International FORESTRY STUDENTS´ ASSOCIATION

IFSA NEWS

the journal

Anniversary Issue #60!

No. 60 | July 2015

INTERNATIONAL FORESTRY STUDENTS' ASSOCIATION

IFSA Secretariat
Tennenbacherstrasse 4
79106 Freiburg im Breisgau
Germany
Phone: +49 761 203 38 01
E-mail: secretariat@ifsa.net
Webpage: www.ifsa.net

IFSA e. V.
Bank: POSTBANK Stuttgart
Bank code: 600 100 70
SWIFT: PBNKDEFF
IBAN: DE2860 0100 7000 0299 4703
Account number: 2 99 47 3

Editor:
Christina Lawrence

E-mail: ifsanews@ifsa.net

IFSA News journal is the official journal of The International Forestry Students' Association - the global network for students in forest sciences. It unites approximately 3000 students in about 73 member associations (called Local Committees) in over 54 countries. IFSA is a non-governmental, non profit and non religious organisation entirely run by students for students.

The articles might not reflect the opinion of the editor.

Cover and back photo: Christina Lawrence

Inside this issue:

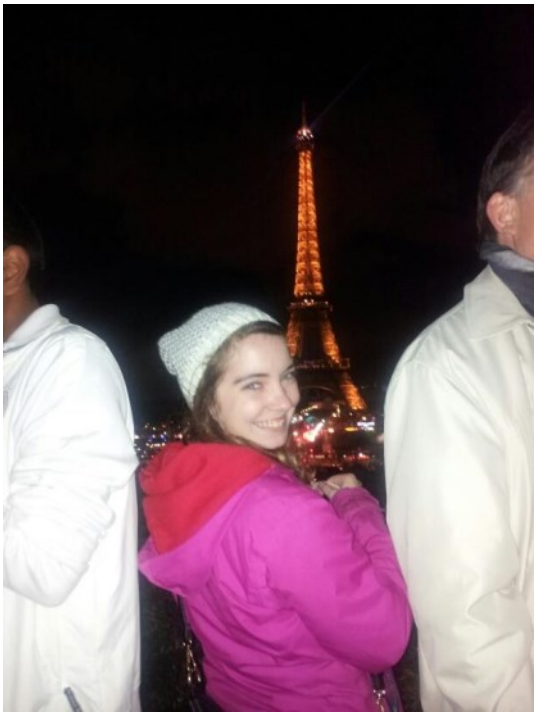
Editorial

Christina Lawrence | Oregon State University, United States

Dear IFSA News reader,

Welcome to the 60th issue of IFSA News! With this issue we tried and focused on the history of IFSA and to take a look back at some of the articles that were published within the very first issues. IFSA News plays a significant role for the association, allowing members to publish and inform others about what research is happening all around the world.

To recap a little bit about myself: my name is Christina Lawrence and I am a student from the U.S. and am proud to have had this position for the last year. It has been a remarkable year and many thanks to those that submitted papers and helped with the development of the issues throughout the year. The goal of the IFSA newsletter is to spread the word about what is going on in the world of forestry and allow the publication of the latest research that readers, like you, have been working on.



IFSA has been a hard working and dedicated organization since the early 1970s and it is a privilege and a pleasure to be apart of it. Like many, it has given me an opportunity to meet new people and friends from all around the world.

I hope you enjoy this issue and I wish everyone the best of luck .

Christina Lawrence
United States
Head of IFSA News

Southern European Regional Meeting 2015 Report

This year's Southern European Regional Meeting (SERM) of the International Forestry Students Association (IFSA) was held from Sunday 26 April to Sunday 03 May, 2015 at the University of Applied Sciences in Rottenburg. 35 students from 13 countries got together to get to know the multi-functional forestry in Baden-Wurttemberg as a representative for Germany.

The meeting was organized by the LC Rottenburg (Philipp Gerhardt, Falko Hirt, Jana Kohler, Gregor Lanz, Mareike Mezger, Lena Rauscher and Lisa Wettklo) and with big support from Lena's mother; without her the food supply would not have been possible in this extent and quality.

The focus of the meeting was the multifunctionality of forest management in Germany, which includes various functions, such as protection, recovery and use in the German forests. The program was based on the regional opportunities and locations that could be reached within a day.

On Sunday the participants arrived in Tübingen gradually. To start their stay in Germany a city tour and punting on the Neckar was offered to those who did not want to recover from the tiring journey. The actual program started the next morning at the University of Applied Sciences in Rottenburg with the greeting of the participants by the Rector Mr. Kaiser.

Over the week the students were shown the utilization function of the forests on field trips to an oak tree stand and to the value timber yard of the city forest Rottenburg, to a selection forest in the area Wolfach and the city forest Villingen. Concerning this topic the sawmill Echtle was inspected as part of further processing and the training base in Bad Boll was visited as well.

To illustrate the protective functions of forests, the students walked through parts of the biosphere reserve Swabian Alb and the Black Forest National Park with a professional guide. Here, information on the wildlife management and the pros and cons of these facilities, as well as the special tree species composition were given.

The final aspect of multifunctional forest management, recreation, was brought to the students by walks, the countryside and a workshop on forest education.

The connecting element of the three functions here was a public panel discussion on forest certification, in which the utility and protective and recreational functions are tried to be harmonized.

On their last day of the week the Mercedes-Benz Museum and the Spring Festival Canstatt in Stuttgart were attended to relax a bit and to get some impressions of the culture in Baden-Wurttemberg.

During the meeting lively exchange on the topics of the week took part in discussions on field trips and in the breaks. The differences and the pros and cons in the management of forests in the countries concerned were compared and discussed.

The feedback from the participants showed clearly that the aspects of multifunctionality of forest management in Germany and the organization and the program of the week have left very positive impressions.

A big thank you to all participants, contributors and sponsors who have made this meeting possible; especially to our Gold Sponsors Drayer, Tubex and Association of Graduates and Friends of the HFR.

NUST FEWS successfully host the IFSA SARM 2015

The International Forestry Students Association (IFSA), Southern African Regional Meeting (SARM) 2015 took place in Zimbabwe for the first time in its history when the National University of Science and Technology (NUST), hosted the 5th Regional Meeting under the auspices of the Forest Ecology and Wildlife Society (FEWS) of the Forest Resources And Wildlife Management (FRWM) Department. This Annual and most inclusive gathering of the Southern African forestry students, brought together the regional forest experts, forestry students, local practitioners, scientific and professional bodies and various stakeholders to discuss and review the key issues surrounding the set theme, "Sustainable Forest Management".This year's SARM kicked off on the 22nd of June and ended on the 26th of June and the Zimbabwean team represented the country and NUST to the best of their capabilities. The program was set that the 1st day of talks was Tuesday the 23rd of June 2015 at NUST, Wednesday the 24th of June 2015 talks were held at the Natural History Museum and Thursday was a field trip to Chesa forest with Forestry Commission officials.

The main participatory groups were the Forest Ecology and Wildlife Society (FEWS) representing the National University of Science and Technology (NUST), Saasveld Forestry Association (SFA) representing the Nelson Mandela Metropolitan University (NMMU), Univen Forestry Association (UFA) representing University of Venda and Forestry Association (FA) representing Fortcox College of Forestry. The IFSA SARM was a joyful gathering not only addressing forestry related issues but it also played a role in changing the region's perspective about Zimbabwe. Comments from South African Students read: "Wow that was beyond our expectations, guys everything was good, we enjoyed from the presentations and hospitality thanks to you guys" (UFA President, Thabo H. Ngubeni). "SARM 2015 hosted by NUST FEWS presented a breakthrough growth for the regional meeting where finally this event was hosted in a new country, Zimbabwe. Zimbabwe is a country which is good at enforcing law, people in Zimbabwe are friendly this was also evident as we received a warm welcome from NUST FEWS, education is being made a need in Zimbabwe and I believe those are some reasons why Zimbabwe will go far in terms of development. Last but not least, there are various things to explore and develop interest in with Zimbabwe, especially in wildlife and conservation" (Kopano Kwehe). "The meeting exposed

IFSA SARM DAY 2: DELEGATES POSING FOR GROUP PHOTO OUTSIDE THE NUST LARGE DELTA LECTURE THEATRE

IFSA SARM DAY 2: DELEGATES POSING FOR A GROUP PHOTO AT THE NATURAL HISTORY MUSEUM

attendees to new methodologies used in Zimbabwean forestry and highlighted the importance of working together to create a sustainable industry. The meeting also opened a platform for discussion of expanding the reach of SARM to include more institutions within the SADC region. A heartfelt and sincere thank you to FEWS for the warm hospitality" (SFA chairlady Trudy Sebelebele).

This meeting brought up several important key points from the presentations made. Among these presentations where the topics: "The Role of Forestry Commission in sustainable Resource Management in Zimbabwe (Forestry Commission)", "Blue Swallows: Africa's Endemics (Kudzanai Dhliwayo)", "Instruments for Forest Management: Opportunities and Challenges (Hilton Ndagurwa)", "Transition from MDG's to SDG's: A new direction for Leaders in Natural Resources Management in Africa (Shamiso KudiwaHove)", "Of Forests climate change, national economies, and rural livelihoods: is REDD+ the solution (Honestly T. Ndlovu)", "Leptocybeinvasa pest management trials: Kwamibinambi research office, Sappi Southern Africa Ltd, Zululand Coastal Region (Trudy Sebelebele)", "Forest Furniture: Forest Utilization Sustainable in Mozambique (Meg Coates Palgrave)", "The role of Matobo Conservation Society in Forest Management (Gavin Stephens)", "Participation and Devolution in Campfire Zimbabwe (Lynder F. Maphosa)", "Sustainable Use of Devil's Claw in Zimbabwe (Sibonokuhle H. Ncube)", and "African Spirituality: Its role in the Conservation of Forests (Phathisa Nyathi)."On overall the Meeting addressed the role of the locals, youth, religion, NGO's, professionals and government in Sustainable Forest Management. It further emphasised the importance of investing in education, and training on forest management to achieve a peaceful co-existence on earth.

The FEWS would love to extend their thanks to the FEWS organising committee (Sydney Dube, Mthabisi Simposya, Bulisani Mlotshwa, Diana Marewangepo, Amanda Manyani, Winile Sibanda, Nobesuthu A. Ngwenya, Thabisile Ndiweni and Shamiso Kudiwahove,), their patrons (Professor Peter Mundy and Mr Robert Mwase) who offered them support, the National University of Science and Technology for allowing them to host this prestigious event, also extending thanks to their sponsors Matobo Conservation Society, Umguza Rural District Council, and the Forestry Commission, the speakers who participated and imparted knowledge to the gathering and finally the IFSA Local Committees who made the event possible by their attendance.

Announcements

FAO World Forestry Congress is giving individuals a chance to spread the world about their forestry projects! All you have to do is make a blogpost on the #Forests2015 Blog. The blog will allow you to use English, Spanish and French. Not only can you spread the word about your project, but you will also be automatically entered into a competition with a chance to win a GoPro! The top three projects will be announced live at the FAO World Forestry Congress. And as for those that are not currently working on a project, it is up to you to vote which one is the best!

You must get your posts in **no later than August 15 CET** and the public **voting ends August 20th.**

Here is what needs to be done:

- Write a blogpost of approximately 500 to 1,000 words
- … which describes your forestry project, your newest initiative, your finest invention, your ingenious idea for which you would like support, your latest research findings.
  - … and decide in which one of the six Congress sub-themes your post fits:
- Forests for socioeconomic development and food security
- Building resilience with forests
- Integrating forests and other land uses
- Encouraging product innovation and sustainable trade
- Monitoring forests for better decision-making
- Improving governance by building capacity
- Find a great picture to go with your post

Email the blogpost and picture to p.casier(at)cgiar.org

To get started just follow the links below!

English:https://forests2015.wordpress.com/2015/05/08/announcing-forests2015-blog-competition/
Spanish:https://forests2015.wordpress.com/2015/06/29/anunciamos-la-competencia-de-blogs-forests2015-muestra-tus-proyectos-forestales/
French:https://forests2015.wordpress.com/2015/06/29/le-concours-blog-forests2015-presentez-vos-projets-forestiers/

Climate Change Adaptation Strategies for Integrated Watershed Management in Nepal

By Nabin Dhungana
nabindhungana.2007@gmail.com

Abstract

Nepal is extremely vulnerable to impact of climate change because of its poor economy, inadequate human resources, fragile geology, steep topography and high rate of change in temperature and precipitation behavior. Climate induced increase in surface temperatures can impact hydrologic processes of a watershed system. Climate change also influences the timing and magnitude of runoff and sediment yield. Changes in variability of flows and pollutant loading that are induced by climate change have important implications on water supplies, water quality, and aquatic ecosystems of a watershed. And also climate change can have a significant affects on stream flow, sediment loading, and nutrient loading in a watershed.

The climate change has impacts on water resources, both qualitative and quantitative. The discharge of snow fed rivers is declining in Nepal. River discharge analysis between 1947 – 1994 in Koshi basin in eastern Nepal showed a decreasing trend during the low flow season whereas Kali Gandaki River in western Nepal increased by about 1% annually for 1964 – 2000and it concludes that the discharge of glacier fed rivers will increase in the first some years, then will decrease after the snow and glacier becomes smaller and smaller. Similarly, from geographical point of view the natural systems should have inter-linkages between the sectors. This is the best observed within a watershed system. Adaptation to climate change can be more effective and practical if it is based on integrated watershed management approach. However, the conventional watershed management mostly focuses on natural systems. But climate change equally affects social and economic systems. Climate change adaptation approach should include a diverse range of conservation and development activities including disaster risk reduction strategies. These approaches might be promoted as "Integrated Conservation and Development"or "livelihood strategy approach"with ultimate goal to achieve a "sustainable development." The ultimate strategy is to develop the capacity of the communities to cope to impacts of and adapt to climate change through conservation of natural resources, diversification of livelihood options and reduction of disaster risks associated with climate change.

Introduction

The movement of water in the climate system is essential to life on land, as much of the water that falls on land as precipitation and supplies the soil moisture and river flow has been evaporated from the ocean and transported to land by the atmosphere. Climate change may induce modification in the water, carbon and other biogeochemical cycles which may reinforce or dampen the expected temperature increase (IPCC, 2013). Changes in the climate regime can influence natural processes of a watershed ecosystem (Band et al. 1996; IPCC 2001a; Stone et al. 2001) and have long-term implications on economic and ecological processes (USEPA 2004). The IPCC's fifth assessment report clearly indicates that anthropogenic activities have increased the processes of global climate change with 95-100% confident level. Increasing GHGs emission has contributed to increase atmospheric temperature. The available data shows that atmospheric air temperature has increased by 0.85 degree Celsius from 1880 to 2012. It has been estimated that it could be increased as much as 6.4 degrees Celsius on average during the 21st century (IPCC, 2013). As

report concluded by fifth assessment, warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased.

While the climate change can occur naturally, population growth, fossil fuel burning, and deforestation has accelerated the increase of greenhouse gasses (carbon dioxide, methane, nitrous oxide, and chlorofluorocarbons) in the atmosphere that trap heat and warm the earth system (USEPA 2004). This trend of increasing surface temperatures could impact the hydrologic cycle and various processes of a watershed system. Specific potential impacts include changes in runoff, nutrient enrichment, sediment loading, and evapo transpiration rates in a watershed system (Band et al. 1996; Chang et al. 2001; Evans et al.2003). In spite of extensive research on specific impacts of climate change, research and information on the impacts of climate change to watershed systems remains in its infancy. Evaluation of climate change on the watershed system is important to develop alternative strategies and policies to mitigate the impacts of global warming (IPCC 2001a).

The Intergovernmental Panel on Climate Change (IPCC) reported that climate change can influence key spatial patterns and fluxes of water in a landscape, particularly in areas where snowmelt and evapo transpiration are primary components of the water budget (IPCC2001a). Climate change also affects the availability of freshwater for both ecosystem and human uses (Carpenter et al. 1992; IPCC 2001a). The potential decline in river flows also threatens the sustainability of community water supplies, reduce hydroelectric power potential, and impair navigability of inland water corridors (IPCC 2001; USEPA 2004). Hydrologic changes include impairment in water quality through increase in sediment and nutrient loading and reduction in the volume of carrying waters (Chang et al. 2001; IPCC2001a). Erosion and sediment transport processes are also influenced by climate change, with the highest soil loss rates occurring in regions that have high variability in precipitation and runoff (Carpenter et al. 1992). A simulation study of climate effects on a Finnish drainage basin demonstrated an annual decrease in snow cover and increase in winter runoff (Bouraoui et al. 2004).

Terrestrial and aquatic ecosystems are sensitive to climate change on a variety of temporal and spatial scales (Carpenter et al. 1992; IPCC 2001a). Stress induced by climate change can add to existing pressures on ecosystems. Global warming also has important consequences on the sustainability of economic sectors such as agriculture, forestry, fisheries and water supply (USEPA 2004). The potential influence of climate change is therefore a major concern to watershed management and policy. Whitfield and Cannon (2000) have analyzed recent hydrologic trends in Canada (1976–1995) and observed that several regions that early spring flood and increased winter mean discharge as well as smaller summer flows. Similarly, the IPCC (2001) states that over the course of this century, North American river inflows will raise in the winter season, while decreases will be observed in the summer. Climate change also influences the timing and magnitude of runoff and sediment yield. Changes in variability of flows and pollutant loading that are induced by climate change have important implications on water supplies, water quality, and aquatic ecosystems of a watershed (Marshall, E., & Randhir, T., 2008).

Studies show that Nepal's glaciers are retreating faster than the world average (Dyurgerov and Meier 2005) and the number and size of glacier lakes are increasing along with increase in temperature. Glacier AX010 in Shorong Himal retreated by 30 m from 1978 to 1989 (Fujita et. al. 2001), and majority of glaciers in Khumbu region retreated by 30 to 60 m from 1970s to 1989 (Yamada et. al. 1992). Glacial Outburst Flood (GLOF) is the main hazard out of increasing sizes and numbers of glacial

lakes. In the past, Nepal has experienced disasters from such GLOFs. One of such floods occurred in 1985 in Dig Cho Glacial Lake in Kumbu region which washed away Namche Hydro Power Plant, several hectares of cultivated land, bridges, houses, livestock and human life (WWF 2005). The flood lasted for 6 hours, surged 10–15 meters deep and affected more than 90 km downstream (ibid). Not only formation and outburst of glacier lakes, there are also evidences of disastrous avalanches and icefalls which could be associated with increasing temperature.

The climate change has impacts on water resources, both qualitative and quantitative. The discharge of snow fed rivers is declining in Nepal (Anonymous, quoted in WWF 2005). However, different studies in different rivers have different reporting as well. River discharge analysis between 1947 – 1994 in Koshi basin in eastern Nepal showed a decreasing trend during the low flow season (Sharma et. al. 2000) whereas Kali Gandaki River in western Nepal increased by about 1% annually for 1964 - 2000 (Shrestha 2004). It is expected that the discharge of glacier fed rivers will increase in the first some years, then will decrease after the snow and glacier becomes smaller and smaller (ibid). This will have serious impacts on ground water recharge in the plains and agriculture in downstream together with disturbances on aquatic life. During the 30-year period from 1970 to 2000, the loss of glacier area in the Tamor River sub-basin of Nepal (Bajracharya et al. 2006b) was about 5.9 per cent or 0.2 per cent per year. Fujita et al. (2001) reported a higher glacier retreat rate between the 1970s and the 1990s in the Shorang Himal area of eastern Nepal as well as in the Rika Samba lacier of the Dhaulagiri region of western Nepal (Fujita et al. 2001).

Watershed management approach for climate change adaptation

Nepal is extremely vulnerable to impact of climate change because of her poor economy, inadequate human resources, fragile geology, steep topography and high rate of change in temperature and precipitation behavior. Nepal should give a high priority and importance on adaptation to climate change with taking account of future climate change and its impact in all development programs. Improperly planned development can amplify the impacts of climate change (Gurung 2006 and Pant et. al. 2006). Adaptation, according to Adger *et al.* (2003), is the adjustment of a system to moderate the impacts of climate change, to take advantage of new opportunities or to cope with the consequences. Adaptation is not limited to discrete projects (Leary, 1999), such as dams and sea walls. It includes a wide range of adjustments by entities such as households, firms and other institutions in response to the effects of climate change and variability. These include such activities as managing natural resources, input mixes in production, and changes in laws, programs, policies and investments. Climate change has already affected the communities in Nepal. The impact is expected to increase in the days to come as the temperature is increasing and the precipitation is becoming more unpredictable.

The adaptation and coping strategies to climate change therefore demand integrated approach. It needs integration within the natural ecosystem, within the socio-economic system and between natural ecosystem and socio-economic system. At the grassroots level, the integration can more effectively be carried out in watershed-based approach. This approach also addresses the livelihood assets. In the adaptation process, coping strategies form the short-term activities and the adaptation strategies form the long-term activities. Following comprise the major activities for both coping and adaptation programs.

- Supply management options: investment in reservoirs and infrastructure; system optimization (eg. International water transfers); recycling water for lower quality use
- Demand side management options: eg. Investment in water saving technologies; change in water

use practices; drought management plans; formulate water quality standard; remove market distortions such as subsidies

- Improved water resources management, the development of hazard maps and the development of more appropriate building codes and land use policies.
- Creating land use plans; rainwater harvesting, water demand management, provision of water storage and water efficient household appliances; flood risk analysis with flood mitigation actions; strengthening of capacity; the use of land use models.
- Providing for the scientific and engineering services required to assess vulnerabilities and define priorities.
- Incentives to encourage the use of water saving devices; selecting appropriate drought tolerant vegetation; establishing river buffer zones.
- Prevention and removal of maladaptive practices (an adaptation that does not succeed in reducing vulnerability but increases it instead).
- Capacity building must be an integral component of any climate change adaptation strategy
- In many cases, adaptation activities are local-district, regional or national- issues rather than international because communities possess different vulnerabilities and adaptive capabilities.
- Formulation and implementation of climate change policy.
- Development of Policies and Institutions
- Resource allocation
- Establishment of appropriate social institutions and arrangements and local infrastructure repairmen
- Diversification of income sources and livelihood systems/ Agriculture and livestock management
- Introduction of collective security arrangements.
- Provision of knowledge, technology, policy, institutional and financial support..
- Prioritization of local adaptation measures
- Awareness and education
- Forest and land conservation

It is important to note that climate change adaptation influence health in a positive manner (e.g. re-vegetation of watersheds to improve water quality), or on occasion, exacerbate health risks (e.g. urban wet-lands designed primarily for flood control may promote mosquito breeding) (Medlock and Vaux, 2011) and in India's Karnataka Watershed, are said to have increased agricultural productivity, income, and employment, benefiting the poorest and landless and improving equity (IEG, 2012).

The lessons from emerging adaptation experiences are, first, that infrastructure investments (e.g., dams, levees, canals) remain critical for climate adaptation and reducing vulnerability to climate and weather related events; and, second, that infrastructure investments need to be complemented by previously neglected investments in soft infrastructure (e.g., watershed management, land use planning and information, and stakeholder engagement) (Miralles-Wilhelm, 2012). The ultimate strategy is to develop the capacity of the communities to cope to impacts of and adapt to climate change through conservation of natural resources, diversification of livelihood options and reduction of disaster risks associated with climate change.

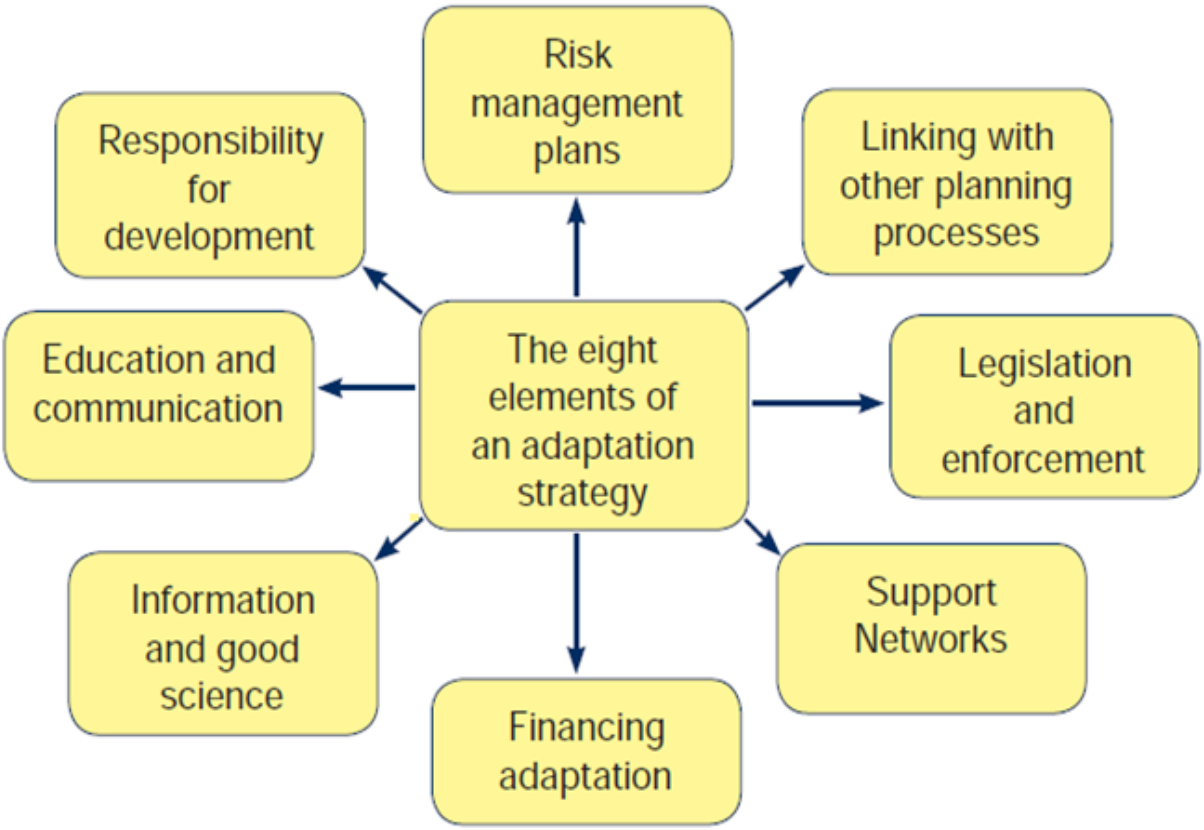
Conclusion and ways forward

Global climate change has local severe impacts. In Nepal, the most studied impacts are retreating of

glaciers and snow lines, formation of glacial lakes. There is inadequate information about the impacts of climate change in watershed level. As the communities experience the impacts of climate change, they are also trying their best to cope and adapt to it. They have however, a low awareness level about climate change and its impacts. The level of awareness is also low among the professionals who are working at government and non-government organizations. There is a need to raise the awareness level on climate change and its impacts for all types of stakeholders.

The communities have practiced coping and adaptation strategies by default. Nevertheless, most of such practices are short-term coping strategies. The long-term adaptation strategies are lacking because of lack of understanding of climate change and its impacts in one hand, on the other hand, it is because of lack of resources in the communities' possession. The impacts of climate change at local level have to be systematically understood and subsequent coping and adaptation strategies are to be developed for implementation. The adaptation to climate change should therefore be integrated and multi-sectoral or multidimensional approach.

Similarly, from geographical point of view the natural systems should have inter-linkages between the sectors. This is best observed within a watershed system. Adaptation to climate change can be more effective and practical if it is based on watershed management approach. However, the conventional watershed management mostly focuses on natural systems. But climate change equally affects social and economic systems. Climate change adaptation approach should include a diverse range of conservation and development activities including disaster risk reduction strategies. These approaches might be promoted as "Integrated Conservation and Development" or "livelihood strategy approach" with ultimate goal to achieve a "sustainable development".



(Source: Tompkins et al. 2005, Surviving Climate Change in Small Islands)

The adaptation to climate change program should keep this projection in mind to address the future likely disasters. If the future likely disasters are not taken into account, the investment done on coping strategies will be merely a waste of resources, as they would be destroyed by larger future disasters. Therefore, in climate change adaptation program, disaster risk reduction (DRR) should be an integral part.

Little is known about adaptation technologies. There is a need to explore for identifying technologies that already exist and can fulfill the need for adaptation to the best. As the climate is changing, there is a high and persistent need to invest on development of technologies for adaptation. The best adaptation technology today in the same ecosystem and socio-economic environment may not be appropriate tomorrow as the climate changes. By the time the technologies reach to the target beneficiaries they might become inappropriate, and this is highly likely to happen because of slow extension services prevailing in the country. So development and extension of technologies need to be in a high speed.

References

Agrawala, S., Raksakulthai, V., Aalst, M. Van, Larsen, P., Smith, J., & Reynolds, J. (2003). *Development and Climate Change in Nepal: Focus on Water Resources and Hydropower* (pp. 1–64).

Animesh K. Gain, C. G. and F. G. R. (2012). Climate Change Adaptation and Vulnerability Assessment of Water Resources Systems in Developing Countries: A Generalized Framework and a Feasibility Study in Bangladesh. *water*, 345–366. doi:10.3390/w4020345

Art, F., & Blum, A. E. (1995). Effects of climate on chemical, weathering in watersheds. *Geochemical et cosmochemical Acta*, *59*(9), 1729–1747.

Brouy, S., & Alain, C. (2004). Climate change impacts on groundwater resources : modelled deficits in a chalky aquifer , Geer basin , Belgium. *Hydrogeology Journal*, *12*, 123–134. doi:10.1007/s10040-003-0293-1

Chaulagain, N. P. (2006). *Impacts of Climate Change on Water Resources of Nepal The Physical and Socioeconomic Dimensions*.

Dibike, Y. B., & Coulibaly, P. (2005). Hydrologic impact of climate change in the Saguenay watershed: comparison of downscaling methods and hydrologic models. *Journal of Hydrology*, *307*(1-4), 145–163. doi:10.1016/j.jhydrol.2004.10.012

Eklabya Sharma, Nakul Chettri, Karma Tse-ring, Arun B Shrestha, Fang Jing, P. M. and M. E. (2009). *Climate Change Impacts and Vulnerability in the Eastern Himalayas*.

ICIMOD. (2003). Water and mountains. *Sustainable development in the Hindu kush Himalayas*.

ICIMOD. (2007). *Climate Change and the Himalayas*.

ICIMOD. (2011a). Mountain Courier. *Mountain Network*.

ICIMOD. (2011b). Earth Observation and Climate Change, (60).

IPCC. (2013), Impacts, Adaptation and Vulnerability, Volume II Regional Aspect and Technical summary.

Ives, J. D. (1986). *Glacial Lake Outburst Floods and Risk Engineering in the Himalaya*.

Johnston, M., Webber, S., Williamson, T., Hirsch, K., Service, C. F., Columbia, B., Columbia, B., et al. (2009). Climate Change Impact and Adaptation Strategies for the Forest Sector in Canada. *Second Climate Change Technology COnference* (pp. 1–13).

Jyrkama, M. I., & Sykes, J. F. (2007). The impact of climate change on spatially varying groundwater recharge in the grand river watershed (Ontario). *Journal of Hydrology*, *338*(3-4), 237–250. doi:10.1016/j.jhydrol.2007.02.036

Jyrkama, Mikko I., jon F. S. (2007). The impact of Climate Change on Spatially varying groundwater recharge in the grand river watershed (Ontario). *Journal of hydrology*, *338*(3-4). doi:10.1016/j.jhydrol.2007.02.036

Ledbetter, R., Prudhomme, C., & Arnell, N. (2011). A method for incorporating climate variability in climate change impact assessments : Sensitivity of river flows in the Eden catchment to precipitation scenarios. *Springer*. doi:10.1007/s10584-011-0386-0

Marshall, E., & Randhir, T. (2008). Effect of climate change on watershed system: a regional analysis. *Climatic Change*, *89*(3-4), 263–280. doi:10.1007/s10584-007-9389-2

Ministry of Environment. (2010). *Government of Nepal, National Adaptaton Programme of Action to Climate Change*.

Minville, M., Brissette, F., & Leconte, R. (2008). Uncertainty of the impact of climate change on the hydrology of a nordic watershed. *Journal of Hydrology*, *358*(1-2), 70–83. doi:10.1016/j.jhydrol.2008.05.033

Minville, M., & Leconte, R. (2008). Uncertainty of the impact of climate change on the hydrology of a nordic watershed. *Journal of Hydrology*, *358* (70-83). doi:10.1016/j.jhydrol.2008.05.033

Morrison, J., Quick, M. C., & Foreman, M. G. G. (2002). Climate change in the Fraser River watershed: flow and temperature projections. *Journal of Hydrology*, *263*, 230–244.

Mountain flash floods. (2000).

N.S Jodha. (1992). *Global changes and environmental risks in mountain ecosystems.pdf*.

P. Debels, C. Szlafsztein, P. Aldunce , C. Neri , Y. Carvajal , M. Quintero-Angel , A. Celis, A. B. D. M. (2009). IUPA : a tool for the evaluation of the general usefulness of practices for adaptation to climate change and variability. *Nat Hazards*, 211–233. doi:10.1007/s11069-008-9333-4

Pradeep K. Mool, Samjwal R. Bajracharya, S. P. J. (2001). *No Title*.

Prajapati, M. (2012). *Scope of Payment for Ecosystem Services Mechanism for better water and watershed management in Bhaktapur*.

Prof. A. K. Gosain, D. S. R. (2010). *Climate Change Impact Assessment on Water Resources of Godavari River Basin*.

Schaaf, T. (2009). *Biodiversity and Climate Change in the Himalayas*.

Shrestha, S. R. B. B. (2011). *The Status of Glaciers in the Hindu Kush-Himalayan Region*.

Singh, P. (2008). Exploring biodiversity and climate change benefits of community-based forest management. *Global Environmental Change*, *18*(3), 468–478. doi:10.1016/j.gloenvcha.2008.04.006

Stephenson, J., Newman, K., & Mayhew, S. (2010). *Population dynamics and climate change : what are the links ?* (Vol. 32, pp. 150–156). doi:10.1093/pubmed/fdq038

Tomer, M. D., & Schilling, K. E. (2009). A simple approach to distinguish land-use and climate-change effects on watershed hydrology. *Journal of Hydrology*, *376*(1-2), 24–33. doi:10.1016/j.jhydrol.2009.07.029

How to Write an Article for IFSA-News

By: Christina Gonçalves

It is very easy. All you need is a couple of hours free to write it. Of course, you can always argue that is very general and you might come out with lots of doubts. Some of those might be:

What will I write about?

In which language shall I write it?

Can I send it hand written or do I have to type it?

Can I sent it in a diskette? In what kind of word process?

How can I send it?

Where do I send it to?

Will by article be published?

If you have read one IFSA-NEWS, you can notice that most of the issues are in some way connected with forestry. We cannot and should not make a rule out of this, meaning that if you want to write something that has nothing to do with forestry you not only can but should. Apart from the so-called news you can also send stories, cross-words, games or any other things, as long as they are interesting.

As to the language, it has to be English. This might be a problem, but we are sure you are aware that the easiest way to reach everyone is in English.

We prefer to receive articles typed. As to those handwritten, their publication, as you can imagine, will only be possible if they are readable. Regarding the diskettes we had some problem last year, not because of the word processor used but because the magnetic field blanked them, so we do not advise you to send the texts in wordstar.

You can send your articles by letter or fax. If you choose the fax be sure to send another copy by mail, as some faxes are unreadable. The mailing services might be tricky, so if you are not certain that your article will arrive, send it registered.

The article should be send to INFOCENTER.

All the articles will be published. In each number we will put the deadline for receiving articles for the next IFSA-NEWS. In any case, if, by any chance, your article is not published in the next number it will be in the following.

We hope this will make you start thinking of writing something for YOUR IFSA-NEWS.

A View Back

By: Jozef Turok

It is sometimes useful to thing how things came to be as they are – to look better into history. It would probably not be easy to work out how many previous efforts to share ideas among forestry student on a more serious and organized level there were, but certainly the idea is older than it seems to be.

Going through some old articles in the library I have found some interesting facts. Already in the 1950's there was an international potencial to organize a forestry students symposium "as the most practical and informative way of meeting". This idea became reality for the first in October 1962 in Sopron Hungary. Due to its success among students, the following 2nd International Seminary of Student of Forestry was called to Brno and Zvolen in Czechoslovakia from August 24 to September 1, 1964. The main topics were forestry education and general problems of forestry in different countries. Participants form Denmark, Yugoslavia, Hungary, Germany East, Norway, Poland, Austria and Great Britain took part. There were inside discussions, excursions, cultural program and social evenings.

The seminary seems to have been more formal than the current ones and moreover students as well as the lecturers participated as "observers". Obviously there was a strong political background, although the society had been in move towards democracy until 1968. The participants were "informed about the very successul Communist Youth Organization" and awarded "red badges".

The conclusions were to establish a more organized framework for international cooperation and the meeting received a new name—IFSS (International Seminary of Students Forestry). The 3rd Seminary took place in Tharandt DDR but "it did not keep the usual character because it was only a meeting of student from socialist countries".

In 1967 an International Society of Students of Forestry and Wood Technology was founded. All Nordic countries, Yugoslavia, Hungary and Czechoslovakia became the first members. The coordination center was in Czechoslovakia, but the matters turned "somehow complicated" in and after 1968. The Society united Students' Societies with forestry institutions and enterprises on the other side. It was an unpolitical organization promoting international cooperation such as meeting, exchanges, training and brigades. Its activities were based on previous experiences from bilateral contacts.

I have come as far as here, but what happened next? It is my with that we will find it possible to explore the history of our Association up to the Symposium in Lisbon in 1990, where the IFSA was founded.

Dear IFSA members and IFSA News readers,

the Editorial team thanks to all the contributors for this issue and encourages others to take advantage of participating. Let others know what are you do-ing... write a report, an article, a story or a résumé of your thesis. Submissions are welcome any time!

Participating is being!

You may write us at: ifsanews@ifsa.net