SOHAM NEPAL NEWSLETTER

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FEATURES

Monsoon activities in Nepal during June and July, 2003

The monsoon this year commenced into Nepal on 16 June as compared to the normal date of onset of monsoon in Nepal which is 10 June.

The monsoon was weak initially, but strengthened from the third week of June with occurrence of widespread rainfall at many places in the kingdom. The weather data obtained from various places of the kingdom for the month of June shows that many places in the country received rainfall above normal except at some places in the far western and central hilly regions.

In the month of July, almost all the places in the kingdom, except a few place received rainfall above normal. The capital city recorded 169% of the normal rainfall in the month of July. The incessant rainfall caused flooding and landslide at many places in the country (see following article). Table 1 shows the monsoon rainfall for the months of June and July 2003 for the various places of Nepal.

Table 1. Monsoon rainfall at the various places in Nepal

Station	June 2003		July 2003	
	Observed (mm)	Percentage of Normal	Observed (mm)	Percentage of Normal
Dadeldhura	90.8	52	269.2	79
Dipayal	98.6	61	329.1	140
Dhanghadi	185.7	76	594.8	112
Surkhet	308.8	115	623.1	119
Nepalgunj	191.4	104	545.3	149
Jumla	62.6	89	170.1	92
Dang	298.6	110	492.7	122
Pokhara	785.4	115	1291.6	139
Bhairahawa	450.9	173	627.7	114
Simara	450.9	181	720.8	134
Kathmandu	227.3	90	591.5	169
Okhaldhunga	515.7	160	477.1	107
Taplejung	558.2	178	595.5	141
Dhankuta	206.3	118	329.7	131
Biratnagar	324.1	101	717.2	145

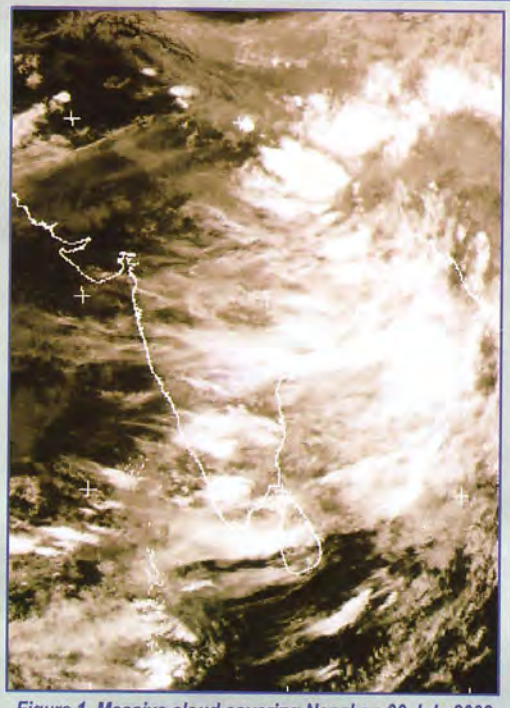

Figure 1. Massive cloud covering Nepal on 30 July 2003

Active monsoon create havoc in the kingdom

Floods and landslides triggered by heavy rainfall in the month of July created havoc and rendered thousands of people homeless with death of more than 130 people in Nepal. As of August 19, 2003.

The heavy downpour disrupted road as well as air transport at various places in Nepal. The heavy monsoon rainfall had cut-off vehicular movement in the three major highways: Mahendra Highway, Tribhuvan Highway and Prithivi Highway. The busiest Prithavi Highway was cutoff at Krishna Bhir on 30 July, as a result, the vehicular movement had come to standstill and large number of vehicles remained stranded on both sides of the Krishna Bhir for almost one week.

Likewise, almost all local flights were cancelled due to incessant rainfall that occurred in the kingdom in the last week of July.

A landslide that took place in the Mungling-Abu Khaireni section of the Prithivi highway has caused damage amounting to more than 80 million Nepali rupees to the Marsyangdi Hydroelectricity Power Plant; Marsyangdi Hydroelectricity Station is the second largest hydroelectric plant in the country. The Ruwa River, which cascades down the hill next to the project's power station, had also flooded the station. The flood has also caused damage to a couple of 132 kV transmission towers, which channels electricity to Bhaktapur transmission line.

Based on the available data, the highest amount of rainfall obtained in 24 hours was observed to be 446.3 mm at Devghat, Narayani Zone on 31 July. Likewise, Simara and Kathmandu recorded 174 mm and 100 mm rainfall respectively on the same day.

Table 2. Effect of Flood of 2003

Districts Effected	51
Dead	162
Missing	39
Injured	73
Families Affected	4186
Livestock Lost	227
Housed Destroyed	1645

Source: Department of Disaster Management Ministry of Home

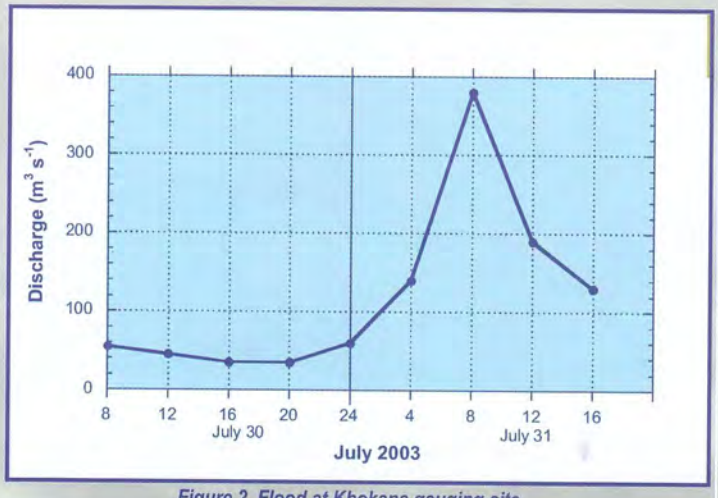

Figure 2. Flood at Khokana gauging site

Some locations of Kathmandu valley were inundated due to the rainfall of July 30 - 31, 2003. The peak flood of Bagmati River recorded at Khokana was 380 $m^3 s^{-1}$ (Fig. 2, 3) This flood is almost half of the flood occurred in July 22-23, 2002.

Figure 3. Raging Bagmati River (Courtesy: Mandira Singh Shrestha)

Floods in South Asia

The monsoon, in general, this year in South East Asia seems to be strong with occurrence of widespread rainfall at many places. The incessant rain has swollen the rivers and flooded more places across South Asia in June and July raising the death of thousands of people and left more than 12 million people homeless or stranded.

The floods that have started in the mid-June in Bangladesh destroyed nearly 100,000 houses and affected more than 3 million people. In the same event 181 people died due to drowning and landslides until end of July.

Likewise, in June and July, many places in India experienced more than normal rainfall. As a result of excessive rainfall, even the drought areas of Rajasthan and Gujarat states have recorded good rainfall this year. For the month of July, New Delhi broke a 39 year old record with 63.2 centimeters of rainfall. In July 1964, theIndian capital received 53.8 cm of rainfall.

In Pakistan, heavy monsoon rainfall recorded this year in the history of past 25years and it has caused flooding at many places in the country.

Tilicho Lake in Nepal

No other fresh water lake is situated at higher altitude than Tilicho Lake in Nepal. Tilicho Lake is situated at an altitude of 5000 meter above mean sea level between 28° 40' to 28° 40' North Latitude and 83°, 50' to 83°, 53' East Longitude on the northern lap of Tilicho Peak (7135 m a.s.l.). The lake is in the territory of Khansar VDC of Manang District in Western Development Region. The watershed falls in the rain shadow area of Annanpurna range. Due to its elevated location the lake freezes completely during winter. It is an exciting destination for tourists who trek to high mountain areas. Table 3 lists some important parameter of the lake.

Most lakes in the High Himalayan range are of glacial origin. Tilicho could have also formed due to glacier retreat and was probably a glacier lake in the formation stage. Water in glacier lakes generally looks turbid and milky. They are generally unstable and are prone to outbursts and pose threat to downstream areas. In contrast, the water of Tilicho Lake is clear. Furthermore the lake is reasonably stable. An alternate assumption on the origin of the lake is that the area was a V-shaped deep incised river valley before the development of the lake. Large-scale downslope movements of rock with snow avalanches could have dammed the stream at the outlet location.

All perennial streams joining the lake are fed by snow and glacier. virgin ice, rock and moraine sediment covered ice extend up to water edge at south shores. The stream originating from the glacier that lies in the south of Idam Phra range is the biggest inlet of the lake. This stream brings a lot of sediment and debris into the lake. The deposition of the debris by this stream has constricted the width of the lake considerably. There is a possibility that this process will someday divide the lake into two parts.

Contribution by: Jagat K. Bhusal, DHM

Table 3. Charactersistics of Tilocho Lake and its watershed

	Depth, m	Area km^2	Length km	Width km	Perimeter km
Lake at present level (4997 m a.s.l.)	85*	3.54	4 .0	0.6 to 1.4	10.5
Lake *at crest level (4997 m a.s.l.)*	165	7.70	5.5	2.0	15.0
Watershed	--	42.00	10.0	6.5	--

**measured on June 8, 2003 by DHM*

NEWS

World Meteorological Day (WMO) 2003

Every year, on 23 March the World Meteorological Day is celebrated to commemorate the entry into force, the convention of the World Meteorological Organization on 23 March 1950. The theme for this year's World Meteorological Day as declared by WMO was "OUR FUTURE CLIMATE".

On this occasion, Prof. Godwin O.P. Obasi, secretary General of WMO delivered a message in which he highlighted the need to protect climate as a resource for the well being of present and future generations. He further stressed that WMO will continue to its efforts in an unflinching manner to contribute to a better understanding of our climate and the potential threats to it and collaborate with the community to ensure its protection and preservation for future generation.

Seminar on Hydrology and Meteorology

On the auspicious occasion of the first anniversary of the Society of Hydrology and Meteorology (SOHAM) and the World Meteorology Day, SOHAM-Nepal organized a one day seminar on "Hydrology and Meteorology in Nepalese context" on 23 March 2003. Thirteen scientists from different organizations presented their valuable paper in the seminar.

On the occasion Mr. Adarsha P. Pokhrel, Chairman of SOHAM-Nepal and the then Director General of Department of Hydrology and Meteorology expressed his happiness in organizing the seminar. Scientists from Nepal and India took part in the Seminar.

On the same occasion, SOHAM-Nepal honoured Mr. Gokul Lal Amatya, the former chief Hydrologist and the first Hydrologist in the government sector and Dr. Sarad P. Adhikary, former Director General of the Department of Hydrology & Meteorology and the first Meteorologist in the government sector for their outstanding contribution in the development of Hydrological and Meteorological activities in Nepal.

SOHAM - Nepal Talk Forum

With a view to communicate the present development in the field of Hydrology and Meteorology, the SOHAM--Nepal has started organizing talk program from the different personalities working in Hydrology and Meteorology and related fields.

In this context, SOHAM- Nepal took its first opportunity to organize the talk program on 2nd January 2003. Dr. Janak. L. Nayava, Freelance Consultant and Vice President of SOHAM- Nepal delivered his presentation on "Agro-meteorological Services in Nepal ".The members of SOHAM and interested persons from different government and non-government organizations were present in the talk program.

Likewise on 3 March and 5 May 2003, Mr. Jagat Bhusal and Dr. Keshav Sharma, Senior Divisional Hydrologists of Department of Hydrology and Meteorology delivered their speech on "A case study of Lake inventory in Nepal" and "Flood Plain Mapping" respectively.

Training Seminar on Summer Monsoon and Prediction Techniques

A training seminar on Summer Monsoon and Prediction Techniques was held in Kathmandu, Nepal from 17-20 December 2002.All together 24 participants from SAARC countries participated in the seminar.

Figure 4. Closing Ceremony of the Training Seminar

The seminar was organized by the Department of Hydrology and Meteorology under SAARC-Japan special fund. The main purpose of the seminar was to provide a unique opportunity to gain knowledge about the summer monsoon and to share knowledge and experience among the weather forecaster concerning the techniques of monsoon prediction at various places in Southern Asia.

The seminar was inaugurated by Mr. Mahesh Man Shrestha, Secretary of the Ministry of the Science and Technology. On the occasion, Mr. Adarsha P. Pokhrel, the then Director General of Department of Hydrology and Meteorology and Chairman of SOHAM-Nepal highlighted the importance of organizing the seminar. The successful participants were also given certificates by Dr. Upendra Devkota, the Minister for Science and Technology.

Extension of Tsho Rolpa Project

The Tsho Rolpa GLOF Risk Reduction Project (TRGRRP) has been extended up to 31 July, 2003. The Donor Agency of the Project, Neda of the Government of Netherlands accepted a proposal submitted for strengthening the project area and carrying out additional studies at the Tsho Rolpa Lake area and granted an additional fund of Euro 102,612.00 to the project. The main focus of the extension is a 15 kW micro hydropower, which taps flow from the artificial outlet to generate the electricity. The power will be used locally for the project area and supply energy to the operator housing. Geophysical survey of the lake area and survey of a high elevation lake are other activities to be carried out by the project.

Training on Numerical Weather prediction, Satellite Imagery Interpretation and Rainfall Probability

To familiarize scientists with the new technology in the Weather Forecasting, the UK Meteorology office had organized a training program in Numerical weather prediction, Satellite Imagery Interpretation and Rainfall probability from 21–29 January 2003. Three participants from DHM had participated the training program.

The training program was held in the UK Meteorology College, Torquay under the direct supervision of the UK Meteorology Office.

Workshop on Climate Change Impacts and Adaptation Options in Nepal's Hydropower Sector

Department of Hydrology and Meteorology (DHM) and Asian Disaster Preparedness Center (ADPC) jointly organized a Workshop on Climate Change Impacts and Adaptation Options in Nepal's Hydropower Sector with a focus on Hydrological Regime Changes including GLOF on 5-6 March 2003. The workshop was inaugurated by Mr. Dipak Gyawali, Hon. Minister for Water Resources. The inaugural session was chaired by Dr. Dayananda Bajracharya, Vice Chancellor, RONAST. The participants were welcomed by Mr. Adarsha P. Pokhrel, Director General of the Department of Hydrology and Meteorology and Chairman of SOHAM-Nepal.

The main objective of the workshop, participated by about 40 participants from different government and non-government organizations, donor agencies and diplomatic missions, was to find climate change adaptation measures in the hydropower sector of Nepal.

SOHAM-Nepal Chairman attends IPCC Expert level meeting in New York

Chairman of SOHAM-Nepal Mr. Adarsha Pokhrel attended the IPCC expert level meeting held in New York, USA from 17–20 June 2003. The Chairman also visited Centre for Ecology and Hydrology, UK and discussed activities of SOHAM-Nepal. It is learnt that the centre has expressed interest to co-operate and act together with SOHAM-Nepal in the national and International level.

Retirement of Mr. Adrsha Pokhrel from Director General of Department of Hydrology and Meteorology.

Mr. Adrsha Pokhrel retired from the post of Director General under the Civil Service Act of His Majesty's Government compulsory retirement after the age of 58. Mr. Pokhrel has served as Chief Hydrologist and then Director General in the Department of Hydrology and Meteororology. He has been decorated with ***Gorkha Dakchhin Bahu Tesra and other medals.***

SOHAM-Nepal wishes Mr. Pokhrel a happy and bright future in the rest of this life.

CONGRATULATIONS

Dr. Madan Lall Shrestha appointed new Director General of Department of Hydrology and Meteorology

Dr. Madan Lall Shrestha, the Executive Committee Member of SOHAM–Nepal has been appointed as the new Director General of Department of Hydrology and Meteorology on 29 May 2003. He has also been appointed as the Permanent Representative of the World Meteorological Organization (WMO) with Nepal. Dr. Shrestha has a wide experience of working in Nepal as well as abroad, including as **a** scientist in the SAARC Meteorological Research Center in Bangladesh.

SOHAM-Nepal extends heartfelt congratulation to Dr. Shrestha on his appointment and wishes him great success in the future.

Dr. Arun B. Shrestha
Awarded Gorakha Dakchhin Bahu

On the auspicious occasion of the 57th Birthday of His Majesty King Gyanendra Bir Bikram Shah Dev, Dr. Arun B. Shrestha, Hydrologist-Engineer of the Department of Hydrology and Meteorology and General Secretary of SOHAM-Nepal has been awarded with the ***Gorkha Dakchhin Bahu Chautha.***

The society congratulates Dr. Shrestha for the recognition of his professional service.

SOHAM Chairman
Receives Rastriya Vyaktitwo Samman

National Honour and Development Centre Nepal has honoured Mr. Adarsha Pokhrel, Chairman of Soham-Nepal with *"Rastrya Vyaktitwo Samman (National Personality)"* on the auspicious occasion of 57th birthday of His Majesty King's for his long contribution for the development and extension of hydrological sciences in Nepal.

On this occasion, SOHAM-Nepal extends heartfelt congratulation to Mr. Pokhrel.