importantly, it emphasized that inaction due to complexity cannot be condoned. It thus proposed the following four-step methodological approach to ascertain these costs:

a) Based on an ensemble of Regionally Downscaled Models, project the probability of incidence of climate impacts, consistent with an RCP scenario for 0°C, 1°C, 2°C and 3°C in the developing country regions of the world;

b) Computation of probability density curves for the impacts under each of the

temperature scenarios for the duration of the commitment period, as such reflecting the median magnitude of impacts during the period

c) From records, establish an average costs per disaster for specific regions, which in association with the probability density curves presents a cost curve, of which the sum of costs for the impacts for a region/country during a commitment cycle reflects incremental adaptation needs; and

d) The difference in median costs from the 0°C for the resultant temperature scenarios based on commitments for a commitment period therefore reflect the GGA for the commitment period, which is a global obligation in respect of supporting developing country adaptation action.

It is important to note that the AGN methodology is focused on establishing a cost per disaster, which is better suited to discussions around loss and damage, where the incident, attribution and cost can be computed with models. Adaptation is more about slow-onset events; events that cannot be predicted or computed with exactitude.

However, the AGN proposal has some worthwhile features that can form the basis for adaptation discussions. The proposal makes clear the purpose of a global goal—not to establish an elaborate planet-wide monitoring and evaluation system, but to mobilize support for communities that desperately need it. It balances a desire for information with the imperative of action.

Considering that the IPCC has explicitly acknowledged the 'uneven distribution of adverse impacts associated with 1.5°C and higher levels of global warming', particularly for 'poor and disadvantaged populations, in all societies',[16] a support-focused approach to adaptation is essential. Equipped with this understanding of what the global goal on adaptation is meant to achieve, we propose some ideas to make progress in fleshing out the goal.

5. Adaptation as planning

The current process of goal-setting starts with identifying 'needs' and ends with providing support to fulfil those needs. The process looks this way because the concept of 'need' is wrongly framed.

5.1. Adaptation planning as an ongoing process

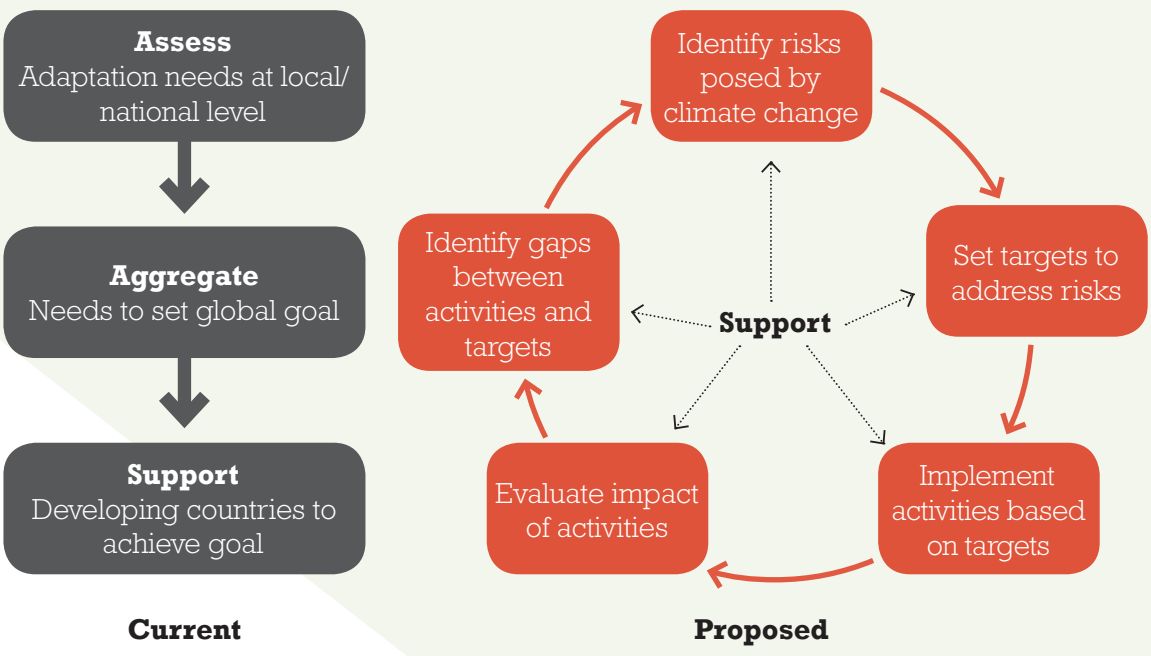
As we noted earlier, the current state of knowledge makes a distinction between

activities and results. The problem with this approach is identified by the UNEP when it notes that 'along the results chain from inputs to impacts, attribution of specific activities to adaptation outcomes becomes increasingly difficult'.[17] This difficulty is at the root of the stall in setting an adaptation goal.

The discussion around identifying needs is unrealistically 'results-oriented'. It presumes that it is possible to identify i) the current state of adaptive capacity, as well as ii) a desired outcome in terms of adaptive capacity, with the gap between the two defined as a 'need'. This is mistaken because the specifics of human vulnerability and adaptability to climate change are still poorly understood.

Consider the example of Japan, where 2 million people were evacuated and over 150 died because of extreme torrential rains this year.[18] This level of downpour has never before been seen in Japan. Hence, in a highly developed country, the desired adaptation 'result' in response to this disaster could not be defined in advance with any precision. So how is it possible, at this stage, to define desirable adaptation results at a global level with any degree of confidence? There is no end-point in adaptation. For the next decade at least, defining 'results' as distinct from 'activities' is almost meaningless.

The global adaptation goal process



It is more practical to rely on the process which has generally enabled human societies to deal with uncertainty and change. This begins with preparing assessments of risks based on the best-available knowledge and technology. Examples of these

are flood-risk assessment or hazard mapping, using a combination of methods such as community consultation and Geographic Information Systems.

This is followed by setting targets to mitigate assessed risks, such as a target to reduce crop losses, reduce damage to houses from flooding to within a limit or by a percentage or more limited goals such as raising awareness of climate impacts at the local level.

Subsequently, activities are planned that aim to meet such targets. Examples include building flood protection for homes, upgrading the build quality of critical infrastructure such as hospitals, providing insurance to farmers and setting up early warning systems that could help communities take preventive action.*

Finally, the process involves evaluating the impact of these activities and identifying the gaps between the impact of the activity and the originally set target. For example, crop insurance schemes often do not adequately compensate farmers, early warning systems may not address all the risks in a particular area, and upgrading infrastructure can be expensive or place other strains on the community. The knowledge so gained is fed into an updated risk assessment to continue the cycle.

This process is otherwise known as planning. The process of planning will, over time, produce more defined goals for adaptation. In a sense, planning is adaptation.

Sustainable development builds adaptive capacity

The IPCC's 1.5 report makes clear that adaptation to climate change is consistent with making sustainable development a priority. It states that '[s]ustainable development is effective in building adaptive capacity if it addresses poverty and inequalities, social and economic exclusion, and inadequate institutional capacities.'[1]

It highlights the role of sustainable development in enabling transformational adaptation, particularly when an integrated approach is adopted, with inclusive, transparent decision-making. It further highlights the effectiveness of local participation when wider socioeconomic barriers are addressed via multi-scale planning. Key examples include national education efforts and indigenous knowledge-enhancing information sharing, both of which build resilience and reduce the risk of maladaptation.

The IPCC also considers that development promotes transformational adaptation when addressing social inequalities (such as gender-based

* This would include activities that are targeted at improving human development indicators generally—improving access to education and healthcare, and the quality of infrastructure being just a few examples.

inequalities) and that promotion of livelihood security through sustainable development enhances the adaptive capacities of vulnerable communities and households. It concludes that transformational adaptation would demand particular types of development—those that are sensitive to the realities of multidimensional poverty and entrenched inequalities, local cultural specificities, and local knowledge in decision-making—which would improve the chances of achieving the Sustainable Development Goals in a 1.5°C warmer world.

Source:
Intergovernmental Panel on Climate Change (2018), *Global Warming of 1.5°C*, p. 5–17. Accessed at http://www.ipcc.ch/report/sr15/

5.2. National adaptation planning is underdeveloped

The formulation of National Adaptation Plans is an obligation on all Parties under the Paris Agreement. This is a sensible approach to adaptation, which builds on the idea of adaptation-as-planning. However, the difficulty in making NAPs can be assessed by the fact that only 12 developing countries have submitted NAPs to the COP at present.[19] Somewhat more encouragingly, 169 Parties included an adaptation component as part of their NDCs (which preceded the Paris Agreement).** However, only 46 of these Parties included a financial estimate for their cost of adaptation.[20] Even within countries that have reported financial estimates, there is acknowledgement of the fundamental uncertainty in these estimates.

For example, India's estimate of US $206 billion in adaptation costs in its NDC was considered impossible to assess, because 'the information to make such an assessment simply does not exist'.[21] This is because there is a complete lack of reliable climate projections with specific time periods, and climate impact and vulnerability assessments for the local, regional, state and sectoral levels.[22] This problem persists with the NAPs submitted so far, which generally rely on country-wide climate-risk assessments and identify sub-national and community-level assessments as a future need.

MODIFYING DEVELOPMENT ACTIVITIES TO ACCOUNT FOR INCREASING CLIMATE UNCERTAINTY INVOLVES SIGNIFICANT COSTS

5.3. Costs of adaptation planning are not being met

Since the assessment of needs is an ongoing and cyclical process, support must be available at every stage of the process of planning-for-adaptation. This

** These can, in effect, be considered as the first Adaptation Communications, although discussions are ongoing as to the relationship between ACs and NDCs. At least one proposal exists to make the 'adaptation communication' a component of the NDCs (to serve as a top-line reporting of priorities and support needs), while separately retaining NAPs as an implementation roadmap for the adaptation component of NDCs.

principle has been acknowledged, but in a limited way. The COP requested the Green Climate Fund to expedite support for least developed countries and other developing country Parties for the formulation of national adaptation plans (Decision 1/CP.21, para. 46). The GCF has since announced that US $3 million will be available per country for the formulation of national adaptation plans.[23]

This grossly underestimates the resources required for assessing needs and mainstreaming adaptation in planning. Mainstreaming implies including information about potential climate impacts in existing planning processes. The basic types of activities that serve adaptation needs are not very different from development activity. However, modifying these activities to account for increased climate uncertainty or impacts involves significant costs. This appreciation of adaptation as an additional but distinct cost is often lost on planners.

In addition, planning processes must also move beyond the domain of national and state governments. The IPCC has reiterated the importance of implementing adaptation in a 'participatory and integrated manner' and emphasized that the rapid, systemic transitions needed will only happen when 'local and regional governments and decision makers are supported by national governments'.[24] Yet, despite discussions around adaptation rightly emphasizing a local and community-based approach, the reality at the local, community and city level is that adaptation is an additional planning activity which has not been adequately budgeted for thus far.[25]

An example of the cost of mainstreaming adaptation planning at the local level is Australia's Local Adaptation Pathways (LAP) and Coastal Adaptation Decision Pathways (CADP) programmes, which provided a combined AU $6 million (US $4.5 million approx.) to local governments.* The LAP provided finance to integrate climate change risk assessment into local governments' decision-making processes.[26] The CADP provided finance to develop decision-making tools such as decision maps and financial models to evaluate policy options.[27] These activities are fundamental in driving the adaptation decision-making process, but their impact on adaptive capacity cannot be quantified exactly. These programmes hence provided finance to support the identification of needs; they did not wait for needs to be identified before providing support.

SUPPORT CANNOT WAIT FOR ADAPTATION NEEDS TO BE IDENTIFIED; IT IS NEEDED FOR THE IDENTIFICATION OF NEEDS

*The 'pathways' approach is designed to schedule adaptation decision-making. It identifies the decisions that need to be taken now and those that may be taken in future. The approach supports strategic, flexible and structured decision-making. It is about keeping options open and so avoiding path dependency and lock-in and helps to deal with the deep uncertainty associated with climate change. It is, in other words, an approach that does not get hamstrung by the challenge of 'assessing needs'..

These represent the 'soft costs' of adaptation, distinct from the 'hard costs' of infrastructure development and maintenance. These investments are often over-looked, particularly in constricted government budgets, because their impacts are harder to quantify and generalize.[28] This gap is evident from a review of India's National Adaptation Plan for Climate Change, which found that the effect of national projects were yet to reach the ground because of a lack of functional and efficient decentralized structures and institutions at the state, district and village levels. The gap persists because of a lack of monetary, technological and knowledge support to subnational entities for the preparation of plans and the creation of institutions.[29]

SUPPORT IS NEEDED TO IMPLEMENT ADAPTATION PLANNING FROM THE LOCAL TO THE NATIONAL LEVEL IN DEVELOPING COUNTRIES

Estimates of these costs can be gleaned (to an extent) from the budgets of NGOs working in India in climate-vulnerable sectors such as rural watershed management. An analysis of one such initiative in one village in Maharashtra indicates that the cost of capacity building for local management of water resources over 18 months was a little over US $13,000.[30] A different NGO working on implementing integrated watershed management at the grassroots indicated that their expenditure on capacity building totalled around US $47,000 per village per year. A rough estimate for the cost of mainstreaming resilience into local planning was around US $20,000 per village per year. There are over 5,00,000 villages in India.

What is the financial requirement to implement such programmes globally? It certainly far exceeds the US $3 million per country that the GCF currently offers. This shows that the priorities of international support do not match the priorities at the national level.

Hence, while the need for adaptation is generally accepted, the adaptation planning process is still nascent globally. There is a severe resource deficit in undertaking adaptation planning. Support is needed to implement adaptation planning from the local to the national level in developing countries. We, therefore, propose that the first global goal for adaptation should be financial, technological and capacity-building support to developing countries—in order to mainstream climate risk assessment and adaptation plans in their domestic planning processes, down to the local and community levels. The target for the first global stocktake in

2023 should be to assess the extent of mainstreaming of adaptation in the developing countries and the level of support provided by the developed countries to do so. This should be repeated in the subsequent iterations of the global stocktake process.

6. Adaptation finance should be mobilized despite uncertainty in needs

Adaptation needs will keep changing based on the extent of mitigation undertaken. A more robust picture will only emerge over time through a continuous planning and evaluation process. Hence, the question arises: how much support will be required?

6.1. Impacts are already visible

The IPCC makes clear that 'warming from anthropogenic emissions from the pre-industrial period to the present will persist for centuries to millennia and will continue to cause further long-term changes in the climate system, such as sea level rise, with associated impacts'.[31] It reiterates the findings of Working Group II of the IPCC Fifth Assessment Report, which evaluated evidence of changes to natural systems, and impacts on human communities and industry.

Risks were found to be increasing for natural ecosystems as climate extremes increase in frequency and intensity, as well as those associated with fauna and flora shifting their bio-geographical ranges to higher latitudes and altitudes, with consequences for ecosystem services and human dependence. There was also increasing evidence of changing patterns of disease, invasive species, as well as growing risks for coastal communities and industry, especially important when it comes to sea level rise and human vulnerability.[32]

THE IPCC CONSIDERS THAT PREVIOUS ASSESSMENTS MAY HAVE UNDER-ESTIMATED HOW SENSITIVE NATURAL AND HUMAN SYSTEMS ARE TO CLIMATE CHANGE

The IPCC highlights that a drying trend is already detectable in the Mediterranean region, and that the 2008 drought in Syria was worse than a similar 1960 drought (with a comparable precipitation deficit) because of the 1°C of warming that separated both events. It also highlights that current levels of warming increased the heavy precipitation associated with Hurricane Harvey (which made landfall in 2017) by about 15 per cent or more, playing a significant part in the joint-costliest tropical cyclone on record. It is particularly significant that the IPCC considers that 'previous assessments

may have underestimated how sensitive natural and human systems are to climate change'.[33] This is borne out by successive estimates of adaptation costs.

6.2. Costs of adaptation are on the rise

An early estimate by the UNFCCC suggested overall adaptation costs of US $48 billion to US $171 billion per year by 2030, of which between half and two-thirds would be borne in developing countries.[34] A 2010 World Bank report estimated adaptation costs in developing countries at US $70–100 billion per year for 2010–50.[35] In 2016, UNEP found that not only do current finance levels fall short of present-day adaptation costs, but also that the gap is likely to widen in the future. It assessed adaptation costs in the period until 2030 at in the range of US $140-300 billion per year.[36]

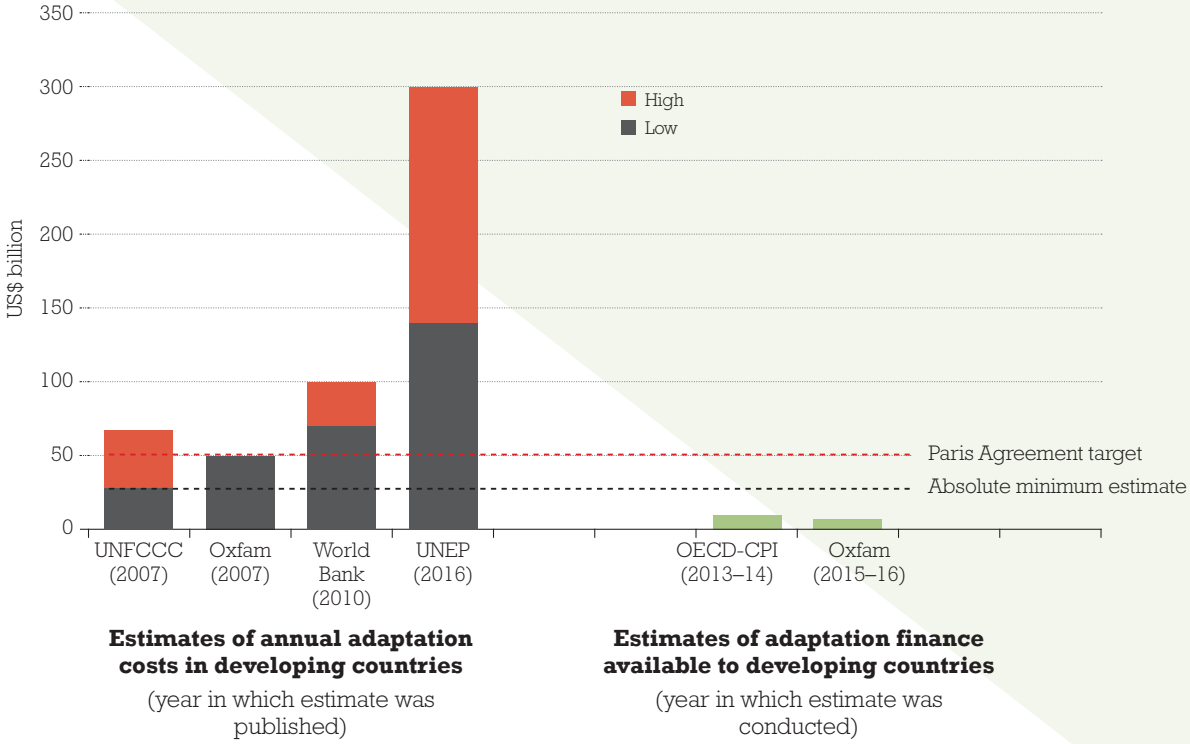
These estimates are inherently uncertain. The UNFCCC report, for example, was based on an investment and financial-flow assessment approach that focused on the agriculture, forestry and fishery, water supply, human health, coastal and infrastructure sectors. The World Bank used a global scenario-based aggregated sectoral-impact assessment approach and covered the agriculture, forestry, fisheries, infrastructure, water resources, health, coastal areas and extreme weather-event sectors. In reviewing these estimates, UNEP considered that 'the sectoral coverage in these studies is partial, as is the coverage of risks within the targeted sectors. In addition, the studies use different approaches: some assess the optimal level of adaptation (trading-off adaptation against residual damages), while others quantify the costs associated with identified needs'.[37]

UNEP also evaluated the use of integrated assessment models, which either aim to identify an optimal balance of mitigation, adaptation and residual damages, or seek to determine the most cost-effective way of adapting to a set mitigation target. OECD, for example, used such models to examine the economics of adaptation in 2009. UNEP notes that these kinds of studies typically find that adaptation is a highly effective response to climate change, and provide insights into how adaptation costs may vary under different climate change scenarios. It also notes, however, that they currently provide a very wide range of estimates of adaptation costs.[38]

6.3. Support significantly lags cost estimates

It is thus evident that the uncertainty in estimating the cost of and finance available for adaptation is real. However, we do have credible estimates of the minimum costs over the next three to five decades. No estimate suggests that the costs of adaptation might drastically fall as we keep delaying action. There is only uncertainty regarding by how much these costs will rise.

Adaptation support: Costs versus finance available



Sources:
1. Lipinski, B. and McCray, H. (2010), *Summary of Studies Estimating the Cost of Climate Change Adaptation in the Developing World.* Accessed at http://pdf.wri.org/cost_of_adaptation_in_the_developing_world.pdf
2. United Nations Environment Programme (2016), *The Adaptation Finance Gap Report.* Accessed at http://climateanalytics.org/files/agr2016.pdf

Furthermore, we have estimates of the maximum amount of finance available, which tend to overestimate the efforts of developed countries (see *Box: Lack of transparency in quantifying adaptation support)*. Yet, even by the most generous estimates, the amount of finance actually mobilized falls short of the absolute lowest ranges of the estimated cost of adaptation.

This shows that, despite uncertainty about the precise estimates, there is undoubtedly a massive gap between adaptation needs and support. Even US $50 billion annually by 2020, which is the target in the Paris decision, is unlikely to be sufficient to meet future adaptation needs. Thus, mobilization of finance should progress in parallel with progressively accurate estimation of needs. We propose that clear year-wise targets for mobilization of funds for adaptation should be set as the global goal on adaptation.

Lack of transparency in quantifying adaptation support

If the costs of adaptation are uncertain, the estimates of finance available for adaptation are even more convoluted. One estimate was developed by OECD in 2015, in the report Climate Finance in 2013–14 and the US $100 billion goal.[1] This report estimated that for 2013–14, the amount of 'mobilized climate finance in the context of the US $100 billion a year goal' was US $57 billion. This figure included (i) bilateral climate finance, (ii) multilateral climate finance, and (iii) private finance mobilized by bilateral and multilateral finance. The report estimated that 16 per cent of this aggregate amount addressed adaptation, which amounts to approximately US $9 billion (in 2013–14).

This report has been criticized on a number of grounds. Firstly, it counts loans and non-grant instruments within its estimate, and counts them at their full face value. Since these instruments require repayment, they are not strictly transfers for the purpose of the 100 billion target. Even if they are to be counted, their face value should have been adjusted or discounted to ascertain their 'grant equivalent' value.[2]

Secondly, the OECD report includes funds that were not used exclusively for climate related objectives. This encourages the re-labeling of other pre-existing development assistance as climate finance. One fact cited as evidence of such re-labeling is that the OECD report shows a huge increase in climate-related development assistance despite a decrease in the overall amount of development assistance.[3] A more transparent alternative suggested by Oxfam is to count only part of the project value for projects that partially cover climate action.[4] This, however, raises its own questions about the appropriate percentage to be counted.

Thirdly, the OECD's estimate of 'multilateral' climate finance was criticized. The 'multilateral' sector consists of multilateral development banks (MDBs) as well as climate-specific funds such as the GCF and Adaptation Fund. These types of institutions have different aims for their portfolios, as well as different governance structures. Particularly concerning is the fact that MDBs are controlled by donor governments, and have a large pre-existing portfolio of development projects. They hence have a strong incentive to re-label as many of these projects as possible as climate-related.[5]

Finally, the OECD estimate included private finance mobilized as a result of public finance. There is currently no robust way to account for the amount of private finance that has been mobilized this way.[6] Further, the report does not provide estimates of how much private finance is available specifically for adaptation. It is generally known that adaptation projects, especially in developing countries, do not attract as much private finance as mitigation projects. By providing an estimate for private finance that combines mitigation and adaptation, OECD's report increases the confusion regarding adaptation finance.

Based on these critiques of the OECD report and using its own methodology, Oxfam arrived at an estimate of US $16–21 billion for climate finance mobilized by developed countries in 2015–16, of which approximately US $5–7 billion addressed adaptation.[7]

It is also important to note that the criticism is not purely on developed–developing lines. There is a fundamental lack of clarity within OECD countries. For example, the lead climate negotiator for the European Commission declared in 2012: 'We certainly have fully delivered on Fast-Start Finance and honoured our commitments. His claim, however, was contradicted a few months later by the European Court of Auditors, which stated: 'The extent to which the Fast-Start Finance commitment was fulfilled by the European Union and its member states is unclear.'[8]

Sources:
1. OECD and Climate Policy Initiative (2015), *Climate Finance in 2013-14 and the US $100 Billion Goal*. Accessed at http://www.oecd.org/env/climate-finance-in-2013-14-and-the-usd-100-billion-goal-9789264249424-en.htm
2. Oxfam (2018), *Climate Finance Shadow Report*. Accessed at https://www.oxfam.org/en/research/climate-finance-shadow-report-2018
3. Dasgupta, D. et al. (2016), *Climate Change Finance: Analysis of a Recent OECD Report*. Accessed at https://dea.gov.in/sites/default/files/ClimateChangeOEFDReport_0.pdf
4. See Oxfam (2018) above, p. 8.
5. See Dasgupta at et al. (2016) above.
6. Climate Policy Initiative (2015), *Estimating Mobilized Private Finance for Adaptation: Exploring Data and Methods*. Accessed at https://climatepolicyinitiative.org/wp-content/uploads/2015/11/Estimating-mobilized-private-finance-for-adaptation-Exploring-data-and-methods.pdf
7. See Oxfam (2018), above.
8. Weikmans, R. and Roberts, J.T. (2017), *The International Climate Finance Accounting Muddle: Is There Hope on the Horizon?* Accessed at https://doi.org/10.1080/17565529.2017.1410087

7. Setting sectoral goals for adaptation

Setting targets to build resilience in critical sectors can reduce the uncertainty that is currently blocking the process to define the global goal. It would focus the process on areas of relative certainty, and initiate action rather than waiting for universal clarity.

7.1. A goal for coastal infrastructure

The IPCC makes clear that adaptation to sea-level rise remains essential in coastal areas, even if we were on track to stay under 1.5°C. It also points out that coastal adaptation to restore ecosystems (for instance by planting mangrove forests) supports Sustainable Development Goals (SDGs) for enhancing life and livelihoods on land and oceans.[39]

UNEP found that the most comprehensive estimates of the costs of adaptation are for the coastal areas sector, especially in terms of the role of sea-level rise and

storm surges in exacerbating the risks of flooding and erosion. The most recent estimates range from between US $12–31 billion and US $27–71 billion for low- and high-warming scenarios respectively. The additional adaptation costs associated with coastal erosion (beach and shore nourishment) are estimated at a further US $1.4–5.3 billion per year across low, mid and high scenarios.[40]

EXPANDING INSURANCE COVERAGE IN CRITICAL SECTORS IS A LIMITED BUT WORTHWHILE ADAPTATION GOAL

The UNEP highlights coastal cities, because they often require engineered protection. Annual adaptation costs are estimated at US $350 million per city, or approximately US $50 billion annually in total.[41]

7.2. A goal for public health

IPCC identifies health interventions as a key adaptation paradigm—adaptation options in the health sector are expected to reduce morbidity and mortality. It highlights heat early-warning systems, development of institutions better equipped to share information, indicators for detecting climate-sensitive diseases and, critically, improved provision of basic health care services. These basic public-health interventions, if implemented effectively, would create synergies as well as health infrastructure protected from extreme weather events.[42]

Health is a focus of various elements of the SDGs. In 2017, WHO estimated the benefits and costs of achieving SDG health targets in 67 low- and middle-income countries that account for 75 per cent of the world's population. Expanding services towards universal health coverage and the other SDG health targets could prevent 97 million premature deaths globally between now and 2030, and add as much as 8.4 years of life expectancy in some countries.[43]

Ambitious progress toward the SDGs would require new investments in health of US $134–371 billion annually, or $58 per person, by 2030. This includes adding more than 23 million health workers, and building more than 415,000 new health facilities, 91 per cent of which would be primary health care centres.[44]

The effort would take health spending as a proportion of gross domestic product in these middle/low income countries from an average of 5.6–7.5 per cent. As many as 32 of the world's poorest countries will face an annual gap of up to US$ 54 billion and will continue to need external assistance.[45]

7.3. A goal for crop insurance

Insurance is often not affordable to the communities that will bear the brunt of climate change impacts. This may because of the inherent vulnerability of the ecosystem they live in (such as coastal areas), or the economic activities that they engage in (such as subsistence farming), even without accounting for climate change. They risk falling into a vicious cycle, where the very fact of the daunting risks that they face intensifies the likelihood of those risks manifesting as impacts. Hence, expanding insurance coverage in critical sectors is a limited but worthwhile adaptation goal.

Notwithstanding the potential for insurance to drive the process of adaptation, attempts to implement insurance in critical sectors of developing economies runs into several issues. India's national crop insurance scheme, for example, suffers from shortages in its coverage of farmers, partial coverage of crops, and payouts that are less than the cost of cultivation. There is an associated shortage in technical capacity to assess risks and losses (lack of cadastral maps, lack of yield data, unreliable crop-cutting experiments), as well a shortage in institutional capacity to collect premiums and process claims.[46]

These shortages could be addressed through a global goal to provide insurance cover to all individuals or communities in targeted critical sectors (such as agriculture). This could be broken down into smaller cycles, first focusing on farmers with a daily income under 10 USD, and then progressively insuring higher income segments. A multilateral mechanism could support domestic insurance programmes to achieve this goal.[47]

The health, coastal and agriculture sectors hence offer the opportunity to act on quantified targets, and should be the initial focus of the global goal process.

8. Conclusion

The global goal on adaptation aims to enhance adaptive capacity, strengthen resilience and reduce vulnerability to climate change. The process to define this global goal is stalled. This is because discussions are overly focused on arriving at comprehensive and highly accurate estimates of impacts and costs. This is a highly technocratic approach that ignores the pressing need for support in developing countries.

Three shifts in thinking are needed to make progress on defining a global goal. These are: a recognition that support is needed for assessing adaptation needs and mainstreaming adaptation into domestic planning processes; that mobilization of

finance by the developed countries should progress in parallel with progressively accurate estimation of needs; and that focusing on critical sectors can enable prioritized action on adaptation goals.

Based on these, we propose the following as the focus for the global adaptation goal in the near- to mid-term:

- Priority should be given to financial, technological and capacity-building support to the developing countries to mainstream climate risk assessment and adaptation plans in the domestic planning processes, down to the local and community level. The target for the first global stocktake in 2023 should be to assess the extent to which adaptation has been mainstreamed in the policymaking of developing countries and the level of support provided by developed countries to this end. This should be repeated in subsequent iterations of the global stocktake process.

- Adaptation finance should be mobilized despite uncertainty in quantifying needs. Year-wise targets for mobilization of finance for adaptation should be set.

- Adaptation targets should be set for critical sectors where costs of adaptation are better known, particularly coastal infrastructure, health and agriculture.

References

1. Germanwatch (2018), *Global Climate Risk Index 2018: Who Suffers Most From Extreme Weather Events? Weather-related Loss Events in 2016 and 1997 to 2016*. Accessed at https://germanwatch.org/en/download/20432.pdf

2. Aton, A. (2017), *For Crop Harvests, Every Degree of Warming Counts*. Accessed at https://www.scientificamerican.com/article/for-crop-harvests-every-degree-of-warming-counts/

3. Intergovernmental Panel on Climate Change (2018), *Global Warming of 1.5°C*. Accessed at http://www.ipcc.ch/report/sr15/

4. Ibid.

5. World Health Organization (2018), *Climate Change and Health*. Accessed at http://www.who.int/en/news-room/fact-sheets/detail/climate-change-and-health

6. Intergovernmental Panel on Climate Change (2018), *Global Warming of 1.5°C*. Accessed at http://www.ipcc.ch/report/sr15/

7. United Nations Environment Programme (2014), *The Adaptation Gap Preliminary Assessment Report*. Accessed at http://www.unepdtu.org/Newsbase/2014/12/UNEP-launches-Adaptation-Gap-Report

8. Adaptation Committee (2017), Document AC/2017/4: *Synthesis of submissions from Parties and other stakeholders, and next steps for developing recommendations on methodologies for assessing adaptation needs; and Adaptation Committee* (2017), Document AC/2017/12: *Methodologies for assessing adaptation needs with a view to assisting developing countries, without placing undue burden on them*. Accessed at https://unfccc.int/process-and-meetings/bodies/constituted-bodies/adaptation-committee-ac/workshops-meetings/eleventh-meeting-of-the-adaptation-committee-ac11

9. United Nations Environment Programme (2017), *The Adaptation Gap Report: Towards Global Assessment*. Accessed at https://www.unenvironment.org/resources/report/adaptation-gap-report-2017

10. Climate and Development Knowledge Network (2016), *The Global Goal for Adaptation under the Paris Agreement: Putting ideas into action*. Accessed at https://cdkn.org/wp-content/uploads/2016/11/Global-adaptation-goals-paper.pdf

11. United Nations Environment Programme (2017), *The Adaptation Gap Report: Towards Global Assessment*, p. 21. Accessed at https://www.unenvironment.org/resources/report/adaptation-gap-report-2017

12. UNFCCC Conference of the Parties Adaptation Committee (2017), *Recommendations of the Adaptation Committee and the Least Developed Countries Expert Group for addressing decision 1/CP.21, paragraph 41, and, in collaboration with the Standing Committee on Finance, decision 1/CP.21, paragraph 45*. Accessed at https://unfccc.int/node/28248

13. ActionAid et al. (2016), *Global Goal on Adaptation: From Concept to Practice.* Accessed at https://careclimatechange.org/wp-content/uploads/2016/11/Global-Goal-on-Adaptation-From-Concept-to-Practice-v2-DesktopPrint-NoCrops.pdf

14. Swaziland (2013), *Submission on behalf of the Africa Group in respect of Workstream I: 2015 Agreement under the ADP*. Accessed at https://unfccc.int/files/bodies/awg/application/pdf/adp_2_african_group_29042013.pdf

15. European Union (2014), *Submission by Italy and the European Commission on Behalf of the European Union and Its Member States*. Accessed at http://www4.unfccc.int/submissions/Lists/OSPSubmissionUpload/106_99_130577580473315361-IT-10-14-EU%20ADP%20WS1%20submission.pdf

16. Intergovernmental Panel on Climate Change (2018), *Global Warming of 1.5°C.* Accessed at http://www.ipcc.ch/report/sr15/

17. United Nations Environment Programme (2017), *The Adaptation Gap Report: Towards Global Assessment*, p. xiv. Accessed at https://www.unenvironment.org/resources/report/adaptation-gap-report-2017

18. BBC.com (2018), 'Japan floods: 155 killed after torrential rain and landslides'. Accessed at https://www.bbc.com/news/world-asia-44775627

19. UNFCCC, *NAPs from Developing Countries*. Accessed on 18 July 2018 at http://www4.unfccc.int/nap/News/Pages/national_adaptation_plans.aspx

20. World Bank, *Intended Nationally Determined Contributions: FAQ*. Accessed on 18 July 2018 at http://spappssecext.worldbank.org/sites/indc/Pages/FAQ.aspx

21. Dubash, N. and Khosla, R. (2016), *Recovering Key Strategic Concepts in India's Climate Policy*, p. 127. Accessed at http://www.cprindia.org/sites/default/files/articles/Recovering%20Key%20Strategic%20Concepts%20in%20India%27s%20Climate%20Policy.pdf

22. Kumar, V. (2018), *Coping with Climate Change Vol. II: An Analysis of India's State Action Plans on Climate Change*, Centre for Science and Environment, New Delhi.

23. Green Climate Fund, *GCF in Brief: Adaptation Planning*. Accessed on 18 July 2018 at https://www.greenclimate.fund/documents/20182/194568/gcf-in-brief-adaptation-planning.pdf/e72becac-91e4-46da-937b-f74e26c14ead

24. Intergovernmental Panel on Climate Change (2018), *Global Warming of 1.5°C.* Accessed at http://www.ipcc.ch/report/sr15/

25. Measham, T.G., et al. (2011), 'Adapting to climate change through local municipal planning: barriers and challenges'. Accessed at https://link.springer.com/article/10.1007/s11027-011-9301-2; Rattani, V. and Lama, Y. (2018), *Global Approaches to Adaptation Planning*, Centre for Science and Environment, New Delhi.

26. National Climate Change Adaptation Research Facility (NCCARF) (undated), *Policy Guidance Brief 5: Challenges of adaptation for local governments*. Accessed at https://www.nccarf.edu.au/sites/default/files/attached_files_publications/GOVERNMENT_070313_A4.pdf

27. Jacqueline Balston & Associates (2012), *Coastal Adaptation Decision Support Pathways Project: Climate Change Decision Support Framework and Software for Coastal Councils*. Accessed at https://www.lga.sa.gov.au/webdata/resources/files/FINAL%20CADSP%20Report%20Published%2013%20May%202013-1.pdf

28. Frankhauser, S. (2009), *The Costs of Adaptation*. Accessed at http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2014/02/WorkingPaper7.pdf

29. Rattani, V. (2018), *Coping with Climate Change: An Analysis of India's National Action Plan on Climate Change*, Centre for Science and Environment, New Delhi.

30. Gray, E. et al. (2013), *Tracking Adaptation Success For Community Level Watershed Development In India.* Accessed at https://www.wri.org/sites/default/files/Tracking_Adaptation_Success_for_Community_Level_Watershed_Development_in_India.pdf

31. Intergovernmental Panel on Climate Change (2018), *Global Warming of 1.5°C, Summary for Policy-makers*. Accessed at http://www.ipcc.ch/report/sr15/

32. Intergovernmental Panel on Climate Change (2018), *Global Warming of 1.5°C*, p. 3-62. Accessed at http://www.ipcc.ch/report/sr15/

33. Ibid.

34. UNFCCC Secretariat (2007), *Climate Change: Impacts, Vulnerabilities and Adaptation in Developing Countries.* Accessed at https://unfccc.int/resource/docs/publications/impacts.pdf

35. World Bank (2010), *The Economics of Adaptation to Climate Change: A Synthesis Report.* Accessed at https://siteresources.worldbank.org/EXTCC/Resources/EACC_FinalSynthesisReport0803_2010.pdf

36. United Nations Environment Programme (2016), *The Adaptation Finance Gap Report.* Accessed at http://climateanalytics.org/files/agr2016.pdf

37. Ibid., p. 11.

38. Ibid., p. 12.

39. Intergovernmental Panel on Climate Change (2018), *Global Warming of 1.5°C*, p. 5-18. Accessed at http://www.ipcc.ch/report/sr15/

40. United Nations Environment Programme (2016), *The Adaptation Finance Gap Report*. Accessed at http://climateanalytics.org/files/agr2016.pdf

41. Ibid.

42. Intergovernmental Panel on Climate Change (2018), *Global Warming of 1.5°C*, p. 5-18. Accessed at http://www.ipcc.ch/report/sr15/

43. World Health Organization (2017), *WHO Estimates Cost of Reaching SDG Health Targets.* Accessed at http://sdg.iisd.org/news/who-estimates-cost-of-reaching-sdg-health-targets/

44. Ibid.

45. Ibid.

46. Kumar, V. (2017), *Pradhan Mantri Fasal Bima Yojana: An Assessment*, Centre for Science and Environment, New Delhi.

47. Bhushan, C. and Rattani, V. (2016), *Proposal to the UNFCCC for Constituting Globally Supported Agricultural Insurance Mechanism to Address Loss and Damage in Developing Countries*, Centre for Science and Environment, New Delhi.

The Paris Agreement establishes a global goal on adaptation in Article 7. The goal is to enhance adaptive capacity, strengthen resilience and reduce vulnerability to climate change. This is a qualitative aspiration, which has to be converted into concrete targets.

The effort to define the goal is currently stalled. As a consequence, the Paris commitment of US $50 billion in finance from developed countries for adaptation in developing countries has not been delivered.

This paper analyses the reasons for the stall in defining the goal, and proposes some shifts in thinking to enable progress on this front.

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