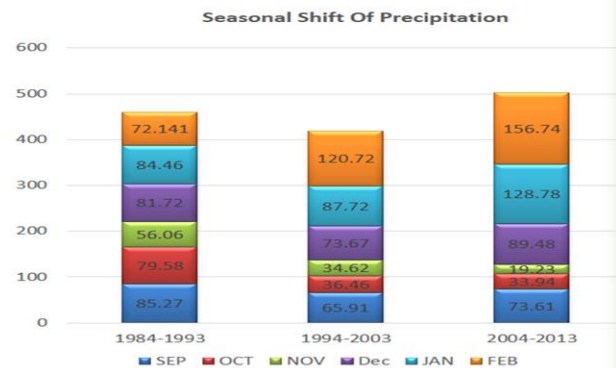
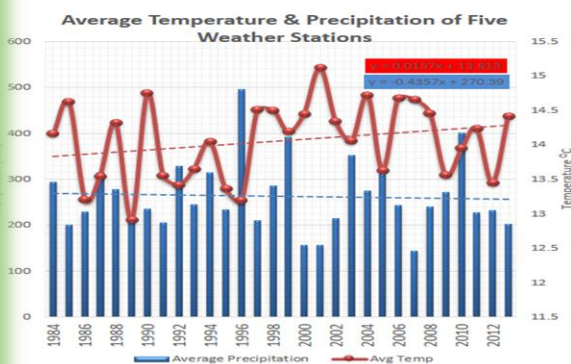


Mass Awareness & Understanding of Climate Change in Gilgit-Baltistan 2016-2017



An increase of 0.15 °C per decade in average temperature of five weather stations was recorded from 1984 to 2013. Within the same time period a decrease of -4.3mm per decade in average precipitation can be observed. A decreasing trend in precipitation of September, October and November and increasing in January and February from 1984 to 2013 can be observed in above exhibit.



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Background

Global climate is altering briskly with succession of anthropogenic activities, it has become very important for our society to scrutinize the scale, mode and degree of this change as it has direct consequences on human endurance. Gilgit-Baltistan is blessed with lofty mountains, glaciers, snow, natural lakes, meadows, sand dunes, waterfalls, highest plateaus, variety of flower species, natural forests, diverse wild life, natural reserves, good fruit, etc.

*GB is facing direct threat due to Climate Change Phenomena as change in seasonal patterns, change in agricultural patterns, extreme and stress weather conditions, spatial and temporal changes in precipitation, increasing frequencies of hydro-meteorological disasters and shrinking glaciers. Climate Change is a worldwide buzz now-a-days, however, its understanding among government officials dealing with the matter and awareness among vulnerable communities is very limited. National Climate Change Policy further focused on Capacity Building and Institutional Strengthening and Awareness Raising for the purpose of implementation of this policy. The policy admits that the capacities in public sector are limited to address the biggest threat of 21st century and further to negotiate the climate change talks and to execute climate change projects and programs. Credible institutions are limited in the country to teach climate change. Lack of demand and opportunity for skilled individuals in the country has further stressed the sector. Capacity Building and Institutional Strengthening and Awareness Raising have been identified as essential tools for implementation of National Climate Change Policy. Formulation of Climate Change Strategy left for provinces to develop according to their own geo-environmental settings and development priorities. In this context Gilgit-Baltistan, Environmental Protection Agency(GB-EPA) has been executing a project title **“Mass Awareness and Understanding of Climate Change in Gilgit-Baltistan”** the project is aimed to understand the Sectoral responsibilities on onset of climate change for adaptation and mitigation measures.*

Introduction

Gilgit Baltistan is located in the north of Pakistan which covers an area of 72,496 km². It represents the one section of highest mountain systems of Himalayas, Karakoram and Hindukush in Asia. Its boundaries meet with India, China and Afghanistan. It is well known for its lush green meadows, snow-capped peaks, lofty mountains, its biodiversity especially including many endangered species, this area is particularly known for its water resources in the form of large glaciers which attract thousands of tourists every year. Large number of streams from these mountain areas feed the river Indus, every year melting of glaciers snow and ice in this area delivers water to the Indus River, plenty of which is used for irrigation, drinking, storage reservoirs and for energy production. An estimate indicates that more than 50 percent of Indus water is received from the melting of ice, glaciers and snow in Karakoram that is why the potential impacts of climate change on the hydrological regimes of this area is very necessary to evaluate for proper management of the hazards associated with climate change. Gilgit-Baltistan possess a unique and fragile ecosystem, recent climate change due to the anthropogenic activities in developed countries has triggered the extreme climatic events like flash floods, land sliding, extremes in rainfall, low snowfall, warmer winters, decrease in the summer temperature, melting of glaciers, shorter growing seasons of crops and outburst of diseases and pests which are effecting the livelihood of the local population on a large scale. Moreover, the local high altitude wetlands of Gilgit-Baltistan are under threat due to human actions, drainage and stream channelization, poor agricultural practices, construction, runoff, air and water pollutants, changing nutrient levels, introducing non-native species, grazing by domestic animals, natural threats, erosion, droughts and severe storms.

Keeping in view the importance and urgency of raising awareness among the most effected populations in remote areas of Gilgit-Baltistan for minimizing and adopting the Climate Change Impacts, GB-EPA has initiated a dedicated Project “Mass Awareness and Understanding of Climate Change”. Awareness sessions for Pilot valleys in each district of GB were conducted. The general awareness session was followed by sectorial trainings to the line departments and to the legislators and policy makers for advocacy and making enabling environment to attract public sector investment and legislation.

1. MASS AWARENESS AND UNDERSTANDING OF CLIMATE CHANGE FOR VULNERABLE COMMUNITIES IN GILGIT-BALTISTAN

1.1. OBJECTIVES

1. *To create awareness among the local communities about Climate Change.*
2. *To encourage local community for environment friendly activities.*
3. *Capacity building of local community for Climate Change adaptation.*
4. *To encourage local community for Climate Change mitigation.*
5. *Provide an opportunity to the local community to critically analyze their environment/ surrounding and can discuss about the natural environment*
6. *To provide a platform to the local communities to find out their environmental destructions/ issues and their causes.*
7. *Enable them to develop mechanisms for some action steps to improve the environmental issues at community or village level*
8. *Help the local communities to develop a close networking with EPA for the protection and conservation of the nature.*

1.2. TARGETED COMMUNITIES

Satpara Skardu, Alchouri Shigar, Machulo Ghanche, Ghulkin Gojal Hunza, Kutwal Haramosh, Tarishing Astore.

1.3. BALTISTAN REGION

1.3.1 Satpara Skardu

Satpara village is situated at the foot of the Deosai Plain at a distance of 10 km away from the Skardu town. This place is well known for the Satpara dam situated at the end of the village, attracting thousands of local and foreign tourists every year further this dam is the only source of drinking water for whole Skardu town. Most of the population here is engaged in the farming, animal husbandry and less than 2% are doing government jobs as teachers. The living standard of the community is very low, very little basic facilities are available. Due to the absence of solid waste collection and disposal, high use of fertilizers, poor sanitary system and other animal and anthropogenic activities the water source is highly contaminating resulting in the prevalence of different diseases. Moreover, due to the climate change the community is facing lot of problems like flash floods, outburst of pests and diseases, landslides, reducing pastures, and reduce crop yield.

Keeping in view the importance of this place GB Environmental Protection Agency arranged an awareness program with title “Environmental and Climate Change Awareness Program to Remote Communities of Gilgit Baltistan” in Government High School Satpara in which students, local community, notables, teachers and political representatives participated.

Honorable Chief Guest Mr. Haji Akbar Taban Minister Water and Power graced the event by his presence; he took all the points put by the presenters and speakers by putting a way forward for climate change and making Satpara a climate resilient area for the future endeavors. He allotted the nearby land to the school for playground. He suggested to merge Satpara in Halqa-1 of town area which will be helpful in future for the community for all the basic necessities such as power and sewage system. He at the end thanked GB-EPA and appreciated their efforts for making this event in such a far-flung area.



While addressing the session **Kacho Intiaz Member GBLA** thanked GB-EPA for propagating awareness and pondered on the fact of Climate Change. He further added to the momentousness of Satpara being the source of drinking water to whole Skardu community. Moreover, he stated the fact that Satpara is also very sensitive being attraction for tourists, and this area has no sewage system which makes it more difficult to maintain the serenity of Satpara. At the end, he requested all the participants again to maintain the quality of water being the guardians of feeder.



1.3.2. Alchuri Shigar

The Shigar is a lush green and fertile valley 30 km away from Skardu Town. This valley is gateway to several famous routes for trekking and climbing expeditions including K2. Shigar valley stretches about 170 km. The town of Shigar is the largest settlement in valley. Even though the Shigar Valley is a remote and largely inaccessible place. Shigar was formerly an administrative sub-division of Skardu District, but is now a district in its own right. Due to the climate change the community is facing lot of problems like flash floods, outburst of pests and diseases, landslides, reducing pastures, and reduce crop yield.

Keeping in view the importance and the vulnerability of this place GB Environmental Protection Agency arranged an awareness program in Government High School Alchuri in which students, local community, notables, teachers and political representatives participated.

RFO Muhammad Kazim, thanked whole team of GB-EPA and appreciated the efforts to make it possible in organizing the event in such a far-flung area. He suggested the idea and formation of Green Clubs within the schools. He asked GB-EPA to make TORS and emphasized on the fact that Significant Environmental Days must be celebrated within the institutions in order to make students more aware. He also proposed the idea of using alternative energy sources such a solar panels and installation of bio gas plants.



Mr. Wazir Fida Hussain Principal Alchuri higher Secondary School, emphasized on the fact that water pollution is the main source of diseases in the area. He quoted one of his life events and said that once when he was in early 30's, community of Shigar has the source of drinking water coming from Katishu Nullah by which he got typhoid due to which he suffered from diabetes and BP. He concluded his speech by saying that water is 90% of our body and to take care of it is very important. He ended by saying that these types of events are very fruitful for learning of students and in building their moral character.



1.3.3. Machulo Ghanche

Machulo village is situated about 15 kms away from Khaplo where Mountaineering School created by NGO (Flex foundation) is worth mentioning. The aim of this School is to train and equip porters for future requirements, as the pottering and expedition guidance are the main source of income besides farming for this village. This valley is the home of some rare species of wild life like Markhor and Ibex. Being at high altitude and single cropping zone this valley is extremely sensitive to climatic changes; as large number of population in this village is engaged with farming and livestock. Realizing the gravity of situation GB-EPA conducted Climate Change awareness session for this community.

The worthy Minister Education, GB Ibrahim Sanai inaugurated the event as chief guest, he thanked all the participants and organizers to manage and organize such an event in the backward and almost inaccessible area. He linked the big bang theory with the formation of universe and said that now it's time to see every aspect of climate change and the impacts which it brings with. Environmental issues along with its adaptations are very important to discuss; as these are holistically linked to one another. He concluded his speech by saying that in future there's need to organize more events and spreading awareness by the competent authorities and departments.



Following the Minister Mr. Jibran DFO Khaplo region appreciated the efforts made by GB-EPA in organizing the event in such a far flung area. Moreover, he shared his views on the fact that afforestation is very important activity which have to be done in the area to minimize the impacts of climate change and also an adaptation for the drastic phenomena. He was also of the view that students are the portal to future and their building is very important. He concluded his speech by saying that future generations are meant to be aware on each and every aspect of the phenomena.



1.4. HUNZA REGION

1.4.1 Ghulkin

Ghulkin Village is situated in Gojal valley, district Hunza on the base of Ghulkin Glacier. In recent past this village has experienced number of GLOF events. During 2008 five GLOF events were recorded within one year. The frequency and intensity of climate related events like avalanches, GLOFs and land sliding has been increased in this region causing high threat to lives of the community. Keeping in view the urgency and importance GB-EPA conducted an awareness session for community at Ghulkin Village.

Chief Guest DFO Hunza, Mr. Raja Muhammad Arif said that climate change is a very important in today's world and this event will help to create environment and climate change awareness among the people of Ghulkin village. He said it is particularly important for our children and youth to become sensitized as they are the guardians of our future. He thanked GB-EPA for organizing such an event with a community which is under high threat of climate change. At the end, he said that this session will help the people to adapt, mitigate the impacts to cope with the climate change and to minimize its negative effects on their lives and livelihoods.



1.5. ASTORE REGION

1.5.1. Tarishing

The Tarishing Valley is located in district Astor. It lies just south of 8,126 meter Nanga Parbat and is popular for treks to the mountain's Rupal Face, one of highest mountain faces in the world. This valley is well known for its glaciers, snowcapped mountains and lush green meadows. This village possess a fragile ecosystem with tremendous potential of wildlife, flora and fauna like other parts of Astore, being an agro-pastoralist society, Tarishing community is mostly dependent on natural resources, subsistence agriculture and livestock rearing for their Livelihood. Like other parts of Gilgit-Baltistan, this village is also facing direct thread of Climate Change. To minimize the adverse impacts of Climate Change and to adapt briskly Changing Climate of the region GB-EPA arranged an awareness session for the local populace.

Chief Guest Minister Local Government and Rural Development, Mr. Farman Ali showed his appreciation and gratitude for organizing such enlightening event in Tarishing Valley and briefed participants about the gases which have created a greenhouse effect for the earth and are present in the atmosphere beyond safe limits. He asked the audience, and especially youth, to play their role in the conservation of the environment. He also highlighted the importance of mountain ecosystem on regional, national and international level. During his address, he suggested the need of collaboration among government and non-government organizations on environment related issues and disseminates research on high altitude vulnerable communities offering great attention for



conservation and sustainability. At the end, he again thanked all the participants and GB-EPA team efforts to make this event fruitful at output level.

1.6. GILGIT REGION

1.6.1. Haramosh Kutwal

Kutwal is located in Haramosh Valley at a height of 3100 Meters, Haramosh lies about 65 kilometers east of Gilgit, in the south-central region of the Rakaposhi-Haramosh Mountains, a sub-range of the Karakoram. It rises steeply above the north bank of the Indus River. The massif has two summits, Haramosh Peak and Haramosh Kutwal Laila Peak. It is a land of unique and fragile ecosystem which is highly sensitive to a minute change in precipitation, temperature, humidity, wind and solar radiation. To safeguard such kind of unique and fragile ecosystem GB-EPA arranged an awareness session for local populace.

Chief Guest Syed Munawar Hussain Assistant Director

GB-EPA thanked the participants and stressed on the environmental protection and conservation in their area. He also explained the importance of their natural resources and how these resources play vital role in their livelihoods. He briefly explained the type of environmental pollutions and their adverse effects on our natural resources and on our lives. Syed Munawar Hussain also stated the fact that CC is a multifaceted issue and it's the time for mountain people to ponder on the fact that, they are among the most affected communities of Climate Change. GB has its unique and fragile environment providing home to thousands of people, Climate Change is not only affecting the natural resources but also the source of incomes of the mountain people which are holistically related to each other.



2. ADVOCAY SESSION ON ENVIRONMENT AND CLIMATE CHANGE FORLEGILATORS AND POLICY MAKERS

2.1. Objectives

- Sensitization of GBLA, GBLC members and cabinet on environment and climate changes issues; and their adaptation and mitigation.
- Environment friendly solutions and climate smart NRM (Natural Resource Management) techniques will be discussed.

2.2. Outcomes

- Understand best practices and standards through implications of Climate Change Strategy and Action Plan for Climate Change for climate smart infrastructure and resilient communities.
- To ensure climate resilience and run awareness campaigns on importance of infrastructure resilience
- To upgrade existing public, private and NGO sector infrastructure to enhance resilience
- To conduct hazard mapping and zoning of GB and identify low risk land areas for future use
- To promote construction of climate resilient infrastructure and housing in rural areas

Addressing the event Mr. Sajjad Haider, Secretary Forest, Wildlife and Environment Department, welcomed and thanked the chief guest Mr. Fida Muhammad Nashad (Speaker GBLA) and all the members of GBLA for their participation. He highlighted a brief background of climate change and the importance of our region as a climate change indicator. He said climate change is a reality and being representatives of GB it's our responsibility to feel and realize the changes, and it's time to identify solutions/ adaptations to cope the challenges. The region of It is said that change is sustainable but from last three decades, natural changes in Gilgit-Baltistan have become evident, as their frequency has been increased abnormally by human activities. Now it's time to understand the fragility of mountainous region and be their guardians. In this regard GB-EPA is conducting climate change awareness sessions in all districts of GB, in process of formulating rules, regulations and checklists. He requested GBLA members to propose projects related to environment and climate change while proposing projects for our region



Mr. Shehzad Hassan Shirgi, Director GB-EPA discussed “Climate Change in Gilgit-Baltistan; Changes and Impacts. Initially he said in 1983 Automatic Weather Stations were installed in different districts at different elevations to monitor the hydrological and weather parameters on daily basis. He highlighted the newly proposed sites for installation of automatic weather stations in GB. Approximately 5400 small, medium and large glaciers are in GB, source of 50.50 billion cubic meters of water to river Indus annually that is 72% of total annual flow. He discussed the functions and services provided by mountains i.e. water towers regulate weather patterns, livelihood dependence of local communities, host alpine biodiversity, energy source (Hydel potential), and provide recreational activities and tourism opportunities. He said climate change impact mountains mostly due to their fragility and called Glaciers as “the barometers of climate change”. Furthermore, he discussed the rivers profile in GB and said that Hunza River Slope is 2nd highest slope in the world. Higher Slope causes more loss of sediments which decreases the life span of dams downstream as in case of Terbela dam. He further discussed the climate change scenario in GB. An increase of +0.15 °C per decade in average temperature of five weather stations was recorded from 1984 to 2013. During the same period a decrease of -4.3mm per decade in average precipitation can be observed. A decreasing trend in precipitation of September, October and November and an increase in January and February were observed.



Chief Guest Mr. Fida Mohammad Nashad Speaker GBLA, thanked for organizing the event and appreciated the efforts of GB-EPA to protect, conserve and monitoring the environment throughout the region despite of the challenges and limited resources. Environmental issues along with its adaptations are very important to discuss; as these are holistically linked to one another. He concluded his speech by saying that in future there's need to organize more events and spreading awareness by the competent authorities and departments.



3. ADVOCAY SESSION ON ENVIRONMENT AND CLIMATE CHANGE FOR LINEDEPARTNMENTS

3.1. Objectives

- Sensitization of Line Departments on environment and climate changes issues and suggest their adaptation and mitigation.
- Environment friendly solutions and climate smart NRM (Natural Resource Management) techniques will be discussed.

3.2. Outcomes

- Understand best practice standards through implications of Climate Change Strategy and Action Plan for Climate Change infrastructure resilient communities within line Departments.
- To ensure climate resilience and run awareness campaigns on importance of infrastructure resilience.
- To upgrade existing public, private and NGO sector buildings to enhance infrastructure resilience.
- To conduct hazard zoning and mapping of GB and identify low risk land areas for future use.
- To promote construction of climate resilient infrastructure and housing in rural areas

Mr. Sajjad Haider, Secretary Forest, Wildlife and Environment Department, welcomed and thanked the chief guest Mr. Muhammad Yahya Akhonzada, Secretary Home and Prisons Department, all the secretaries and officials; and media persons for their presence to grace the event. He highlighted a brief background of project "Mass awareness and understanding of climate change in Gilgit-Baltistan". Gilgit-Baltistan is a hub of protected areas, diversified species of birds, various lakes and unique ecosystems, which includes three eco-regions declared internationally important. Now it's time to understand the fragility of mountainous region and be their guardians. In this regard GB-EPA conducted Advocacy Session for GBLA Members on 29th followed by a field visit to GLOF Project Site on 30th of March; and now conducting climate change awareness sessions in all districts of GB. He requested all the participants to propose mitigation measures related to environment and climate change to minimize the impacts of Climate Change for our region.



Mr. Shehzad Hassan Shirgi, Director GB-EPA discussed "Climate Change in Gilgit-Baltistan; Changes and Impacts. Initially he said, Automatic Weather Stations were installed in different districts at different elevations and some new sites were proposed for installation of more stations in GB to accurately monitor the meteorological parameters. He briefly discussed the current situation of Air pollution in Nepal and said that blanket of ABC's covered major cities in Nepal. Same conditions will happen in our region, if we ignore the rate of fossil fuel consumption, fire wood burning as our region is out of the wind corridor due to the mighty mountain ranges, therefore it's time to propose some mitigation measures and alternatives to fire wood consumption. Although we are contributing less than 1% in GHG still we are suffering, according to Climate Risk Index (CRI), Pakistan is among the top 10 countries in world that are prone to climate changes. Moreover, he said Bagrote Valley was selected as pilot site for GLOF Project and the selection was on basis of sensitivity area as it is surrounded by glaciers, environmental sensitive areas and large number of population is residing in the area which is susceptible to GLOF. Early warning systems, Safe heavens, escape routes protective bunds etc. were the improved adaptation structure installed and constructed at the pilot stage. After these interventions two GLOF events occurred at these structures with stand during these events. GLOF pilot project was successful in Bagrote valley, detailing and priorities will define soon for implementation.



Mr. Muhammad Yahya Akhonzada, Secretary Home and Prisons recommended promoting slope stabilization in HPP's to protect environment, control sediment loss and mitigate climate change impacts. He proposed that every school (Private and Government) should enact/begin class related to environmental issues and environmental awareness once a week in all class levels/grades to better give an insight to the future generation. Conduct and promote research on environmental conditions of boarder areas i.e. China and Kohistan and compare data to analyze the environmental conditions and impacts of climate change. Additionally, he said that we need to drain out our opportunities being in the center of three main ranges: Karakorum, HKH and Himalayas. He said line departments should join hands to work together on the climate change issues. Environmentalist should be deputed in each department or at least in Planning and Development Department to look after environmental aspects of the projects. There should be a continuous process of acting on proposed activities and a follow-up is important to get significant results. He suggested paying attention to water channels on slope damages the soil below due to continuous absorption of water therefore disturbing the soil stability, he further suggested bringing research papers and recommendations solely in the context of GB and he assured to include experts' opinion in upcoming projects.

