Enhancing climate change awareness and understanding among journalists in South Asia

Impact Assessment, Baseline and Country Studies

Prepared by Panos South Asia for the
Climate and Development Knowledge Network

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Table of Contents

Executive Summary

South Asia is an interesting theatre for understanding climate change discussions. There is India, not knowing whether it is an emerging or a developing economy. Though it likes to proclaim its economic growth in international circles it also likes to hold on to its developing-country privileges in the climate change discussions. With India's sheer sub-continental size, almost all climate change issues that can be discussed in the region can be seen in the country.

Sri Lanka, which has emerged from decades-long civil war does not have much time and space for environment discussions. However, climate change reporting in the media has evolved in the island nation in the recent years from the disaster reporting that followed the tsunami of 2004. In Bangladesh, climate change discussions have dovetailed into the existing discussions on natural disasters and disaster preparedness. Bhutan, because of its rather unspoilt environment, has discussions in the forward end of the climate change spectrum. Much of the stories are on biodiversity conservation and rightfully so, since 70% of the country is still under forests. Pakistan, like India, is exposed to almost all environment problems associated with climate change. Nepal feels lost in its own smog and the emissions from India and China.

The project – *Enhancing climate change awareness and understanding among journalists in South Asia* – supported by the Climate and Development Knowledge Network (CDKN) and implemented by Panos South Asia, stepped into this theatre in April 2012. Running for 24 months, the project had 49 of the best environment journalists from Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka participating in the flagship activity – the South Asian Climate Change Award (SACCA) media fellowship.

During the fellowship period they wrote more than 500 stories on climate change (551 till date) in their respective media outlets. An online platform – the Panos South Asia Climate Change Blog at http://climatechange.panossouthasia.org – was specially created for sharing their stories amongst the group and also with the outside world. The blog has had more than 550,000 visitors since the time it was set up in October 2012.

The fellows published stories in 5 media outlets in Bangladesh, 3 in Bhutan, 22 in India, 10 in Nepal, 9 in Pakistan and 9 in Sri Lanka.

The fellows published stories in the following media outlets:

1. Annapurna Post (Nepal)
2. Apan Samachar (India)
3. Balochistan Today (Pakistan)
4. Business Bhutan (Bhutan)
5. Ceylon Today (Sri Lanka)
6. Channel I TV (Bangladesh)
7. Christian Science Monitor (contribution from India)
8. Dawn (Pakistan)
9. Diganta Television (Bangladesh)

10. Divya Marathi (India)
11. Doordarshan (India)
12. Ekattor TV (Bangladesh)
13. Express Tribune (Pakistan)
14. Financial Express (Bangladesh)
15. Financial Express (India)
16. FM 101 (Pakistan)
17. Forbes India (India)
18. Grist (contribution from India)
19. Hindustan (India)
20. Jang (Pakistan)
21. Kairali Television (India)
22. Kathmandu Post (Nepal)
23. Kuensel (Bhutan)
24. Loksatta (India)
25. Malayala Manorama (India)
26. Nature India (India)
27. Nepali Times (Nepal)
28. New Age (Bangladesh)
29. New York Times India Ink (contribution from India)
30. Puthiya Thalamurai Kalvi (India)
31. Radio Nepal (Nepal)
32. Radio Pakistan (Pakistan)
33. Radio Sagarmatha (Nepal)
34. Radio Today FM 89.6 (Bangladesh)
35. Republica (Nepal)
36. Reuters Alertnet (contribution from Bangladesh, India, Pakistan and Sri Lanka)
37. Scidev.Net (contribution from India, Pakistan and Sri Lanka)
38. Sindh Express (Pakistan)
39. Slate (contribution from India)
40. Sri Lanka Broadcasting Corporation (Sri Lanka)
41. Storycycle.com (Nepal)
42. Sunday Times (Sri Lanka)
43. The Bhutanese (Bhutan)
44. The Hindu Tamil (India)
45. The News International (Pakistan)
46. Third Pole (India)
47. Time magazine (contribution from Sri Lanka)

Each of the fellowship cycles was preceded by a training workshop and a field trip, where experts on climate change and media interacted with the journalist-fellows. The field trip was to locations that had impact on climate change mitigation and adaptation.

In 2012, it was to the training and demonstration field site of the International Centre for Integrated Mountain Development (ICIMOD) at Godavari, near Kathmandu in Nepal. In 2013, it was along the Bhotekoshi river, up to the Nepal-China border. There was a glacial lake outburst

flood (GLOF) on the Bhotekoshi river in 1984. Kunda Dixit, editor of Nepali Times, and an expert for both the trainings, reported the GLOF as a young reporter. He could thus talk to the journalist-trainees from having experienced it then, and then built on it with the understanding he had gained over nearly three decades as one of the leading environment journalists and editors in South Asia.

The training workshop in 2012 was preceded by an editors' retreat, where editors from 13 media outlets participated. These were the New Nation from Bangladesh; Kuensel and Business Bhutan from Bhutan; the Hindu and Puthiya Thalamurai from India; Republica and Kathmandu Post from Nepal; the Express Tribune and Geo TV from Pakistan; Ceylon Today and the Maharaja TV from Sri Lanka; and Himal South Asia representing the entire region.

There was a buy-in to the idea of the fellowship from more than 10 of the media outlets, since they recommended their reporters to apply for the fellowship in both the years. A few of the editors who participated in the retreat in August 2012 ensured that there were applications from their media houses, and also that the stories filed by their reporters were published.

For instance, Kuensel, the largest selling newspaper in Bhutan, had a reporter in both the fellowship rounds. During a project evaluation interview, Rinzin Wangchuk, the editor of Kuensel mentioned that the fellowship gave critical support to their reporters to travel in Bhutan and cover climate change stories. Bhutan is going through a period of diminishing revenue for the media, and the fellowship's support was important for the two young Kuensel reporters who were fellows in each of the fellowship cycles.

In Sri Lanka, the fellowship helped journalists to move from natural disaster stories to climate change stories. It also helped them to link anecdotal reports on drought, water scarcity and hot weather to scientific sources. Asoka Dias, station director for the Maharaja Group of TV and radio stations and one of the participants of the editors' retreat, started incorporating discussions on climate change into the popular 'Debater' programme, which runs in three languages – Sinhala, Tamil and English.

Across the six countries, the fellowship programme, the online platform and Facebook group, the training workshops and field visits helped build a network of environment journalists who approached climate change stories from a different perspective.

Even before the first training workshop ended, the SACCA fellows created the Facebook group to continue the discussions they had initiated. To this group the second batch of SACCA fellows and experts joined. This group has had discussions on climate change almost every day, and it continues. The fellows used the online platform for uploading their stories and generating discussions.

Together with the Facebook group, the online platform and the e-mail interactions, the SACCA fellows created a self-binding group. When select international journalists were invited to participate in the media workshop associated with the World Water Day celebration in Tokyo, Japan, on 22 March 2014, six out of the total 22 journalists who participated were SACCA fellows.

Figure 1 SACCA fellows at the World Water Day in Tokyo, 22 March 2014. From L to R: Malaka Rodrigo, Syful Islam, Subhra Priyadarshini Athar Parvaiz, Ermelinda Dias and Darsana Ashoka Kumara

The SACCA fellows generated climate change stories throughout the year. Keeping with the global trend, even in the South Asian countries the increased number of climate change stories were immediately before, during or after the annual Conference of Parties (CoP) to the United Nations Framework Convention on Climate Change (UNFCCC). This trend somewhat changed with the stories by the fellows discussing climate change-related issues all through the year.

The stories that appeared in the South Asian media in the wake of the CoPs were mostly policy level stories, looking at the country's positions in the international negotiations. The policy level stories rarely linked to ground-level stories. At the same time, the media carried many local environmental stories. However the macro and the micro were rarely linked.

One of the greatest impact of the SACCA fellowship has been the linking of the macro and micro. Rina Saeed Khan wrote about the glaciers in Pakistan and linked it to the national policy;

Some examples:

- Amantha Perera wrote about the high temperatures in Sri Lanka and linked to the drought;
- George Thomas wrote editorials on the impact of climate change on drought and its impact on the farmers of Kerala;
- Athar Parvaiz reported on the impact of climate change on the pashmina wool farmers in Jammu and Kashmir;
- Vaishnavi Chandrasekhar looked at the impact of climate change on apple farmer in Himachal Pradesh in India and also the availability of fish varieties in Mumbai;
- Passang Norbu looked at the Giant African Land Snail infestation in Bhutan;
- Tashi Dema wrote about the increased man-animal conflict due to changing tiger territory;
- Pon Dhanasekaran wrote about the impact of climate change on the coastal and marine biodiversity of the Palk Bay in Tamil Nadu, India;
- Kavitha Muralidharan did a series on the dangers of considering nuclear energy as a climate-friendly techonology and linked it to the Kudankulam nuclear power plant in Tamil Nadu;
- Nilofer D'Souza wrote about an experiment to paint buildings white to reduce energy use and thereby avoid climate change;
- Atul Kumar Singh wrote about the impact of climate change on the wheat crop in north India;
- Jhumur Bari wrote about climate change increasing the drop out rate from primary schools in Bangladesh;
- Mohammed Syful Islam reported about climate refugees in Bangladesh;
- Bari Baloch wrote about the impact of drought on Balochistan;
- Rashid Ahmed wrote about increased fog in Pakistan due to climate change;
- Bhrikuti Rai wrote about black carbon from brick kilns in the Kathmandu valley causing snow melt in the Himalayas;
- Ramesh Bhushal wrote about how developed countries were converting overseas development funds into climate funds;
- Dhruba Sapkota reported about the impact of climate change on the tourism industry in Nepal; and
- John Upton wrote about how the US conflicted with India through the WTO talks on India's solar energy programme.

Achievements from the project/ successes/ positive experiences/ strengths

1. Improved sources for information to write the stories

Reflection, constant learning and review were woven into the project design at the very outset as in the case of all Panos fellowships. The orientation workshops, the in-house and extended Panos expert panel which includes the most eminent environment voices in South Asia and the network building that followed provided an exhaustive, reliable resource stop for all the fellows to draw upon.

Journalist-fellows were particularly happy with the access that the workshops provided them with, to academic and research organisations of repute like the International Rice Research Institute, National Initiative on Climate Resilient Agriculture, International Centre for Integrated Mountain Development, CCAFS and the National Biodiversity Authority.

The three-pronged approach in combining the editors' retreat, orientation workshop and field trip worked well. It is not often that editors and journalists get an opportunity to sit across a table discussing thematic output and space issues in their respective publications. Two Editors each from India, Pakistan, Sri Lanka, Nepal and Bhutan and one Editor from Bangladesh made presentations and answered questions from the fellows. They were drawn from both print and broadcast media and between them covered seven languages: English, Sinhala, Tamil, Bangla, Urdu, Nepali and Bhutanese. The two-day event brought down barriers and also led to commitments that space would be opened up for environment and specifically Climate change stories.

There has been a lot of cross learning from the SACCA fellowship as evidenced by both Dilrukshi Handunnetti and Amantha Periera. They acknowledge constant resource-stopping with experts like Sreenath Dixit of NICRA whom they came into contact as an expert at the SACCA workshop.

Dilrukshi Handunneti, Senior Associate Editor, Ceylon Today says:
"The fellowship's great success lies in helping break down national barriers and creating a common regional platform and perspective to look at Climate change issues."

The fellows could interact continuously with the eight-member Advisory Panel (AP) for the fellowship. In fact, the interactions continue even after the fellowship period. The members of the AP have a cumulative experience of 175 years in journalism and media training internationally and in the South Asian region.

The AP members were:

1. Kunda Dixit, Editor, Nepali Times
2. Nalaka Gunawardene, Director, TVE Asia-Pacific
3. Mostafa Kamal Majumder, Editor, Greenwatch Dhaka, and former Editor at the New Nation, Bangladesh
4. A.S. Panneerselvan, Executive Director, PSA, and Readers' Editor of the Hindu
5. Mitu Varma, PSA Country Director, India
6. Damakant Jayashi, PSA Country Representative, Nepal

7. Lakshmi Nair, Member Secretary for the AP and PSA M&E Manager
8. S. Gopikrishna Warrier, PSA Environment Manager

Figure 2. Kunda Dixit interacting with the SACCA fellows at the Nepali Times office

2. Facilitated debate in the public sphere/ generated interest in varied climate change related topics and raised awareness / coverage in media

The fellowship catalysed more coverage and visibility on climate change related topics which were not discussed enough in mainstream media. The orientation sessions sowed seeds of interest and opened up a plethora of story possibilities for the fellows.

- K Rajendran's 20-minute documentary in Malayalam, " The weeping sea" generated a lot of response. The Kerala Fisheries Department disseminated it widely; it was also aired in government schools as part of their environmental sciences programme.

- Om Astha Rai's front page story in 'Republica' on politicians' apathy to climate change issues led to a heated debate on social media. It was tweeted and re-tweeted several times. The story which had a critical quote from former environment minister and policymaker Ganesh Shah was also picked by several websites including Climate South Asia.

- Astha Rai's story on forest carbon in the Republica led to several letters to the editor and a debate on 'Who actually owns forest carbon".

- Saleem Shaikh's story "Government budget cuts threaten Pakistan's climate change efforts" published in trust.org was instrumental in bringing forth several other critical stories in the Pakistani media in the following days, chastising the government move.

- Shaikh's stories "Erratic weather threatens livelihoods in Pakistan" in Scidev and "Pakistan's mountain farmers helpless in the face of erratic weather" in trust.org led to a seminar being organised in Islamabad on Impact of changing weather on agriculture and Climate resilient agriculture.

- Syful Islam's "Bangladesh's severe weather hotline faces test' in trust.org was picked up by Reuters AlertNet and received the highest number of hits as Cyclone Mahasen lashed Southern Bangladesh.

- Pradeep Nanandkar's story "Modern and scientific approach of farmers in Maharashtra" in the leading Marathi daily Loksatta received huge public response and brought in many letters to the editor. The story was then made into bullet points and the State Agriculture Department printed and distributed Ten thousand leaflets at the Maharashtra Agriculture Exhibition.

- Several articles followed Sonia Malik's piece on water pollution and the food cycle in The Tribune. It also added pressure to civil society awareness and campaigns that finally led to the Pakistani government forming a Ravi committee to look into the issue.

- Sandip Das' story on new maize varieties that beat climate worries received good response from the poultry farmers' collective.

- Das' report on weather insurance was the first-ever story in the national media about weather-based crop cover. It was widely debated and responded to by farmers' collectives and insurance companies alike.

- Dhruba Sapkota, who went on to do 18 radio stories on Radio Nepal instead of the stipulated ten stories for the fellowship had four half hour segments of Vox pop stories on climate change related issues.

- Nusrat Khan's radio programmes " Green hour' dealt with several issues related to environment and Climate change with special focus on Bangladesh. It brought in people from several walks of life from across the country and at times from neighbouring countries like India and Nepal for a different perspective.

- Spreading awareness and facilitating debate among the coastal communities of Sri lanka was Darsana's primary aim when he aired the radio story on the importance of a hazard map in the island country. The programme aired on the national broadcaster SLBC-Rupavahini with a footprint covering the whole of Sri Lanka brought representatives from tsunami and other calamity –affected communities' voices on air.

- Ermelinda Dias aired a short report in the local language Konkani on national television, Doordarshan on the demarcation of ecosensitive buffer zones in Goa. This created much-needed awareness among environmentalists and NGOs alike. Dias' also aired another story on how media communicates climate change risks and uncertainties. It created clear understanding as to how media practitioners should frame messages regarding climate change vagaries and communicate to the public so as to elicit pro-environment action. This airing brought forth several queries from the media fraternity themselves.

- Bhikruti Rai's short piece on solar energy created a buzz not only in Nepal but also in neighbouring India. It was republished in the Hindustan Times syndication and also picked up by Clean Energy News.

- Yet another of Rai's stories on Alternative Energy was also taken up for debate in Clean Energy News and brought her into contact with other journalists working on mainstreaming alternative energy in Nepal.

- Subhra Priyadarshini's ten pieces in 'Nature' have all dealt with varied Climate change related topics ranging from heat warning systems, climate justice, flaws in India's climate change policies. The leading website for environment related news in India, Nature gets up to a million hits every single day, including Climate scientists, researchers, media and the public.

- Pon Dhanasekharan's series of ten articles on climate change in the popular Tamil magazine, Puthiya Thalamurai was a new phenomenon in Tamil. It brought in several letters to the Editor. The popularity of the pieces have led to the articles being compiled for a book which is now ready for publication. Also, Malayala Manorama, which publishes its yearbook in multiple languages, asked Dhanasekharan to write an article on climate change in Tamil Nadu. The yearbook is the study material for thousands of students aspiring for civil service examinations.

3. Facilitated debate and discussion in the policy sphere

- Sandip Das' piece on new climate resilient maize varieties that appeared in the Financial Express also elicited queries and clarifications from the Punjab Agriculture Department, as the state is looking to shift a chunk of its paddy growing areas to corn.

- Das' story on conservation farming in Haryana brought forth interesting queries from the Uttar Pradesh and Punjab Government departments as to sources and where they could get information.

- The Ministry of Agriculture congratulated Das for "mainstreaming the discussion" through his story on the government's pilot programme for climate change mitigation in the agricultural sector in three states. His story on weather-based crop insurance got responses from the Haryana government.

- Atul Deulgaonkar's stories in the Marathi media have consistently caught the attention of policy makers; Deulgaonkar has also been nominated to the Committee for Science Education that decides on content for secondary education in Maharashtra.

- Maharashtra has been in the throes of unprecedented drought and hailstorms. Deulgaonkar has met the Chief minister of Maharashtra thrice to discuss setting up of a state committee to look into climate change issues. He has also been consistently working with grassroot communities like farmers and village development officers to assess and report the ravages caused by climate change.

- After the publication of Jamshed Gul Bukhari's story on the industrial effluence into Kanjhar lake, a seminar was held where all stakeholders: affected farmers, fisherfolk, activists, media and irrigation officials debated the issue. It also led to the irrigation department drawing up stringent measures to reduce effluence into the Kanjhar Lake.

- Pitamber Sigdel's story looking at the linkage between lightning and climate change was new to even Environment ministry officials. It evoked interest and response with several websites picking it up as well.

- Sigdel's front page story in the Annapoorna Post on Kathmandu's increasing pollution and linking it to higher than permitted vehicular emissions had a good impact. The transport ministry conducted a random surprise check on vehicles after a gap of nearly five years.

- Passang's piece on infestation by the Giant African Land Snail (GALS) destroying crops in Bhutan led to an agriculture ministry enquiry following which aid was announced for some of the affected farmers.

- Pon Dhanasekharan's story on seaweed cultivation in the Palk Bay set off a war of sorts in letters to the editor between the policy makers and the multinational lobby, with the latter debunking claims.

- Pramila Manandar's report on biopesticides at home aired over Radio Sagarmatha had 18 callers write in for details and clarifications. The Kathmandu Municipality has also agreed to conduct a half-day training on the demand of the people.

- Syful Islam's story on malpractces in climate finance in Bangladesh forced authorities to issue a press statement.

4. Fellows' stories impacted national positions and discussions at the UNFCCC CoPs

Ramesh Bhushal's story in Republica "Nepal wants service charge on LDC funding reduced" was used by the UNFCC website as headline news and story of the day. Bhushal also got nominated to the committee of Nepal's CoP prep team as a core negotiator representing the media for a period of two years.

Another of Bhushal's pieces written under the fellowship, "Lead the change, climate change diplomacy" was widely appreciated by policy makers and high level bureaucrats.

Rina Khan's article "Pakistan pushes ahead on climate policy, but action still lags" sparked a debate among key members of the country's delegation to climate change talks. Shafqat Kakakhel, Member who serves on the CDM Board says, "The Discussion provoked by Rina's

piece has been an invaluable gift for me. I hope to reflect the various comments made thus far in a paper on climate change and national security that I am writing for the Senate Defence and Defence Production Committee. The need for political ownership and commitment by the Government and our major political parties will top the list of my suggestions."

Malik Amin Aslam, the former Minister of State for the Environment wrote: "First of all well done Rina for a very thought provoking article which has raised some very pertinent concerns. I have been following the very useful debate."

5. Fellows' stories helped make a departure from dominant media reporting narrative in the project countries.

- Rina Khan's story 'Is the world running out of time?' proved very interesting as it connected the Germanwatch ranking that listed Pakistan as one of the three most affected countries by climate-related disasters in the past two years.

- Ramesh Bhushal tied in Nepal floods with political conflict between Nepal and India. This story, which was not getting enough mainstream media space, received regional attention and was picked up by several websites including the Thirdpole.

6. The fellowship created multiple and new voices in reporting:

- Sonia Malik's study on the impact of climate change on rural women looked at climate change from a gender lens and brought in several rural womens' voices into the narrative.

- Jamshed Bukhari's Urdu piece on the Kanjhar Lake pollution gave voice to several unheard people: fisherfolk, tannery workers, industrial labourers among them whose lives were directly affected by the polluted waters.

- Jan Khaskeli in a long piece chronicled the lives and tenacity of a blacksmith community in Sindh which has withstood drought, cyclone, earthquake and now the floods.

- Dawa Wangchuk's report on small hill tribes and school children in Bhutan diligently monitoring rainfall, snowfall, river flows and temperature change published in Business Bhutan was a revelation. It brought in hitherto unheard voices and also chronicled how affected communities were themselves adapting and preparing to combat climate change by being prepared.

- Passang Norbu in Kuensel Online gave Dawa's story a longer life with his piece 'Schools to serve as a database for climate change study.

- Pon Dhanasekharan with his interesting stories from the Tamil Nadu agricultural belt has brought voices from the interiors of the state to the forefront. He has also had several academicians give information and react to his stories.

- Rina's story about 'planted glaciers' brought in requests from mountain communities of neighbouring valleys of Gilgit-Baltistan and Chitral to write about their areas also.

- Advisory panel member and eminent environmental journalist Nalaka Gunawardene said that "fellows had taken to blogging and twitter about environmental issues and were gaining respectability, in the Sri lankan context. This had led to a lot of debate with new voices, especially of youth expressing views and opinions."

7. Strengthened inclusive reporting on people's rights/ new reporting angles

Nearly ninety percent of the stories generated as part of the SACCA fellowships put peoples' rights at its core. Orientation workshops and the mentors have constantly stressed that the disadvantaged and affected must get to articulate their points of view on climate related issues through this fellowship. We are glad to report that most fellows have adhered to this guideline. Cited below are a few examples.

- K Rajendran's television documentary " The Weeping Sea" made efforts to include voices of fisherfolk, traders, exporters and other coastal communities across Kerala and Lakshadweep and was extremely well received.

- Sandip Das' report on a new sturdy variety of wheat brought together the opinion of several farmers' collectives and flour millers in North India.

- Dawa Wangchuk's article on the impact of Climate change on mountain women in Bhutan looked at the issue from a gender perspective and spoke about how women are the most affected.

- Vaishnavi Chandrasekhar's front-page story on diminishing numbers of Bombay duck in the Arabian Sea brought into its fold voices of all concerned from fisherfolk using motorised boats and catamarans, fish sellers, and also scientists.

- Vaishnavi also travelled to the hills of Himachal Pradesh to find out that apple growers are forced to shift uphill with temperatures rising. She brought in voices of small, medium and large orchard owners, scientists, horticulturists and traders to explain the current situation rendered critical due to frequent hailstorms and unpredictable temperature variations.

- Syful Islam's incisive analysis of the environmental consequences brought on by the coal-fired power plant near the Sunderbans stressed on peoples' rights and aired vices of activists and affected people.

- Darsana explored fresh angles of reporting by tying in ancient irrigation technologies of Sri Lanka with the current technologies adapted to withstand the vagaries of Climate uncertainty, in his radio programme aired on state broadcaster, SLBC-Rupavahini.

8. Fellowship helped career advancement/ citations/ awards/ other honours for Fellows

- Syful Islam who won the Knight fellowship says: "The stories I did under the SACCA fellowship were given as testimonials to the Knight Foundation. This, no doubt weighed in my favour during the final selection process…"

- Six of the SACCA fellows were chosen to participate in the World Water day conference at Tokyo, Japan. Ermelinda Dias, who was one of the six, says: " I would like to acknowledge that it is because of my association with SACCA that I got selected to participate in the World Water Celebrations- 2014 in Tokyo. SACCA gave me exposure to a whole lot of environmental stories written by fellow journalists from several parts of South Asia."

- Subhra Priyadarshini says: "The SACCA Fellowship has been the energy-boosting tonic environment journalists of South Asia so needed. It not just brought out the investigative journalists in the fellows but also catapulted them onto a roller-coaster phase of learning. Based on the stories I did during the fellowship, I got invited to speak at and participate in the Norwegian Investigative Journalists Annual Conference (SKUP) 2014; UN World Water Day 2014, Tokyo; the UNESCO Global Forum on Media and Gender, Bangkok and the Global Investigative Journalism Conference (GIJC), Rio de Janeiro, Brazil. I also received a field trip grant to the Jamuna river site in Bangladesh besides presenting my body of work at various national seminars as a case study in using science as a tool to report on the environment."

Figure 3. Subhra Priyadarshini presenting her work at the GIJC

- Dawa Wangchuk has been nominated coordinator of the Bhutan Federation of Environmental Journalists

- Atul Deulgaonkar

    - is on the Maharshtra Pathypustan Nirmii mandal committee for Science Education

- has held at least thirty lectures on Environment issues with focus on Climate Change for journalists, policy makers, students and activists across the country

- is on the environment expert panel a television channels like IBN-Lokmat, ABP-Marathi, DD Sahyadri and Sakal TV

- is on the Tata Institute of Social Sciences Panel for environment studies

- published a book **'Vishwache Art'** in Marathi. Chief Minister of Maharashtra Mr. Prithiviraj Chavan and international strategist Mr. Sandeep Waslekar (Strategic Foresight Group))were the chief guests. The book deals with the political economy of climate change and its impact on water, food and agriculture.

- Dilrukshi Handunnetti's Climate change stories played a role in her being honoured with the "Best Journalist Award" in Sri Lanka. The citation specifically mentions her contribution to "climate change reporting". Dilrukshi's stories on rice evoked interest and queries from the International Rice Research institute, a CGIAR arm in Manila and continuing correspondence from experts like Bhagirath Chauhan who used it in the IRRI bulletin. The story was also picked up by SciDev later.
- Pramila Manandhar's series of stories aired on Radio Sagarmatha garnered tremendous response. A documentary was made on the radio programme.
- Vaishnavi Chandrasekhar's story on overfishing off the Mumbai coast was picked up by The Guardian. Her story on apples and climate change was picked up by CBD-Headlines. (CBD-Headlines is a news service by the secretariat of the Convention on Biological Diversity, and they round up around 10 important biodiversity headlines every day.)
- Ramesh Bhushal has moved to Third Pole; He also represents media on the committee that helps CoP preparedness in Nepal.

9. Links between fellows, academia and civil society

Panos South Asia has for the past decade successfully striven to create a common space for free flow of communication between media, academia and civil society.

This has been followed in the CDKN-SACCA fellowships as well. The editors' retreat and the two orientation workshops had a mix of distinguished experts from the three abovementioned sectors interacting with young and mid-career journalists. The panels were from the six countries Bangladesh, Bhutan India, Nepal, Pakistan and Sri Lanka where the project was operational.

- Several participants acknowledged that the networking that the project helped develop gave them ease of access to academicians which brought incisive insights into their journalistic outputs. There has been a lot of cross learning from the SACCA fellowship as both Dilrukshi and Amantha Periera have been constantly resource-stopping with experts like Sreenath Dixit, whom they came into contact as a resource person at the SACCA workshop.

- Dilrukshi's stories on rice evoked interest and queries from the International Rice Research institute, a CGIAR arm in Manila and continuing correspondence from experts like Bhagirath Chauhan who used it in the IRRI bulletin. SciDev picked up the story later. The Centre for Science and Environment, New Delhi, also expressed interest in the story and asked Dilrukshi to write for Down to Earth magazine.

- Both Pon Dhanasekharan and Kavitha Muralitharan were part of the MS Swaminathan Research Foundation field trip to understand first hand the impact of Climate change on Agriculture. They travelled with fellow journalists and the in-house Panos team to far flung villages of Thazhudhali, Thiruchitrambalam, Nallamur and Mailam in Villupuram district of Tamil nadu. As part of the visit, they also met with the Block development and Village development officers and took part in an interaction with farmers' families and collectives.

Figure 4. Kavitha Muralidharan interacts with Prof. M.S. Swaminathan and Dr Ajay Parida at the climate change media workshop at MSSRF

- Journalist Vaishnavi Chandrasekhar has been getting valuable inputs to queries from reputed academic niche' research organisations like ICRISAT,CCAFS and NICRA after being introduced during the fellowship meetings.

10. Changes in awareness, understanding on climate change issues

Stories and research material uploaded on the climate change blog have been followed with great interest not only by the journalists, but also the public at large who have come to rely on the blog

as a authentic resource stop. This is evidenced by the fact that the site had a whopping 5,71,650 visits to date.

The mentoring workshops focussed on simplifying technical issues and aspects of climate change to comprehensible bits. The experts, mentors and guest speakers were chosen from different countries so that the fellows would benefit from their varied experience.

For example while Kunda Dixit familiarised the fellows with Climate change and mountains: Mostafa Kamal Majumdar had more insights into climate change and floods; and Nalaka Gunawardene guided them through island ecologies, climate change impacts on coastal and marine life. Most fellows made good use of the expert mentoring process, which was available through the fellowship period over emails and telephone.

In Sri Lanka, Asoka Dias, station director of Maharaja Television, initiated a programme for spreading environment and climate change awareness among youth, with the resources gained at the editors' retreat.

Darsana Asoka Kumara went on to do a weekly, half hour radio programme on the national broadcaster SLBC-Rupavahini, which weaves in an environment and climate change segment The programme elucidates key aspects of climate change, for example: carbon credits, carbon-di-oxide emissions, black soot, changes in marine ecology due to temperature variances etc. Darsana mentioned in interviews with the Panos team that he himself had started out as a general reporter, but the fellowship encouraged him to focus on and do in-depth stories related to environment weaving in climate change angles.

Ramesh Bhushal, a fellow said that the best part of the fellowship was " …that it forced you to brainstorm topics with colleagues and analyse deeper to keep ahead of peers. It also set deadlines and made the writer more prolific on the subject'.

11.Change in access issues for journalists/ more ease in publishing/better acceptability of climate change issue ideas by editors and gatekeepers

Access to information and research findings were made easier with the direct networking and interaction with representatives of the academic and research organisations. The basic question as to where to go, whom to approach for Climate change related queries were addressed by seasoned journalists and mentors during the workshops. During the field visit in Nepal, the fellows were guided by Kunda Dixit, an eminent journalist and editor, who has been writing on the subject for three decades. They were also given pointers as to how to request use the exhaustive archives in leading publishing houses like 'The Hindu' for research. With representation and support from several CGIAR organisations, a vast canvas of documented material was available to them, which was acknowledged by the fellows during feedback sessions.

Panos South Asia's simultaneous top-down (from editors to journalists) and bottom-up (journalists to editors) approach has time and again paid rich dividends. The workshops served the successfully tested model of bringing them face- to -face and discuss the hardships that come with their respective positions.

This also opened up space for commitments for more stories to be published in a more visible space. It also led to media houses like The Hindu, Nepali Times, Ceylon Today and The New Nation committing to consistently look at Climate Change issues.

12. Improved support from media organisations

Panos has worked the past two decades only with media and through media. We would not have been able to successfully do so without the staunch backing of editors/owners and publishers in South Asia. Though this is for all the themes we work on, it has been ongoing in the case of the Environment theme as well. The presence of two senior editors' from each of the participating countries at the Editors' retreat is proof enough if the unstinting support of their organisations and their own commitment.

Another indicator is their commitment to give time off to journalists on their payroll to attend workshops, seminars and conferences during duty time to continue to enhance their domain skills. Six of the SACCA fellows were selected and attended the prestigious World Water day conference in Tokyo, Japan.

Asoka Dias, Station director of Maharaja Television, Sri Lanka in interview told the Panos team that he has, post –workshop, given a television slot for environment and Climate change related discussions in his channel.

Rinzing Wangchuk said that the workshop had encouraged him to make environment and Climate Change stories 'priority'.

13. Improved networking among the journalists in the region

In our deliverables we had promised an online presence and blog which would have an estimated 3,000 hits. The Climate Change Blog which will have a life of three years beyond the project period, up to 2017 March. It is a site of great activity. At the last count, we **had Five hundred and seventy two thousand and eight hundred and forty seven (572,847)** visits. The Facebook page is also very active and fellows have been handholding, critically analysing and peer reviewing pieces. There have been several examples of fellows drawing inspiration from each other.

Subhra Priyadarshini's piece on cremations on the banks of the Ganga and pollution in Varanasi, India led Nepali Fellow Ramesh Bhushal to start working on a similar story cremations on the banks of the polluted Bagmati River in Kathmandu.

Many of them have stated during interviews that the fellowships helped widen horizons and shake them into thinking not just locally or globally, but connecting the dots between local happenings, regional and global happenings in the environment and climate change arena.

14. SACCA Media Excellence Awards

One of the activities proposed was the selection and presentation of the South Asian Climate Change Media Excellence Awards (SACCA Awards). Panos South Asia sees this as a way of recognising and rewarding the best and the most committed among the fellows.

To make this event grand and also draw traction to the project, Panos South Asia had proposed to work with the Centre for Media Studies in their Vatavaran International Environment Film Festival. Since the film festival is held once in two years, the two SACCA Awards were presented on 30 January 2014, during the grand inaugural function of the CMS Vatavaran film festival.

The two SACCA Awardees were Subhra Priyadarshini for 2012 and Amantha Perera for 2013. The awards were presented to them by Ms Lise Grande, India Resident Representative for the United Nations Development Programme; Ms Alka Tomar, CMS-Vatavaran festival director; and Mr A.S. Panneerselvan, Executive Director of Panos South Asia.

Figure 5. Amantha Perera receiving the SACCA Award from A.S. Panneerselvan, Lise Grande and Alka Tomar

15. Challenges

The SACCA media fellowship project was a success in overall terms. But, like all endeavours, this project also had its own challenges. Out of the 49 fellows, two did not deliver due to various reasons beyond our control. With the state of the media in a precarious position the world over and in South Asia, several journalists, we found are moving away from media jobs with salary and budget cuts affecting their positions and survival.

One constructive feedback we received was that a mid-project, course correction, face-to-face interaction between the fellows and the mentors would have injected even more enthusiasm into the project. We hope to factor this in for ensuing projects.

Country Reports

Bangladesh

International Position

Poverty eradication and people's empowerment through full and productive employment is the objective of Bangladesh in pursuing its green economy and sustainable development strategies. Apart from the special situation and needs of the LDCs, as per the Principle 6 of the Rio Declaration, people's empowerment and development guides the framing of specific sustainable development agenda for the country. The nation puts specific emphasis on the economic and social pillars of sustainable development.

Bangladesh is of the view that climate change problems arise mainly due to the historical emissions of the industrialized countries. Therefore, the funds for mitigation and adaptation must also come from these countries. The international negotiations on climate change is the relevant platform for deciding a much needed new financial architecture for the country which encompasses the position of the LDCs, the G-77 and other parties having interest in fund mobilization.

As far as technology is concerned, Bangladesh seeks the transfer of the state of the art technologies from the developed countries in order to ensure a low-carbon growth path.

National Policy Perspective

Mitigation Options

To reduce the use of fossil fuels, Bangladesh developed a strategic energy plan and investment portfolio to ensure national energy security and lower greenhouse gas emissions. Ensuring an energy secure, low carbon development of the economy is a declared priority for the country. The proposed actions include increasing energy efficiency in agriculture, industry, transport and power production, transmission and distribution.

Another important source of mitigation of greenhouse gas (GHG) is through afforestation. The government has proposed afforestation and reforestation activities under the Bangladesh Climate Change Strategy and Action Plan (BCCSAP – 2009)[1]. The proposed actions include providing support to existing and new coastal afforestation programmes, developing wetland afforestation programmes, exploring the UN REDD framework etc.

Recognizing the benefits of the use of renewable resources, the Bangladesh government proposes increased investment to scale up solar energy research; investment to harness wind energy; conducting feasibility studies for tidal and wave energy with special focus on coastal areas; assessment of existing constraints to adoption of improved biomass stoves and other techniques.

Transport is one of the main causes of GHG emission. With growing population and changing life-styles, the contribution of this sector in future GHG emission will increase due to higher energy consumption. Therefore, Bangladesh proposes to improve energy consumption patterns while improving energy use efficiency in the transport sector by promoting low cost public transport modes, reducing the use of fossil fuels, and fuel-switching.

Agricultural emission of GHG is a major concern for countries like Bangladesh. Methane emissions, especially from rice cultivation, and use of fertilizer hold the key to emissions from agriculture. In this regard, Bangladesh proposes to support research and on-farm trials of water and fertilizer management technology, agricultural extension service to popularize water and fertilizer management techniques for rice production, creating awareness among the farmers about nitrogen and other fertilizer use in the fields.

Industry is yet another cause of GHG emissions and requires emission reductions through various policies and mitigation actions. The energy intensity of industries or their mass prevalence is the cause of such high level of emissions. Proposed actions include proccess improvements through more efficient cogeneration system, targeted intervention for installing less energy consuming devices, efficient furnaces and advanced process control.

Inefficient and unsustainable consumption activities lead to substantial GHG emissions across the board. The government therefore proposes to review and revise energy and technology policies and incentives to promote efficient production and consumption. Further, rapid expansion of energy saving devices could contribute towards mitigation.

Adaptation Actions

Bangladesh recognizes the problem of resource conservation measures in order to cater to the growing needs of people in a changing climate. To ensure adequate water supplies and sanitation, the government proposes to monitor changes in water quality and quantity available for drinking and forecast future effects due to climate change. The government also proposes to plan and invest in additional water supply, design and construct water management systems and river erosion control works to meet the changing conditions due to climate change.

For governing the food security measures agricultural adaptation to climate change is necessary. Government of Bangladesh has put in place a full -fledged action plan for promoting climate resilient agriculture. The actions include developing climate resilient cultivars of food and other crops, especially rice and wheat, collection and conservation of local improved cultivars, developing climate resilient cropping systems appropriate to different agro-climatic regions and sub-regions, identifying vulnerable regions, developing seed production and organization systems etc.

However, different adaptation strategies must be adopted to deal with production losses in agriculture due to climate extremes and other climate induced changes. Developing early warning and weather forecasting for crop production against diseases, insects, drought, flood, storms, tidal surges etc., and focusing on developing drought management options for farmers are some of the measures proposed in the BCCSAP.

The Bangladesh economy has been affected by natural disasters, directly and indirectly, time and again. Cyclones, floods, storm surges have brought significant challenges for the policy makers. Therefore, planning and implementation of an investment programme that ensures adaptation against climate induced natural disasters in future is proposed. Coastal protection from cyclones and storm surges, increasing resilience of flood prone areas, ensuring continued flood protection through rehabilitation, community-based disaster preparedness, improving cyclone and storm surge warning systems are some of the proposed actions.

Climate change has the potential to affect tourism opportunities in a country. This in turn could affect the population that depends on tourism and related activities for their livelihood. The Bangladesh government therefore proposes to monitor the impact on various issues related to management of tourism in Bangladesh and implementation of priority action plan so that adaptation to climate change in tourism sector can be achieved.

With several key economic sectors and activities potentially at threat due to climate change, especially agriculture, climate change is likely to result in significant migration of the population. To adapt to the changing climate and thus to limit population migration, the government has proposed to develop a monitoring mechanism of internal and external migration of adversely affected population and providing support through capacity building for their rehabilitation in the new environment.

Adaptation can be either reactive or proactive in nature. Apart from reactive adaptation measures, policy makers also propose proactive measures that can ensure effective adaptation. Planned infrastructural development is one of the proactive adaptation strategies that the government of Bangladesh aims to implement.

These strategies include repair and rehabilitation of existing infrastructure (e.g., coastal and river embankments, drainage systems in both rural and urban areas), ensuring effective operation and maintenance, development of urgently needed new infrastructure to meet the emerging conditions due to climate change, and undertaking of strategic planning of future infrastructure needs taking into account various factors that could govern the likely impact due to future change in the climate. These actions could also go further in ensuring sustainable, livable cities in the country.

Health is a critical sector for planning and policy making in any country. With changing climate affecting human health, research and monitoring of the impacts of climate change on disease patterns is necessary. The Bangladesh government aspires to it and proposes adaptive measures through further research on the impact of climate change on health (including the incidence of vector borne diseases), and the costs to society of increased mortality, morbidity, and consequent fall in productivity. Development of adaptive strategies against outbreaks of such diseases, investment in preventive and curative measures, and ensure prevention of water-borne diseases are the additional measures proposed.

A large portion of Bangladesh is coastal; it is threatened by climate induced sea level rise in future. In this direction, expansion of ‘greenbelt’ coastal afforestation programme with mangrove planting along the shoreline is an adaptation strategy. Monitoring and modelling to predict sea level rise and its impacts through establishment of data collection networks monitoring SLR and

salinity, modelling inundation and salinity impacts of SLR, and related socio-economic and health impacts, planning industrial relocation etc. are the proposed actions for adapting to SLR.

Climate change and media coverage in Bangladesh

Bangladesh is one of the countries greatly at risk from climate change because of its low altitude and dependency on climate sensitive sectors like agriculture. Media reporting in Bangladesh has largely been based on detailed coverage of topics such as vulnerability, adaptation, and the ongoing climate change negotiations. Journalists there are now planning for more space devoted to climate change issues in the media, with material translated into the local Bangla language. However, a number of issues and reasons play a role in the low level of media coverage on this issue.

One of the main issues behind low media coverage in the LDCs is lack of training. Besides these, lack of local research and local experts, ready to share information with reporters, difficulties in accessing information and understanding the subject due to weak governance and institutions are also contributing factors (Shanahan, 2010).

The BCCSAP 2009 recognizes that Bangladesh media has played a proactive role in spreading public awareness about climate change issues over the past two decades. However, given the scale of climate-induced adverse effects on the economy, livelihood and eco-system there is a need for greater outreach to the public and spread of awareness on the issues relating to climate change.

In this regard, the media is expected to play an effective role to influence the public opinion and induce policy changes relating to climate change. The role of media is also to encourage people to move on a climate-friendly and environmentally sustainable low-carbon development pathway. On an international arena, the media could also play an important role by raising capacity to negotiate between nations through highlighting public debates on the issue, thereby keeping the national interest on the issue.[2]

In some of the South Asian countries, there is very little encouragement from the government towards increasing role of media on climate change issues. The Bangladesh government on the other hand has played an important role on giving media its due role relating to climate change.[3]

The NAPCCS under its capacity building and institutional strengthening efforts has a clearly envisaged plan to mainstreaming climate change in the media on a 'priority' basis. Actions proposed in this direction include capacity building and training print and electronic journalists, exposure visits to climate change hot-spots across the country and tracking global negotiations, and media-networking.

In other related efforts of capacity building for greater media coverage of climate change, several international organisations organized workshops in the country. Most workshops focused on disseminating knowledge to the media personnel on global impact of climate change, its effects on Bangladesh - key sectors, community based mitigation and adaptation measures, the government's initiative and intergovernmental cooperation to control the effects of climate change.

Further, these workshops also provided outline of the media's role in reporting climate change and the various aspects that should be borne in mind by journalists while reporting in order to make the communication effective.

Development of story angles, research, information gathering and analysis, and writing and production skills were emphasized in this regard. The workshop also included field visit to one of the cyclone-affected site. Such an initiative was expected to allow journalists to witness and report on the effects of climate change.

Impact of the fellowship

The media fellowship coverage on Bangladesh largely focused on natural hazards, hydro-meteorological disasters, and sea-level rise induced by climate change.

The major emphasis has been laid on the adverse effects on coastal economy of the country. It is evident from the stories that due to sea-level rise Bangladesh would be worse hit causing damages in several ways.

The women and the children in the coastal areas are particularly vulnerable and could be the worst victims. Further, sea-level rise is leading to submergence of the islands, ports which could have significant impacts on the economy.

Deforestation is contributing to these impacts due to climate change. Further, increasing saltiness owing to decreasing river water flow, depletion of ground water and sea level rise etc are leading to saltiness in the coastal agriculture and reduced productivity.

These issues have contributed together to displacement of mass of the population who are distressed due to the impacts of climate change and its consequences.

Some reports focused on water and food scarcities focusing on the direct impact of climate change on water and agriculture.

Very few stories cover the government initiatives on how to make the population more climate resilient and how to induce adaptation activities in the planning sphere.

The cumulative effects of these climate-induced consequences could also affect the Bangladesh government’s position in meeting its 2015 Millennium Development Goals (MDGs).

Bhutan

International Position

Bhutan’s emissions are miniscule compared to that of developed and emerging economies. In fact, the emission in Bhutan does not exceed its sequestration capacity implying that mitigation efforts may not be a big concern for the country. Thus, any kind of emission cap or increase in ambition is not sought. Nevertheless, the country has a number of mitigation measures put forth for various sectors.

Bhutan also has a very small population base. It is estimated to be around 750,000, which is a tenth of the population any major city in India. Of this, the Thimpu valley accommodates around 130,000. Steep mountain slopes and abundant water supply make Bhutan a hydro-electric power house, and it exports its surplus to India.

In 2010, the Government of Bhutan held 'green growth' as one of its policies while promoting industrial and private sector development. International cooperation has been sought in achieving this goal. The government proposes a portfolio of policy instruments for this. Further, to achieve the target of carbon neutrality and of green economic policies for growth, the government has provided tax incentives with zero percent duty for zero or low emission vehicles (e.g., electric cars and bicycles) in the transport sector.

Bhutan recognises that to promote long-term national strategy for low carbon development is to strike the balance of economic growth and sufficient energy at reasonable cost while preserving the local environment and contributing to climate protection.

International financial and technology transfer have been sought to pursue both carbon neutrality and green economic growth policies.

National Policy Perspective

Mitigation Options

A number of mitigation measures in terms of reducing the use of fossil fuels are part of the Low Carbon Growth Action Plan for Bhutan. Because limiting the number of licenses to exploit and process natural resources will not promote the process of industrialization and thus could reduce economic growth, they need to be supplemented with clear and transparent requirements to use best available technology with respect to various fuel types and energy efficiency.[4]

Bhutan is endowed with rich forestry resources, which is a major source for carbon sequestration as reflected in its national greenhouse gas inventory. The 2010 Land Cover Assessment reports 70.46 percent of Bhutan is under forests. This is the sole reason for the country's ability to keep its emissions below its sequestration capability. In order to harp on this huge potential, the Bhutan government is proposing various measures to utilize its rich forest resource base for climate change mitigation in future.

The revised National Forest Policy has six objectives for planning and implementation integrating environmental, economic and commercial outcomes. Reduction in Emission from Deforestation and Forest Degradation (REDD+), Sustainable Forest Management, Expansion of Community Forests, Prevention and control of forest fires, Reforestation etc are the proposed measures for mitigation in forestry.

Mitigation of greenhouse gas emission requires not only reduced usage of conventional sources of energy, but also promotion of the non-conventional (renewable) resources base. Bhutan is known for its huge hydropower potential, which is a clean source of energy. The country therefore has the objective of increasing its hydropower energy potential. Further, the country also has recognized its solar energy potential. Rural biogas energy has also been considered as an additional option for mitigation.

Industry is an important source of greenhouse gas emission, contributing to climate change. For Bhutan, the objective of minimizing the emission from this sector is motivated by increase in energy efficiency and resource use. Some of the proposed measures for increased energy efficiency include reduce energy consumption in small and medium-scale industries, use of energy-efficient technologies in the ferro-alloys industries (accounts for one-third of domestic energy consumption), process optimization, load management and operational efficiency in Cement industry (uses significantly electricity and coal), demand side management.

Transport is another important source of emission of GHGs. A number of measures including vehicle emission standards and fuel quality improvement, tax incentives such as zero percent duty for low emission vehicles have been adopted in Bhutan as mitigation measures.

Apart from these Bhutan has introduced its Surface Transport Master Plan which includes other mitigation measures. These measures are fuel efficiency improvements in vehicles through standards, introducing vehicles running on alternative fuel (e.g., CNG, biofuels etc.), use of electricity for mass transport and electric/hybrid vehicles for private transport, design of tax incentives for promoting electric vehicles, alternative transport systems, transport demand management through promotion of non-motorized transport, user-friendly infrastructure, integration of land use and transport planning, parking management and road pricing.

Mitigation options in agriculture are limited for Bhutan. However, few interventions such as integrated soil fertility management, sustainable land management, increased cropping intensity, organic farming which have been proposed could be really effective to induce mitigation in agriculture. Reducing emissions from Rice fields is also another proposed strategy.[5]

Since land use is a major contributor to emissions of GHGs, promotion of sustainable land management practices have been proposed as a strategy for Bhutan to help reduce GHGs in land based economic activities.

Adaptation Actions

With climate change likely to impact the availability of important resources (e.g., water), adaptation measures must aim towards their conservation. For resource conservation some of the adaptation actions proposed by Bhutan include raising community awareness on sustainable use of water resources including their extension, improvement and maintenance, technological and financial support to harness hydropower potential through research and design of hydropower plants, improvement in irrigation efficiency, improvement in land use planning, promotion of afforestation, advancing research for other renewable energy including solar power.

Apart from resource conservation, climate change could pose threats for sustainability through its impact on food production. Improving the resilience of agriculture systems is therefore important. Some of the proposed adaptation measures for climate resilient agriculture are development and introduction of crop varieties resistant to extreme temperature and rainfall, promotion of agro-forestry for reduced soil erosion and run-off on steep slopes and mitigating heat stress and respiration problems, cropping pattern change etc.

Further, improving food security of farmers, and creation of more off-farm employment opportunities are some of the economic strategies for making the system more climate resilient.

Improving and upgrading storage facilities, crop insurance, scaling up of sustainable land management for promoting soil and water conservation to enable sustainable production, development of climate resilient farm technologies and risk preparedness, improving weather and seasonal forecasting for farmers are other institutional measures proposed.

Due to its rich forest base, Bhutan is also home to a diverse range of flora and fauna, defining its biological diversity. With climate change likely to pose threat for biodiversity across the globe, Bhutan would not be an exception. Housing some of the most endangered species in the World, Bhutan's policy has paid important attention towards the preservation and sustainability of its biodiversity in view of climate change threats.

Bhutan's National Action Plan on Biodiversity is indicative of the seriousness of the issue in the government's eyes. A key feature of the Action Plan on Biodiversity is its two-tier implementation structure at the national and regional level. The National Action plan has seven specific goals which include the assessment of climate change impact and impact of other stressors on biodiversity and ecosystem services and find ways to minimize those impacts, enhance capacity and expand resources for climate change adaptation, effective coordination of programmes to reducing vulnerabilities of communities and mainstreaming biodiversity in national policy sphere.

Extreme events such as drought and flood are likely to be more pronounced with climate change. To deal with such events of drought, the adaptation measures proposed by Bhutan include weather and climate forecasting, drought monitoring and hydrological forecasting and warning, research and development in water use efficiency, development of drought resistant crop varieties for sustaining agricultural production, rainwater harvesting and promoting a water resources inventory.

For flood and other rainfall extreme related events (e.g., flash flood resulting from GLOF), high rain intensity, cyclones, etc.) mitigation measures such as watershed catchment management, flood forecasting and early warning for cyclones, promotion of community-based forest management for conservation of land, water and forest resources, protection of water treatment plants and enhancement of national capacity for weather and climate/hydrological forecasting and future warning in the country.

Infrastructure could play an important role for climate change adaptation. To deal with climate related impacts on important resource base of the country, the adaptation measures proposed by Bhutan include improved upstream watershed management in critical and high-risk areas, improve hydro-meteorological observation network etc. For dealing with climate extreme events, improvement in weather forecasting, flood forecasting, installing early warning systems, inventory and hazard mapping of key watershed areas, real time monitoring, creating National database on landslide prone areas and risk assessment of landslides, river bank protection etc.

Climate change could pose significant threat to human health. Increase in the incidence of vector borne diseases therefore could raise a number of challenges for many developing and least developed countries, especially those in the tropical climate. To deal with such adversities on health, Bhutan has proposes a number of strategic adaptation measures.

These strategies include programmes to control vector/water borne diseases, increase number of water treatment plants for safe drinking water , regular cleaning and vaccination campaigns in areas with incidence of malaria, introduction of emergency medical services, monitoring of air and drinking water quality.

Climate change and media coverage in Bhutan

Before 2006, there were only two media organizations in Bhutan – Kuensel and Bhutan Broadcasting Service (BBS). Both of them were government organisations. In terms of finances, BBS is totally subsidised by the government, while Kuensel is financially autonomous.

In 2006, Bhutan welcomed private media players. The first two private media players were Bhutan Times and Bhutan Observer, which started in mid-2006. From then on, there has been a boom in private media outlets – 12 newspapers, 6 radio stations and one TV station.

In 2011, financial problems began for the Bhutan Government and it affected the private media houses. More than 80% of the advertisements for these publications come from the government. Bhutan, otherwise, is not an advertisement-driven society, with much of the publicity being word-of-mouth. The government is undergoing a financial crisis and there are many austerity measures leading to cut in advertising revenue. That was the beginning of the decline of the private media.

Private publications had to cut down operations. Business Bhutan, for instance, cut its size from 52 pages to 12 pages. Despite the shock, private papers are hanging on, just to be there, though they have lost their cutting edge. As a result, only two credible media organisations are remaining in Bhutan – Kuensel and BBS again.

Just like all other journalism specialisations, reporting on the environment is new in Bhutan. Tashi Dorji, former editor of Business Bhutan, was the first journalist to start report systematically on the environment, and his newspaper was the first to have an exclusive page on the subject. Dorji was one of the editors from Bhutan who participated in the Editors' retreat organised as part of this project.

One of the young journalists who Dorji mentored is Dawa Wangchuk, the environment correspondent for Business Bhutan and a 2012 SACCA fellow. In addition to reporting extensively on the environment, Wangchuk started a Green blog recently. He also writes for online publications outside Bhutan, such as the Thirdpole.

Through the initiative of a few Bhutanese journalists such as Tashi Dorji, former editor of Business Bhutan and two of SACCA fellows – Dawa Wangchuk and Chencho Dema – with support from Internews and Thirdpole, the Bhutan Forum of Environmental Journalists was launched in October 2013. The Media Minister of Bhutan inaugurated the Forum. Though a beginning has been made, the Forum is yet to begin its activities in earnest.

In this period of economic problems, the media are finding it difficult to support environment journalists. With print and electronic media finding it difficult to stay afloat, it will be the new media that is likely to be the support for environment journalists. It is in this financial

environment that the SACCA fellowship helped four Bhutanese journalists to travel and meet other journalists from the South Asian countries and report on climate change.

Impact of the fellowship

According to Dawa Wangchuk and Chencho Dema, the fellowship helped them to do sustained reporting on environmental issues, which perhaps would not have been possible otherwise considering the economic situation for the media. There has been some change in the media narrative too. Since Bhutan is a hydroelectric powerhouse and a biodiversity hotspot (with 70% area under forests), much of the reporting was within this prism. Through the fellowship and after, there has been reporting on the linkages to climate change and its social and economic impact.

Policy makers picked up Chencho Dema's story on the proposed Shingkhar-Gorgon highway passing through a tiger habitat, thus disturbing the animals and now a tiger census of the region has been ordered. Similarly, Dawa Wangchuk's story on the snow leopard has led to a critical look into the animals' habitat within the government.

Bhutan has a benefit that most of the other countries does not have. The total population of the country, including labour that has come from outside, is 750,000 (which is one-tenth of any Indian metropolitan city's population). Of this, around 120,000 people live in the Thimpu valley. Since the media has grown from state controlled to private, and since the small population leverages high impact of media stories, serious stories never go unheard by the government officials and policy makers in Bhutan.

"Almost all senior politicians know senior journalists by name," said Dorji. "If you pick up a serious story then it never goes unheard. But the problem is that most of our journalists are not endowed with the capacity to do serious journalism."

In this context, the serious work done by SACCA fellows have been a result of the exposure on climate change they received also through the fellowship process. Dorji stated that the need he felt to hand-hold journalists on environment reporting was after his exposure to the SACCA fellowship and similar workshops conducted by other agencies.

Rinzin Wangchuk, Editor of Kuensel newspaper and a participant in the Editors' retreat, said that after the training workshop two of his reporters who were SACCA fellows – Tashi Dema and Passang Norbu – covered environment and climate change issues systematically.

Dema wrote on forest fires, GLOFs, energy savings in buildings and on the conservation of important species. As a response to her story on a GLOF, officials from the department of geology and mines stated that they would conduct ground studies to confirm whether the glacier lake is under threat of bursting. When she reported about increased cattle kills by tigers, leopards and wild dogs in Dozhong Gonpa village, the Ministry of Agriculture and Forests conducted a week-long workshop to look at strategies to mitigate the problem. The wildlife conservation division also initiated a study to look into the possibility of crop and livestock insurance.

Norbu wrote on watershed conservation, regional cooperation since Bhutan is likely to face climate change impacts due to emissions from other countries, army worm infestation due to warming, and the impact of climate change on Bhutan's hydro-electric power generation capabilities.

"If you had another round of fellowship, I would have nominated another reporter for it," said Wangchuk. If you do not have such programmes, journalists do not have the wherewithal to cover such subjects. Kuensel has promised to stay by its commitment to keep up the momentum on environmental reporting.

He emphasized that the fellowship helped his reporters – Dema and Norbu – to travel in search of environment stories. "This helped us financially, since otherwise we would not have had the resources to send our reporters into the field.

Thus, at a time when Bhutan's media was going through an economic downturn, the SACCA fellowship helped four young environment journalists, from the young media of Bhutan, to diligently pursue reporting on the environment and climate change.

Bhutan's economy is dominated by its mountain ecosystem, and therefore its society's attention towards climate change mostly concentrates on potential impacts of the phenomenon on the ecosystem services and livelihood. It is perhaps the only economy in the region that is carbon neutral owing to its rich forest resources that sequester more carbon than is emitted.

As a consequence, the stories from the media fellowship largely focused on issues of forestry, biodiversity and related aspects. Moreover, glacier melts tend to be a big concern for the country. Due to continued warming of the climate, the glaciers of the upper Himalayan range start to melt and has the potential of flooding the lower regions.

Agriculture in the mountain ecosystem also is likely to get adverse impacts and in turn could affect the livelihood of people who depend on the community forests.

Impacts due to glacier melting could be severe as reported by a number of media reports. The policy makers realize the need to have an assessment of such impact attributed to glacial lake outburst flood (GLOF).

Climate change also seems to have direct influence on the biodiversity of the surrounding ecosystem of the country. A number of reports suggest that few endangered species could get extinct due to forest fires resulting from the warming, or owing to developmental activities such as construction. This would not only impact tourism of the country, but also requires cross-border regional cooperation to protect these species.

A number of articles also focus on energy policy of the country. The country having a rich water resource base, has high hydropower potential. Nevertheless, occasional shortfall of water requires water conservation measures to be adopted to induce self-sufficiency in hydropower generation.

India

International position

India has urged developed countries to raise their level of ambition in line with science and their historical responsibilities and suggested further discussions on ambition under the CoP or CMP[6].

Poverty eradication is the overarching objective in the Green Economy in the context of Sustainable Development and Poverty Eradication (GESDPE). India emphasizes the promotion of the framework through sustainable economic growth, while keeping in mind the multi-dimensionality of poverty. Thus, a 'multi-pronged approach towards poverty eradication must be adopted, where focus should be on universal access to modern energy services, food security, access to water supply and sanitation.

Further, it is emphasized that such GE policies must not adversely affect the welfare of the vulnerable sections of the society including the small and the marginal farmers and the SME employed. For a global transition, the unsustainable pattern of consumption of the developed countries must be curtailed which would reduce their ecological footprints and allow for more ecological space for the developing countries to achieve equitable and sustainable growth.

In view of globalization, India emphasizes that imposing tariff or non-tariff barriers on exports of developing countries or aiding conditionalities or any other form of green protectionism is not warranted from the developed countries.

To pursue such green economy policies financing needs to be made tangible through aid harmonization among donors and partners, augmentation of ODA, and creation of sustainable development fund. Private funding could be used to complement these efforts without any incidence on the developing countries. Capacity building of the regulatory and non-regulatory public institutions, local governments and corporate sectors could also help.

For technology transfer and capacity building, India has raised its concerns at various avenues of international negotiation. One of the important agenda items proposed is accelerated access to critical technologies. Provision of concessional technologies to enable developing countries to take early and effective action has also been suggested. Grants for research and development and deployment of green technologies appropriate to labour and other factor endowments and needs of the developing countries must be taken into account. Availability of technologies in the public domain and affordable through Sustainable Development Fund for provision of new, additional and scaled-up sources of financing, keeping in mind that the GE does not exacerbate the technological dependence of developing countries on developed counterparts.

India is party to the UNFCCC and Kyoto Protocol both of which are based on the concept of common but differentiated responsibilities (CBDR). Based on the convention's recognition that 'per-capita emissions in developing countries are still relatively low' and that 'economic and social development and poverty eradication are the first and overriding priorities of the developing country parties', India posits the stance that developing countries are not required to divert resources from development priorities by implementing projects involving incremental costs, unless these incremental costs are borne by developed countries and the needed technologies are transferred. The GEF will act as the coordinating body for financing the

implementation of projects in developing countries under the convention. And, CDM will act as a complement.

India has vouched for an unrestrained cooperation mechanism and multilateral process under the UNFCCC with respect to technology development and transfer. With active engagement in international scientific programmes having significant implications for a transition to a sustainable energy future, India has also shown strong participation in the scientific networks at the individual and institutional level.

National Policy Perspective

Mitigation Options

India is committed to maintaining a lower level of per capita emissions compared to the average level of per-capita emissions of the developed world. In 2009, the country set a target reduction of its emission intensity of GDP by 20-25 percent from 2005 levels by 2020.

The Integrated Energy Policy adopted in 2006 and approved in 2009 enunciates a detailed policy, regulatory and legislative structure relating to GHG mitigation. The key provisions of the policy includes promotion of energy efficiency in all sectors, promotion of mass transport system, increased emphasis on promotion of biofuels, and development of nuclear and hydropower for clean energy and necessary research and development in these directions.

One of the key aspects of the policy has been market reforms in the energy sector to ensure a competitive edge. The Indian government recognizes that domestic prices of energy remain significantly lower than the world prices. The 12th Five Year Plan approach paper therefore has put forth principles of energy pricing to equalize the domestic energy prices with prices of imported energy, while providing targeted subsidy to the needy and poor. Among the various market reform legislative or regulatory policies includes the Electricity Act 2005, Tariff Policy 2003, Petroleum and Natural Gas Regulatory Board Act, 2006, etc.

Removal of entry barriers and raising competition in exploration, extraction, conversion, transmission and distribution of energy, price reform through point of sale competition, promotion of tax reforms to induce optimal fuel choices, diversification of energy options, sources and infrastructure, feed-in tariff for renewable energy, and strengthening the regulatory framework are some of the provisions of these market reform measures.

Under the National Mission for a Green India, the National Action Plan on Climate Change (NAPCC) calls for afforestation activities to address climate change. The mission aims include enhancing carbon sinks in sustainable managed forests, increasing resilience and capacity of vulnerable species to adapt to climate change, and enabling adaptation of forest dependent local communities in the face of climatic variability. Specific objectives of the mission involves doubling the area under afforestation/eco-restoration in the next decade, increasing GHG removals by forests to 6.35 percent of India's annual GHG emissions by 2020.

A number of proactive measures for the conservation of biodiversity have been taken in India. One of the important milestones in this direction has been the Biodiversity Act of 2002. Moreover, the government has committed funds in the areas of integrated conservation and

development with emphasis on local community development. Set up of institutions such as the National Biodiversity Authority at the national level and State Biodiversity Boards at the state levels are measures which are important from a governance viewpoint.

The 12th Five Year Plan recommends the expansion of nuclear, wind, hydropower and biogas. Solar power has been encouraged in view of its huge potential to meet the current and future energy demand and with the ambition of establishing India as the global hub for solar manufacturing. The NAPCC proposed National Solar Mission aims at deploying a 20 GW of grid-connected solar energy in India by 2022 and 1GW by 2013.

Accelerated development of hydro-power potential is necessary in view of the two-fold motivation of peaking power demand and its role in complementing large-scale integration of solar and wind capacity into the grid.

Nuclear power as an important low-carbon and base-load power generating source has been promoted in the recent years by the government. In view of the concerns about its safety and striking consensus at the local and national levels, the pace of its development has been slow to target a generation capacity of 17, 500MW by 2020. Wind power generation has also been given importance with proposed target capacity generation of 30,000 MW by end of this decade.

To provide clean biogas fuel for reducing use of liquefied petroleum gas (LPG) and other conventional fuels, and mitigation by preventing black carbon and methane emissions, the National Biogas and Manure Management Programme (NBMMP) has been introduced. Scheme on Biogas Based Distributed/Grid Power Generation Programme has been already in place as prior measures in this direction. Moreover, promotion of biogas-based power generation in the small capacity range based on the availability of large quantity of animal wastes and wastes from forestry, rural based industries, kitchen wastes has been proposed.

Industry accounts for nearly 35 percent of total energy consumption in India. The energy mix is dominated by coal and oil which are important contributors to high emissions and energy intensity of industry in India. One of the important goals pertaining to industrial sector in India has been the reduction of emission intensity of the economic activities.

A number of measures that could help reduce emissions have been suggested primarily in the iron and steel and the cement industry, which are the major contributors to emissions. These measures target the options to improve carbon efficiency through adoption of efficient technologies for processing, energy recovery and conservation and enhancement of raw materials. By 2020 the emission reduction through these measures is estimated to be in the range of 8-19 percent over 2007 levels.[7]

Pathways for further reduction of emissions in the cement industry have advocated policies that includes diffusion of energy-efficient technologies in sub-processes, waste heat recovery systems to reduce moisture in coal and raw materials and for power generation, utilization of renewable energy, use of waste as alternative fuels, increase of blended cements in the public procurement process, and low carbon captive power generation. The emission reduction potential through these measures in the Cement industry has been estimated to be in the range of 14.6-25.4 percent by 2020 over 2007 levels under different scenarios.

Agricultural emissions contributed nearly 18 percent of India's national GHG emissions in 2007. Methane (CH_4) emissions contributed 63 percent of the total GHG emission from agriculture, in which rice cultivation contributed the maximum - 21 percent. However, in view of the needs for inclusive growth and that much reduction in emission in this sector may not be possible by 2020, no recommendations have been made for reduction in agriculture process emission.[8]

Agriculture has the potential to cost-effectively mitigate GHG through changes in agricultural technologies and management practices. These potential reductions can be achieved through carbon sequestration in soil and methane emission reduction and N_2O emission reduction by changing land use management, changing crop mixes to plant perennial crops, changes in crop genetics, etc.

Sustainable development as the overarching objective of sustainable consumption patterns has gained recognition in India. Although India ranks high in environmentally sustainable consumption[9], with rising population, and changing consumption patterns and lifestyle has proved to be challenging as well.

Several key economic policies, which are aimed at the betterment of the poor (e.g., subsidies), could also result in unsustainable consumption. Therefore, in an emerging market economy like India, promoting sustainable consumption has been targeted through innovative economic instruments and informational policy instruments.

Measures based on economic instruments include renewable purchase obligations (RPO), incentivizing promotion of efficient energy-use consumer appliances under the Super-Efficient Equipment Programme (SEEP), perform achieve and trade (PAT), national clean development mechanism (CDM), compensatory afforestation fund (CAF) etc. Informational policy instruments involve environmental education and awareness programmes, public disclosure of information on polluting activities, promoting 'environmental/green labelling' and eco-labelling or 'Ecomark' for environment-friendly products etc.

Adaptation Actions

India has taken a number of steps in promoting natural resource conservation measures as part of climate change adaptation strategies. Significant emphasis has been laid on improved water resources management in view of the growing demand for these resources from the population. The National Water Mission (NWM) under the NAPCC seeks to develop new regulatory structures and combining them with appropriate entitlements and pricing. Moreover, promotion of citizen and state action for water conservation, augmentation and preservation, focusing on the needs of the vulnerable areas and over-exploited regions are some of its objectives.

The mission also plans to increase water use efficiency by 20 percent through irrigation by designing incentive structures and adopting large scale irrigation programmes and through programmes that focus on recharging of underground water sources.

Apart from water resource conservation, a number of issues relating to other forms of natural resources including land, mining, forest and wildlife management, waste management, reduction of pollution, conservation of biodiversity etc. have been raised which needs to be addressed under the adaptation programmes.

The National Mission on Sustainable Agriculture under the NAPCC aims to increase the capacity of agriculture to cope with future changes in climate. Development of drought and pest-resistant crop varieties, improvement of soil and water conservation measures, knowledge dissemination, and financial support are part of this plan. To mitigate the risks that arise in agriculture due to extreme climatic events, the mission proposes to strengthen the currently in place insurance mechanism including the agricultural and weather insurance mechanisms.

Development and validation of weather derivative models, further facilitation of weather-based insurance, GIS and remote-sensing methodologies for soil mapping and land use planning and mapping of vulnerable regions are some of the complementary measures of risk mitigation in agriculture. Further, access to information for monitoring of various climate related events and off-season crops through collation of block level database and using biotechnology measures to improve productive efficiency of agriculture are some of the other important measures proposed for a climate resilient agriculture.

Natural disasters and climatic extremes pose a significant challenge for the Indian economy and its various sectors. The National Disaster Management Programme therefore aims at providing financial support to disaster mitigation and disaster preparedness and prevention related measures. The purview of the programme also includes various extreme weather events including drought and flood.

Tourism sector in India has been promoted in view of exploiting the endowments of biodiversity, forests, rivers and its rich culture and heritage. With a changing climate, India aims to promote ecotourism recognizing the challenge of preserving these in their original form and making them accessible for domestic and international tourism.

Infrastructure development is a key strategy for climate adaptation. The Eleventh Five Year Plan recognizes inadequate infrastructure as a major constraint on rapid growth.
Expansion of investment in infrastructure is therefore proposed in order to promote economic growth as well as for efficient climate proofing.

The impact of climate change on human health could manifest in terms of heat strokes, higher incidence of vector-borne disease and other indirect health impacts including diarrhoeal risks from water contamination via flooding or higher risk of mortality from the impact of large-scale loss of livelihoods. Further indirect impacts could prevail in terms of deterioration in nutritional health arising due to crop failure caused by drought.

The prime objective of the programmes on health is surveillance and control of the vector borne diseases, and emergency medical relief in the case of natural calamities. Training and development of human resources for promotion of these objectives have also been part of these programmes.

Climate change and media coverage in India

The NAPCC recognises that building public awareness will be vital for the implementation of the NAPCC. For this the role of media, civil society involvement, curricula reforms, recognition/rewards and similar other sources of capacity building.

According to Simon Billett[10], the role of media is enormous in shaping the public understanding of climate change in India. Essentially the important role of media is established through its 'framing' and re-forming climate change issues, in the scientific or political domain. Nevertheless, climate change is presented in a highly varied manner at the national level.

Within India climate change has been attracting increasing attention and in parallel India within the whole gamut of climate debate. This is evident both nationally and internationally from the Indian stance on various issues pertaining to climate change from its own National Climate Change Policy[11] and its participation in the international negotiations.

India has remained politically defensive both in response to its national physical threats (i.e., impacts due to climate change) and in terms of international action to fight climate change.

The author suggests that climate change mitigation is seen primarily through a North-South perspective where by mandatory emission reductions are equivalently viewed as 'carbon colonialism'.

The Indian Media

Media is instrumental in shaping public understanding of environmental issues. The Global Nielsen Survey 2007 suggests that print media is the major source of information for the literate population on climate change - 74 percent of population use newspapers as primary source of information on this issue.

Coverage of climate science

Indian press completely views climate change as a scientific reality, without much scope for climate skepticism to follow. Survey of journalists suggested that they view about climate change as a threat and its happening today is unequivocal. In other words, climate change is already 'underway'. Therefore, outputs of the Indian mass media show an extremely high rate of agreement with the current scientific consensus on the causes of climate change.

What are the reasons?

The media saw climate change as a presently occurring socio-environmental issue and not some distant scientific process both owing to the Indian government's own independent stance and due to specific occurrences of weather events supported by scientists, leading its attribution to climate change.

Because of its attention on climate change as an environmental issue, the media focus was in line of impacts of and vulnerability to (i.e., risks associated with) the phenomenon.

For instance, direct linkage between climate change and the aberration in the Indian monsoon is also supported by science. Climate change is already 'underway' in India and the country and its people are already suffering from the impacts of climate change.

Since climate change affects people directly, it is portrayed as a socio-environmental issue and its impacts as India's own challenge. Whereas, when it comes to actions to tackle it are seen as

'others' responsibility. There seems to be a dichotomy in the national stance as understood from the Indian media when it comes to reconciling impacts of the phenomenon and policy actions to deal with it.

Another obviously reflected feature is the media focus on impacts mostly in the rural areas with most of India still living in rural areas. Further, most of them discuss about specific threats of climate change. The key focus lies on either agricultural impacts, or erratic monsoon rainfall, or Himalayan glacial retreat.

An important characteristic of the media has been that climate change and related discussions including Impact stories seemed to peak during and up to six months after a hydro-meterological hazard seemed to have occurred.

Nearly 60 percent of the climate change articles talk about science and impacts. Media firmly places impacts of climate change within Indian borders.

Climate politics

Location of risk is complemented by the media's representation of India's position on responsibility to tackle the issue. Both the aspects make India's position appear as having a unified stance on the climate change debate.

In line with the government's own position, the media places the responsibility and demand for action firmly outside the country.

39 percent of stories framed it being the North's responsibility to tackle climate change as they are the creators of the problem.

55 percent believed in the UNFCCC suggested common but differentiated responsibility and based on it the idea that climate change is a common problem for all countries and that any actions to tackle it must be differentiated across nations.

However, while India could participate in a global deal to reduce emissions, any such near future targets must be rejected in view of the overarching objective of poverty reduction and economic growth. This reflects the wider governmental approach to climate change in India, which is to see it in historical and developmental terms. Per-capita emissions has been the keystone of their argument for all climate actions be directed to the North.

This shows a "Cause outside, effect inside view" by the media, where cause and effects seem to be 'distanciated'.

Uniformity in impacts and policies of climate change extended the international division of risk and responsibility to a North-South divide that grouped India with other developing nations. This shows that a larger sense of nationalism is tied to climate change in the Indian context.

Sub-national divide

However, one of the important aspects which is striking for the Indian media in the climate change context is the absence of coverage on domestic stratification of emissions and the potential for climate mitigation or capacity to adapt within India. This has been catching up as the government themselves are opening up with their ideas of mitigation options to tackle climate change and to do their bit to tackle the issue.

Use of a purely nationalistic, unified frame obscures the increasing nuance in the climate change debate. For instance, it largely ignores the wide differences that increasingly exist between those who have benefited from India's growth and the rural poor, who still are a form of environmental colonies with much of its legacy to follow.

India reframes the climate change debate around a nationalistic argument of 'us' versus 'them' at the expense of other key issues in the debate.

However, this is not new to follow. Such nationalistic arguments are nevertheless the only means to defend a nations' own view and interests on matters of such importance.

Role of media

The influence of media is highly restricted to the upper sections of the society. Such nationalistic stance in essence supports the increasing emissions of the industrial elites within the country.

Compared to other countries, the media's role reflects highly contentious political frame that defines attitudes towards climate-policy making.

Yale Project on Climate Change Communication Summary

The above summary discusses the role of media through analysis of trends and causes behind those trends in their coverage on the climate change issue. However, to understand the ground realities, that is, the extent to which the public have been able to relate themselves to these stories and to the extent they have been informed by the media is a question that remains to be answered.

Two large public perceptions surveys on the role of media have come through the Yale Project on Climate Change Communication and the BBC-Climate Asia survey.

The Yale study has the objective of investigating the current state of climate change awareness, beliefs, attitudes, policy support, and behaviours owing to public perception on impact and vulnerabilities of the phenomenon.

The study collects information on the observations of public on local environmental change, climate vulnerability and resilience, awareness and beliefs, level of trust in different media of communication on climate change, their support for climate change policies, their values, and their media use.

Without any description of the phenomenon, nearly 41 percent of the surveyed population seemed to be not aware of climate change - neither heard of it nor know it themselves. Only 7 percent of the people seemed to already know a lot about the phenomenon.

However, when given a short definition of it, 72 percent of the population seemed to have known or realized about climate change.

Their perceptions on whether really they have observed the climate changing could be verified through their own observation of changes in rainfall, increasing number of hot days, severity of storms and extreme events as drought, and erratic monsoon rainfall.

Impact of the fellowship

Considering its large geographic size, the presence of multiple ecosystems and climate zones, and the large size of media presence, India had the maximum number of SACCA fellowships in both the fellowship cycles. There were seven fellowships in each of the two years thereby adding to 14 out of the total 49.

The fellows selected covered multiple kinds of media outlets:

- Subhra Priyadarshini and Vaishnavi Chandrashekhar write for science-based publications – Nature India and the Christian Science Monitor.
- Ermelinda Dias works for the State-run television channel Doordarshan. Rajendran K works for a private television channel – Kairali TV.
- George Thomas writes editorials for Malayala Manorama, a Malayalam language daily which till a decade ago had the largest readership among newspapers in India.
- Atul Deulgaonkar and Pradeep Nanandkar are both senior journalists writing in multiple publications in Marathi. Deulgaonkar's role stretches into the policy domain, since he is on many committees set up by the state government of Maharashtra.
- John Upton, an Australian working from New Delhi represents the young generation of environment journalists who are proficient at using the online media. John contributes to the New York Times India Ink and Grist, among other online publications.
- Pon Dhanasekaran and Kavitha Muralidharan represent the Tamil print medium. While Kavitha writes for the The Hindu Tamil, Pon writes for Puthiya Thalamurai Kalvi weekly magazine.
- Nilofer D'Souza and Sandip Das represent the business media in India. While Nilofer reported for Forbes India and Firstpost, Sandip writes on agriculture and climate change for the Financial Express.
- Athar Parvaiz is the voice that represents the state of Jammu and Kashmir, the northernmost state in India, and also victim of adverse impacts of climate change in the Himalayas.

- Atul Kumar Singh and Santosh Sarang represent the Hindi media from New Delhi and Bihar. Due to the positive impact of increasing literacy in the Hindi-speaking states, the Hindi media had the highest growth in circulation and readership in the decade between 2001 and 2011. The SACCA fellows had a representation in this sector.

Due to the country's size, climate change issues in India cover almost the entire spectrum – glacial melts, GLOF, climate-resilient agriculture, methane emissions, sea-level rise, riverine floods, drought, energy-intensive industries, fossil fuel emissions, urban waste, etc. Through their wide participation, the media fellowship stories in India covered a range of issues across different sectors including agriculture, biodiversity, water, energy, transport, among others.

There were unique stories from the SACCA fellows from India. Subhra Priyadarshini, for instance, visited the Sundarbans in the delta of the Gangetic river system stretching contiguously between West Bengal in India and Bangladesh, and wrote about the islands sinking due to climate change. Her story won her a place in the Global Investigative Journalism Conference held in Rio de Janeiro, Brazil, in October 2013. Similarly, John Upton wrote about the Indo-US climate diplomacy when the US Secretary of State John Kerry visited India in June 2013.

Athar Parvaiz and Vaishnavi Chandrasekhar travelled up the mountains in the Himalayas to look at the impact of climate change. Athar reported that climate change is affecting the livelihood of pastoralists who depended on the wool from the Pashmina goats. Vaishnavi, on the other hand, reported that the apple farmers had to move to higher grounds due to warming temperatures.

Vaishnavi also looked at the impact of climate change on the fishworkers of Mumbai. Bombay Duck, the fish that earned them much money was becoming less in their catch. Instead, oil sardines that love warmer waters were moving northwards along the Indian coast. Vaishnavi also did a story comparing the readiness of Mumbai if Hurricane Sandy (that hit New York) were to hit the Indian city.

Most of the stories however focused on the 'impact' aspect of climate change. These articles discussed specific issues at the local and national levels with more concentration on the local aspects of the impact that is already been experienced at various regions or socio-economic community level.

As one would expect, one of the ways in which climate change could manifest is through the occurrence of extreme events. Most of the impact stories highlight that climate change is increasing the intensity of extreme weather events. Related to this are how they have actually lead to mass destructions in the Himalayan ecosystem in 2013 and how early warning systems could be of particular help to avoid such catastrophic events in future.

With erratic weather patterns, climate change is affecting the livelihood of the people by affecting agriculture, livestock, water, health etc.

Starting from how Kashmir's agriculture and livestock dependent population are threatened, water scarcities in Ladakh, to increasing concerns of rising heat in Kerala and its associated health impacts, to potential regional impacts and water sharing issues in the North-East giving rise to cross-border conflict have been covered.

Agriculture being one of the climate sensitive sectors gets maximum attention in terms of media coverage in general. The same is true with the fellowship coverage. Some of the stories portray significant effects on Indian agriculture with high impact on staple crops like rice, wheat, maize, soybean and potato reflecting the impact side of the phenomenon.

On the other hand, a great emphasis has been laid on adaptation research and policy pertaining to agriculture. How development of heat-resistant mustard has been made available in the southern part of the country, how farmers are encouraged to become 'climate smart' with the aid of technology, how government plans to help Indian farmers adapt, etc. are examples of such stories.

Nepal

International position

Nepal is currently the leader of the Least Developed Country group in the international climate change negotiations. Thus its position has been that representing the interests of the smallest countries in the world.

As part of the Least Developed Countries (LDC) group, Nepal calls for a legally-binding second commitment period under the Kyoto Protocol (KP) and a higher level of ambition by the Annex I parties: 45 percent emission reduction by 2020 (95 percent by 2050) compared to 1990 levels (CoP 17, 2011).

Nepal has stated that to promote the objective of a green and climate resilient economy, necessary financial and technology mechanisms must be explored through various national and international sources. Both technology and finance have been priority areas for Nepal in the international climate change negotiations and also at the national policy making level. International cooperation for mobilization of funds has been sought for climate finance. Green Climate Fund (GCF) under the UNFCCC, operative through Global Environmental Facility (GEF) hosts the LDC Fund and the Special Climate Change Fund (SCCF) and stands as an important external source of finance. However, Nepal as LDC chair has emphasized the provision of details of the GCF funding mechanism and giving GCF its full juridical status to enable *direct* access of the funds by its beneficiaries (CoP 18, 2012).

A number of policies to gain access to financial resources for climate change action have also been proposed at the national level. Important means of mobilizing funds at the national level include public and private, internal and external sources, carbon trading and Clean Development Mechanism (CDM), polluter pays principle and payment for environmental services.

Appropriate technology, knowledge transfer and capacity enhancement could be key to the success of any mitigation and adaptation efforts. However, various financial and institutional constraints present in the developing and least developed countries lead to their limited ability for technology development, adoption and transfer and capacity building. Nepal seeks support from the developed countries to enable technology development, transfer and capacity enhancement for their efficient utilization to tackle climate change.

Nepal, like Bhutan, is sandwiched between two countries that are high emitters – India and Nepal. However, since Nepal's economy is dependent on strong relations with these countries, it has not raised arguments against them internationally.

Nepal's per-capita emissions are just 0.025 percent of the total GHG emissions in the world and much lower compared to almost all developed countries. Nevertheless, the country is committed to make its contribution in the mitigation efforts to tackle climate change primarily through a low-carbon socio-economic development strategy (CCP, 2011). Firmly standing for the 1.5 degree shared vision, limiting emissions below 350 ppm and the legally binding outcomes, Nepal clearly reflects its national position in the climate change negotiations (Sagarmatha Declaration, 2009; CoP 17, 2011).

The country has long recognized protection of the livelihood of the poor, who are least responsible for the problem but likely to be the biggest victims of climate change impacts as a priority. This is clearly reflected in Nepal's advocating of green economy and low carbon growth policies as an instrument for sustainable development, poverty reduction, equitable and inclusive growth in the Rio+20 United Nations Conference on Sustainable Development (UNCSD) (Rio+20 Status Paper, 2012).

Being in a mountain ecosystem, the country is one of the first to recognize the impact of climate change on the mountain ecosystem of the country on which is responsible for sustaining the livelihood of thousands of poor people. The Sagarmatha Declaration (2009) is the clear evidence in this direction, showing the country's commitment to join hands with international efforts to tackle the problem.

National Policy Perspective

Nepal has shown its prominence in climate change policy, their strategic planning and programme implementation a number of ways. In 2011, Nepal came up with its Climate Change Policy (CCP) as a step towards the integration of issues relating to climate change with other nation-level policies and practices. Its ultimate goal is to improve livelihoods through mitigation and adaptation actions, while adopting a low-carbon emissions socio-economic development path.

Under the national climate change policy, actions have been proposed to deal with potential adverse outcomes, while dealing with the existing and emerging issues that are likely to exacerbate the climate change problem in the short- and the long-term. More specifically, the national CCP aims at tackling climate change through active policy actions and simultaneously to achieve the goals of poverty reduction and sustainable development (p5, CCP). Policies have been proposed under various objectives which range from.

Nepal's green economic policies take stock of its socio-economic and environmental pillars. The country has shown several progressive sectoral policies. For dealing with climate change, ultimate objective for Nepal is aligned with its national developmental goals that emphasize equitable access to income, health and education and resources. Right to "live in clean

environment" as a fundamental right has been recognized in the Interim Constitution of Nepal 2007.

With several mitigation and adaptation policies and actions proposed at the national level, the country is now gearing for innovative mitigation policies to be implemented at the best disaggregated scale possible, its districts. Nepal's District Climate and Energy Plans (DCEP) are a step in this direction (CKDN, 2013). A district level plan that enables exploring the renewable energy options which aim to provide a solution towards tackling climate change and other currently existing socio-economic issues.

Nepal has shown commitments to low carbon development and climate resilience through formulation and strategic implementation of mitigation policies. Carbon sequestration through scientific forest management, land use planning, reducing deforestation and promoting afforestation, development and utilization and provision of clean, renewable and alternative energy and technology, incentivize adoption of clean energy medium at the source and implementing emission standards, promotion of sustainable transport are some of the green economy policies promoted at the national level. Nepal views that a green economy "...should offer new trade opportunities to all countries, and not become a pretext for another form of protectionism or for introducing 'green conditions' in international cooperation" (p47, Rio+20 Status Paper, 2012).

Absence of coherent strategies for communication of the environmental issues and their potential consequences, gaps in the science and public policy interface, institutional and technical weaknesses, and inadequate incentive mechanisms are some of the barriers to successful implementation of climate resilient and green economy policies in Nepal. A favourable policy environment taking a multi-stakeholder approach that removes these barriers is a way out. Some of the specific policies and actions relating to climate change mitigation and adaptation for Nepal are discussed in the subsequent sections.

Mitigation Options

Fossil fuel consumption is an important contributor in the emission of GHGs in Nepal, which is the main anthropogenic reason for climate change worldwide. In 1994/95, CO2 emissions from the consumption of fossil fuels accounted for just 25 percent of total CO2 equivalent emissions. On the contrary, the main contribution to the inventory of GHG comes from Agriculture. Methane (CH4) emissions primarily from agriculture accounted for 51 percent of the total CO2 equivalent emissions in the 1994/95. Promotion and development of low methane emitting agricultural technologies have been advocated for this purpose. Though restriction on the use of fossil fuel may not be the top priority mitigation measure for Nepal, these measures need to be in place to stop the problem from getting aggravated further.

Nepal has proposed a number of measures to target reduction of GHGs through efficient energy systems management, consisting of management and policy implementation for both traditional and renewable energy supply.

The country is highly dependent on traditional sources of energy including fuel wood, agricultural residues and animal waste. Nearly 87 percent of the total production of energy in Nepal comes from traditional sources. Fuel wood accounts for 69 percent of this traditional energy output (NATCOM1). This suggests the importance of biomass, especially forest biomass in Nepal. To reduce the over dependence on these traditional sources and to reduce GHG emission, adoption and use of renewable sources of energy has been recognized at the policy level. Gradually, the economic and environmental policies of Nepal are focusing on promoting clean, renewable and alternative energy sources focusing on solar, biomass, and wind energy. Nepal plans to increase the share of renewable energy in final total energy consumption from 11.9 percent in 2011 to 22.1 percent in 2030 (Rio+20, 2012).

Reducing GHGs by promoting the use of clean energy, such as hydro-electricity, renewable and alternative energies, increasing energy efficiency and encouraging the use of green technology is one of the objectives put forth in the national Climate Change Policy. To further low carbon development goals through the use of green technology, investments from national, regional, and international sources in clean energy sources with priority on hydropower is also encouraged.

A number of policy approaches to GHG mitigation have also been proposed at the sectoral level. Major sectoral focus includes the transport, industry, forestry, and agriculture.

Transport sector is the major contributor to the total CO2 emissions in the country (31 percent), followed by the industrial sector (27 percent). In 2010/11, Nepal had 15 times more number of vehicles than the count 1990 (Rio+20, 2012). This being a matter of concern, the national policies have attempted its cure. The integration of environmental concerns in transport management is a major highlight of the National Transport Policy 2001which gives highest priority to promoting electric vehicles, maintenance of roads, equalization of traffic density, preference for mass transport, compliance with environmental standards, and bringing more efficiency in public transport through more competition. Key mitigation measures in transport sector includes increase in vehicle performance, fuel switching, switching of modes of transportation, decrease travel distance, and increase occupancy of public vehicles (NATCOM1).

For the industrial sector, the objective is to integrate GHG mitigation measures with sectoral development plans and environmental sustainability. The focussed programmes include improved energy efficiency, switching from fossil fuels to traditional sources of energy with low carbon content, improved energy management, energy conservation and renewable energy use.

Another important mitigation potential exists in the forestry sector. Community forest management suggest forest management in Nepal has the potential to sequester significant amounts of carbon which can enter into voluntary and international carbon market and help generate financial resources. In 1994/95 nearly 64 percent of the total emissions from Land-use Change and Forestry were sequestered owing to biomass growth (p iii, NATCOM1).

Proposed actions to increase mitigation potential in forestry include preservation and conservation of forest, improved technology to substitute fuel wood consumption, afforestation and reforestation of degraded land, efficient utilization and conservation of forest resources, promotion of programmes on sustainable forest management, agro-forestry, pasture, rangeland, and soil conservation, preventing forest fires and encouraging optimum utilization of

international, regional and local funding for REDD. To complement these measures in reducing GHG emissions from land use change and forestry, attention has also been paid towards implementation of a scientific land use system.

For mitigation in agriculture, target is to reduce methane emissions. Proposed actions in this direction include improved water management, farm residues and chemical fertilizers, selection of appropriate cultivars, and changes in cultivation techniques and practices, technology upgrading through awareness creation, education, incentives and policy interventions.

Adaptation Actions

The impact of climate change on Nepal is likely to be severe. Various sectors including the important climate sensitivity sectors like agriculture and livestock are expect to get adversely affected with changing climatic events. This could aggravate food insecurity in the country and put pressure on any development measures that are in place to tackle issues such as poverty, inequality, and malnutrition.

Increased warming and erratic rainfall patterns leading to various climate-induced extreme events (e.g., drought or flood) and disasters including Glacial Lake Outburst Flood (GLOF) could bring additional damages to the socio-economic system of Nepal. In spite of current and future mitigation efforts, the residual damages that threaten the future of the countries' wellbeing are to be tackled mainly through adapting to climate change.

Climate change poses a huge challenge for the country's mountain ecosystem and related services. These could in turn affect tourism and other economic prospects of the country, leading to further marginalization of the country's poor and vulnerable people.

The country's National Adaptation Programmes of Action (NAPA) as a strategic tool to assess climate change vulnerability and propose prioritized interventions to adapt to the potential impacts due to climate change has been prepared under the UNFCCC. The NAPA has been proposed through a consultative process, carefully advocating the prioritized adaptation actions.

Both national level and micro-level assessments have been carried out keeping in view the localized nature of adaptation planning. National development planning being considered as a framework for adaptation is the key feature of NAPA. This saves the policy makers from re-inventing the wheel when it comes to taking actions to adapt to climate change.

The NAPA delivers nine integrated project profiles under six broad thematic areas. Community based adaptation through integrated management of agriculture, water, forest, and biodiversity, building and enhancing adaptive capacity of vulnerable communities, community based disaster management, GLOF monitoring, forest and ecosystem management, public health and climate change, promoting climate smart urban settlements or sustainable cities, and empowerment of the vulnerable communities are the profiles under NAPA purview.

Each of these nine integrated profiles taken into consideration clearly discuss about the overall goal, specific objectives, proposed activities to be undertaken, short- and long-term potential outcomes of these activities, various stakeholders involved and their strategy for implementation,

estimated time frame and total costs of these actions, potential risks and barriers to success of these actions, their monitoring and evaluation.

As a first step towards effective policy making, the NAPA identifies the currently vulnerable regions due to climate change and related events such as GLOF, drought, flood, landslide events through an indicator based vulnerability mapping at the district level, classified under different vulnerability profiles/categories. The total cost of implementing the proposed adaptation actions has been estimated to be US $ 350 million.

Several of the key sectors that have the potential to introduce climate resilient adaptation actions have been covered under the NAPA for Nepal. These suggest prioritized adaptation programmes contributing to strategic areas has been the Nepal's policy focus. For instance, in biodiversity conservation, focus is laid on sustainable forest management, improved governance and capacity at the local level, improved access, equitable benefit sharing, sustained ecosystem health and services through watershed and landscape planning and management.

Adaptation priorities in agriculture have been put in the broader perspective of sustainable agricultural land use system, agro-biodiversity management and favourable conducive governance at the local level to complement local adaptation planning and implementation. Access to improved variety of seeds and technology, market, crop-productivity enhancement programmes, improving the conventional cultivation practices are some of the immediate adaptation options available for Nepal.

Medium- and long-term adaptation actions in the impacted and climate-induced disaster-prone areas and communities, monitoring of glaciers and glacier lakes, forecasting water-induced disasters (e.g., flood), developing early warning measures, enhanced capacity to cope with climate-induced extreme events are some of the important policy actions suggested to deal with extreme weather events due to climate change. Overall, the objective is to put these actions in place through integration with national development planning.

Climate change and related extreme events could affect Nepal's status as an attractive tourist destination in the world. The Nepal tourism vision for adaptation measures includes championing the best and innovative practices of destination marketing and development, and eco-tourism, making it the mountain tourism destination in the world. Nepal adheres to the idea of 'responsible tourism' as 'sustainable tourism'.

Climate Change and Media Coverage in Nepal

Living in a country cradled by the Himalayas, journalists in Nepal have always been open to reporting on climate change. However, events took a turn for the dramatic in December 2009, when few days before the world leaders were to meet at Copenhagen, Denmark, for the Conference of Parties to the Climate Change Convention, the Nepali Government had a Cabinet Meeting at the Mount Everest Base Camp. The photo opportunity made international news because two months earlier, President Nasheed's Government in Maldives had organised their Cabinet Meeting on the ocean floor. If Maldives succeeded in attracting international attention to rising sea levels due to climate change, Nepal focussed attention on the melting glaciers. Both countries made a point.

The media was agog in Nepal with climate change stories before, during and after the Copenhagen CoP. Today the numbers are decreasing. Like journalists all over the world (see graph as tracked by the Centre for Science and Technology Policy Research at the University of Colorado at Boulder, USA), attention on climate change among Nepali journalists decreased after the Copenhagen CoP did not deliver as much as it set out to do.

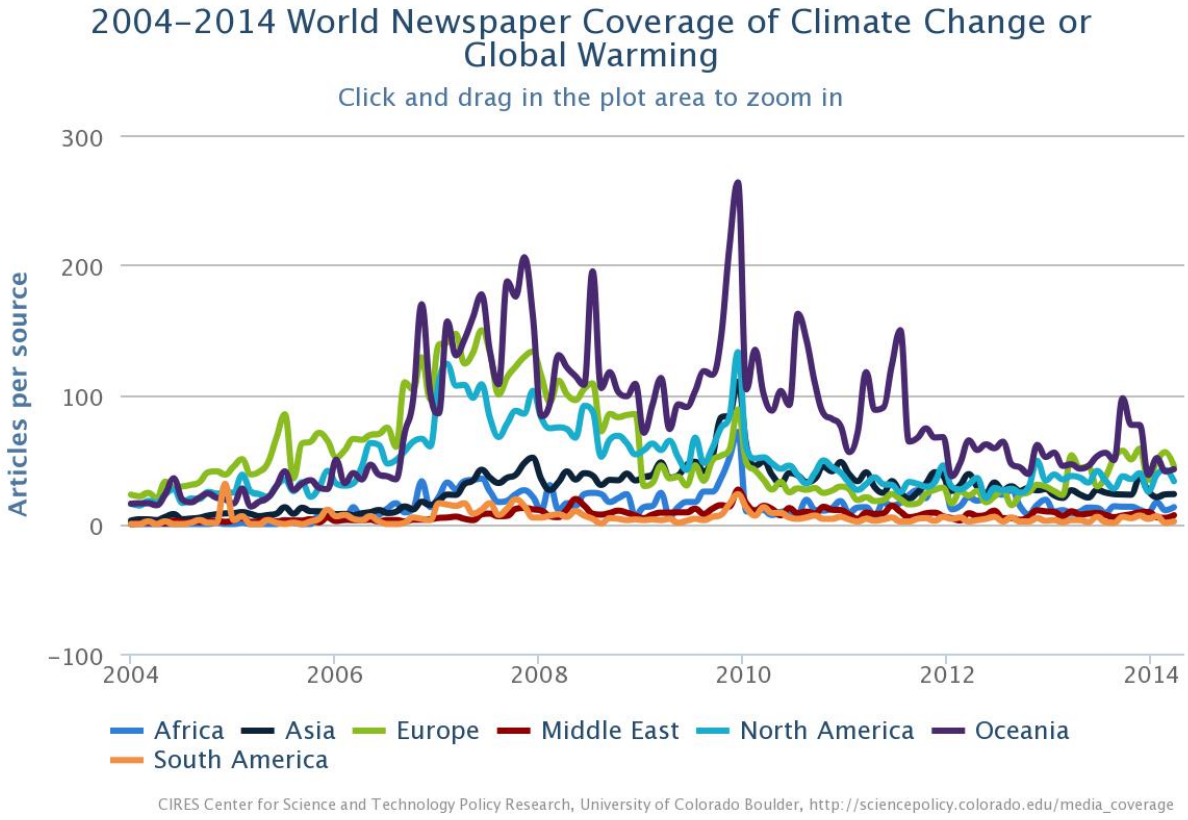

Figure 6. CSTPR graph shows the maximum media coverage on climate change across the world was the highest during the Copenhagen CoP

Like in Bhutan, the climate change stories written by Nepali journalists reach the government officials, since there is usually feedback from them. According to SACCA fellow Ramesh Bhushal, everybody talks about climate change, but in-depth stories linking it to science and livelihood issues are still not many. The most divided issues are about water in the rivers and GLOFs.

Though the number of media houses are growing in Nepal, the same cannot be said of the quality of reporting. There are many opportunities for young people to join journalism, but they drop out as they become senior in the profession.

In a popular internet search engines, a merely simple search of the words "Climate Change in Nepal" produces 22.2 million hits. This suggests the nature of the problem at hand and its power to draw popular and media attention. Although significant progress of climate science in the past has alerted the society of the harmful effects of the phenomenon, the media has taken the

responsibility of highlighting them and influencing public perception and policy prescriptions on the issue. Science needs media for its outreach.

A number of issues relating to climate change, policy, and actions have recently been addressed by the media. These discussions highlighted focus on current issues dealing with various aspects of the problem at all levels - community, region, political, science, policy, and the economy. The impacts and vulnerability aspects of the phenomenon are brought to attention, policy options have been highlighted, financial issues have been resurfaced and key political challenges made evident.

Public awareness of existing and emerging issues is key to successful policy design and implementation. Changing perception on the issue at hand could handicap any strategy. One recent article reflects although Nepal has been categorized as the 4th most vulnerable country in world, most people in the country are hardly aware of the global phenomenon.[1] This gives scope for the government to recognize it as a potential hindrance in its way to successfully implement any mitigation or adaptation actions in future and must seek ways to tackle it in appropriate ways.

Recognizing the potential manifestations, their resulting impacts and future consequences are equally important. A number of articles have focused on the climate change impacts and vulnerability. From agriculture[2] to forest fire[3] to glacial melts furthering risks from Himalayan Tsunami[4] to overall impact on the economy and its growth[5], the potential impacts have been found real and significant.

On the policy front, both mitigation and adaptation actions have been highlighted. Encouraging renewable energy sources[6], implementing various laws and regulations to facilitate policy success[7], mitigation through control of forest fires[8], climate diplomacy[9], climate finance[10], role of government in community based adaptation[11], biodiversity conservation[12] are a few to mention in this direction.

The role of media has also been to highlight the less explored and subtle topics which includes the emerging shortages in energy[13], influence of climate change on livelihood and food security[14], and emerging issue relating to climate finance[15].

On the whole, however, the issue that remains is one relating to public discussion on climate change. The media attention should also focus towards how to enable the popular discussions to take place at the grass-root level, where lives the actual population at stake due to climate change. Moreover, knowledge sharing by the media at the national and international level has the potential to encourage scientific attention and research to the issues of the least developed world, yet to be known by the developed society of the west.

Impact of the fellowship

Ramesh Bhushal was an environmental journalist in the Republica when he was a SACCA fellow. The period also coincided with Nepal's presidency of the Least Developed Countries bloc in the climate change negotiations. Ramesh covered the LDC meeting held in Kathmandu for the newspaper. His training with the fellowship helped him to approach his stories

differently. And this made international impact. One of Ramesh's story was taken by the UNFCCC Secretariat as one of the top 10 stories of the day.

"Due to the fellowship I had the urge to do more research for the stories. I tried to make my stories more visible," said Ramesh.

Ramesh also did two other stories that had strong impact. In one he reported that official development assistance (ODA) money coming into Nepal from developed countries was being re-packaged as carbon finance. In another story he reported about a commission being charged for ODA funds. His ODA stories resonated among government officials and the readers in Nepal.

Ramesh feels that the networking that the SACCA fellowship provided helped in looking at new ideas. Subhra Priyadarshini had done a story on the black carbon released by cremations in India. This instigated Ramesh for looking at a similar story in his country, since the predominantly Hindu Nepal also depended on cremation to dispose off the dead.

The training workshop set Pramila Manandhar of Radio Sagarmatha thinking of looking at innovative stories related to climate change. Houses in Kathmandu get warm in summer and cold in winter. She realised that roof-top farming can reduce the heat in summer and increase the warmth in winter. She started a programme on roof-top farming in her radio channel. It turned out to be very popular. It brought together those who are already practising this and those who wanted to start.

For Pramila, the training workshop and the fellowship helped to link with other journalists across countries in the region, and therefore to entirely new perspectives on climate change. "It is not that I did not do climate change stories before the workshop and the fellowship. But now my stories have become far more informed. I have also found better ways of communicating about climate change through the radio," she observed. "For instance, people link quickly to climate change when we talk of roof-top farming rather than when we talk of glacial melt on the mountains."

The SACCA fellowship gave a regional perspective to writing on climate change, according to Pragati Shahi working with the Kathamandu Post. When she travelled to Dhaka, she could compare the air pollution in Bangladeshi city with that of Kathmandu. The story was very popular and was re-tweeted by many. Another SACCA fellow – Nusrat Islam Khan – based in Dhaka, helped Pragati to get the contact of a university professor for data for the story.

"I could add better depth and scope to my climate change stories after the training workshop," said Pragati. The exposure gained helped her to understand and write about the climate change issues affecting Kailali district in Nepal. The story was picked up by DFID and re-published.

The exposure also helped Pragati to report effectively on the Least Developed Countries meeting in Kathmandu and also write about the national and local action plans.

Pakistan

International position

In the Doha CoP, Pakistan along with other developing countries including India and Sri Lanka called for emission reductions on the part of developed countries to the extent of 25-40 percent by 2017.[12] The country stands by the principle of common but differentiated responsibility (CBDR) of the UNFCCC for any distribution of responsibility and emission reduction burden across countries.

The country came up with its own National Climate Change Policy (NCCP) in 2011. The policy documents delineates the objective of ensuring ample energy supplies, energy efficiency improvement and energy conservation for economic development while finding cost effective ways of reducing emissions while to achieve its climate change mitigation targets.[13]

On pursuing green economy policies, the country recognizes that CBDR of the UNFCCC is the principle that needs to be followed. The green economy policies must be advocated with the ultimate objective of promoting sustainable patterns of production and consumption.[14] The country aims at voluntary development of approach to green economy best suited to Pakistan's national circumstances, and not a 'one size fits all' solution.

While pursuing green economy policies, the country also aims to ensure the removal of international trade-distorting measures through relevant forums. Green economy must not be an excuse for trade protectionism and it must not impose additional conditionalities on the trade potential of the developing countries.[15]

In this regard, gradual introduction of 'Green Fiscal Reforms' in different sectors of the economy has been suggested.[16] Moreover, to complement its GHG mitigation measures, the country would give preference to import of natural gas, liquified natural gas (LNG) and liquified petrolium gas (LPG) over import of oil and coal.[17]

In order to pursue its green economy policies while tackling the issue of climate change, Pakistan will have to find technological as well as financial resources both domestically and through international cooperation. The country qualifies for financial assistance under the UNFCCC framework such as the 'Green Climate Fund'.[18]

Besides this the country aims at exploring other international financing options both under and outside the UNFCCC framework such as the Clean Development Mechanism (CDM), Adaptation Fund (AF), Global Environmental Facility (GEF), and World Bank's Forest Carbon Partnership Facility (FCPF). Moreover, through introduction of carbon tax on the use of GHG intensive energy generation from fossil fuels, the country aims to generate further domestic sources of finance.

However, to secure necessary share of the climate fund, Pakistan proposes to create an enabling environment for facilitating the funding process. Such initiatives include the establishing a 'Pakistan Climate Change Trust', developing Public-Private-Civil society partnership for

financing and implementation of climate change adaptation and mitigation projects, introducing appropriate investment framework in the domestic carbon market, etc.[19]

Pakistan expects a commitment by the developed countries for their support in the area of capacity building and technology transfer.[20] The country proposes to explore the possibility of obtaining technological know-how and their transfer for installing clean energy technologies.

Further, in respect of capacity enhancement, Pakistan proposes institutional strengthening measures, development of knowledge base networking and management, introducing training and support programmes, undertaking comprehensive assessments of economic implications of climate change, etc (p32, NCCP).

National Policy Perspective

Mitigation options

Energy and agriculture sectors account for the largest share of GHG emissions in Pakistan. The combined contribution of both sectors to the emissions inventory reaches 90 percent. Therefore, the most important targets for GHG mitigation are concentrated on these two sectors.

The proposed mitigation measures envisaged in the NCCP include shift in energy mix and fuel-switching programmes to low-carbon fossil fuels, development of indigenous technologies for CO_2 capture and storage, waste-heat recovery, cogeneration, coal bed methane capture, and combined cycle power generation. These measures will be supported through provision and promotion of necessary incentives and activities.

Agriculture sector contributes to 39 percent of the total emissions in Pakistan. The country recognizes the urgent need to contain these emissions and which would require technological innovations and financial resources with the help of international community.

To restrict emissions in agriculture, the measures proposed in the NCCP include promotion of ecologically sustainable green revolution through the integration of indigenous knowledge and modern technology, promoting better management practices, development of biogas for methane reduction and capacity building measures at the institutional level to enable undertaking mitigation measures.[21]

In order to complement the mitigation measures Pakistan also aims at development and promotion of renewable energy resources and technologies such as solar, wind, geothermal and bio-fuel energy. Further development of hydropower has also been given preference. Keeping in view the security concerns the country also proposes the expansion of nuclear power.

Industrial activities also lead to enormous volume of GHG emissions in the country. Mitigation measures in any country therefore must target its industrial sector and sub-sectors as a priority. The mitigation options for Pakistan in the industrial sector include promoting high efficiency in energy consumption, enacting and promoting energy conservation legislations and audit standards, providing economic incentives for emission reduction, promotion of voluntary corporate social responsibility guidelines, cleaner production strategy, and ensuring technology transfers in polluted industries such as cement.[22]

Pakistan has proposed an elaborate set of mitigation measures for its transport sectors. The NCCP covers the emission reduction options available for the road, aviation and rail transport in a comprehensive manner.

Mitigation measures in the road transport includes provision of efficient public transport system, enforcing strict vehicle emission standards, promotion of bio-fuels for local transport, development of mass transit system in cities, providing economic incentives to promote emission reduction in private transport, promoting the use of CNG vehicles and other fuel efficiency enhancement and emission reduction measures, and expanding the railway network in the country.

Besides these sectoral and integrated mitigation options, one must pay attention to the consumption patterns which could also lead to large volume of emissions. Energy conservation, improving energy efficiency, quality management of energy production and supply, reduction in energy transmission and distribution losses are some of the proposed mitigation policy options by Pakistan.

The country's forestry sector is recognized to have the potential to sequester carbon and thus could prove to be a useful mitigation avenue. The various measures in the forestry sector include setting annual afforestation and reforestation targets, formulate laws and regulations, promote adoption of alternative fuel and livelihood options for forest dependent communities and farm forestry practices, preparing a framework for national REDD strategy, develop legal and institutional framework for improved forest management, etc.[23]

Adaptation actions

Climate change taking a toll on the natural resource reserves of a country (e.g., water) must be tackled through various resource conservation and adaptation actions. Pakistan has the objective of promoting conservation of natural resources and long-term sustainability. Resource conservation through improved energy efficiency, quality management of energy production and supply, development of water storage and distribution infrastructure, upgrading irrigation infrastructure, ground water conservation, wastewater recycling etc are some of the resource conservation measures in adaptation.

Agriculture is a climate sensitive sectors and likely to get adverse impacts due to climate change. The rural and agriculturally dependent economy of Pakistan therefore must undertake specific measures of adaptation. The NCCP proposes a number of research and development and technological, and risk management options in agriculture.[24]

Development of new variety of seeds which are resilient to heat stress, heavy rainfall, pests and insects, increasing efficiency of agricultural inputs (e.g., irrigation water), promoting energy efficient farm mechanisation, improving irrigation practices, temporal and spatial assessment of land cover in agro-ecological zones, use of biotechnology to develop more carbon responsive crops etc. are some of the proposed research and development and technological adoption measures.

The various general management and risk management options in agriculture include development of wasteland and rainwater harvesting through community management

approaches, ensuring financial enablement of farmers for adoption of necessary technologies, introduction of crop insurance, discouraging monoculture, encouraging agricultural drought management practices etc.

A number of extreme events including floods, droughts, cyclones, landslides are likely to get aggravated due to climate change. Pakistan already experiencing many of these climatic events and related disasters may have to be tackled through disaster preparedness and adaptation measures. The government of Pakistan lays a great emphasis on policies related to disaster preparedness and adaptation strategy. The country's National Disaster Management Framework (NDMF) is an important step in this direction.

The NCCP proposes establishing a sound coordination mechanism between institutions for disaster preparedness and management, redesigning storm drainage capacity in cities, strengthening early warning systems, monitoring glacial lake outburst flood, local flash flood forecasting, development of assessment and compensation mechanism for the affected, ensuring development of a climate resilient infrastructure etc as the adaptation actions.

Climate change related distress migration could induce rural to rural or rural to urban migration on a large scale. The Pakistan government therefore proposes to ensure regulation of rural-to-urban migration, develop infrastructure and support facilities in smaller agro-based towns and periphery urban areas.

Similarly, to adapt to the impacts of climate change the country recognizes the need to introduce changes to town planning and building infrastructure. Necessary actions proposed in regard to having a sustainable city are updating town planning design principles, ensuring proper land use planning through vertical expansion of urban housing, undertaking of hazard mapping, redesigning and upgrading storm drainage capacity of major cities etc.

To adapt to the climate induced health impacts the government of Pakistan in the NCCP proposes to assess health vulnerabilities of communities in areas likely to be most affected by the adverse climate change impacts, capacity building to reduce the vulnerabilities, integrating health issues relating to climate change into national health plans, spreading of awareness by information diffusion and education, undertaking preventive measures, upgrading and extending disease outbreaks monitoring and forecasting systems to counteract the possible health related impacts.[25]

Severe impacts from climate change are also likely to alter biodiversity and its distribution across the country. The various measures for the conservation of biodiversity proposed in the NCCP of the country include the implementation of the National Biodiversity Action plan, setting biodiversity indicators, establishment of gene banks, seed banks, integrating conservation and protection of biodiversity into other sectoral interventions including forestry, marine etc., establishing protected areas in vulnerable ecosystems and ensuring ecosystem based adaptation.

Climate change and media coverage in Pakistan

In Pakistan, the media coverage on climate change does not have a wide reach. Climate change is a complex phenomenon, and more complex are the associated consequences. This continues to

be an issue where even scientists are struggling for year to get an unambiguous picture of the phenomenon. However, to the extent science reveals climate change to be real and unequivocal, it must be communicated to the various stakeholders who are likely to get impacts due to phenomenon.

Issues and challenges

Availability of clearly comprehensible information to the media personnel would go a long way in advancing media coverage on this issue. It is often highlighted that there is a serious lack of credible information about climate change and its impacts on Pakistan. Government sources such as the Climate Change Division are reluctant to disseminate information on this issue. Hence, information sources on climate change must be strengthened for the media.

Further, there are hurdles in communicating climate change phenomenon to the masses in local language without losing its impact. Related to this is the fact that only the English media is covering the issues on climate change and the Urdu language media is reluctant to cover the issue. These are reasons for the population being unaware of climate change issues, even though they are experiencing it.

This is one of the reasons why Pakistan remains one of the least knowledgeable countries on climate change. A recent study by the BBC media action reveals that 65 percent of the 4, 128 households surveyed do not know the meaning of the term climate change. More than 50 percent of them had not heard the term before. Knowledge spread on climate change was not very different between urban and rural areas.

There exist serious communication gaps between media, stakeholders, and policy makers in Pakistan. Thus, greater involvement of the media in raising awareness and making the case stronger for the country could be the key. Therefore, it has been suggested that the government must allow higher autonomy to media in the access and dissemination of information pertaining to climate change.

There is a problem of capacity in media reporting on climate change in Pakistan. Therefore, there is a need for constructive media coverage in the country. This would depend on both information sharing and training and development of practical skills on reporting climate change. Lack of training, skills development on media reporting related to climate change are the issues which are reflected in the poor coverage of climate change related reporting in the media.

The other side of the problem comes from the lack of initiatives on the part of researchers for communicating their output in a manner that is understandable by the policy makers and the media.

A climate change spokesperson from the Climate Change Division could be a way out for better dissemination of the scientific knowledge. The division should also support journalists in getting in touch with climate change experts.

Media should play its role of bridging the communication gap between policy makers and community through widening their reach to the people and informing them about the challenges and opportunities of climate change. Therefore, sending the right message to the right people is

important. On an issue of such importance which could bring a matter of survival for everyone, the role of reporting on the issue assumes primary importance.

Capacity Development

The role of media in climate change communication in Pakistan has taken priority recently. As part of its activities, the Leadership for Environment and Development (LEAD), Pakistan aims at building a National Network on Climate Change (NNCC) with the objective of 'raising level of attention and interaction on climate change issues' by involving various stakeholders - government, civil society organizations, the media, decision makers, field practitioners, researchers, scientists and advocacy communities.

In order to use media more effectively in climate change communication, the media personnel must be disseminated adequate knowledge about the issue. With the objective of building awareness about climate change among Pakistan Journalists, a training workshop was organized by the UNESCO. The workshop focused on acquisition of knowledge about climate change and development of practical skills on reporting climate change.

The workshop emphasized information sharing on both global impacts of climate change and those specific to Pakistan. These include specific sectoral challenges, CC effect on Hindu Kush Himalayan region, community based mitigation and adaptation measures, the Pakistan government's policy initiatives, and inter-governmental cooperation on tackling the CC issue.

Professional skill development sessions including training on the development of story angles, research, information gathering and analysis, writing and production skills etc. can be encouraged to bring remarkable efficiency improvements of the media in reporting climate change. Further, field visit of journalists to impacted sites, where discussions with villagers could enhance their ability to relate the story to ground realities.

It is expected that organizing such workshops and related activities for increasing the spread of the media in Pakistan relating to climate change reporting (*i.e.*, increased media coverage), would also bring growth in public awareness of the linkages between environmental issues, social problems and the wider economy. Another objective for these training programmes would be to contribute to the strengthening of local media networks and improvement of media relations in the region on climate change reporting and coverage.

Impact of the fellowship

Some of the SACCA fellows from Pakistan were able to very effectively link the local environmental stories with national and international discussions. Rina Saeed Khan wrote about the glaciers in Pakistan and linked it to the national policy. Her article “Pakistan pushes ahead on climate policy, but action still lags” sparked a debate among key members of the country’s delegation to climate change talks. Shafqat Kakakhel, Member who serves on the CDM Board says, “The Discussion provoked by Rina’s piece has been an invaluable gift for me. I hope to reflect the various comments made thus far in a paper on climate change and national security that I am writing for the Senate Defence and Defence Production Committee. The need for

political ownership and commitment by the Government and our major political parties will top the list of my suggestions."

Malik Amin Aslam, the former Minister of State for the Environment commended Rina: "First of all well done Rina for a very thought provoking article which has raised some very pertinent concerns. I have been following the very useful debate."

Further, her story 'Is the world running out of time?' proved very interesting insight as it connected the Germanwatch ranking that listed Pakistan as one of the three most affected countries by climate-related disasters in the past two years. Rina's story about 'planted glaciers' brought in requests from mountain communities of neighbouring valleys of Gilgit-Baltistan and Chitral to write about their areas also.

Jamshed Bukhari's Urdu piece on the Kanjhar Lake pollution gave voice to several unheard people: fisherfolk, tannery workers, industrial labourers among them whose lives were directly affected by the polluted waters. After the publication of Jamshed Gul Bukhari's story on the industrial effluence into Kanjhar lake in Jang, a seminar was held where all stakeholders: affected farmers, fisherfolk, activists, media and irrigation officials debated the issue. It also led to the irrigation department drawing up stringent measures to reduce effluence into the Kanjhar Lake.

Saleem Shaikh's story "Government budget cuts threaten Pakistan's climate change efforts" published in trust.org was instrumental in bringing forth several other critical stories in the Pakistani media in the following days, chastising the government move.

Further, Saleem's Shaikh'sstories "Erratic weather threatens livelihoods in Pakistan" in Scidev and "Pakistan's mountain farmers helpless in the face of erratic weather" in trust.org led to a seminar being organised in Islamabad on Impact of changing weather on agriculture and Climate resilient agriculture.

Several articles followed Sonia Malik's piece on water pollution and the food cycle in The Tribune. It also added pressure to civil society awareness and campaigns that finally led to the Pakistani government forming a Ravi committee to look into the issue. Her study on the impact of climate change on rural women looked at climate change from a gender lens and brought in several rural womens' voices into the narrative.

Jan Khaskeli in a long piece chronicled the lives and tenacity of a blacksmith community in Sindh which has withstood drought, cyclone, earthquake and now the floods. Bari Baloch wrote about the impact of drought on Balochistan and Rashid Ahmed wrote about increased fog in Pakistan due to climate change.

The media fellowship coverage for Pakistan has largely focused on impacts due to climate change. Many stories suggest that climate change has already been happening and its impact is evident on many sectors and aspects of the socio-ecological-economic system.

Within the impacts coverage, major emphasis has been given to extreme weather events including drought and flood and related natural hazards. While erratic monsoon accounts for one of the major causes and manifestations of such weather extremes, shifting monsoon also adds to

the mounting pressure. The impact of the same can be seen on water, energy, biodiversity, agriculture and other sectors and as a result threatens the livelihood of millions.

On agricultural impacts, climate change has bearings on soil fertility and therefore could influence productivity and food security situation in many areas of the country. Moreover, agricultural impacts discussed the potential harmful effects in the mountain ecosystems where the influence of weather fluctuations could play an important role in affecting the food security and livelihood.

A number of articles concentrated on policy issues. However, under the policy domain a range of issues were highlighted. These include issues on weather extremes, early warning systems, reducing vulnerability through spread of awareness, mitigation through non-conventional energy options, sustainable infrastructure which could be helpful in promoting mitigation actions (e.g., green buildings) etc.

Some of the articles focus on awareness through implementations of early warning systems for glacial melt or weather extremes that affect the livelihood opportunities of people.

Sri Lanka

International position

Sri Lanka along with a number of developing countries including India have called on developed country parties to commit to reduce emissions by at least 40-50 percent below 1990 levels by 2020 and at least 25-40 percent by 2017.[26] Sri Lanka has been a believer in the principle of "Common but Differentiated Responsibility (CBDR) of the UNFCCC and urges mitigation measures to be based on this principle.

Climate change could pose significant challenges for a country's development and its sustainability. Sri Lanka proposes has taken a number of innovative initiatives in paving the path towards sustainable development in the face of climate change. In pursuing its 'Green Economy' policies, the government of Sri Lanka has suggested a framework that could be effective at national, regional and multilateral levels.

The country's National Council on Sustainable Development (NCSD) is an important body in formulating and implementing the National Action Plan on Sustainable Development (NAPSD), called the 'Haritha (Green) Lanka' launched in 2009. The NCSD's green economy framework guides policy making to ensure integration of environmental concerns, including climate change, into the economic and social development process of the country.

Protection of natural resource base from over-exploitation due to globalization is necessary in view of climate change and to promote sustainable development. Given the environmental concerns, globalization could further exacerbate the existing economic and social problems. Thus, weakening the multilateralism and promoting unilateralism (e.g., trade protectionism) must be targeted green economy policies to achieve sustainable development.

The promotion of such policies with the ultimate aim being improving the welfare of the present generation must be backed by significant financial support. For example, an estimated 47.7 billion rupees incremental additional financing, beyond current and ongoing expenditure, will be required to implement the National Climate Change Adaptation Strategies (NCCAS) over its 6 years duration from 2010-2016.[27]

Therefore Sri Lanka recognizes the urgent need for receiving adequate external financial assistance to undertake the programmes for compliance with UNFCCC provisions in mitigation, adaptation and in other areas. Further the country's vision in this regard needs to be supported through funds raised and mobilized through government, international development partners, as well as the private sector.

Tackling climate change not only requires assistance in finance but also in technology. Technology transfer from the advanced countries, which are better equipped to face climate change due to their better infrastructure, institutions and technology, could go a long way in providing support to the developing countries. As a step in this direction, the Sri Lankan governments in its Technology Needs Assessment (TNA) report highlights the technology needs of its priority sectors - food, health, water, coastal and biodiversity - for climate change adaptation and mitigation. Further, its National Action Plan for Climate Change urges exploring and implementing the best available technologies, harnessing and patronizing of local technologies and traditional knowledge to tackle climate change issues.

National Policy Perspective

Mitigation Options

Petroleum oil is the second major source of supply of energy (43.3 percent) after biomass (47.7 percent) for Sri Lanka. Such high level of dependence on conventional energy sources also results in high emission of greenhouse gases. Thus with an objective to reduce the emissions for climate change mitigation, the country proposes to take actions to improve efficiency of energy utilization, introduction of economic incentives for low carbon intensive fuels and energy efficient technologies while complementing them with appropriate fiscal policy measures.

Further, reducing the dependence on conventional energy sources have been advocated through promotion of renewable energy sources like wind and hydropower resources. The National Climate Change Policy advocates measures to explore the potential of clean and renewable energy in Sri Lanka and also aims at enhancing their supply, access and affordability. On the demand side, the policy has the objective of encouraging the utilization of clean and renewable energy. The National Energy Policy and Strategy (NEPS) of the country aims to reach 10 percent of electrical energy supplied through non-conventional renewable energy sources.

The Sri Lankan government also emphasizes on improving efficiency of mitigation efforts on the demand side. The government has proposed to take actions in industry to reduce greenhouse gas emissions. Important measures advocated for this purpose include establishing a green reporting system to promote self evaluation and mitigation at all levels and in all sectors, reducing demand, efficiency improvement, and using low carbon technologies, etc. Further, incentives for fuel-switching, economic instruments such as Green Tax have been proposed. The *Haritha*

(Green) *Lanka* Programme aims at introducing several measures to reduce oil consumption and improve efficiencies in industries with a target reduction of 50 percent between 2010 and 2020.

Towards mitigation in transportation, the National Climate Change Policy Envisages to "take actions to promote integrated transportation systems, low emission fuels and improved fuel efficiency taking into account the long term sustainability of the existing resources".[28] Further, the National Transport Policy 2008 proposes both direct and indirect measures to reduce emissions. The policy recommendations include various economic instruments and technological efficiency improvement measures. Introduction of bio-fuels in transport up to 10 percent by 2016 and a 20 percent target emission reduction between 2010 and 2020 are some of the national targets for transport sector.

Agriculture is an important part of the economy of Sri Lanka and plays an important role in emission of greenhouse gases. With emissions from this sector standing as high as 4709 Gt of CO_2 equivalent in 2010, the government through its various policies has attempted mitigation efforts in this sector. Thus, through innovative technologies, traditional knowledge and practices, the government aims at encouraging environmentally sound agricultural practices. The National Agriculture Policy 2007 suggests various actions in this direction. However, in view of the uncertainties in estimation and problems of implementation through farmers, the policy does not specify any emission reduction targets.

Apart from these sector specific measures the NCCP recognizes the role of land use change related emissions. The policy therefore aims to incorporate the nationally appropriate low emission strategies and technologies and appropriate adaptive strategies in human settlement, land use planning and urban development. Further the policy emphasizes the role of environment friendly consumption and lifestyle, *i.e.*, the role of sustainable consumption. However, no emission reduction targets in this regard have been specified.

Adaptation Actions

The government of Sri Lanka has proposed a number of adaptation measures under the National Climate Change Adaptation Strategy (NCCAS). The NCCAS provides an integrated framework of various sectors synthesized into five strategic thrust areas which are to be implemented during 2011-2016. The strategic areas are mainstreaming climate change adaptation into national development planning, enabling climate resilient and healthy human settlements, minimizing climate change impacts on food security, improving climate resilience of key economic drivers, and safeguarding natural resources and biodiversity from climate change impacts.

Land and water resources are the country's important natural resources are expected to face severe impacts from climate change. Changes in water quality and quantity in inland freshwaters and consequently degradation of vegetation in watersheds are the major challenges that could arise due to the changing climate.

The country therefore aims at priority adaptation measures including the promotion of efficient water resource use and development using Integrated Water Resource Management (IWRM), promotion of research on good practices for varied water uses, and strengthening/establishing an institution to coordinate management of water resources.

To ensure food security in the face of climate change among the NCCP has the objective to take timely action to address the adverse impacts on crop and animal production and fisheries sectors due to climate change. One of the key features has been to find a balance between use of appropriate innovative technologies and the recognition and promotion of the existing traditional knowledge and practices in food production.

The various priority adaptation measures suggested in the NCCAS include increasing awareness on alternative options to meet nutrient requirements, improving weather forecasting and information dissemination, ensuring easy access to seed stock alternatives to counter rainfall variability, furthering research on impact/adaptive measures for agriculture, and conserving genetic resources for future crop and livestock improvement.

Climate change has direct bearing on natural disasters, especially the hydro-meteorological ones. To address the issues of disaster management in the face of climate change the NCCP of Sri Lanka aims at developing strategies and mechanisms to prevent or mitigate and manage disasters and to protect the communities and ecosystem and the natural environment.

Tourism is a rapidly growing industry in Sri Lanka with a 32 percent year-on-year growth in tourist arrivals in the country. In view of the expected impacts from climate change and related natural disasters, the tourism policy of the country aims at sustainable tourism with policy focus on many forms of tourism including eco-tourism.[29]

With the objective of making one of the finest tourism destinations in South Asia, the government envisioned Sustainable Tourism Development Project (STDP) attempts to strengthen the national institutional framework for the tourism sector to facilitate environmentally and socially sound tourism investments in the country. Under this both training and capacity development initiatives, and promoting environment friendly concepts in the hotel industry to complement tourism activities have been encouraged.

Climate change could pose several challenges for the urban population in Sri Lanka. Recognizing this challenge the government of Sri Lanka has advocated the Sustainable Cities Programme (SCP) as a joint UN-HABITAT/UNEP initiative. The SCP aims at building capacities in urban environmental planning and management and is founded on a broad-based cross-sectoral stakeholder participatory approach. The programme also envisages promoting the urban environmental governance process as a basis for achieving sustainable urban growth and development.

Planned infrastructure development is important for adaptation to climate change. The objective of the NCCP of Sri Lanka is to "integrate adaptive measures in the design, development and maintenance of infrastructure". In order to minimize the impacts of climate change on infrastructure, the NCCAS advocated priority adaptation measures include identification of climate change risks on transport infrastructure and investment in adaptive measures, updating the standards and guidelines for infrastructure design and development and including climate change adaptations in tourism planning guidelines.

Health is another important sector that is vulnerable to the adverse impacts of climate change. Recognizing this vulnerability and taking actions to safeguard health of the people has been the

objective as per the NCCP of Sri Lanka. In order to combat climate change related health concerns the NCCAS priority adaptation measures are monitoring and controlling vector borne diseases, engaging health sector experts in local level adaptation planning, and furthering research health impacts of climate change in the country.

Being an island country, Sri Lanka also has the vision of incorporating adaptive measures in coastal zone management considering the potential for sea level rise. In respect of this the country plans to identify and help vulnerable communities to adapt or relocate in view of any adverse impacts. Further, these measures are targeted through spreading awareness, providing alternative livelihood options.

Climate change and media coverage in Sri Lanka

Sri Lanka is distinct in South Asia. When the employment opportunities in media are shrinking in the other countries, it is growing in Sri Lanka. The media growth that started after the end of the civil war in 2009 still continues. "People need entertainment," said Asoka Dias, station director of the Maharaja Group (the largest private-sector television and radio group in Sri Lanka) and a participant in the Editors' retreat. "There was a shortage of entertainment over decades and now they are demanding it."

Capitalising on this need, Dias started a programme called the *Debater* in three of the Maharaja Group's television channels. Exposed to the climate change discussions in the South Asian region at the Editors' retreat, Dias added incisive discussions on climate change into the programme. The one-hour programme engages young adults aged between 15 and 19 years old in discussions on social, economic and environmental issues.

Being a country with a near-100% literacy and good TV, radio and internet penetration, the younger generation is very concerned about environment and climate change issues. After the end of the civil war, people have been travelling across the country. Thereby many youngsters have been able to visit the national parks and forests, and thus they are more interested in environment issues. "We have been using Debater as a platform for creating a national dialogue among young adults," said Dias.

However, the issue that Sri Lanka is facing is not one of reducing subject visibility but of media visibility. The legacy media – print – is gradually losing out to the internet media. The high internet penetration means more people have access to online media. And the young people are depending more and more on the internet for their news and views, according to veteran print and television journalist Nalaka Gunawardene.

"Young people are increasingly trusting the internet media more for their news and views. This is not good for the legacy media," said Gunawardene. "Twitter seems to have become a good source of breaking news, and there is surprisingly good amount of increasingly credible and in-depth information in the blogosphere."

According to him, Twitter is substituting mainstream journalism. It is holding government officials accountable, asking them questions. In fact, Tweeters are asking questions that the journalists should have asked.

a) Issues

In the early 2000s, climate change media coverage in Sri Lanka had more reports in the English language press than in local languages.[30] Climate change did not attract media attention because there was a lack of understanding among the public and journalists. Shortage of information and expertise in the field stood as the main obstacle for attracting media interest. Further, journalists mainly depended on international news agencies and science magazines, and non-governmental organisations when covering climate change, instead of local information, field visits, community participation and discussions.

Most environmental topics have been given low priority in the media until mid-2000. Instead priority has been given to political and social issues by the media outlets. Hence, the fact that climate change could influence the current and future political and social issues has been largely ignored by the media.

Lack of financial resources for environmental journalism has also been cited as another obstacle for increased media coverage. Firstly, the fact that climate change is seen only as an environmental challenge and secondly lack of adequate financial incentives for greater media coverage on climate change both have complementary effects on poor media coverage in the country.

b) Media and public policy in Sri Lanka

Sri Lanka recognizes that information, education and communication are important for the successful implementation of the various climate change strategies in the country.

The IEC strategy envisages that key to success of the process of adaptation to climate change in Sri Lanka would be forming partnerships with 'message multipliers', including the education system and mass media.

It recognizes the fact that message multipliers tend to already have existing, functional systems or 'networks' that reaches out to large number of people quickly and relatively inexpensively. Therefore partnering with these multipliers would enable the climate change adaptation and related IEC strategy to engage more stakeholders at low cost and achieve the desirable goals.

In order to inform and mobilize stakeholders at multiple levels in support of climate adaptation, the media and other message multipliers, which are at this point not engaged in disseminating information, must be encouraged and employed.

Through these message multipliers, the target groups - ranging from international agencies to local communities - need to be mobilized to support climate change adaptation. Awareness about technical solutions to climate-induced problems is not available at the local levels, in the local languages and in accessible formats. More effective engagement of civil society organizations is needed, particularly to mobilize for community-level adaptation to climate impacts.

For each of the five strategic thrust areas, the role of media has been recognized.

c) Climate change and public perception

As part of the IEC strategy for climate change adaptation actions, the Sri Lanka government in 2010 conducted a 'Public Perceptions Survey' to capture an impressionistic view of a countrywide sample of 1000 people on various aspects of climate change. The survey attempts to understand their perception of the climate change issue, their positioning of the issue in the national and local context, in the context of other environmental concerns, how they perceived climate change affects their lives, lifestyle, and their own perception of their role in responding to climate change problem.

The other related but implicit objective of the survey was to understand the primary source of knowledge about climate change for the public. Further, identification of gaps on the understanding of common people about climate change and therefore to arrive at a benchmark of awareness levels and gaps against which the future awareness raising activities could be measured.

The survey finding reveals that nearly 88 percent of the sample surveyed responded that they are aware of climate change. The level of awareness between the rural sample and the urban sample was not significant. Considerable difference in the perception about climate change seemed to be present between the sample in the wet/intermediate climatic zones and the dry climatic zones.

However, the awareness on global warming seemed to be lesser with 79 percent population having heard about it. The reason for lower awareness could be attributed to the perceivable effects of climate change as compared to global warming. Most people (91 percent) seemed to agree to the fact that climate change is man-made.

The survey reveals that media and schools are the primary source initial knowledge on climate change, both in rural and in urban areas. While schools play a larger role in urban areas for awareness, the mass media is the important source for the rural population.

Whether the awareness that has been spread through media or schools has been appropriate and is in conformity with their own experience was also assessed in the survey. The immediate phrases that the people could relate to the phrase "climate change" were "less water availability" "less food grown/available" and "health problems caused by abnormal weather". The percent of response grew significantly after they were given some background information on the effects of the phenomenon.

On the responsibility for the phenomenon, developed countries emerge as being primarily responsible. Again majority of the sample believed that something can be done about climate change and that there is a possibility of avoiding the worst if we act fast.

Impact of the fellowship

“Sri Lanka is a good place to be if you are an environment journalist,” said Amantha Perera, SACCA fellow. “If you are interested and willing to explore there are climate change stories that can be reported.”

According to him, the stories that emerged from the fellowship helped to link the media narrative on natural disasters and livelihood issues with climate change. “There has been an increase in

journalists in the past three years who have been trying to bring environment and climate change stories into the mainstream and linking it to the lives of the ordinary people. These stories link the voice of ordinary people with that of scientists."

Perera feels that the team spirit built through the workshop, fellowship and the online platform helped him professionally. He could find ideas for his stories from that of the other SACCA fellows, explore new information sources and follow trends (as in the case of progressing monsoon in 2013).

With Sri Lanka experiencing a very hot summer, Perera did a story for Reuters Alertnet on the impact of the heat on agriculture and people's lives ('Drought parches Sri Lanka's farms, threatens hydropower - http://www.trust.org/item/20140214194424-vmupo/?source=hptop). This story was picked up and later elaborated by the BBC and Al Jazeera.

Dilrukshi Handunnetti, associate editor of Ceylon Today, was invited to be a participant at the Editors' retreat in August 2012. She opted to be a fellow from Sri Lanka, writing stories, Op-eds and editorials in her paper on climate change related issues. She feels that it was good that she took this decision. The benefits were two-fold. She linked with journalists across the region, exchanged ideas and contacts. But more important was that her climate change reporting went a long way in bagging the Best Journalist in Sri Lanka Award in 2013 from the Editors' Guild and the Press Institute of Sri Lanka. The citation specifically mentioned her contributions to climate change reporting in the country.

One of her stories on rice cultivation found resonance with a scientist at the International Rice Research Institute, Philippines, and appeared in their bulletin. Handunnetti was asked to write on the subject by Scidev.net and the Down to Earth magazines.

She is happy that the fellowship provided a platform for going beyond national boundaries and understanding climate change from a regional perspective.

Handunnetti echoed Perera's understanding when she said, "though it was the Tsunami which brought environment and climate change stories to mainstream in the island country, it is now more visible with the end of the thirty year long war."

Darsana Ashoka Kumara, SACCA fellow and news editor with the Sri Lanka Broadcasting Corporation, was a general reporter before the fellowship. His exposure to environment journalism and in particular climate change reporting happened after the fellowship. His interactions with other SACCA fellows such as Subhra Priyadarshini, editor of Nature India, added great breadth and depth to his understanding and reporting on environmental issues.

In addition to his responsibility with radio, Kumara also works with the State-owned Rupa Vahini television channel and selects stories on climate change for this news analysis programme. The space for environment reporting is widening in the Sri Lankan media, he said. "And there are more stories on climate change than in the previous years."

There is a potential threat due to climate change to Sri Lanka. The climate change media coverage which largely focuses on current impacts of the phenomenon suggests that weather

extremes could be more prevalent in future as their current trends are having dire consequences for the economy.

Some of the articles focus on the issues which strike in the aftermath of a weather event. For instance, reports suggest that buffer stocks for relief operations are in shortage after extreme rainfall leading to floods. Other articles suggest the important role that awareness or an early warning system could play to avert the impacts induced by such climatic events. Coping would be another way out, which however, could command a significant financing options.

On a sectoral level, agriculture is found to be bearing the brunt of the phenomenon. These impacts get manifested mainly through yield losses of several crops. Hence, use of traditional variety of crops which are resilient to variations in the climate, or development of heat-tolerant varieties have been suggested by the policy. Improved irrigation has also been suggested as an effective measure of adaptation through its ability to reduce the dependence on erratic rainfall.

On the adaptation policy front, the fellowship media coverage is rather limited. Assessment of vulnerability and potential impacts in various regions of the country has been suggested through hazard mapping. For climate change mitigation, a number of policy measures have been proposed in the transport sector.

Further, extreme weather events playing a primary role have also drawn policy attention. For example, to promote adaptation in agriculture keeping in view the extreme events crop stock policy could be effective for the food security situation in the country and also for price stability of agricultural products.

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