An Independent In-Depth Review of ICIMOD's Regional Initiatives

Himalayan Climate Change Adaptation Programme (HICAP) and the Atmosphere Initiative

Final Report

Prepared for //
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Contents

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Acronyms

AdaptHimal	Livelihoods and Ecosystem Services in the Himalayas: Enhancing adaptive capacity and resilience of the poor to climate and socioeconomic changes
AIRC	Asian International Rivers Centre
BC	Black Carbon
CAS	Chinese Academy of Sciences
CCAC	The Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants
CIB	Chengdu Institute of Biology
CICERO	Centre for International Climate and Environmental Research - Oslo
CMES	Centre for Mountain Ecosystem Studies
COP7	Conference of the Parties 7
HICAP	Himalayan Climate Change Adaptation Programme
HKH	Hindu Kush Himalaya (region)
HI-AWARE	Himalayan Adaptation, Water and Resilience Research on Glacier and Snowpack Dependent River Basins for Improving Livelihoods
HIMALICA	Rural Livelihoods and Climate Change Adaptation in the Himalayas
IASS	Institute for Advanced Sustainability Studies
ICIMOD	International Centre for Integrated Mountain Development
IFAD	International Fund for Agricultural Development
IGSNRR	Institute of Geographic Sciences and Natural Resources Research
IPCC4	Intergovernmental Panel on Climate Change (Fourth Assessment Report)
ISER - NEPAL	Institute for Social and Environmental Research - Nepal
KIB	Kunming Institute of Botany
LAPA	Local Adaptation Plan of Action
LoA	Letter of Agreement
LDC	Least Developed Country
MoU	Memorandum of Understanding
NAPA	National Adaptation Plan of Action
PAHS	Patan Academy of Health Sciences
PVA	Poverty and Vulnerability Assessment
RMC	Regional Member Country
Sida	Swedish International Development Cooperation Agency
SLCF	Short Lived Climate Forcers
SusKat	Sustainable Atmosphere for the Kathmandu Valley
SusKat-ABC	SusKat-Atmospheric Black Cloud Project
ToR	Terms of Reference
UNEP GRID-Arendal	United Nations Environment Programme Global Resource Information Database-Arendal
UN Women	United Nations Entity for Gender Equality and the Empowerment of Women
VACA	Vulnerability and Adaptive Capacity Assessment

WWF	World Wide Fund for Nature
YASS	Yunnan Academy of Social Sciences

Executive Summary

The International Centre for Integrated Mountain Development (ICIMOD) is a regional inter-governmental learning and knowledge-sharing centre serving its eight member countries in the Hindu Kush Himalaya (HKH) region: Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal and Pakistan. ICIMOD's regional trans-boundary programmes and initiatives are implemented in collaboration with regional partner institutions.

This independent, in-depth review assesses two of ICIMOD's regional initiatives: the Himalayan Climate Change Adaptation Programme (HICAP) and the Atmosphere Initiative. HICAP falls under ICIMOD's Regional Programme 'Adaptation to Change'. It was launched in 2011 and is jointly implemented by three promoter organisations; ICIMOD, and the Norwegian based GRID-Arendal and CICERO, in five sub-basins of the HKH region. Its aim is to contribute to knowledge on climate change in the HKH region by examining vulnerability to change and identifying opportunities for community adaptation that contribute to resilience, with a particular focus on women. The Atmosphere Initiative was established in 2013 as part of ICIMOD's Regional Programme 'Cryosphere and Atmosphere', and its aim is to ensure that effective measures and policies are adopted to reduce air pollution and its impacts in the HKH region.

HICAP and the Atmosphere Initiative are multi-year initiatives funded by more than one donor, and implemented across boundaries in more than one country through a network of regional partners. The significance of and the level of engagement of different types of partners (national, scientific, implementing and advisory) varies within and between these two initiatives. The Atmosphere Initiative has a substantial element of in-house work for ICIMOD. The two initiatives share a strong emphasis on research and the production of high-quality knowledge products, and the aim of employing knowledge to engage in advocacy and influence policy-making that ultimately benefits the adaptation of HKH mountain communities to climate change and atmospheric change, respectively.

The review was guided by the criteria outlined in the Terms of Reference provided by ICIMOD. These relate to relevance, impact, effectiveness, sustainability, efficiency and viability. The review team conducted an extensive literature review of both initiatives, and conducted interviews with ICIMOD and partners in China, India and Nepal, as well as with CICERO and GRID-Arendal in Norway. Each initiative is evaluated separately. HICAP and the Atmosphere Initiative are then assessed in relation to common strategic aspects before offering a series of recommendations covering strategy and operations and targeted respectively at Initiative management, ICIMOD as a whole, donors and the RMC.

Himalayan Climate Change Adaptation Programme

HICAP aims to make contributions in three main areas: research and knowledge production, community adaptation, and decision-making on climate change adaptation policies. The initiative has been particularly successful in producing scientific research related to climate change and community adaptation, including a series of place based studies of communities' adaptation strategies. HICAP espouses an approach that recognises the necessary interaction between policy sectors for tackling climate change. HICAP also emphasises an inter-disciplinary angle for examining climate change and community adaptation strategies. These contributions made by HICAP to examining climate change have been appreciated by partners as significant learning processes and ones that are likely to influence their future work. It is also noted that HICAP influenced a broader process within ICIMOD of re-thinking the organisation's results chain, and the introduction of Regional Programmes.

Whilst the overall aims and objectives of HICAP remain highly relevant, there is uncertainty as to whether the initiative, in its current form, will deliver all of its outcomes by 2017.The review is

confident that HICAP can make an effective contribution to: (i) substantially reducing uncertainty in the HKH region about the effects of climate change, including on vulnerable communities; and (ii) greater understanding of future conditions within mountain communities, adaptation patterns, and the strategies that are being adopted by communities

The review is less confident that HICAP is making a contribution in terms of (iii) policy and decision makers at various levels taking knowledge into account. This area in particular is likely to demand a considerably greater management effort in the period up to 2017. We note that the HICAP team recognises policy influence as a slower process, and how this requires the investment of considerable effort to engage policy more effectively. The way in which the critical synthesis step unfolds within HICAP (including greater interaction between the three promotor organisations) will be an important early indicator of whether the initiative can effectively engage with the challenge of bridging policy and research.

The review has found that piloting work within HICAP is not sufficiently developed. An internal review ought to be conducted in order to either drop pilots or integrate them into wider ICIMOD frameworks in order to free time and resources under HICAP.

HICAP is generating a wealth of knowledge on the realities of vulnerable communities and the challenges they face in adapting to climate change, and the gender dimension within this, which could be advanced more strongly. It is felt that there is still potential for capitalising on the different capabilities of various partners within national and sub-national settings in order to advance policy-dialogue, too. This observation is linked to the need for a more careful examination of the connection between policy and research, and a greater understanding of decision-making processes.

The Atmosphere Initiative

The Atmosphere Initiative was built with the Sida-funded programme 'Reducing the Impacts of Black Carbon and Short-Term Climate Forcers' as a starting point. This programme was incorporated into the Atmosphere Initiative when the latter was established in 2013 and it runs alongside currently three other strands supported by the Norwegian Ministry of Foreign Affairs, the Institute for Advanced Sustainability Studies in Germany through the 'Sustainable Atmosphere for the Kathmandu Valley' (SusKat) project, and UNEP's Climate and Clean Air Coalition (CCAC).

The Atmosphere Initiative strives to bring together research and scientific knowledge, increased awareness of atmospheric issues and mitigation options, and influence over policy. The Initiative has been successful in producing high volumes of research, as well as in installing equipment for atmospheric measurements that can potentially contribute to new approaches to atmospheric issues tailored to the HKH region. SusKat in particular has been a highly productive element of the Atmosphere Initiative.

Whilst only two years into its work, the initiative is deemed to be on track in terms of its deliverables, and the review is confident that the Atmosphere Initiative has high potential to make an effective contribution in the following areas: (i) an enhanced scientific understanding of black carbon and other Short Lived Climate Forcers (SCLF) in the HKH region; (ii) effective dissemination of black carbon and SLCF policy options; and (iii) tested and disseminated actionable measures (technologies, policies) to reduce black carbon and other SLCF concentrations and their impact

No significant constraints or bottlenecks were identified by the review. Atmosphere and cryosphere are now established topics of discussion in the HKH region; ICIMOD has a critical mass forming to work on this topic across the region; China and India, who already have large programmes in these areas are attracted to work with ICIMOD; and a basis has been established for an observatory network. In addition, the potential for science collaboration within the HKH region is being realised, and there is increasing sharing of data between institutions within and formally outside the initiative.

ICIMOD now also possesses human and computational resources to do atmospheric modelling and has the long-term aim of becoming a 'knowledge hub' with regional specialisation. Capacity building is an important part of the Initiative. The emerging group of scientists working on atmospheric issues is cognisant of the 'policy influence priority', and the need for connecting science with decision makers and the media. Another important element going forward is the links with the Climate and Clean Air Coalition. An area of slower progress has been the more grounded actions on the mitigation front and the associated research papers on this activity.

Regional/ global reach and common strategic themes

At a regional level, HICAP and the Atmosphere Initiative offer a unique opportunity for cooperation between institutions in HKH. This potential for exchanges and collaboration could be expanded further given the trans-boundary nature of climate change and atmospheric issues, respectively. The implicit capacity development element of both initiatives is important, in particular in nurturing younger scientists and researchers.

Both initiatives have also demonstrated strong potential in terms of international reach in relation to dissemination of findings through the publication of peer-reviewed papers, participation in academic conferences, and involvement in high-level policy forums. The visibility provided by the initiatives is highly valued by partners. This visibility can foster international collaboration and increase global recognition of the Himalayan region in the dialogue on climate change adaptation and mitigation.

Four common strategic issues emerge from the review of these two initiatives, which are relevant to the delivery of ICIMOD's Regional Programmes and its broader organisational changes: establishing an effective research-policy linkage; pushing harder and faster on gender equality; being selective on where, when and how to pilot; and actively managing differentiated partnerships.

Recommendations

This review provides a number of strategic recommendations and more tactical (a strengthening, greater focusing) recommendations, which together should contribute to the enhanced implementation of HICAP and the Atmosphere Initiative, and that take into account the importance of these initiatives within ICIMOD's organisational trajectory.

Strategic moves

1. The three promoters should - as a priority – collectively explore ways in which the critical synthesis step for HICAP can have a sufficiently strong and resourced in-country focus, and reflect real dialogue and challenge between the promoter organisations in ways that can best serve the critical sub-basin (meso level reality) knowledge gap, setting the platform for national and regional action on such knowledge.

2. The ICIMOD HICAP team – as a precursor to the above synthesis process – should review some of the key assumptions on beneficiaries and the operating context: pathway to long-term impact of knowledge development on people's lives through policy change. This should include consideration by the promoters of where they feel that the potential biggest 'hit' from the synthesized information of HICAP can be achieved.

3. The three promoter organisations should ensure there is internal clarity within their partnership on what HICAP aspires to – where it 'sets the bar' - in terms of policy influence; is success judged on a level of awareness on issues informed by research or is success the translation of awareness through to consideration and interpretation within policy, strategy and programming processes.

4. The ICIMOD HCAP team should complete a quick and light review of the existing work on pilots (for upscaling). The aim would be to inform a rationalisation and a refocusing of

HICAP's efforts and resources around influence on the policy process through the knowledge generated in bringing together packaged research and place based studies.

5. ICIMOD in discussion with the RMCs should explore the opportunity for the impact of HICAP to also be considered in terms of how it could potentially contribute to an 'influencing' role on the thinking amongst the donor community on how adaptation funds provided bilaterally within the HKH region are spent (regional allocations/ donor priorities). It would be useful to look through RMC dialogue and action to accelerate the pace at which funds available through the various global financing mechanisms are put to work in a more coherent way.

6. ICIMOD through the platform created by the early success of the Atmosphere Initiative, should explore opportunities for supporting strategizing in the RMCs on their science plans from a perspective of fully incorporating human impacts, and the nature of the regional coordinating mechanisms for their science plans.

Tactical changes

1. For both HICAP and for the Atmosphere Initiative, ICIMOD should review and ensure there is the necessary clarity and level of detail on the respective *intermediate* outcomes – the mechanisms – through which a longer term/ higher order outcome and impact (as detailed within the Regional Programme Strategic Results Framework will be delivered.

2. ICIMOD should ensure that sufficient resources are focused on this intermediate level of outcome monitoring within the two initiatives to support their steering through to 2017, as well as to ensure that the rich contribution story of the two initiatives can be adequately captured, disseminated and learnt from (both internally within ICIMOD and externally) within the wider and overarching results monitoring (impact pathways) framework of the Regional Programme.

3. For HICAP the three promoter organisations should take immediate steps to more clearly differentiate between what types of partners are involved, and the nature of the resulting relationship that needs to be managed through to 2017 and with a view to impact beyond that.

4. The three promoter organisations should acknowledge and address the need for a cultural shift within the programme operations of HICAP to give greater attention to the 'synthesis task – the real test and potential impact of HICAP at the macro and meso level – and shift the emphasis away from the 'project tasks' much of which is focused at the micro (research activity and/ or community pilot level

5. The ICIMOD HICAP team should look for the immediate opportunities for local organisations – HICAP partners - to more strongly push the evidence from grounded gender research into the dialogue at the local level on strategy and programming within government.

6. The Atmosphere Initiative team should review the 'fit' of the cook stove project work with the focus and niche of the Initiative. Consider outsourcing this to another partner and dropping it from the management team.

Introduction

IOD PARC[1] was commissioned to conduct an Independent In-Depth Review of two of the International Centre for Integrated Mountain Development (ICIMOD) regional initiatives: the Himalayan Climate Change Adaptation Programme (HICAP), and the Atmosphere Initiative. These are multi-year initiatives, funded by more than one donor, and implemented in more than one country. They both combine a strong research component with efforts to engage with policy makers in ways that will lead to the achievement long term impacts, and the aim of enhancing the livelihoods and resilience of Hindu Kush Himalaya (HKH) communities to climate change and the impacts of atmospheric pollutants, respectively. They represent two distinct but significant pieces of ICIMOD's strategic regional programming framework, which has been operational since 2012[2].

HICAP was launched in 2011 and is jointly designed and implemented by ICIMOD, GRID-Arendal and the Centre for International Climate and Environmental Research – Oslo (CICERO), with financial support from Sweden and Norway. HICAP is composed of 21 regional and four international partners. Its aim is to reduce the knowledge gap on climate change in the HKH region by improving understanding of vulnerability to change and identifying opportunities and potential for adaptation, thus contributing to efforts to enhance the resilience of mountain people, particularly women. HICAP covers five river sub-basins in the HKH region comprising territory in Pakistan, India, Nepal and China. Since 2013, HICAP falls under ICIMOD's Regional Programme 'Adaptation to Change'.

The **Atmosphere Initiative** was established in 2013 as part of ICIMOD's Regional Programme 'Cryosphere and Atmosphere'. It is supported mainly with funding from Sweden and Norway, and has additional support from the Institute for Advanced Sustainability Studies (IASS), Germany, and the United Nations Environment Programme (UNEP) through the Climate and Clean Air Coalition (CCAC). The Atmosphere Initiative whilst having a substantial element of in-house work for ICIMOD is implemented in collaboration with a diverse and fluctuating number of partners divided into national, scientific, implementing and advisory partners. The aim of the Initiative is to ensure that effective measures and policies are adopted to reduce air pollution and its impacts within the HKH region, to improve knowledge, and to enhance the capacity of partners in Regional Member Countries (RMCs). Through the 'Sustainable Atmosphere for the Kathmandu Valley' (SusKat) project, with support provided by IASS, the focus area for initial implementation activity has been the Kathmandu Valley in Nepal

The significance of and the level of engagement of different types of partners (national, scientific, implementing and advisory) varies within and between these two initiatives. The Atmosphere Initiative has a substantial element of in-house work for ICIMOD.

The HKH context for climate change adaptation and mitigation

There is emerging (imperfect) evidence and knowledge of the multiple and complex change processes – not exclusively climatic – already taking place in the HKH region. There is also recognition that adaptation processes need to be set into motion now as change, often climate induced, is already impacting on people. At the same time some of the climate change is a result of the emission of SLCPs

[1] A UK based consultancy www.iodparc.com with team members and Associates in South Asia.
[2] A Strategy and Results Framework for ICIMOD, 2012

within the countries of the HKH region, with significant mitigation potential and co-benefits from the reduction of emissions.

There is visible impact of climate change: the rate of snow melt is increasing and glaciers are shrinking, variable rainfall patterns are being observed, droughts are more frequent, and change in land use and land cover is happening. Due to the various changes there are loss of livelihood opportunities and regular displacement of people. Similarly, water-induced disasters have become more frequent resulting in high siltation and sedimentation problems along with biodiversity loss. All of these changes are affecting agricultural productivity, health, tourism, livelihoods, power generation and infrastructures, overall economic growth and human security.[3]

The rural poor, given their dependency on natural resource based livelihoods, are the most vulnerable to the impacts of climate change. This vulnerability is related to non-climatic factors, which are related to inequalities often produced by uneven development processes. People who are marginalised (socially, politically, economically, culturally, institutionally or otherwise) are more vulnerable to climate change. This often relates to social processes such as discrimination on the basis of gender, caste, economic status, ethnicity, age, religion and ability. The developing countries in the region are facing additional challenges of limited resources and capacity to tackle the impact of climate change on both natural and human systems through adaptation measures[4].

In respect to water resources, there is low confidence in the projections of how climate change will impact future precipitation on a sub-regional scale in Asia and how it will impact on water resources. The latter is a critical science gap. However, water scarcity is expected to be a huge challenge in Asia due to increasing water demand, shrinkage of glaciers and downstream river runoff.[5]

The most significant changes brought about by human activities are changing atmospheric composition of gases and particulates in the troposphere, which in turn affects visibility, climate and weather conditions, biodiversity and food production, and human health as well as the livelihood of people in affected regions. The HKH is one of the most affected regions in the world with respect to changes in atmospheric composition due to increasing local air pollution problems, as well as increasing regional air pollutants' loading.

Black carbon and other short lived climate forcers (SLCF) are among the most important atmospheric constituents emitted by human activities in the region. Black carbon has contributed to the rapid increase in melting of glaciers and snow masses through direct deposition onto white surfaces, and through warming of the atmosphere in contact with high elevation snow and ice surfaces. Black carbon interferes with monsoon precipitation, thus affecting water availability in the region. Black carbon has also been implicated in increasing atmospheric stability, thus reducing the ventilation of air pollutants and increasing risks to health. Black carbon decreases the sunlight reaching low-altitude areas, particularly in the winter, and contributes to the persistent winter fog that has increased over recent decades over the Indo-Gangetic plains, with impacts on human health, crop productivity, aviation and tourism.

The level of scientific research on climate change is still low in the Himalayas relative to other regions. The Atmosphere Initiative is a timely effort to assess the extent of problems related to black carbon and SLCFs in the HKH region. This effort is essential in order to work out impact pathways so that **mitigation measures** can be suggested.

[3] Ref. MoEST 2012
[4] Ref IPCC report 2014
[5] Ref. Ref. *Adaptation issues and prospects (Hijoka et.al, 2014)*]

The HICAP initiative brings a unique approach to generating science and evidence-based knowledge on the impacts of climate change, and through analysis and synthesis, the potential for identifying **adaptation options** and fostering a related policy response.

Purpose of the Independent In-Depth Review

This review analyses the extent to which HICAP and the Atmosphere Initiative have achieved, or are on track to achieve, their objectives, outcomes and long term impacts. The review focuses on the relevance, efficiency, effectiveness, impact, viability and sustainability of each of the initiatives separately by addressing questions set out in the Terms of Reference (see Annex 1), and outlined below in the Approach and Methodology section.

The report also provides an overview of strategic issues common to both initiatives in relation to their set up under ICIMOD's Regional Programmes. The review concludes by providing a number of recommendations expected to contribute to the enhanced implementation of HICAP and the Atmosphere Initiative recognising the importance they have within the wider trajectory of ICIMOD as a valued regional organisation.

Approach and Methodology

The review looked closely and critically at the implementation and management arrangements for the two initiatives including partnerships, and the balance that is being achieved between the research, advocacy and policy development aspects in each country's context. Reflecting the relative maturity of the two initiatives the resources made available for the review were proportionally more focused on HICAP than the Atmosphere Initiative.

For HICAP the enquiry of the review focused on engagement in China, India and Nepal. For the Atmosphere Initiative the enquiry focused on Nepal and research linkages with India and Bhutan.

The review, which was forward looking (seeking to optimise the contribution of the two initiatives to wider change within the RMCs), was conducted through a staged process (see Table 1 below) running from January – March 2015.

Table 1: Review Process

Period	Step
January	Understanding of implementation experience and wider context (region and organisational); opening discussions with ICIMOD (in Kathmandu), CICERO and GRID-Arendal (in Oslo).
January - February	Document review;[6] extracting evidence against review criteria
January - February	Series of semi-structured interviews with key informants[7] identified by ICIMOD from delivery teams, partner organisations (Nepal, China, India) and donor representatives. Brief community level observations in Nepal and India.
February	Initial analysis and discussions with ICIMOD on emerging findings

[6] See Annex 2 for list of documents consulted
[7] See Annex 3 for list of persons interviewed

March	Final analysis and reporting.

The semi-structured interviews were guided by the following lines of enquiry:[8]

- *Effectiveness*: Reflection on progress against intended outcomes and on the delivery of outputs; enabling and constraining factors for achieving results; plans to address gaps in (targeted) results.
- *Sustainability:* Whether positive results of the initiative are considered likely to be sustainable in the target areas and beyond.
- *Relevance & Impact*: Whether the key assumptions on the operating context (pathway to long term impact on knowledge development and people's lives) in the original design are holding, or need to be revisited, considering the extent to which the initiative is still seen as being focused on key issues and the concerns of stakeholders.
- *Efficiency:* Whether the resources have been allocated for activities to generate outputs (in line with the design stage, and what have been the factors behind perceived efficient delivery of outputs/ inefficient delivery of outputs.
- *Viability:* How the approach and practice of the initiatives has reflected attention to cross cutting issues of gender equality (in particular how within HICAP the role of women in climate adaptation has been promoted and enhanced), technology development, poverty reduction and environmental protection, in line with the design stage.

The review team had some interaction – through short field visits in the Kathmandu Valley, Nepal (Climate Smart Village) and in Assam, India (Community -Based Flood Early Warning Systems) – with communities involved in the piloting work of HICAP. The proposed site for the atmospheric observatory at Ichyakamana, Nepal[9] was also visited. There was limited interaction with the target group of 'decision makers' for HICAP and the Atmosphere initiative. There was no specific engagement with the ultimate beneficiary groups – the poor and vulnerable.

The enquiry process generated a number of observations and insights. The detailed discussions with the initiative teams within ICIMOD around the emerging findings served to validate many of these findings as well as the resulting conclusions.

Report Structure

The report is structured in two parts. The first of these provides individual assessments of HICAP and the Atmosphere Initiative against the review criteria: relevance, effectiveness, efficiency, sustainability, impact and viability. More detail is provided on the work in the Yunnan province to illustrate the key findings on HICAP, and on the work of SusKat to illustrate key findings on the Atmosphere Initiative. The respective assessments are followed by conclusions on how on-track the initiatives are at their respective 'mid-point' in terms of delivering on their objectives, outcomes and impact; and the adequacy of their implementation arrangements. The second part of the report looks at both initiatives (together) from the perspective of the regional and global reach that they have and the contributions they are making to these processes. It also looks at common cross cutting themes of wider strategic relevance to ICIMOD, its regional programming and its associated organisational change as observed through the experience of the two initiatives. From these two levels of analysis (individual initiatives and regional/ global reach), a number of specific recommendations (strategic and tactical nature) relating to the final period of HICAP and the Atmosphere Initiative are made.

[8] As discussed and agreed with ICIMOD in early January 2015
[9] The other atmospheric observatory is at Gedu, Bhutan

Himalayan Climate Change Adaptation Initiative

The 'Himalayan Climate Change Adaptation Programme' (hereafter referred to as an initiative) has been designed to contribute to community resilience to change, particularly climate change; and to generate a greater understanding of the vulnerabilities of these communities, opportunities and potentials for adaptation, as well as a set of policy recommendations and strategies to support this adaptation. The initiative also emphasises the importance of considering the gender implications of its research and conclusions, which is now incorporated as part of the ICIMOD Regional Programme 'Adaptation to Change'.

HICAP was launched in 2011 and was initially funded by the Norwegian Ministry of Foreign Affairs to cover four river sub-basins in the HKH region: the Upper Indus (Pakistan), Koshi (Nepal), Upper Brahmaputra (Tibet Autonomous Region, China) and Eastern Brahmaputra (Assam, India). A fifth sub-basin, Salween-Upper Mekong (Yunnan, China), was incorporated into HICAP under Swedish International Development Cooperation Agency (Sida) funding. The initial plan was for HICAP to be implemented between 2011 and 2015, but in being harmonised with the Regional Programme 'Adaptation to Change' and ICIMOD's Medium Term Action Plan 2013-2017, it is now supported to run through until 2017.[10] In practice there was a prolonged 'start-up' period for HICAP with real activity ongoing from early 2013. The two other initiatives running alongside HICAP under the Regional Programme are HIMALICA, which is funded by the EU, and AdaptHimal, supported by IFAD.

From the outset HICAP had three promoters, or joint implementers, with clearly defined roles in relation to their expertise: ICIMOD to provide the coordinating platform, GRID-Arendal to lead on communication and outreach, and CICERO to lead on research and scientific rigour. GRID-Arendal and CICERO are additionally responsible for overseeing HICAP's strategy, quality assurance, and applicability of findings. A subsequent revision to the MoU between the three promoters recognised that all the three organisations were contributing to the science. At the core of HICAP is the aim to combine 'top down' and 'bottom up' knowledge.

Relevance

During the Inception phase, HICAP identified decision-makers as the primary beneficiaries of the initiative. Other stakeholders included the initiative's executing 'promoter' institutions (ICIMOD, CICERO and UNEP/ GRID-Arendal), strategic partners in terms of influential regional institutions, and operational partners who have responsibilities in terms of implementation of selected activities at national and regional levels. The initiative is also of wider interest and value to the scientific community given the volume of knowledge that is being produced through the various research activities.

The HICAP initiative's activities are highly relevant to stakeholders at the various levels of governance within the region. However, the implementation experience of HICAP suggests varying levels of interaction with communities, regional and national research institutes, civil society organisations, and government institutions and policy makers in different sectors that departs somewhat from the original intended focus on decision-makers as primary beneficiaries of HICAP.

[10] Our understanding is that Sida have recently agreed to a no cost extension through to December 2016, and that funding from the Norwegian Government has already been secured through to 2017.

To date decision-makers, as identified primary beneficiaries, have been engaged in the implementation of HICAP process as – largely passive - recipients of the immediate outputs of research information from the various activities (and without any specific tailoring to the audience). The assumed link in HICAP between research collaboration and ultimate policy influence in the respective national contexts is yet to be substantiated through the trajectory of the initiative thus far.

The assumption within the HICAP documentation is that influence over policy-making processes is partly seen as being dependent on the involvement of HICAP implementing partners that are part of government or government-backed structures; the assumption is that a sense of ownership will be developed with partners within government or government-backed structures that will eventually lead to policy level change and, through this, impact on the lives of people living in vulnerable communities. Other related assumptions found in the project proposal documents and later logical frameworks (including that of the Regional Programme 'Adaptation to Change') include that policy makers will be interested in adaptation to change and in the knowledge generated through the project's activities; and that RMCs will have an interest in cooperating at a regional level.

There is evidence that the involvement of regional and national partners as implementing institutions has led to positive results for these organisations. Partner institutions have been active in data collection. They have benefitted from employing data collection tools and methodologies designed under the HICAP initiative, and these are considered likely to influence approaches to research in these institutions in the long term. However, there are some gaps in terms of the longer-term incorporation of climate change adaptation thinking into the national partner structures, and as a result their ability to influence decision-making on adaptation in the way that was assumed and envisaged at the Inception stage.

Notwithstanding, the above the review found that HICAP is relevant and valuable in terms of its approach to climate change adaptation in four main ways. First, it provides a *close insight* into communities affected by climate change through data collection and research, allowing for a close exploration of the adaptive actions of local people, as well as how they perceive climate change. Second, HICAP, through the cascading of climate change adaptation to communities, proposes an *inter-sectoral / inter –disciplinary perspective* for tackling the effects of climate change on communities and recognises the necessity for effective collaboration between sectors in government structures, which is more tenable than a traditional single sector approach. Third, HICAP modelling of the long-term risks is a useful *visualisation tool* through which policy makers can better appreciate the potential effects of climate change on communities, as well as becoming more clearly aware of the policy bridge needed between the bigger scenario and field research. Finally, HICAP is significant in terms of *inter-institutional linkages* and collaboration on research areas of relevance to adaptation to climate change across national boundaries.

Effectiveness

Tracing shifts in intended outcomes and outputs

In order to assess the progress of HICAP against outcomes and intended outputs, it was necessary for the review to trace the framing and development of intended outcomes and outputs in the HICAP documents over time, recognising where this has coincided with the broader process within ICIMOD of establishing Regional Programmes and the fine-tuning of the results chains of its initiatives.

The initial HICAP outcomes outlined in 2011 emphasise the generation of knowledge on climate change, as well as the context within which adaptation takes place in mountain communities (social, economic); the capacity of mountain communities and women to respond to changing conditions; and the achievement of policy- and decision-makers' engagement with the needs for change and adaptation to climate change.

The 2012 version of the outcomes is merged into a single outcome, and it is rather more general. It specifies relevant actors as being partners and institutions involved with HICAP who are to develop

strategies and policies to respond to climate change. Likewise, the detail of socio-economic and gender issues is replaced by a more general aim to pay special attention to gender and social equity.

The current outcome set in 2013 and which is now the 'Adaptation to Change' Regional Programme's outcome, also strives to have an effect on the adaptive capacities of women, men and children, and specifies that these should be supported by appropriate policies and practices. The mechanisms to achieve this are: institutional capacity building, resource governance, and national and regional platforms for knowledge exchange, with a view to influencing policy. Going forward these mechanisms can be considered as the de-facto targeted intermediate 'outcome areas' for HICAP.

The HICAP outputs, in turn, place particular emphasis on generating knowledge about climate change and water availability, as well as knowledge of the conditions and practices within vulnerable communities. As initially formulated, the outputs also emphasised the importance of establishing partnerships and putting forth policy recommendations to support the adaptation of vulnerable communities and particular sections of society (poor, women, etc.).

The introduction of a set of outputs for ICIMOD's Regional Programme means that these would have presumably required a broader umbrella to cover the other two initiatives under this framework (HIMALICA and AdaptHimal). Even though reporting for HICAP still employs the frame of the original design components, much of the original detail of HICAP's outputs is more diffuse in later documents. For instance, the Food Security component is still mentioned against activities for outputs 1 and 6 in the Regional Programme framework.

The results chain re-thinking leading to the establishment of ICIMOD's Regional Programmes has served to sharpen ICIMOD's engagement in climate change adaptation in respect to the definition of outputs and outcomes over time. This has also meant a reconceptualization of where under the new outputs the initial ones for HICAP fall. Gender-related analysis, for example, seems to be strongly emphasised as output 4 in 2013, whereas gender-related considerations were previously present across various outputs. The policy-related outputs also show some re-thinking of how HICAP can engage with policy and bridge research findings and change; the suggestion is that knowledge dissemination, networking and capacity building are stepping stones to achieve policies that support communities' adaptation to change.

Progress against delivery of outputs and intended outcomes

HICAP is being successful in producing a large volume of research-related outputs. Table 2 below summarises output delivery aligned to the expected end of initiative outcomes.

Table 2: Review of delivery of HICAP outputs aligned to expected outcomes

Expected end of Initiative outcomes	Delivery of related Outputs
Substantive reduction in uncertainty about the effect of climate change	Downscaled and customised climate scenarios for relevant sub-basins (5) have been produced. These are not as precise as had been originally hoped for given a lack of data to feed into the projections. The resulting models over-/ under-estimate in different locations. As a result, the scenarios generated need to be used with care. Water availability and demand scenarios have been developed for at least (4) sub-basins. These provide projections (educated guess) not predictions.
Mountain communities' conditions	Work on ecosystem services analysis and assessment at the sub-basin level has proceeded as planned in a number of locations. The capacity within ICIMOD to apply this framework to their wider work is increasing. Food security analysis for vulnerable groups at community level has been completed and,

Expected end of Initiative outcomes	Delivery of related Outputs
	whilst not of consistent quality (includes some high quality work), it does provide a platform for the challenge of generating scenarios of future food security (at region/ at sub-basin level), which in turn can inform a policy response.
Mountain communities' adaptive capacity and awareness	Adaptation patterns and strategies at the individual, household, community and regional level have been researched through use of the VACA methodology. Some differences in livelihood effects and adaptive capacity have been examined from a gender perspective. Involving women as part of the data collection process has been an important and impressive element in this. It remains to be seen how this understanding will be absorbed by the HICAP partners and translate into wider practice and policy. The depth of partner understanding and continuing attention to the issue of gender equality and to wider aspects of social exclusion is variable.
Policy and decision makers [various levels] take new knowledge into account	To date there has been little activity on: i) The way in which the information generated through HICAP links with the work of others (different cases in different cultural contexts) in generating scenarios to inform consideration of policy implications. ii) Looking at the linkages between the (autonomous) adaptation practice within mountain communities and the current policy dialogue on measures to promote adaptation. All of the above would be expected to be important elements in generating recommendations from the HICAP experience to inform decision making at various levels from regional to global.

An impressive library of material has been produced through HICAP. There are already over 50 products – over 50% of which are scientific papers. The majority of this material originates from HICAP's work in the targeted sub-basins in Salween-Mekong, the Brahmaputra and Ganges. Whilst more limited material has been produced from the Indus, some of the work conducted by HICAP in the upper Indus is significant in that it is breaking new ground.

HICAP has shown a particular strength in data collection. The research experience has highlighted the importance of working things through thoroughly with local partners at all stages in the research process – both to ensure the integrity of the research and also to optimise the (not clearly differentiated) capacity development elements of HICAP.

To date there has been very limited attention to studying and understanding the nature of the policy process itself, and considering the implications this has for determining and implementing a research agenda and the associated communication of research outputs. Implementing partners have been involved in generating research and have authored a number of progress reports. These have been largely activity reports and have not looked to link the research to the local policy process context.

HICAP has established a number of pilot projects in communities. Part of the data collection and adaptation activities relies on pilot projects targeting communities in the relevant sub-basins. These are useful for providing an insight into these communities, for studying adaptation mechanisms, and to understand the complexities within each of the settings. However, progress on completing pilots in relation to community resilience and, where appropriate, having paths to expand beyond the pilot has been mixed. The pilot projects do not seem to have been designed as a testing phase to lead to larger

initiatives, and there does not seem to be a set end to them. There is no clear view on what would determine a successful pilot.

HICAP research has been shared in various scientific forums at regional and international levels with both policy and academic audiences. It is unclear as to the mechanisms in place (if any) to follow-up on what happens after such information is given to decision-makers, or in the aftermath of related training being provided to policy makers and civil servants. The more holistic – yet to be completed – HICAP *synthesis analysis* will need to be disseminated in a very targeted and tailored way.

HICAP is designed to establish networks of influence through partners that work closely with government or government-affiliated organisations. In the case of China, HICAP partners refer to channels of influence in terms of connections that key individuals within their research institutes enjoy within the wider central government system through the credibility and reputation of the individual, and underpinned by the standing of the institution. Important connections – potential influence pathways – also exist between the Research Institute, on the one hand, and province and county-level officials. In such cases the engagement around research outputs allows for issues to be usefully seeded in the consciousness of officials rather than a direct and/or immediate policy process.

See Box 1 below for an illustration of HICAP relevance and effectiveness in Yunnan Province in China.

Box 1: Illustration of Relevance and Effectiveness in Yunnan Province, China

HICAP's collaboration with partner institutions in China provides a case illustration of the above analysis on Relevance and Effectiveness. In relation to the HICAP research process, the Yunnan Academy of Social Sciences (YASS), involved in the Salween-Mekong basin research, highlights that as a result of HICAP the research outputs of various local institutions are more comprehensive and integrated; that collaboration between institutes is leading to a more holistic view of climate change adaptation; and that individuals within institutions value the learning environment that HICAP has provided, which in turn has influence over the institutions and their practices. These benefits were likewise felt under the Too Much/ Too Little Water Initiative so, in that regard, HICAP represents a positive and valued continuing effect within these partner institutions.

The scientific publications of the institutes involved in HICAP have additionally given Chinese partners a profile for remaining active in the region and globally, even at the level of postgraduate students that have been involved and who can now better compete for national Science Foundation Funding. These positive changes bode well for the long term impact of HICAP and its relevance to the institutions involved in its continuing implementation.

In terms of HICAP's approach, YASS highlights that they have greatly benefitted from activity on downscaling of climate scenarios across the whole Salween-Mekong basin. HICAP has been a good learning opportunity for the centre; and the frame provided by the Initiative, as well as the various discussions with ICIMOD, has provided a helpful guide for case study work on gender, climate change and agriculture, migration, livelihood security and women, and water stress and women. The experience of conducting survey techniques introduced through ICIMOD provided interesting, relevant and revealing insights into climate change adaptation. In particular, these exercises have highlighted the important role that migration is playing in response to climate change, and the way in which this adaptation strategy is changing community dynamics and affecting women in particular.

There are areas where the relevance and effectiveness of the HICAP initiative could be strengthened further. There is no dedicated pot of money for climate change adaptation research in China. In terms of the policy environment, there is less investment in adaptation as well as a weak focus on it in comparison with the effort and attention dedicated to mitigation measures. For instance, in response to the Yunnan droughts, the Government invested heavily in new reservoirs and canal structures or in rehabilitating old ones, as well as on watershed reforestation. These actions are

drawn from particular sets of assumptions about where the problem lies, but do not pay due attention to the adaptive response of communities within which migration emerges as a significant adaptation and livelihood strategy. There was only one paper by the end of 2014 in the China Research Paper database that covered climate change and migration.

The Kunming Institute of Botany (KIB) highlighted how HICAP's influence in the Yunnan province can effectively target the county and province level. At county level, climate change adaptation needs to be a priority in the crafting of the local development strategy (working within the national frame), as opposed to separate streams of action or specific (and limited) crisis responses. At province level, a special office within the provincial structure dedicated to climate change adaptation would be a positive development. Such institutional measures on climate change action would contribute to the longer-term impact of the initiative, and incorporate considerations related to existing adaptation responses such as migration and the shifted burden on to women.

Enabling and constraining factors/ plans to address gaps in HICAP implementation

The Inception stage identified a number of risks in implementing the Initiative, which have been reviewed over time. The potential constraining factors included: fieldwork access due to unrest or inaccessibility of certain locations in the HKH region; challenges imposed by the trans-boundary nature of HICAP; the potential for wavering commitment on the part of institutions participating in implementation; the technical resources committed to HICAP in implementing institutions, as well as the time availability and workload of personnel allocated to the initiative; the safety of installed equipment; access to datasets and data sharing issues; and fears of failure to influence policy makers.

There have been differing degrees of success in managing these risks to implementation. The HICAP team did face difficulties in establishing partnerships in the Tibet Autonomous Region; they initially proposed the Tibet Academy of Agriculture and Animal Sciences, but eventually partnered with Sichuan University for research in this area. Accessibility issues in turn raised some concerns on data reliability.

There is some concern expressed in Annual Reports with regards to the quality of research produced by partners, as well as partners being able to meet the timeframe required for the completion of their tasks. There have likewise been suggestions that issues have been faced in relation to data ownership; and some partner institutions, for instance in China, expressed a desire to have a greater involvement in data analysis, rather than their involvement being limited to the collection of data which is then analysed by ICIMOD.

HICAP doesn't have a clear and visible strategy for engaging the policy sector. There has – to date – been limited consideration given to how (and if) actual policy processes can integrate research. The difficulties in influencing changes to policy have been noted throughout the initiative. In the 2013 Annual Report to donors it is recognised that the lifetime of the initiative is too short to have policy influence, and that HICAP is best conceived primarily as a research intervention. Previous reports and documents foresaw that there may be difficulties in securing the engagement of policy- and decision-makers.

Whilst this review found gaps in establishing the linkage between policy and research and in influencing policy, it is recognised that in 2014 there were activities planned at tackling some of the policy-related shortcomings; the intent to develop a framework for institutional and policy analysis (delayed until 2015-2016); further knowledge sharing to contribute to policy and institutional capacity; bilateral meetings with policy-makers; and Impact Pathways mapping.

Effective working between the three promoter organisations

The experience of coordination between the three promoter organisations – on an equal footing – can be characterised as a challenging 'journey'. At the outset there was a period of uncertainty as each of

the organisations looked to define (in practice) their role with clarity (in terms of responsibility over specific tasks to be set within a clear project plan for HICAP). There were also a number of occasions where HICAP tried to move too quickly on multiple fronts (and promoters working independently) without having rooted such actions in a collective understanding of what will be entailed for HICAP to meet its goals.

The initial process of interaction between the three organisations, whilst protracted and involving a number of – at time difficult – discussions, did eventually produce a work plan that the three promoter organisations have successfully followed. This, together with some differences that have been successfully worked through on specific areas of research, has allowed the promoter organisations to gain an appreciation of their different organisational structures and cultures that are reflective of their respective mandates. It has provided a 'good enough' platform by which the three organisations have been able to 'study' together – jointly understanding the 'ground position' in terms of what climate information is important in a particular context.

There have been some issues regarding sensitivity over who is responsible for 'academic science quality'. CICERO leads on the science side. As a result of ICIMOD receiving the HICAP funding, which it then channels to the other promoters and to implementing partners in the region, it is the de-facto 'project management' body to which others 'report'. This configuration – whilst practical - has made it harder for the ICIMOD 'project team' to operate in a way that consistently reflects a strong sense of a jointly owned HICAP.

The promoters recognise that now the really important part of HICAP is about to start. Whilst the individual 'research' pieces have 'stand-alone' value in their own right, it is the holistic analysis that will constitute the 'win' of HICAP: the bringing together of the immediate realities (linking modelling/ LT scenarios to the story telling), and the dissemination and use of this synthesis knowledge at different levels in the wider policy and decision making system. In particular, the 'knitting together' of the scenario work with the grounded case study work, reflecting the different sub-basin conditions and an analysis of cross cutting issues. It is this melding and interrogation of research information – putting scientific data in context – that can set HICAP apart from other ongoing work, for instance in the Koshi sub-basin where there are many other studies that are primarily desk-based. The risk is that, unless there is real care taken in the synthesis step, HICAP can fall short; it would provide a basket of interesting pieces of information with less (individual) focus on each of these pieces than that which would be likely to be achieved more narrowly and selectively through more traditional external programming.

The HICAP synthesis products have the potential to have a particular resonance and value at the (sub-national) meso level; it is here that the upscaling of district and local community knowledge – which HICAP can bring – can be used to the most powerful effect. This knowledge would contribute to an opening up of the mind-set to better reflect and act on the challenges of climate change adaptation within the process of local development planning. This approach recognises that adaptation to change is a continuing process, and that a critical part of the dissemination process will be the conversation within the analysis process. In turn, this will require a synthesis process that is an interdisciplinary exercise with 'work-shopping' and debate at every point, which culminates in a collective HICAP message. This approach would also imply not going straight to the apportioning of the writing of chapters and subsequent sharing for comments, or a process whereby a series of presentations from different research perspectives are made without challenge and discourse on the 'so what' question. To be successful, it is vital that a readiness to challenge each other in this synthesis process is not tempered by the earlier 'growing pains' of the relationship between the three promoters.

It is clear – drawing on the points above – that for HICAP to deliver on its promise will require careful planning and execution of the synthesis step. At the time of the review there was some early stage thinking on the synthesis process. The uptake and assimilation of research generated knowledge into local planning processes takes time and needs to be guided by a clear view on the different 'policy' level decisions that stakeholders have to take. Given this, it is suggested that a measure of HICAP's

success (by 2017) will be whether the access points to decision makers/ decision processes across the different sub-basin settings are clearly understood, and whether the synthesis exercise has packaged information in a way that is equipped to 'talk to this' reality (*what kind of knowledge gets access/ when*). The supportive engagement with the media[11] and the use of more nuanced stories – less single issue – will be an important part of this influencing process.

The actual assimilation of knowledge into the planning process would then be a goal stretching beyond 2017. This would recognise the melding of value neutral (global) natural science with the political dimension of local actors as a ripening process. ICIMOD as a regional member organisation has a vital role to play in this process. Whilst it will continue to tread very carefully in the regional 'policy space' it will need to use its platform to identify and challenge where the biggest hit from the synthesised information of HICAP can be achieved, thereby actively connecting the long term and the short-term view that politicians need to operate with.

Our understanding is that the plan for HICAP involved the highest direct level of engagement and coordination between the three promoter organisations during the planning/ start-up phase. Subsequent to this, the communication between the three organisations – including regular phone calls and an annual planning meeting – has reflected a more traditional 'project management' style. We could envisage that as HICAP moves into the critical analysis and synthesis step a greater level of engagement (than hitherto appreciated and/ or budgeted for) between the promoters will be needed in order to ensure that the blending in dialogue of the different perspectives and expertise of ICIMOD, GRID-Arendal and CICERO will be optimised. This will also require a conscious cultural shift within HICAP giving greater attention to the 'synthesis' task – the real test and potential impact of HICAP at the macro and meso level – and moving away from the 'project tasks' much of which is focused at the micro (research activity and/ or community pilot level).

Pilots

Within HICAP there are a number of field pilot activities. The (albeit) limited observations of the review team raises a number of concerns 0n the implementation arrangements for and future relevance of the piloting aspect of HICAP:

i) Paying sufficient attention to the need to work closely with the local and district level government at all stages of a pilot (concept design, site selection, implementation, monitoring, assessment and possible redesign/replication etc).
ii) Taking due care to avoid HICAP pilots replicating the ground that others have covered through similar initiatives.
iii) Working through existing community level structures rather than forming new ones.
iv) Where possible working with other – already active – development partners (NGOs, donor projects or Government line agencies) to avoid duplication and to minimise the transaction costs experienced by communities both during the piloting and in any future transition.

Efficiency

Initiative management and ability to be responsive

HICAP is supported by Norwegian Government funding for the Upper Hindus, Koshi, Upper Brahmaputra and Eastern Brahmaputra sub-basins, and Sida funding for the Salween-Upper Mekong sub-basin. Both lines of funding follow the same coordination mechanisms and modality of implementation.

[11] Journalist training for mainstream media, slowly building a network of journalists in the region, helped to introduce ICIMOD to new ways of addressing media. HICAP competitively selects environment oriented young journalists from the region.

HICAP activities under both donor budgets are managed by the Project Management Unit within ICIMOD. When the initiative was launched, there were differences in the preparation of progress reports and financial details provided depending on the funder due to contractual requirements. However, this arrangement was changed, and currently joint work plans and progress reports are presented to Norway and Sida. In terms of ICIMOD human resources, there is an overlap in a single team involved in both strands of funding.

There have been some appropriate changes in the allocation of Sida funds in response to the need to adjust the sequencing of activities. In reviewing outputs, some resources have been taken from the 2014 and 2015 budget to carry out major activities that were planned for later, such as downscaling of climate scenarios and analysis of climatic and hydrological parameters, in order to allow other components to do their analysis. There was also an increase in field activity budgets to integrate capacity building. Finally, some policy documents and literatures of concern to HICAP are in Chinese, and as such will have to be reviewed in collaboration with partners – meaning that an additional re-allocation of funding to manage the concerned partners will be needed.

The introduction of the Regional Programme allowed the possibility for re-assigning programmatic activities and streamlining outputs. For instance, field research into migration and remittances for India and China is done under HICAP, but Pakistan and Nepal are now covered under the HIMALICA initiative instead. Likewise, the PWA methodology and Community-based Flood Early Warning System were fine-tuned under HICAP, and then employed in two other ICIMOD initiatives, HIMALICA and HI-AWARE. These changes and the sharing of tools and methodologies have contributed to avoiding the duplication of efforts under various ICIMOD initiatives.

HICAP has shown good judgment – after lots of discussion – on taking clear decisions on issues such as whether to invest or not in an internal communications system for the partners (decided not to), on how to work on social media and managing the intersection with ICIMOD wider communications system, and on HICAP branding.

The 'How to influence – policy analysis study' was not in the original HICAP design and is an area where HICAP has been slow to react. The need for action in this area emerged from the discussion between the three promoters at the annual planning meeting in August 2013, where it was recognised that whilst HICAP was targeting policy makers it had no policy analysis. However, despite the urgency to engage on this aspect, the first moves on a study were made in August 2014.

ICIMOD relationship with implementing partners

HICAP has 25 partners, 21 national and four international ones, which are allocated particular research tasks. ICIMOD has individual Letters of Agreement (LoA) through HICAP with each of the different institutions. For example, in Yunnan Province it has individual LoAs with each of the seven different science based institutions located there.

Some partners felt that – from both efficiency and ownership perspectives – there could be a change in their involvement in the processes of data analysis, rather than their involvement being restricted to collecting data and passing it on to ICIMOD. Reference was made to the process for analysis of the Vulnerability and Adaptive Capacity Assessment (VACA) household data and to the data gathered in 2012 and 2014 on hydrological parameters and handed to ICIMOD. The sense is that there is insufficient interaction and collaboration once partners hand data over to ICIMOD.

There have also been some disagreements on the understanding of and approach to research tasks, for instance between ICIMOD and the Asia International River Centre (AIRC). AIRC planned, following agreement with ICIMOD, conducting studies in two rivers in four sites covering up-stream and down-stream points of each. This design was put in place to ensure that the studies covered communities with cash crop based production systems and others with food crop based systems. However, when the research came to be conducted, the available finance and timeframe had changed. This change meant that it was not possible to examine four sites, but two – one site per river. AIRC

emphasises that the difficulty was in clearly understanding what finance was available and in planning effectively and efficiently for the food security component of the research.

Our understanding is that ICIMOD operates a process of annual planning and budgeting with its HICAP partners whereby the year's activities are completed, work is handed over to ICIMOD and negotiation then starts on the next year's activity schedule and associated budget. This has been the cause of some frustration and misunderstandings with partners, leading to the suggestion from some partners that sight of an overall multi-year budget would allow them to plan more medium term with gains in terms of the effectiveness and efficiency of their work. The uncertainties for partners of the annual cycle are amplified where there are frequent changes in the ICIMOD team (e.g. the food security coordinator of ICIMOD within HICAP changed three times in three years).

There have been some delays experienced in the disbursement of funds from ICIMOD. For instance the KIB's budget of USD 5,000 for 2014 was received in January 2015; 75 percent of the total was received for 2013; and no disbursements were made in 2012. The KIB nonetheless continued to work within the schedule by using advances from other projects.

Coordination between different teams in-country working on HICAP could also be strengthened. In China, there are four or five teams involved in the initiative, but integration between them is not optimal; they do not have a good picture of other components of HICAP. This gap is a constraint to cross-learning in China, as well as cross-region learning. Each institute holds a particular data set that is passed on to ICIMOD, and they then wait for ICIMOD to conduct the analysis. However, the capacity of Chinese teams could be strengthened if they were more integrated into the whole process. Greater coordination between different parts of the research community, and collaboration in carrying out activities, would ensure a more consistent collaborative effort, rather than findings coming together between various teams and strands at the end and resulting from ICIMOD's synthesis.

Communication across HICAP with its various partners is a continuing challenge. The Annual Planning Workshop events have been useful at one level in terms of basic information sharing, but some respondents felt that they have not been able to fulfil their value as might have been the case had they been able to share methodologies or results, or to compare frames across the various contexts/ sub-basins.

Viability

Within HICAP there is a concerted effort to address the issue of gender equality. The active stance that ICIMOD takes on gender is supporting the actions being taken by partners. In doing so, it is raising new demands for the gender element, which going forward HICAP needs to be able to respond positively to, and which in turn may have a wider effect beyond HICAP.

An illustration of this is HICAP's work in the Yunnan province. Here the demographic composition of migration from rural areas is predominantly male, which has led to an increased burden on the women in rural communities whose responsibilities have grown; over 70 percent of farmers are now women, in addition to continuing to be in charge of household and community duties. However, given the social structure of the community, even if women may have ideas on adaptation, they may still lack an effective voice in a society where males typically hold the authority at the village level. During the review HICAP partners in Yunnan referred to their enhanced consciousness of how limited – within a range of internationally supported initiatives on gender in the province – the ground level evidence is that convincingly addresses gender. Further work is urgently needed to look at the processes through which areas of practice (such as in the area of disaster risk management) can design responses to the results of grounded gender research.

In terms of technology development, relevant equipment is being installed for data collection and monitoring of climate change. The decision to embed equipment within relevant institutions is a

positive step for ensuring sustainability and integration within various organisations' practices, but going forward greater attention will need to be paid to the maintenance of data collection and analysis practices, and the strategizing of pathways for employing the information generated by technology within the collecting organisation.

Sustainability

The review team have some concern over the sustainability of results – partners carrying on with climate change adaptation activities beyond the lifetime of the initiative – in the target areas and beyond, given the nature of the institutional arrangements through which HICAP operates. For example in Yunnan there is a sense that ICIMOD 'gave' the local institutions the activities, and that their work – once the activity is over – has 'basically finished' – even though HICAP is running until 2017. This limited sense of ownership over the whole initiative is likely to compromise the ability of partners to integrate practices and processes in the climate change adaptation area beyond the activities that they are involved in under HICAP.

Impact

It is not clear that the policy influence within RMCs as sought under HICAP is likely to materialise from the delivery of HICAP research outputs. To be more confident in this regard, it will be important to explore the possibilities for institutionalising or crystallising structures that would lead to policy development in the target areas. This exercise would need to take into consideration the experience of constraints imposed by decision-making processes, as well as the experience of the partners involved who are knowledgeable of these dynamics.

The National Stakeholders Committees have not been set up as provisioned for in the original HICAP design to support the longer term impact of HICAP. . We were advised that other approaches have been used to bring stakeholders together but it is unclear how these are positioned/ relate to the existing country framework structures (see Box 2 overleaf) of National Adaptation Plan of Action (NAPAs) and – in some instances – Local Plans (LAPAs).

Box 2: Framework of National Adaptation Plan of Action(NAPAs)

In 2007 Climate Change Adaptation got priority in discussions during the COP 7 and led to the establishment of a least developed country (LDC) work programme to build National Climate Change Mechanisms/Build Capacity and to prepare National Adaptation Plan of Action (NAPAs) to report on the needs of LDCs on adaptation. LDCs started to prepare NAPAs with financial support from the LDC fund and other donor funds. The Nairobi Work Programme[12] in 2006 and the Cancun Adaptation Framework[13] in 2010 further established frameworks and mechanisms for adaptation work, including financing. The Adaptation Fund Board was established in 2009 to enable countries to access funds directly for adaptation.

Subsequently NAPA documents have been prepared by most of the LDCs in Asia, including in the HKH region Bangladesh (2005 and updated in 2009), Nepal, Bhutan, Afghanistan (2013) and Myanmar. Implementation of projects based on NAPA has started, albeit slowly. The NAPA document identifies the climate change challenges and risks, and maps the vulnerability context by doing various analyses through multi-stakeholder participation and consultation. Based on the different

[12] The Nairobi work programme - the Subsidiary Body for Scientific and Technological Advice - was mandated to undertake a five-year project to address impacts, vulnerability and adaptation in relation to climate change.

[13] Activities under the Cancun Adaptation Framework relate to the following five clusters: Implementation, including a process to enable LDC Parties to formulate and implement national adaptation plans (NAPAs), and a work programme to consider approaches to address loss and damage; support; institutions, including the establishment of an Adaptation Committee at a global level, as well as regional and national level arrangements; principles; and stakeholder engagement.

scenarios the adaptation options are identified and prioritised.

Based on the NAPA documents, LDCs are accessing finance from the available funds. China has prepared National Adaptation Strategy in 2012, and is prioritising the adaptation related work and implementing projects based on the same. Similarly, India has prepared the National Action Plan for Climate Change, outlining eight major initiatives for covering both adaptation and mitigation.

There is an opportunity for the impact of HICAP to also be considered in terms of how it can play an effective role in 'influencing' thinking amongst the donor community on how adaptation funds provided bilaterally within the HKH region are spent (regional allocations/ donor priorities). RMC dialogue and action ought to aim to accelerate the pace at which funds available through the various global financing mechanisms are actually put to work in a more coherent way.

Concluding remarks on HICAP

The genesis of HICAP was as a 'research programme' looking to address IPCC4 knowledge gaps through a transdisciplinary approach, and developing enough partners with core competences/ capacity to bring to the research. Over time the expectations of HICAP have been raised to looking at the uptake of research; it seeks to convert good science into knowledge, which in turn influences policy and practice. As such HICAP is an ambitious initiative which straddles science and community adaptive practice, working across many levels (macro, meso and micro) where decisions are taken. HICAP has many different strands to its trans-disciplinary work, operates across upstream and downstream environments, and involves a diverse set of partners.

HICAP has come through some challenging early stages to be able to produce a number of quality science outputs across its different components. It has adopted an approach to outreach and communication, particularly media engagement, which has brought greater visibility. Overall HICAP is where we would expect it to be by now, given a relatively slow start and taking into account the nature of what it is dealing with.

Whilst the overall aim and objectives of HICAP remain highly relevant, there is some uncertainty over the extent to which HICAP in its current form will be able to deliver on all of its outcomes that reflect (as a marker) its success by 2017. There is a risk of HICAP falling short of realising its potential.

The review is confident in terms of HICAP by 2017 making an effective contribution to:

i) A 'substantive reduction in uncertainty (in the HKH) about the effect of climate change' recognising that across the countries in the region there is a varied understanding and knowledge on where and how climate change is affecting / will affect vulnerable communities.
ii) A greater understanding of the future conditions – food security scenarios – within 'mountain communities', the adaptation patterns in the region, and the strategies communities are adopting.

The review is less confident on HICAP making a contribution to the outcome area of (iii) policy and decision makers (at various levels) taking new knowledge into account. This is a particularly challenging area and one which will demand considerably more management effort in the period through to 2017, although the HICAP team is dedicating some effort to re-thinking its policy strategy.

The associated piloting work within HICAP is not sufficiently developed to offer a useful channel for engagement on policy influence. Rather than invest more management time[14] in this area, we would suggest that a quick internal review across HICAP is conducted to rationalise the pilots, with this work either being dropped or – where a wider value is seen – the continuing work being absorbed within the frameworks of other initiatives in the regional programme (e.g. Himalica). This would potentially free up more time and resources for HICAP to focus on the critical Synthesis step and allied processes.

The way in which the immediate synthesis step of HICAP is tackled will be critical in determining whether the initiative is able to effectively start to engage with the challenging journey of seeking to bridge the gap between research and policy. This is likely to need some readjustment of a HICAP plan and budget that currently places the heart of the synthesis of the research outputs in the partnership between the promoter organisations, but which assumes relatively minimal face to face dialogue between the promoters. The review team feels strongly that the 'power' of the research outputs can be garnered more strongly through a stage 1 facilitated dialogue within the (sub-national) research context. This would, in turn, feed a challenging dialogue between the promoters on what this means for the region and how to target a resulting analysis to key audiences at a national, regional and global level. Whilst it is recognised that policy engagement and influence can often require a variety of steps including those outside of any defined framework the evaluation team believe that in the context of HICAP the synthesis step (approached in a tailored way) is a vital building block for policy engagement.

Through the solid progress on delivery of research outputs HICAP is generating valuable information on the realities that vulnerable communities are facing in adapting to climate change and the gender dimension within this. Whilst increasing the understanding within the respective partner institutions, there is to date only a limited sense of this understanding being shared in ways that bring together and increase (in a combined sense) the different capabilities of partners within a particular national/ sub-national setting. The latter would serve to provide the platform for a more targeted influence on the process of policy dialogue and strategy setting. ICIMOD as a regional body has a unique vantage point for this type of engagement.

The link between research and policy needs further examination; and more details are needed on whether stakeholders and partners are equipped within and/ or beyond the current lifetime of HICAP with the necessary resources and capacity to influence decision making through networks established in the implementation of the initiative. The channels of influence that partners offer are critical. In the China sub-basins HICAP did a lot of initial research on who to partner with (conscious of the channels). In Pakistan, India and Nepal, on the other hand, there was a tendency to run with who was already known to ICIMOD.

There appears to be a 'low bar' set within the HICAP documentation in which influence on policy is conceptualised as awareness of particular issues rather than policies/ strategies being made based on these. There is no clarity on where within the tiered system of government (e.g. national, sub-national, and district) the policy and practice influence is being targeted. In general, conceptualising influence as awareness of issues may not necessarily lead to changes in decision-making patterns. For example in the Yunnan province, the view is that the connection with the government level can be forged through research being able to clearly establish what the impacts of climate change are, and to offer concrete adaptation strategies that are congruent with adaptive strategies already being endorsed by farmers. But as mentioned before, it is not clear whether the provision of this kind of information will directly lead to a different approach at policy and strategy level that prioritises climate change adaptation. A wider set of forces will need to be brought into view as part of a more developed theory of change.

[14] We understand that a recent internal ICIMOD review suggested the appointment of a national manager to manage the respective country scaled up field level projects.

Whilst recognising the inherent policy sensitivities of ICIMOD as a regional organisation, there is an opportunity to apply a 'harder edged' gender lens within HICAP so as to make 'a stand' on this issue, and in doing so provoke the debate (rather than taking a softer all-encompassing everything together ('balanced') perspective.

To steer HICAP – at the required pace – on a more challenging line will require strong leadership within ICMOD, including regular and effective communication with partners. To free up space for this and to ensure that HICAP does not lose its focus, the current set of 'pilots' should be reviewed and rationalised at least in terms of the focus of management time.

The HICAP team is aware of many of (the positive) challenges facing HICAP. An internal review of HICAP completed in June 2014 came up with 10 recommendations on ways in which to strengthen implementation and effectiveness. These included: a stronger focus on sub-basins as a unit of analysis and related up-scaling to communities and decision makers; the need for careful consideration and planning of the analytical synthesis step of HICAP; a sharper and more focused HICAP communications strategy targeted at clearly identified partner/ stakeholder engagements and key processes at local, national, regional and global levels; the need for a rapid move forward with individual policy and institutional analysis work within countries; and examining how HICAP scenarios and models could be used with planners, international financial institutions (World Bank, ADB, China banks) and the private sector for large scale infrastructure planning/ insurance. Much of the above – in terms of direction – chimes with the findings and conclusions of this review.

Finally, it is important to stress the wider value that HICAP – a truly trans-disciplinary approach / good science and knowledge communication – has provided to ICIMOD management. HICAP has been an important 'early mover' on ICIMOD's new programmatic shape and results framework, organisational structure, and style including the experience of working with international promoter partners. It continues to play an important part in ICIMOD's continuing organisational journey through exposing and addressing organisational strengths and weaknesses.

Atmosphere Initiative

The Atmosphere initiative is part of ICIMOD's Regional Programme on Cryosphere and Atmosphere. It was established in January 2013 and its aims are to improve the understanding of atmospheric issues and to promote regional cooperation to address them in the HKH region. The precursor of this Initiative started out with financial support from Sida under the programme[15] "Reducing the Impacts of Black Carbon and other Short-Lived Climate Forcers" in 2012; it was then incorporated into the broader Regional Programme on Cryosphere and Atmosphere as the Atmosphere Initiative.

The Atmosphere Initiative now also receives additional support from the Norwegian Ministry of Foreign Affairs, which expands on the coverage of Sida funding; and to a lesser extent contributions from the Institute for Advanced Sustainability Studies (IASS), Germany through the "Sustainable Atmosphere for the Kathmandu Valley" (SusKat) project, and UNEP through the Climate and Clean Air Coalition (CCAC)[16].The Atmosphere Initiative is implemented with the collaboration of 27 partners divided into national, scientific, implementing and advisory partners.

There are currently various strands to the Atmosphere Initiative, which cover different areas and broaden its scope. Sida's focus, which began with the SLCF initiative, is on: improved atmospheric science, knowledge dissemination and capacity building, contribution to policy development, and analysis and dissemination of mitigation measures. Norwegian support bolsters the work started with Swedish funding, while also focusing on the improved quantification of emissions, and an understanding of impacts on human health, gender and livelihoods. The agreement with CCAC is narrower and focuses in particular on "Mitigating Black Carbon and Other Pollutants from Brick Production"; activities under this tranche of funding include workshops, production of documentary material and protocols for measurement of black carbon and other pollutants from brick production, and training. SusKat, in turn, focuses on understanding physical processes and dynamics of air pollution in and around the Kathmandu Valley.

Relevance

The Atmosphere Initiative is a regional initiative with an emphasis on national level implementation. Stakeholders are understood to be relevant national institutions, academia and research centres, national science and policy institutes, civil society in the HKH region, and communities whose lives and livelihoods are affected by atmospheric issues.

In its nascent form the initiative has a long-term goal to contribute to the reduction of negative effects of climate change by advancing scientific understanding of atmospheric processes, supporting regional policy planning, and formulating actionable proposals for reducing the impact of black carbon and other short-lived climate forcers (SLCF) *on people's lives and livelihoods* (italicised text added in 2012). The Regional Programme broadens the overall impact aim to an increased understanding of cryosphere and atmosphere issues, and specifies contribution to water resource and risk management, and the reduction of negative impacts of atmospheric change.

Being a regional initiative, the Atmosphere Initiative encounters issues related to its trans-boundary nature. There are also an associated set of issues (as set out in the Programme document) in terms of the level and nature of engagement with policy makers, the safety of installed equipment, ownership of and access to data, and the nature and productivity of the various partnership arrangements falling under the initiative.

[15] A workshop in April 2012 was designed to acquire the existing knowledge, identify gaps and develop partnership with researchers, to get the feedback from the stakeholders for the necessity of such initiative, and to lay down a platform for a future regional programme.
[16] The CCAC is a global initiative with the goal of reducing Short Lived Climate Pollutants.

The project documents for the Black Carbon and SLCF Programme (the precursor of the Atmosphere Initiative) also contain an indication of some of the assumptions underlying implementation of the Atmosphere initiative. For instance, the documents suggest a high level of country-level support to identify key stakeholders and institutions, and their active participation. They also assume strong collaboration from national partners to share data and information; and in relation to policy, that national and regional stakeholders and authorities are effectively involved and cooperate in implementing the programme's activities, as well as engaging in political dialogue on issues of concern.

The recent incident in Nepal (see Box 3 below) highlights the challenges and effects of poor data sharing.

Box 3: Data sharing - how this can affect Tourism and Livelihoods

The snowstorm that killed 39 people on one of Nepal's popular trekking routes, the Annapurna Circuit, in October 2014 highlights the urgent need for better early-warning weather systems in the Himalayas as well as Nepal's poor state of data sharing.[17] Tourism is a major contributor to Nepal's economy, providing employment to more than 750,000 people in a country with an unemployment rate of more than 45 per cent. Every year, thousands of foreign tourists take to the trails of the Himalayas creating enormous economic opportunities to the country. The tourism and related economic activities are also challenged by the unpredictable weather, which are enormously affecting the lives of people very much dependent on income based on tourism. Better early warning systems, weather forecasting techniques and capacities, and preparedness to tackle possible disasters are needed. Currently the NAPA and other adaptation projects do not provide a concrete strategy in this area.

So far, engagement with the Atmosphere initiative on the part of policy makers has turned out to be greater than expected at the inception stage. In particular, Nepal and Bhutan have expressed enthusiasm in capitalising on ICIMOD's expertise for developing national strategies on atmospheric conditions. In terms of the purchase and installation of equipment, this has been organised relying on national partners, which is designed to ensure the continuity of use beyond the lifetime of the initiative.

The wider relevance of the Atmosphere initiative is demonstrated by the fact that the 'baseline' position in South Asian countries on atmosphere issues is derived from case study science, mostly in developed countries. However, it is now recognised that this position is not a good basis for framing a mitigation policy approach in developing countries, and in particular those with a mountain environment. The suggestion is that it is not a lag in terms of the development cycle, but an entirely different situation that requires an alternative thinking path.

Moreover, the time lag between 'hard science' and policy is still long. In addition to being a time issue, it is also a 'strategy' issue of how to engage policy to respond to science taking into account the realistic constraints within a policy- and decision-making environment. SusKat, through its strategic location, the use of state-of-the-art technology, and its novel way of taking action by bridging regional research with engagement of stakeholders, offers the prospect of advancing in this respect and potentially highlighting ways of revealing gaps in our current knowledge and interpretation of policy-relevant science. The hands-on experience in atmospheric field measurements to Ph.D. and master

[17] Following the storm, scientists from the Atmosphere Initiative have been asked by the Ministry of Science Technology and Environment to contribute to designing better severe weather warning systems.

students gained through SusKat, and the upcoming winter fog study, is an important contributor in building the capabilities of young atmospheric scientists in the region.

One of the partners interviewed outlined change through science as requiring the following elements/sequencing: (1) achieving the **confidence** of peer-reviewed science; (2) active **engagement** of scientists with stakeholders to increase the visibility of results and to reach consensus with the science community on what ought to be communicated; (3) **communication** of practical measures in a step-by-step fashion (as opposed to, for instance, recommending the transition from diesel generators to renewables in one step); and (4) initiating **dialogue** with relevant ministries in the region (for example where ICIMOD can act as a forum for bridging science and government, on the one hand, and the public, on the other). The rationale behind this path is that policy-makers are in need of concrete figures in order to capture their attention: e.g. what is the economic cost of air pollutants versus the cost of mitigation measures? The Atmosphere initiative is well placed to work through this sequencing and to deliver an impact.

Effectiveness

The Atmosphere Initiative provides a broad framework for ICIMOD's work on atmospheric issues and their impacts on broader socio-economic issues. What ICIMOD is trying to achieve under the Atmosphere initiative is a new (or unusual) approach that bridges science, community and policy. Therefore, there are no institutional structures and practices, and no "memory" to draw on to compare this initiative to.

Tracing shifts in intended outcomes and outputs

In order to assess the progress of the Atmosphere initiative against outcomes and intended outputs, it was necessary for the review to trace the framing and development of intended outcomes and outputs in the Atmosphere initiative documents over time, recognising where this has coincided with the broader process within ICIMOD of establishing Regional Programmes, and the fine-tuning of the results chains of its initiatives.

In terms of changes over time in the Atmosphere Initiative's results chain, the shift between 2011 and 2012 saw a more focused thinking about the outcomes for the Initiative. The 2011 version provides a policy angle, but the outcomes also suggest a strong element of knowledge production and establishment of particular infrastructures to support data collection and analysis. The 2012 outcomes provide a sharper focus on a longer term vision: impact of SLCF, awareness at policy and stakeholder level, and capacity and institution building. This broader approach is also translated onto the Regional Programme and harmonised Atmosphere Initiative outcomes, where the infrastructure set up for data collection and analysis translates to regional capacity and policy-level action taken on atmospheric issues.

Incorporated into the Regional Programme on Cryosphere and Atmosphere, the Atmosphere Initiative is harmonised into the Programme's results chain framework. However, whilst the logical framework for the Regional Programme is fixed by the ICIMOD Board of Governors for the 2013 to 2017 period, the one for the Atmosphere Initiative is not and can change. In working towards this Regional Programme, Sida requested that the original Outputs of the BC and SLCF project did not lose detail within the broader framework. In addition, the various strands falling under the Atmosphere Initiative mean that there are a number of results chains that have been (re)worked into the Regional Programme.

The 2012 Inception Workshop (referred to earlier) served to sharpen the outputs of the initiative, particularly to integrate gender issues and to provide a reasonable scope for the initiative activities; the rationale for all of the changes are clearly detailed in the Inception Report (and in part, the level of detailed responses to Sida requirements for clarification of changes, as well as comments during

inception consultations). A similar exercise was carried out by ICIMOD in matching Regional Programme and harmonised Atmosphere Initiative outputs to the original Sida project ones. The outputs as noted suggest that the Atmosphere Initiative places a strong focus on establishing the infrastructure to support ICIMOD and regional actors in the long term to act on atmospheric issues; the production of materials and knowledge, as well as capacity building of institutions (equipment and human resources); and establishing effective linkages with policy-makers and stakeholders.

Progress against delivery of outputs and intended outcomes

ICIMOD's Atmosphere initiative is the first attempt in the region for integrating science, community and policy in relation to an atmospheric issue of local, national and regional importance. Whilst still only two years into its work, the initiative is assessed as being on track in terms of delivering on its outputs. Table 3 below summarises output delivery aligned to the expected end of initiative outcomes.

Table 3: Review of delivery of Atmosphere Initiative outputs aligned to expected outcomes

Expected end of Initiative outcomes	Delivery of related Outputs
Enhanced scientific understanding on SLCF and black carbon, and ICIMOD as a data and modelling centre	As part of the process of generating improved knowledge on emissions (including socio-economic determinants) an account of the existing state of knowledge about atmospheric issues focusing on emissions, atmospheric processes and change, impacts and mitigation options in HKH region was prepared within four baseline reports. Knowledge gaps were identified for each section. Important gains on atmospheric processes knowledge are being achieved through the international atmospheric field research campaign 'Suskat-ABC' for understanding atmospheric processes, and sources and impact of air pollution in and around Kathmandu Valley. This has already resulted in the preparation of 20+ peer reviewed paper for a special issue ofthe open access journal 'Atmospheric Chemistry and Physics'. Atmospheric observatories in Gedu, Bhutan and Ichhyakamana, Nepal in collaboration with respective national governments are in the process of being established. An atmospheric modelling centre has been set up at ICIMOD with four scientists working full time on modelling. WRF-Chem, state-of-the atmospheric model that computes meteorology and chemistry simultaneously, was set up and training courses held for demonstration and capacity building in June 2014. This included four instructors from the original model developer and the training of 20 students from six countries.
Policy options on SLCF effectively disseminated	Early engagement with policy makers is proving to be productive. An important initial step was the raising of awareness about SLCF issues among policy makers, media, business community and students through separate presentations made to each of these groups. Newspaper articles, newspaper and TV interviews by the scientists, a press conference and press releases were major steps taken to disseminate the information. An article on the impact of SLCFs on mountain areas was published by Nepali and Indian, Bhutanese, Bangladeshi and Pakistani newspapers.
Policy development for policy options Black Carbon – regional framework	A strong basis for engaging with RMC partners in ways that build their capacity to understand and to implement policy that tackles black carbon has been initiated. In Bhutan and in Nepal national institutions have requested ICIMOD's assistance in drawing appropriate national strategies.

Expected end of Initiative outcomes	Delivery of related Outputs
Tested and disseminated Actionable measures (technologies, policies) to reduce SLCF concentrations and their impact	A field study with partners to assess the performance of fan assisted bio fuel cook stoves in mountain valleys was initiated to assess reductions in outdoor and indoor air pollution and associated health, socioeconomic and gender benefits. An important linkage has been formed between the Atmosphere Initiative and CCAC. ICIMOD hosted the CCAC's Working Group and initiatives' meetings in Kathmandu in February 2015.

One of the most noticeable aspects of the progress of the Atmosphere Initiative is the volume of research outputs that are being generated. SusKat in particular seems to be quite effective (see Box 4 below) in the generation of data. Of particular note in SusKat are the Isoprene and benzene measurements in the Kathmandu Valley and Benzene measurements, taken in December 2012-January 2013, both of which marked important firsts in South Asia. The research produced valuable (counter-intuitive) results that highlighted the value of science and the need for a re-framing action. ICIMOD played a crucial role in the design of SusKat and the choice of measurement sites, as well as in enabling access through customs protocols to the scientific equipment used in these measurements by capitalising on its role as a regional institution, as well as providing finance.

The Atmosphere initiative continues to be active on publications. The document search for this review (as of January 2015) identified a number of publications, divided as follows: six research papers, four leaflets, one summary report, and 17 articles of press coverage (although in some instances these are the same articles published in various outlets). The material included under this rubric suggests that there will be a further 25 research publications by ICIMOD in 2015; a Special Issue of an academic journal with 23 articles from SusKat activities; and ideas for potential publications (presumably as research pieces).

Equipment capabilities seem to be another prominent feature of the Atmosphere Initiative, and relatively successful in that regard recognising the inevitable delays associated in working with and through government, which have at times slowed down project implementation.

The Atmosphere Initiative has a good profile in the region. An international workshop on 'Atmospheric Composition and the Asian Summer Monsoon' was held jointly with many international partners in June 2013 to assess: the increase in aerosol in Asia, their atmospheric heating and cooling effects, variations in amount of monsoon rainfall, convective cloud processes, and transport of air pollutants. The idea for establishing a Data Sharing Centre at ICIMOD also came up during the workshop.

ICIMOD also hosted a First Regional Atmospheric Science Workshop in June 2013, which provided a state of the art view on the subject. Discussions highlighted the need for mapping of area based pollutant concentrations, a regional monitoring plan, potential field campaigns, and collaboration and data sharing. In June 2014 the second regional workshop was held in Pokhara, Nepal involving 80 scientists, and MSc/PhD students from all eight regional member countries also attended the event. The proposal of including a winter fog study emerged from the discussions.

Box 4: Illustration of Relevance and Effectiveness – SusKat, Nepal

The 'Sustainable Atmosphere for the Kathmandu Valley' project runs with support from IASS, and it is employed here to highlight the relevance, effectiveness and potential impact of the Atmosphere Initiative generally, and of this strand in particular. SusKat runs alongside other strands supported by Sida, the Norwegian Government, and the CCAC, respectively.

SusKat offers an important and unusual opportunity to link the distinctive capabilities of different research institutions in order to explore effective mitigation prospects. Now co-branded with the Atmospheric Black Cloud Project as SusKat-ABC, it brings together a team of scientists to work beyond natural science in the policy sphere. Collaboration under the SusKat umbrella is more likely to be successful through ICIMOD as a coordination platform given its prominence in the region and the usual restrictions on science communities in India, China and Pakistan undertaking joint research. (These restrictions do not include networking and attending conference, but would extend to the type of collaboration under SusKat.)

SusKat's model for working across countries in the region through scientific teams is a good way for addressing questions related to the atmosphere in mountainous areas, based on serious cohort scientific research involving joint measurements. In applying this model, SusKat is paving the way for long-term impact by allowing the countries involved to become joint stakeholders in the research and its outcomes, and by conducting trans-boundary work of this nature. SusKat is considered one of the few examples where international science collaboration in the region is actually delivering, as opposed to intended collaboration that does not achieve its full scope. SusKat is significant in allowing for the deepening of these collaborative relationships; it also suggests a potential role for ICIMOD in the outreach of this growing regional environmental science community.

Cooperation arrangements between participating institutions are embodied in the 'SusKat campaign' MoU, which specifies both measurements and joint interpretation and publication of results for dissemination at a global level; MOUs include a window for longer-term cooperation. The way in which SusKat is being implemented through collaboration lays a strong ground for continuing cooperation and growth beyond the lifetime of the initiative; those involved and stakeholders more generally are interested in solving the problems that are affecting the region.

Efficiency

The Atmosphere Initiative has seen some differences between the initially proposed budget and plans in subsequent years. For instance, the fund disbursement for the precursor of the Atmosphere Initiative, the BC and SLCF project, was received from Sida in December 2011, meaning that the full amount was carried over to 2012. As such, the budget for 2013 for the Atmosphere initiative was considerably higher (than originally conceived) in ICIMOD's proposal to Sida. The justification for higher budget in 2013 included delays in ordering instruments; expansion in workshop organisation and participation in CCAC activities; the addition of the cook stove activity alongside the private donation in this regard; and an increase in required materials to be supplied and data procurement, as well as installation of materials.

It has taken time for ICIMOD to build up the full initiative team working from a standing start. This has been carefully done and the team (complement of 12 – 6 scientists with doctoral degrees from renowned international institutions, including four working full-time on modelling) now represents a critical mass that is now more effectively integrated into the wider ICIMOD structure.

The project work on cook stoves seems to be at a tangent to the main thrust of the initiative and it is questionable whether this activity should continue to operate in a way that draws on the management time of the initiative management team.

According to the ICIMOD Annual Report for the Atmosphere Initiative (2013), the Initiative is composed of a network of 27 partners divided into national, scientific, implementing and advisory partners. There is a strong presence of academic and research institutions amongst partners, with involvement from government agencies and ministries, and lesser presence of not-for-profit organisations and NGOs. The roles of partners vary from participation in research activities, to future ownership of the infrastructure for atmosphere observation and research. Of the 27 partners, 13 had been identified in a list of 35 potential partners in early stages of the initiative as possible contributors along the following lines: science relations collaboration, impact assessment, mitigation technology and field testing, and policy development. The initiative seems to have been able to adopt a relatively organic and incremental approach with partnerships of different forms emerging as the initiative unfolds.

Viability, Sustainability and Impact

ICIMOD was successful in engaging from the outset with a number of stakeholders and relevant actors of concern to the Atmosphere Initiative, i.e. the media, ministers, and so forth. The research was introduced as able to provide metrics that allow for revisiting existing policies. This approach stands in contrast with more traditional approaches to science in South Asia where the involvement of the stakeholder is peripheral at the outset, and where there is a risk of scientific data generated not translating or tallying with relevant interests. This tends to lead to bottlenecks in the science process. Engagement at different levels also allows for addressing cross-cutting issues in a more concerted and coordinated manner.

As such, SusKat is a case in point of how the initiative as a whole is functioning; it offers an innovative and potentially more effective and efficient avenue for linking research and policy/ awareness. The research design put in place by ICIMOD drew on the known existing problem, but built on it to emphasise the uniqueness of the Kathmandu Valley. So for instance, standard measurements have value, and they are added to the 'frontier' science aspects of the simultaneous cross-site measurements, which provide a much more convincing argument for policy influence (as opposed to localised results).

The Atmosphere Initiative has also achieved positive developments in terms of putting in place appropriate technology for researching and monitoring atmospheric issues. The incorporation of this aspect into the Atmosphere Initiative within national/ local institutions is promising in terms of viability provided sustainability elements are also put in place (financial and human resources, and appropriate training).

In terms of mitigation technology the brick initiative is an important area aiming to improve outdoor air quality and reduce black carbon emission. An efficient system for blowing air to regulate air flow during lightening the brick kilns is under trial for demonstration. Competition is proposed to be held for designing energy efficient and low emission cook stoves to identify best practices.

There are a number of ways in which the Atmosphere Initiative seems to be geared towards sustainability. First, the implementation of the Atmosphere Initiative relied on the expansion of the ICIMOD team working in this area. The broadening of expertise within ICIMOD on Atmosphere (and Cryosphere) issues can have positive sustainability implications for the organisation and for its continuing pivotal regional role in this area.

Second, the initiative details the purchase and installation of relevant infrastructure and the setting up of a number of observatories, which are intended to pass over to national (government) ownership. This provision has a bearing on the sustainability of the initiative. Whilst a positive step in itself, it is also imperative that there is a strategy for ensuring that there are funding and human resources planned, trained and available to carry over with responsibilities related to the maintenance and operation of this infrastructure. ICIMOD is working with Bhutan and Nepal national partners to calculate long term funding for stations, and the planning of training programmes for staff.

Thirdly, the Atmosphere Initiative provides a document where the Impact Pathway is detailed. This document is listed as incomplete, but provides a good overview of the thinking processes behind longer-term impact and sustainability. It is divided into Implementers – Next Users – End Users. To different extents, the actors identified are included in the Atmosphere Initiative.

Finally, ensuring that all data generated through the Atmosphere Initiative is made accessible in the public domain would contribute to longer-term sustainability and impact.

Concluding remarks on the Atmosphere Initiative

The Atmosphere Initiative is working in a relatively new and important area of science for the region (SLCFs and black carbon). The aim of the Initiative is to ensure that effective measures and policies are adopted to reduce air pollution and its impacts within the HKH region, to improve knowledge, and to enhance the capacity of partners in RMCs. Whilst still only two years into its work, the initiative is assessed as being on track in terms of its deliverables and the judgement of the review team is that its potential to make an effective contribution at outcome level remains high in relation to the following areas:

i) An enhanced scientific understanding in the HKH region of SLCF and black carbon
ii) Policy options on SLCF effectively disseminated
iii) Policy development for policy options Black Carbon – regional framework
iv) Tested and disseminated actionable measures (technologies, policies) to reduce SLCF concentrations and their impact

There were no significant constraints and/ or bottlenecks identified by the review. In just 2 years:

- black carbon, SLCFs and air pollution in general are now an established topic of discussion in the HKH region
- ICIMOD now have a critical mass forming to work on this topic across region
- China and India partners who already have large programmes are now attracted to ICIMOD as a partner in this area
- A basis has been established for an observatory network

The initiative is at the heart of ICIMOD's Regional Programme 'Cryosphere and Atmosphere' and its early successes engaging with immediate, highly visible and pressing issues, including that of winter fog, bodes well for this broader growing area of ICIMOD's work and influence in the region.

The potential of science collaboration within the HKH region is being realised, and outside of formal data sharing arrangements there is increasing sharing of data between universities involved in SusKat through the ICIMOD conduit. The recent Pokhara consensus reflected how coordinated science is an important pre-requisite for a coordinated policy response

ICIMOD now has the requisite human resources and computational resources (in house) to do modelling centre work. It is believed to have the largest concentrated set of modellers on air quality in South Asia. ICIMOD's longer term aim as part of expanding its sphere of influence on atmospheric modelling is to become a 'knowledge hub' for model users and bring the regional perspective to this. There are currently thought to be around 10-12 centres in south Asia with modelling capacity.

Capacity building is an important part of the Initiative. There is a relatively small group in the region working on mountain atmospheric issues. The mountain environment in atmosphere science teaching in respect to appreciating the challenges of the interpretation of data is particularly valuable. With an emergent group of younger scientists the opportunity to nurture a group who are more agile in their thinking and thereby more open to the 'policy influence priority' that this initiative brings, is clearly there. This includes consideration of 'what kind of framing of science issues connects with policy makers and with the media' in ways that a more traditional scientific research setting may struggle with. For example: readily opening up the space for policy makers to flag what questions/ issues they

are grappling with; or what is the ($) effect of visibility decline in the Kathmandu valley (bringing science data to economic impact)?

The ICIMOD team have shown 'agility' as an early mover in this new space; providing a science sharing forum, and identifying winter fog as a priority topic provides a good entry point for building collaboration. A clear view has emerged on the significant role that ICIMOD can play in this space as the attention has shifted from a sole focus on science campaigns to the human impacts. This introduces the opportunity to support strategizing with the RMCs on their science plans and the coordinating mechanisms for these plans (providing the basis for a greater contribution to change in the region).

An important element going forward is the links with the Climate and Clean Air Coalition (CCAC), which has expanded rapidly from the six founding members to over 100. However, within the region only Bangladesh is a member. The CCAC working group meetings – where ICIMOD have been active – are attended by the climate negotiators, which provides an important and relatively frequent channel of policy influence and a forum within which it is possible to put the spotlight on mountain issues.

An area of slower progress has been the more grounded actions on the mitigation front and the associated research papers on this activity.

Common strategic aspects of HICAP and the Atmosphere Initiative

This part of the report looks at both initiatives (together) from the perspective of how they are strategically contributing at a regional and global level. It also considers – cross cutting – strategic themes found through the review to be common to the two Initiatives, and considered to be of wider relevance to ICIMOD, its regional programming, and its associated organisational change in relation to the Medium Term Action Plan 2013-2017.

Contribution at a regional level

Both HICAP and the Atmosphere Initiative offer a unique opportunity for regional cooperation in the HKH region. The trans-boundary nature of climate change adaptation and atmospheric issues, respectively, opens up opportunities for collaboration between institutions working on these issues. The potential for this collaboration could be expanded further under these initiatives. For instance, research activities on similar issues across the regions could serve as a platform for exchange of findings and recommendations for long-term impact; commonalities and divergences in community adaptation patterns could be compared and contrasted; and analysis of atmospheric information could advance a novel understanding of development needs in the region.

The implicit capacity development element of both initiatives is important, particularly in nurturing the opportunities for younger scientists/ researchers in areas of new thinking and practice.

Global Reach

Both initiatives have demonstrated a strong potential for international reach in terms of dissemination of findings. The strong research elements of HICAP and the Atmosphere Initiative have been reflected in the publication of peer-reviewed publications, the participation in academic conferences, and involvement in high-level policy forums.

The visibility provided by these initiatives is highly valued by partners. Chinese partners, for instance, highlighted how their involvement in HICAP had heightened their profile at a regional and international level. This visibility can in turn foster further collaborations at an international level, as well as being the basis for the production of valuable pieces of research and findings to inform other actors' projects and initiatives in the area. Together this can increase the global recognition for the Himalayan region within the global dialogue on climate change adaptation/ mitigation. Grid-Arendal– an important bilateral player in the global climate change arena – managed events in Norway in 2013 and raised the visibility of HICAPs work.

Common Strategic themes

Shared characteristics

HICAP and the Atmosphere Initiative share three main characteristics. First, they both fall under a broader Regional Programme, and as such their results chains are harmonised with a larger framework that deals with 'Adaptation to Change' and 'Atmosphere and Cryosphere', respectively. Their inclusion within these Regional Programmes was the result of an internal review process within ICIMOD for sharpening the outputs, outcomes and impacts of HICAP initially, and then of its work more generally. Nonetheless, HICAP started out as a stand-alone project; and even though the Atmosphere Initiative's genesis is in the Black carbon and SLCF, it benefitted from the learning process that the HICAP review contributed to ICIMOD's work.

Second, HICAP and the Atmosphere Initiative bring together cross-cutting issues, and operate at various levels: communities, government-affiliated organisations, research institutes, and the private sector. As such, they advocate a distinctive approach for viewing, examining and acting on climate change adaptation and mitigation issues, respectively. Their combination of these issues and levels is persuasive, but it runs into constraints in terms of translating the strong research expertise and grounding into concrete practices that will likely be carried on beyond the lifetime of the initiatives.

Success measures – ICIMODs Strategic Framework

Measures of success at a strategic goal level within ICIMOD's Strategic Framework and Results Framework include:

- Innovations (based on well documented analysis) are out-scaled past the programme boundaries – *to be achieved through* ICIMOD conducting **action research** to develop replicable innovations and pilot testing, and upscaling these with implementation partners such as governments, development agencies and NGOs.

- Communities, government agencies, practitioners and scientists use the data and information generated and shared by ICIMOD and its partners – *to be achieved through ICIMOD* operating as an effective regional knowledge hub on mountains. Developing policy-relevant information through **applied research** and technology transfer; serving as an 'open house' for knowledge initiatives; and synthesizing results developed (including from other contexts) and scaling them up and out to other contexts and realities in the HKH region.

- The policies and practices of RMCs influenced by the work of ICIMOD and its partners *to be achieved through* knowledge being put into use for change and impact; knowledge sharing initiatives as a source of inspiration, innovation and questioning; helping in the design of future RMC strategies; and the establishment and continuation of [regional] collaborative programmes among the RMCs for more effective integrative research and policy relevant advice ultimately leading to **transformative ideas and actions.**

Taking this lens to review the experience to date of HICAP and the Atmosphere Initiative gives rise to a number of common strategic issues, all of which have a wider relevance to the delivery of ICIMOD's Regional Programmes and its broader organisational changes.

Establishing an effective research – policy linkage. Both initiatives convey a specific assumption about the modality of policy influence. This assumption relies on two main elements: that the production of scientific research outputs will lead to changes in policy practices; and that the involvement of government-affiliated partners will eventually cascade to shifts in decision-making and priorities. There is not a strong evidenced basis for taking for granted that scientific evidence will translate into policy. The thinking process behind the initiatives and revisions on the role of policy vs. research suggest that this point has been recognised by ICIMOD. More critically, however, and based on the interview data, there seems to be a gap in terms of partners' ownership, and therefore their ultimate incorporation of scientific findings and practices in a manner that, in the long term, may influence policy through partnership networks. The latter raises doubts over the ability of the two initiatives to influence change *if the conclusion of policy influence given scientific evidence proved to be a solid one.*

On both counts, the modality for influencing policy through research can be further sharpened in ways that take account of recognised channels of influence (in context), gives greater attention to a sub-basin level for the process of policy analysis and policy engagement, and sees the synthesis step of sub-basin level reports as a beginning not an end. This would include using the valued frame provided by the HICAP synthesis to bring into view the research findings of others (beyond HICAP/ beyond ICIMOD), and through this facilitating the provision of less but stronger and more targeted messages to policy makers in the sub-basin context. In taking such an approach, the implications of scientists within ICIMOD being ready and able to work on generating their own 'new data', as well as working

with other 'existing' data, would need to be recognised; and incentives within ICIMOD would need to be managed accordingly. Research projects often have an inbuilt tension of favouring peer reviewed papers.

Pushing harder and faster on gender equality. ICIMOD has taken a number of steps to 'hard-wire' the issue of gender equality into its regional programming. HICAP is a good example of this, and within HICAP there is a real potential to capitalise on this element. That said, there has been some hesitation in pushing this agenda more firmly in the interface between research outputs and policy discourse. This may well be reflective of the policy neutral position that ICIMOD occupies as a trusted regional organisation. Given the wider maturing of thinking on gender equality within RMCs, and the primacy of how climate change is affecting women, there is an opportunity – and an important need – for HICAP to be strident in pushing the 'so what' question on gender in its synthesis work. By setting out a highly visible and unequivocal position on gender as part of the synthesis would prompt a clearer reaction from stakeholders, and an ensuing debate on actions would be needed. Such an approach would seek to capitalise on the 'real' regional dimension of ICIMOD and its ability to further the conversation within and between its members.

Selective on when, where and how to pilot. HICAP got into 'pilots' belatedly. The assumption is that in order to be effective in the policy influencing space, there is a need to have something on the ground to show, which will in turn generate interest on the part of those with decision making authority. The review team did not find good evidence to support this view. Moreover, whilst recognising that within HICAP there has been the aim for such pilots to be led by decision makers in local government (and thereby developed and assessed on their suitability to the local system), the experience suggests that the pilots have become something to be 'handed over' without having been assessed as working or not on a limited 'project completed' type basis. More clear thinking is required on if/ where/ how a pilot exercise is to be considered an effective action within a pathway to influence policy action, and for eventual long-term impacts. The suggestion is that such actions would be very limited, and where they exist may well be found/ best placed within the programming of other organisations/ programmes from which HICAP could then benefit.

Actively managing differentiated partnerships: Both HICAP and the Atmosphere Initiative work with and through multiple partnerships. In the delivery of its Strategic Framework ICIMOD distinguishes its partnering recognising:

- A limited number of **nodal (strategic) partners** within the region– for example the national institutions that RMCs have recently created in response to climate change, and also '**strategic alliances' with organisations beyond the region** (both for global outreach and to bring relevant information into such regional programme settings).
- '**Cooperation partners**' that are action oriented (and have objectives that are the same or similar to ICIMOD's at the operational level). ICIMOD chooses these partners based on their proven capacity to work with communities and generate positive change. Moreover, such partners offer central channels for feedback and may constitute the main way ICIMOD can learn from its programmes.

Within both HICAP and the Atmosphere Initiative there would be merit going forward in more clearly differentiating between what types of partners are involved, and the nature of the resulting relationship that needs to be managed. This would also provide a framework within which to address: (i) the different cost bases that each promoter brings in pursuit of the HICAP objectives/ Regional Programme outcomes, and (ii) the expectations within ICIMOD of how their working with an international organisation (promoters) would help to take ICIMOD and the sub-region more firmly into the global discourse on climate change adaptation and mitigation.

The above approach would build on the recent moves within ICIMOD to strengthen its overall thinking and practice on partnering. It would also provide a more informed basis on which to consider the partnering load that is both desirable and manageable going forward. This is particularly

important as the emphasis within HICAP turns to the major opportunity (challenge) of the synthesis stage, marking the transition of the 'research' to the policy reality space.

ICIMOD's continuing journey as a regional organisation

The experience of HICAP and the Atmosphere Initiative suggests that that the step of moving from scientific (applied and action) research through to knowledge products to influence on policy and practice is a much bigger 'ask' than the initial challenge of the science / conducting the research itself. This 'next step' also brings a (positive) challenge to how ICIMOD operates and its continuing journey as a regional organisation, transitioning to an operation that is fully geared to deliver on its strategic framework/ regional programmes. This aspect is not directly acknowledged or addressed within the original design of HICAP and Atmosphere initiative.

In this journey, both initiatives have (in their own way) proved to be a valuable – and now organisationally accepted – prototype for ICIMOD to work through different sets of challenges. As a 'research programme' HICAP was initially seen by ICIMOD scientific staff as an opportunity (in their respective divisions) to do *their* research. Now there is a shift to recognising HICAP as a common (beyond research) objective in which the research element is tailored in ways that go beyond a simple research question(s), and which demands transdisciplinary working through the regional programme frame across the organisation. It also recognises that there is a need to have the buy in from those who are the client for the knowledge, so this can then accordingly frame and support the pitch of the scientific knowledge. HICAP, as it moves into the synthesis step, is now encountering this new important frontier for ICIMOD of knowledge messaging: providing something tangible for RMC Governments (national/ sub-national level) to engage in, i.e. presenting a view on what is happening now through 'place based studies', melded with an informed view of the long-term (models/ scenarios).

Recommendations

The review concludes by providing a limited number of recommendations (at strategic and tactical levels) that should contribute to the enhanced implementation of HICAP and the Atmosphere Initiative, recognising the importance they have within the wider organisational trajectory of ICIMOD.

Strategic moves

1. The three promoters should - as a priority – collectively explore ways in which the critical synthesis step for HICAP can have a sufficiently strong and resourced in-country focus, and reflect real dialogue and challenge between the promoter organisations in ways that can best serve the critical sub-basin (meso level reality) knowledge gap, setting the platform for national and regional action on such knowledge.

2. The ICIMOD HICAP team – as a precursor to the above synthesis process – should review some of the key assumptions on beneficiaries and the operating context: pathway to long-term impact of knowledge development on people's lives through policy change. This should include consideration by the promoters of where they feel that the potential biggest 'hit' from the synthesized information of HICAP can be achieved.

3. The three promoter organisations should ensure there is internal clarity within their partnership on what HICAP aspires to – where it 'sets the bar' - in terms of policy influence; is success judged on a level of awareness on issues informed by research or is success the translation of awareness through to consideration and interpretation within policy, strategy and programming processes.

4. The ICIMOD HCAP team should complete a quick and light review of the existing work on pilots (for upscaling). The aim would be to inform a rationalisation and a refocusing of HICAP's efforts and resources around influence on the policy process through the knowledge generated in bringing together packaged research and place based studies.

5. ICIMOD in discussion with the RMCs should explore the opportunity for the impact of HICAP to also be considered in terms of how it could potentially contribute to an 'influencing' role on the thinking amongst the donor community on how adaptation funds provided bilaterally within the HKH region are spent (regional allocations/ donor priorities). It would be useful to look through RMC dialogue and action to accelerate the pace at which funds available through the various global financing mechanisms are put to work in a more coherent way.

6. ICIMOD through the platform created by the early success of the Atmosphere Initiative, should explore opportunities for supporting strategizing in the RMCs on their science plans from a perspective of fully incorporating human impacts, and the nature of the regional coordinating mechanisms for their science plans.

Tactical changes

7. For both HICAP and for the Atmosphere Initiative, ICIMOD should review and ensure there is the necessary clarity and level of detail on the respective *intermediate* outcomes – the mechanisms – through which a longer term/ higher order outcome and impact (as detailed within the Regional Programme Strategic Results Framework will be delivered.

8. ICIMOD should ensure that sufficient resources are focused on this intermediate level of outcome monitoring within the two initiatives to support their steering through to 2017, as well as to ensure that the rich contribution story of the two initiatives can be adequately captured, disseminated and learnt from (both internally within ICIMOD and externally) within the wider and overarching results monitoring (impact pathways) framework of the Regional Programme.

9. For HICAP the three promoter organisations should take immediate steps to more clearly differentiate between what types of partners are involved, and the nature of the resulting relationship that needs to be managed through to 2017 and with a view to impact beyond that.

10. The three promoter organisations should acknowledge and address the need for a cultural shift within the programme operations of HICAP to give greater attention to the 'synthesis task – the real test and potential impact of HICAP at the macro and meso level – and shift the emphasis away from the 'project tasks' much of which is focused at the micro (research activity and/ or community pilot level

11. The ICIMOD HICAP team should look for the immediate opportunities for local organisations – HICAP partners - to more strongly push the evidence from grounded gender research into the dialogue at the local level on strategy and programming within government.

12. The Atmosphere Initiative team should review the 'fit' of the cook stove project work with the focus and niche of the Initiative. Consider outsourcing this to another partner and dropping it from the management team.

Annex 1: Terms of Reference for An Independent In-Depth Review of ICIMOD's regional initiatives: Himalayan Climate Change Adaptation Programme (HICAP) and the Atmosphere Initiative

1. **An Overview of the Initiatives**

The review will cover the following two initiatives which are in different stage of implementation. Details are given in annex A. Both the initiatives are multi years and funded by more than one donors.

a. The Himalayan Climate Change Adaptation Programme (HICAP)

The Himalayan Climate Change Adaptation Programme (HICAP) initiative is being jointly implemented by ICIMOD, GRID-Arendal, and the Center for International Climate and Environmental Research – Oslo (CICERO), with financial support from Sweden and Norway. GRID-Arendal and CICERO are Norway-based organizations with competence in communication and research, respectively. With 21 regional and 4 global partners and with a focus on producing high-quality scientific knowledge through cutting-edge research, HICAP aims to reduce the knowledge gap on climate change in the region by improving our understanding of vulnerability to change and identifying opportunities and potential for adaptation, thus contributing to efforts to enhance the resilience of mountain people, particularly women. Geographically, the programme covers five river sub-basins: the Upper Indus (Pakistan), Koshi (Nepal), Upper Brahmaputra (Tibet Autonomous Region, China), Eastern Brahmaputra (Assam, India), and Salween-Upper Mekong (Yunnan, China). The programme is supported by Norway in the first four sub-basins and by Sweden in the fifth. Launched in September 2011, this year marks the third full year of the initiative and most of its research and pilots have started yielding initial results. Initially Norway and Sweden funded parts were designed separately and had two sets of logframe. During the course of implementation all parties agreed to have a common logframe and treat this as a single project.

b. Atmosphere Initiative

ICIMOD's Atmosphere Initiative was established in January 2013, as part of the Regional Programme on Cryosphere and Atmosphere, to improve understanding of atmospheric issues and to promote regional cooperation for addressing such issues in the HKH region. The initiative is working to ensure that effective measures and policies are adopted to reduce air pollution and its impacts within the HKH region, to improve knowledge, and to enhance the capacity of partners in RMCs. The initiative started off with financial support from the government of Sweden. Its log frame has since been enlarged and incorporated into that of ICIMOD's Regional Programme 4, Cryosphere and Atmosphere, with substantial additional support from the government of Norway. Additional project support also came from the Institute for Advanced Sustainability Studies (IASS) for the SusKat work and will soon come from UNEP through the Climate Clean Air Coalition.

2. **Purpose of the Review**

The review shall analyse whether or not the initiatives have achieved, or are on the right track to achieve, their set objectives/outcomes. During the in-depth review, focus shall be on relevance, efficiency, effectiveness, results and sustainability. If any deviations/ bottlenecks are detected, the consultants should provide concrete input on how these issues could be solved. The Consultants will

also, if deemed to be necessary, support and advise ICIMOD/Swedish Embassy/ Norwegian Embassy directly on issues related to the management and implementation of the Programme. The findings of the in- depth review are foreseen to provide concrete inputs for enhanced implementation of the HICAP and Atmosphere Initiative.

3. **Scope of work**

- To assess overall performance against the programmes objectives as set out in the current Log-frames of the Regional Programmes;
- To assess the relevance, effectiveness, efficiency, impact, sustainability and viability and of the programmes especially on the obtained and expected results based on RAF, and provide analysis of any deviation there from;
- To critically analyse the implementation and management arrangements of the Programmes. This will also include partnership management. For HICAP promoters' model (ICIMOD, CICERO and UNEP-GRID ARENDAL) need to be assessed in relation to their specific roles given in their agreement.
- To list and document initial lessons concerning initiatives design, implementation and management.
- To assess initiatives outcomes to date and review planned strategies and plans for achieving the overall objectives of the Programmes within the timeframe;
- (To assess project sustainability) Identify and analyse if there are conditions in place order for the long- term sustainability of the programmes.
- To assess how the initiatives strategically have addressed, integrated and operationalized gender and governance perspectives in the respective programmes. Particularly asses how HICAP Initiative has addressed gender issues in relation to climate change adaptation.
- The review will provide guidance for the future initiatives activities and, if necessary, suggest implementation and management arrangements;
- Review how these initiatives fit into MTAP and the overall goal of ICIMOD
- To review the balance between research and advocacy and policy development in the respective countries.
- To review the geographical outreach of the initiatives: Are the outputs from the programmes covering/ benefitting all the member states? To look at avenues for taking results from these initiatives to scale - both horizontal and vertical and to give some achievable suggestions along these lines.

4. **Review Criteria**

Keeping in view the initiatives' result frameworks and implementation plans, the review shall enquire and assess the following aspects:

- *Relevance*: Are the Initiatives answering the real needs of the stakeholders? Did it answer the identified problems at its conception level?
- *Efficiency*: To what extent are the resources deployed in generating target outputs? Is the initiative executed in the best possible way?
- *Effectiveness*: Are the expected results being achieved? What has worked the best in achieving the intended results thus far and what did not work? Are there un-intended results?
- *Impact*: Are there any indication that initiatives are achieving their intended long term results including knowledge development and impacts on people's lives?
- *Viability*: Are the developed methodologies, framework, technologies, generated knowledge and evolved practices sound, gender sensitive and equitable? Are the crosscutting issues, like gender equality, environmental protection, and poverty reduction taken into account?
- *Sustainability*: Are the positive results of the initiatives likely to be sustainable in the target areas and beyond?

5. **Review Assignment**

The review team will be responsible for the following tasks:

- Design, prepare and submit the Review plan, instruments, and structure of the Review report;
- Study all relevant materials and publications produced by the initiatives and partners well before field visits and interactions at ICIMOD;
- Review and discuss the programme implementation activities with initiative staff and partners;
- Conduct interviews with key stakeholders (e.g. partner institutes, academicians, researchers, practitioners, media etc.) during field visits and through skype or calls;
- Interact with the direct initiative partners and wherever possible also interact participants of training and workshops about the initiatives relevance and effectiveness;
- In case of HICAP, particularly analyse, how the role of women in climate adaption has been promoted and enhanced
- Compare results reached to the tasks set in the initiative documents;
- Analyse methods and techniques used to obtain the results;
- Analyse participation of women in the initiatives activities (equity);
- Assess the impact of the programme on the social, economic and ecological/ environmental perspective;
- Assess the effectiveness and added-value of the overall programme in general and the current initiatives in particular;
- Document cases and stories of programme successes if any at various levels;
- Gather evidences of the initiatives of any successes taken up at national, regional and international level.
- Recommend key strategies and roadmap for further action in achieving initiatives intended outcome and goals
- Provide de-briefing to ICIMOD, SIDA and Norwegian Embassy in Kathmandu on key findings of the review;
- Submit a draft report to ICIMOD,SIDA and Norway for inputs and finalization; and
- Finalize the report incorporating the suggestions and comments received from SIDA, Norway and ICIMOD.

6. **Review Team Composition**

The proposed review will be carried out by gender balanced team of three consultants:

- Lead consultant - expert on areas of international projects' monitoring and evaluation with the focus on Climate Change adaptation, mitigation, policy influencing and trans-boundary cooperation
- Consultant – expert on areas of environment and atmospheric science having in-depth knowledge of HKH region
- Consultant – expert on areas of economics, social and gender issues additional knowledge on natural resources management, trans-boundary cooperation, knowledge management and communication would be an asset

The team will be led by lead Consultant, who has overall responsibility over successful completion of the review and finalizing the report. The team leader is expected to be familiar with the region and have basic knowledge of the HKH area (such as trans-boundary waters, trans-boundary cooperation etc.)

7. **Data Availability**

The Initiative team and Strategic Planning and Monitoring (SPM) unit at ICIMOD will provide necessary secondary information to the Reviewers. The following documents will be provided to the evaluation team well in advance of the fieldwork.

- Project documents
- Progress reports from ICIMOD and program implementing partners
- List of the participants in workshop and training programmes

- Minutes of the steering committee meetings if any
- Details of collaborative activities and sample LoAs with partners
- Publications and papers
- Project Internal Review Reports
- ICIMOD's Strategic Framework and Medium-Term Action Plan

8. **Field Visits**

The Review Team will visit China, India and Nepal, however the team may interact with any partners from any other country via telephone, Skype or any other media. Atmosphere related review will take place only in Nepal and duration of the specific consultant will be determined accordingly.

9. **Expected Duration and Budget**

The assignment will require 45 days to complete and budget is available in detail. The duration of the Review will be January- February 2015. The total duration will not exceed more one and half months.

10. **Reporting**

The Review Team will report to the Head of Strategic Planning, Monitoring and Evaluation of ICIMOD for all the given tasks mentioned above.

11. **Budget**

Total budget for the review will include daily rates of consultants, VISA and local transportation and overhead which is **USD 47,300**. Air tickets (economy) and accommodation costs and VAT will be provided on actual basis as per ICIMOD rules.

The payment will be made in two instalments (50% - 50%):

- First Instalment upon signing the contract.
- Second instalment upon satisfactory completion of the review.

Initiative /Project number:	1-901-182-0-p/ 1-901-125-0-p
Project title:	Himalayan Climate Change Adaptation Programme (HICAP)
Duration:	2011- 2016
Funding Agencies	Government of Norway and Sweden
Executing Agency:	ICIMOD
Promoters	CICERO and GRID- Arendal
Location: Sub Basins	Upper Indus (Pakistan), Koshi (Nepal), Upper Brahmaputra (TAR, China), Eastern Brahmaputra (India), and Salween–upper Mekong (China)
RMC Coverage :	Pakistan, Nepal, China and India
Linkages to Regional Programme:	Adaptation to Change
Partner Organizations:	**Bangladesh** Institute of Water Modelling (IWM) **China** Asia International Rivers Center (AIRC)/Yunnan University Chengdu Institute of Biology (CIB) Ecological Environment Protection Research Center, Yunnan Institute of Environmental Science Institute of Geographic Sciences and Natural Resources Research

Initiative /Project number:	1-901-182-0-p/ 1-901-125-0-p
	(IGSNRR) Kunming Institute of Botany (KIB) – including Centre for Mountain Ecosystem Studies (CMES) Social Development Institute, Sichuan University Women and Development Research Centre (WAD), Yunnan Academy of Social Sciences (YASS) **India** Aaranyak, India Indian Institute of Technology (IIT) Delhi Indian Institute of Sciences (IISc) Bangalore **Nepal** Center for Environmental and Agricultural Policy Research, Extension & Development (CEAPRED) Koshi Victim Society (KVS), Nepal Nepal Development Research Institute (NDRI) South Asian Network of Environmental Economists (SANDEE) World Wide Fund for Nature (WWF) Women Organizing for Change in Agriculture and NRM (WOCAN) **Pakistan** Aga Khan Rural Support Programme (AKRSP) International Water Management Institute (IWMI) Pakistan Agriculture Research Council (PARC) World Wide Fund for Nature (WWF) **International** Bjerknes Centre for Climate Research (BCCR), Norway Futurewater, The Netherlands International Institute of Social Studies, The Hague, Netherlands University of Sussex, United Kingdom
Total Approved Budget: Please mention if there are adjustments in different times	MFA Norway (2011- 2017)- 15 million USD Sida- (2011- 2016) -3.76 million USD
Project Manager/Coordinator:	Nand Kishor Agrawal
Type of evaluation (mid-term or final):	Mid Term- In-depth Review
Time period covered by the evaluation:	45 Days
Geographical coverage of the evaluation:	China, India and Nepal

Annex A. 2 Atmosphere Initiative

Initiative /Project number:	Atmosphere Initiative (1) PROJ0109 (2) PROJ0121 (3) PROJ0105 (4)PROJ0076
Project title:	(1) Norway MTAP III Support - Atmosphere (2) Mitigating Black Carbon & Other Pollutants [from brick production] (3) Sida Black Carbon [Reducing the Impacts of Black Carbon and Other Shortlived Climate Sources] (4) Sustainable Atmosphere for the Kathmandu Valley
Duration:	(1) 10 Dec 2013 - 31 Dec 2017 (2) 28 Oct 2014-30 Sept 2016 (3) 1 Dec 2011 - 31 Dec 2015 (4) 1 Sept 2012 - 31 July 2014
Funding Agencies	(1) Government of Norway (2) UNEP/Climate and Clean Air Coalition (3) Sida / Government of Sweden (4) Institute for Advanced Sustainability Studies
Executing Agency:	ICIMOD
RMC Coverage :	Bhutan, Nepal
Linkages to Regional Programme:	Part of RP4

Partner Organizations:	**With signed agreements:** National Environment Commission, Bhutan Patan Academy of Health Sciences, Nepal Nepal Health Research Council (NHRC) Maha Sanchar, Nepal University of Virginia Indian Institute for Science Education and Research (IISER), Mohali IASS Potsdam Climate & Health Research Network (CHERN) **Research Partnerships:** Aryabhatta Research Institute (ARIES), Nainital University of Montana University of Iowa Emory University National University of Science & Technology, Pakistan IST Pakistan Dhaka University Northsouth University (Bangladesh) IIT Kanpur IISC Bangalore IIT Bombay Dibrugarh University Sherubtse College (Bhutan)
Total Approved Budget: Please mention if there are adjustments in different times	(1) ~USD 4.93 million (2) ~ USD 611 K (3) ~ USD 4.13 million (4) ~ USD 605K *** amounts depend on exchange rate assumptions
Project Manager/Coordinator:	Arnico Panday (RPM: Arun Shrestha)
Type of evaluation (mid-term or final):	Mid Term- In-depth Review
Time period covered by the evaluation:	45 Days
Geographical coverage of the evaluation:	Nepal

Annex 2: People Interviewed

Nepal

1. David James Molden, Director General, ICIMOD
2. Elklabya Sharma, Director Programme Operation, ICIMOD
3. Farid Ahmad, Head Strategic Planning, Monitoring and Evaluation, ICIMOD
4. Lalu Maya Kadel, Monitoring and Evaluation Analyst, ICIMOD
5. Laxmi Dutta Bhatta, Ecosystem Management Specialist, ICIMOD
6. Madhav Dhakal, Hydrological Analyst, ICIMOD
7. Dhrupad Chaudhury, Programme Manager, Adaptation to Change, ICIMOD
8. Nand Kishor Agrawal, Programme Coordinator, HICAP, ICIMOD
9. Neera Shrestha Pradhan, Associate Coordinator, HICAP, ICIMOD
10. Arun Bhakta Shrestha, Regional Programme Manager, River Basins, ICIMOD
11. Arnico Panday, Programme Coordinator, Atmosphere Initiative, ICIMOD
12. Bidhya Banmali Pradhan, Associate Coordinator, Atmosphere Initiative, ICIMOD
13. Anita Karki, Gender and Energy Analyst, ICIMOD
14. Bhupesh Adhikary, Air Quality Specialist, ICIMOD
15. Haiya Zhang, SSA, Knowledge Management and Communication, ICIMOD
16. Vanisa Surapipith, Atmospheric Modeller, ICIMOD
17. Prakash Bhave, Senior Air Quality Specialist, ICIMOD
18. Soumyadeep Banerjee, Migration and Population Specialist, ICIMOD
19. Suman Bisht, Senior Gender Specialist, ICIMOD
20. Sundar Kumar Rai, Water and Adaptation Analyst, ICIMOD
21. HICAP Team, ICIMOD
22. Atmosphere Team, ICIMOD
23. Ganga Nepal, Sayapatri Krishak Samuha- Mahadevsthan, Naubise, Kavre
24. Yasodha Sapkota, Sayapatri Krishak Samuha- Mahadevsthan, Naubise, Kavre
25. Sushila Timilsina, Sayapatri Krishak Samuha- Mahadevsthan, Naubise, Kavre
26. Radhika Parajuli, Sayapatri Krishak Samuha- Mahadevsthan, Naubise, Kavre
27. Sita Paudel, Sayapatri Krishak Samuha- Mahadevsthan, Naubise, Kavre
28. Sabitra Parajuli, Sayapatri Krishak Samuha- Mahadevsthan, Naubise, Kavre
29. Gauri Parajuli, Sayapatri Krishak Samuha- Mahadevsthan, Naubise, Kavre
30. Bhagwati Sapkota, Sayapatri Krishak Samuha- Mahadevsthan, Naubise, Kavre
31. Bhim Maya Shrestha, Sayapatri Krishak Samuha- Mahadevsthan, Naubise, Kavre
32. Devaki Sapkota, Sayapatri Krishak Samuha- Mahadevsthan, Naubise, Kavre
33. Sita Sapkota, Sayapatri Krishak Samuha- Mahadevsthan, Naubise, Kavre
34. Sani Sapkota, Sayapatri Krishak Samuha- Mahadevsthan, Naubise, Kavre
35. Maiya Paudel, Sayapatri Krishak Samuha- Mahadevsthan, Naubise, Kavre
36. Kalpana Sapkota, Shree Janjagriti IPM, Mahadevsthan, Naubise, Kavre
37. Devaki Sapkota, Shree Janjagriti IPM, Mahadevsthan, Naubise, Kavre
38. Radhika Sapkota, Shree Janjagriti IPM, Mahadevsthan, Naubise, Kavre
39. Kanchan Sapkota, Shree Janjagriti IPM, Mahadevsthan, Naubise, Kavre
40. Krishna Kumari Timilsina, Shree Janjagriti IPM, Mahadevsthan, Naubise, Kavre
41. Parvati Sapkota, Shree Janjagriti IPM, Mahadevsthan, Naubise, Kavre
42. Bhagawati Sapkota 'A', Shree Janjagriti IPM, Mahadevsthan, Naubise, Kavre
43. Bimala Sapkota, Shree Janjagriti IPM, Mahadevsthan, Naubise, Kavre
44. Jamuna Sapkota, Shree Janjagriti IPM, Mahadevsthan, Naubise, Kavre
45. Sakula Sapkota, Shree Janjagriti IPM, Mahadevsthan, Naubise, Kavre
46. Sushila Timilsina, Shree Janjagriti IPM, Mahadevsthan, Naubise, Kavre
47. Maheshwor Dahal, Teen Chautara Jaibik Krishak Samuha, Mahadevsthan, Dhaitar
48. Rishi Ram Sapkota, Mahakali Krishak Samuha, Nayagaun
49. Shyam Bahadur Gharti, Mahakali Krishak Samuha, Nayagaun
50. Bishnu Maya Tamang, Mahakali Krishak Samuha, Nayagaun

51. Bhakta Bahadur Gharti, Mahakali Krishak Samuha, Nayagaun
52. Sambhu Gharti Magar, Mahakali Krishak Samuha, Nayagaun
53. Hari Ram Dhital, Raktakali Mishrit Krishak Samuha, Patalekhet
54. Babu Ram Dhital, Raktakali Mishrit Krishak Samuha, Patalekhet
55. Tika parsad Dhital, Raktakali Mishrit Krishak Samuha, Patalekhet
56. Kabita Bhujel, Raktakali Mishrit Krishak Samuha, Patalekhet
57. Rabindra Dhital, Raktakali Mishrit Krishak Samuha, Patalekhet
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60. Arjun Khanal, Project Coordinator, CSV, CEAPRED
61. Ram Deo Shah, Field Staff, CSV, CEAPRED
62. Sumita Basnet, Field Staff, CSV, CEAPRED
63. Director General, Department of Environment, Kathmandu
64. Ichhyakamana communities

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2. Su Yufang, Kunming Institute of Botany(KIB)
3. Yang Zhiwei, Kunming Institute of Botany(KIB)
4. Xu Jianchu, Director, Centre for Mountain Ecosystem Studies (CMES)
5. Su Yufang, Deputy Director, Centre for Mountain Ecosystem Studies (CMES)
6. Feng Yan, Yunnan University, Asia International River Centre (AIRC)
7. Zhang Liyun, Yunnan University, Asia International River Centre (AIRC)
8. Zhao Qun, Deputy Director, Yunnan Academy of Social Science (YASS)
9. Lu Ying, Yunnan University, Asia International River Centre (AIRC)
10. Li Yungang, Yunnan University, Asia International River Centre (AIRC)

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2. A K Gosain, Professor, Department of Civil Engineering, IIT Delhi
3. Sandhya Rao, Department of Civil Engineering, IIT Delhi
4. Sameer Maithel, Director, Greentech Knowledge Solution Pvt Ltd, Delhi

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2. Masfiq Alam Hazarika, Aaranyak, Guwahati
3. Jintu Kalita, Aaranyak, Guwahati
4. Sumitra Hazarika, Master Trainer, Assam
5. Rumi Talukdar, Lothoupothar, Assam
6. Thaneshwar Borah, Lothoupothar, Assam
7. Rahul Baruah, Lothoupothar, Assam
8. Mridula Hazong, Laimekuri Hazong Gaon, Assam
9. Monumoti Hazong, 1 No. Kawaimari Gaon, Assam
10. Utpal Sonowal, 2 No. Badhakara Harida Sonowal Gaon, Assam
11. Tonkeshwar Gogoi, Kadam Guhain Gaon, Assam
12. H Dhattatreya, Chief Executive, IIRM, Sonipur, Assam
13. Purnima Das, Programme Head, IIRM, Sonipur, Assam
14. Pranjita Bhagowaty, Project Co-Ordinator, IIRM, Sonipur, Assam
15. Ranu Das, Field Co-ordinator, IIRM, Sonipur, Assam

16. Sudesh Sharma, District Co-ordinator, IIRM, Sonipur, Assam

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1. Björn Alfthan, Project Manager, Polar and Cryosphere Division, GRID-Arendal, Norway
2. Bob van Oort, Senior Research Fellow, CICERO, Norway
3. Trude Rauken, Research Fellow, CICERO, Norway

Annex 3: Documents Reviewed

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General context

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