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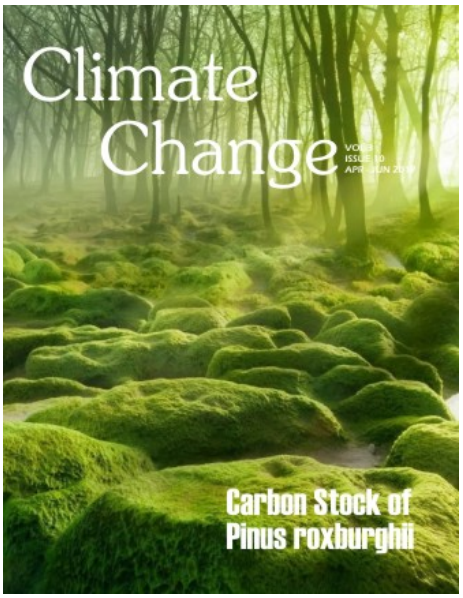
Climate Change

About the Cover



Hilly aspects are prominently affecting carbon stock but such research has not done yet in Nepal. Therefore, this study was objectively conducted to assess effect of aspects on carbon stock of *Pinus roxburghii* plantations. Three community forests (CFs) were selected for this study. Then, 11, 26 and 34 samples representing the four aspects were collected from Barahpakho, Salyan Salleri and Kaleri community forests respectively. Additional 183 soil samples were gathered from 0 to 0.1, 0.1 to 0.2 and 0.2 to 0.3 m depths. The diameter and height of plants were measured. Data were analyzed to calculate biomass carbon and soil samples were analyzed using Walkley and Black method. The result showed the carbon stock was 90.57±4.32 and 70.10± 2.43 t ha^{-1} in North and South aspects correspondingly in Salyan Saleri CF. Moreover, mean annual carbon increment (MACI) was the highest 3.95 t ha^{-1} in North aspect of Salyan Saleri CF. The ANOVA and Kruskal Wallish tests showed, there was significant difference in MACI among four aspects at 5% level of significant (Ref: Ram Asheshwar Mandal, Kabita Aryal, Jai Prakash Gupta, Pramod Kumar Jha. Effects of Hilly Aspects on Carbon Stock of *Pinus roxburghii* Plantations in Kaleri, Salyan Salleri and Barahpakho Community Forests, Nepal. *Climate Change*, 2017, 3(10), 708-716 (Ref: http://wallpaperswide.com/).

Analysis

Effects of Hilly Aspects on Carbon Stock of *Pinus roxburghii* Plantations in Kaleri, Salyan Salleri and Barahpakho Community Forests, Nepal

Ram Asheshwar Mandal, Kabita Aryal, Jai Prakash Gupta, Pramod Kumar Jha

Hilly aspects are prominently affecting carbon stock but such research has not done yet in Nepal. Therefore, this study was objectively conducted to assess effect of aspects on carbon stock of *Pinus roxburghii* plantations. Three community forests (CFs) were selected for this study. Then, 11, 26 and 34 samples representing the four aspects were collected from Barahpakho, Salyan Salleri and Kaleri community forests respectively. Additional 183 soil samples were gathered from 0 to 0.1, 0.1 to 0.2 and 0.2 to 0.3 m depths. The diameter and height of plants were measured. Data were analyzed to calculate biomass carbon and soil samples were analyzed using Walkley and Black method. The result showed the carbon stock was 90.57±4.32 and 70.10±2.43 t ha^{-1} in North and South aspects correspondingly in Salyan Saleri CF. Moreover, mean annual carbon increment (MACI) was the highest 3.95 t ha^{-1} in North aspect of Salyan Saleri CF. The ANOVA and Kruskal Wallish tests showed, there was significant difference in MACI among four aspects at 5% level of significant.

Climate Change, 2017, 3(10), 708-716

Research

Impact of climatic variables on rubber (*Hevea brasiliensis*) yield in humid lowland of southwest Nigeria

Ugwa IK, Mesike CS, Ubani SE

The study was aimed at determining impact of some climatic variables with rubber yield in humid lowland of southwest Nigeria. Monthly rubber yield and climatic data from 2006 to 2012 were collected from Rubber Research Institute of Nigeria main station, Iyanomo near Benin City. Data collected were analyzed using catographic techniques correlation and regression. The results show that there were high variability of climatic factors and rubber yield. Few climatic variables were significantly correlated with rubber yield. The minimum temperature, maximum temperature and maximum relative humidity were negatively correlated. Simple and multiple regressions relationships of the significantly correlated variables with yield contributed 31 percent to 57 percent of rubber yield. Effective adaptation strategies such as the use of improved and wind resistance clones, access to credit loan. Soil management strategies, rubber based cropping systems and field hygiene are suggested as ways to mitigate against negative effect of climate change and therefore improve rubber yield in the study area.

Climate Change, 2017, 3(10), 717-726

Communication

Global Climate Change and its effects on Mental and Social Health

Harshal Tukaram Pandve

Climate change has emerged as one of the most devastating threat to entire mankind. Recent events have emphatically demonstrated our growing vulnerability to climate change. Effects of the climate change are multifaceted and it has severe impact on almost all the aspects of human life like health, nutrition, economics and trade and many more.

Climate Change, 2017, 3(10), 727-728

Analysis

Enhancing community resilience to climate change - an investigation of climate impacts and community led adaptation strategies of remote coastal peoples in Bangladesh

Edris Alam

Bangladesh is considered one of the most vulnerable countries to climate variability, fluctuation and extreme climatic events. Bangladeshi coastal communities are continuously adopting self-instinct survival strategies in order to cope with changing climatic conditions. Bangladesh is considered one of the most vulnerable countries to climate variability, fluctuation and extreme climatic events. Bangladeshi coastal communities are continuously adopting self-instinct survival strategies in order to cope with changing climatic conditions. This paper discusses the impact of climate change on livelihoods and documents current and future adaptation strategies of the Bangladeshi coastal communities. The findings suggest that climate change effects on local community may include, but not limited to, livelihood, migration and health in Bangladesh. To offset the effects of extreme climatic events, vulnerable communities are often forced to migrate within the country. The findings of the research conducted in preparing this research indicate that those who migrated to another area were able to secure new places to reside but in locations that made them susceptible to other forms of disaster.

Climate Change, 2017, 3(10), 729-738

Perspective

Blue Economy: What does it holds for India in the long run?

Shyam S Salim, Athira P Ratnakaran

Ocean and inland waters provide immense benefits for the humanity mainly it helps in the social and economic development, ensures food security and provide ecosystem services. But the resources and its gains mainly from oceans are eroded rapidly due to climate change, pollution, overfishing, and ocean acidification and also due to increased deforestation. So it is necessary to determine the full potential of ocean's food and resources in order to meet the needs of the growing population also it is necessary to develop an approach which is environmentally and economically stable to make sustainable use of ocean resources. Blue economy could provide a panacea in fulfilling this approach. There are several economic sectors which is using ocean and inland waters including fisheries and aquaculture, mining, renewable energy, biotechnologies, shipping. All these sectors and their carbon foot print imparts direct effect on the ecosystem. The major role of blue economy is to determine the impact of these sectors on the biodiversity, ecosystem services and also on the aquatic resources. Blue economy is providing immense opportunities for adapting to the increasing global issues through appropriate policies to support research and development and by better strategies delivered through market mechanisms. There is an urgent need for a locally precise and spatially explicit quantification of all things relative to ocean wealth in metrics that are comprehensible and practically feasible by decision makers at varying scales these metrics will support us to make out and determine which industries fall in to the new notion of blue economy. By enabling better policies, by creating innovative technologies the idea of obtaining economic gain from seas could be possible through blue economy. The major goal of blue economy is to create as much as economic value from marine environment but to do it in a sustainable manner without harming the ecosystem services and its resources.

Climate Change, 2017, 3(10), 739-752

Analysis

Climate change in the south of European Russia in 1961-2015 and analysis of anomalies in 2010 and 2015

Ashabokov BA, Tashilova AA, Kesheva LA, Teunova NV

Based on the temperature and precipitation data of the plain weather stations (<500 m above the sea level [a.s.l.]), foothill stations (500-1000 m a.s.l.) and mountain stations(> 1000 m a.s.l.), the tendencies of climate change for the last 55 years (1961-2015) and in the modern period of global warming (1976-2015) have been revealed. It is received that since 1976 the growth of average annual and seasonal temperatures in all climatic zones has been increasing. The change in the precipitation regime does not have unidirectional significant trend: both increase and decrease in annual and seasonal precipitation are observed, but a general trend for all weather stations is significant increase in the autumn precipitation. The comparative analysis of the anomalies of meteorological parameters in 2010 and 2015 as the most "hot" years in the history of instrumental observations showed that 2010 remains the record year for the magnitude of positive temperature anomalies.

Climate Change, 2017, 3(10), 753-763

Analysis of the Trend of the Number of Days with Snow and Slush of the Hydrometric Stations in Iran Using Non-Parametric Methods

Hamid Alipur, Saeed Shojaei, Seyede Negar Hashemi Nasab

Today, recognizing the manner of the trend of the climate changes and especially the trend of the precipitation changes is very important. In this study, data on the number of days with snow and slush of 41 synoptic stations for a period of 40 years from 1965 to 2005 were extracted. A significant review was carried out by using three non-parametric methods of Mann-Kendall, Spearman and Autocorrelation. The results showed that all of the stations did not follow specific trends. Using the Mann-Kendall test, Shahr-e Kord, Isfahan and Zanjan stations in the confidence levels of 0.95 and 0.99 and Fasa, Torbat-e Heydarieh and Gorgan stations in the confidence level of 0.95 were significant that Shahr-e Kord, Zanjan and Torbat-e Heydarieh had increasing trend and Isfahan, Fasa and Gorgan had decreasing trend. In the Spearman test, 4 stations of Shahr-e Kord, Isfahan, Zanjan and Fasa were significant in the confidence levels of 0.95 and 0.99 and Torbat-e Heydarieh was also significant in the confidence level of 0.95 and Shahr-e Kord and Zanjan stations had decreasing trend (negative) and Fasa and Torbat-e Heydarieh stations had increasing trend (positive). In the Autocorrelation nonparametric test, the results indicated no significance in the confidence levels of 0.95 and 0.99 for the all of the stations except Shahr-e Kord and Zanjan stations in the confidence levels of 0.95 and 0.99 which had increasing trend and Bam in the confidence level of 0.95 which had decreasing trend.

Climate Change, 2017, 3(10), 764-770

Assessment of the bio-wealth, threats and impacts of climate change on Velli: a vanishing Lake of Trivandrum

Padma Mahanti, Sanjeet Kumar

Urban lakes play an important role to maintain the urban biodiversity. In Trivandrum, Kerala, India, there are a number of urban lakes. Among them, Velli lake is situated between 8° 31′ 39″ N, 76° 54′ 30″ E. It is rich with diverse bio wealth but at present is affected badly due to urbanization and other abiotic-biotic factors. A survey was carried out to document bio-wealth and to screen

the visible threats. Results revealed that 68 major plant species were recorded along with 26 species of avifauna including one belonging to the RET (rare, endangered and threatened) category. The major visible threats were noted. The observations correlate the uncontrolled growth of *Eichhornia crassipes* with climate change in respect of temperature. The present study highlights the importance of urban lakes and recommends checking the threats for maintenance of a healthy urban ecosystem.

Climate Change, 2017, 3(10), 771-780

Communication

Development vs. Environment Preservation Conundrum: Issues and Challenges

Beniwal Sukriti

The pre-eminence between development and environment has long been debated. From the first United Nations Human Environment Conference at Stockholm in 1972 to the Paris Agreement in 2016, the countries have consistently weighed whether the developing countries can follow Environment Kuznets curve and the responsibility for cleaner environment should lie on the shoulders of developed nations or whether the time has arrived where both the developing and developed countries work collaboratively to ensure sustainable development. The policy makers of developing nations argue that they cannot be denied of their right of industrial growth and material prosperity and thus should not be burdened to make environment preservation their priority but a developed country style industrialisation based on the expensive resources that remain, is therefore probably foredoomed by enormous if not insurmountable economic and environmental obstacles. Therefore, however much we clamour that we have a natural right to seek industrial development with greater rapacity to catch up with the industrialised nations, odds are heavily stacked against the environment. The present paper focuses on the trade off between development and environment preservation, issues like water level depletion, low air quality, health hazards etc and the challenges faced by the countries in transiting the economy to green economy. It also emphasizes on the importance of cleaner and greener technologies and concludes that the need of the hour is to see development and environment as complementary rather than antagonistic terms and harness natural resources in a sustainable manner to ensure the well-being of our future generation.

Climate Change, 2017, 3(10), 781-785