



# Crash Course

It has been two weeks since the latest avoidable tragedy in the skies above Nepal. Twenty-two people perished when a Twin Otter on a flight from Pokhara to Jomsom hit the side of a mountain on 29 May.

A *Nepali Times* analysis on *page 5* points out that this was the 64<sup>th</sup> major air crash in Nepal in the past 60 years, in which more than 818 people have been killed. Some 92% of them died when their plane flew into mountains during bad weather. The tally does not include smaller accidents.

Like all statistics, these numbers are numbing. When disasters become frequent, compassion fatigue sets in, and people tune out. But each crash is an enormous tragedy for scores of families and friends of passengers and crew. The country has also lost prominent

professionals in every field. Nepal's ambassador to India was among 10 who died in a crash in 1962, and a rescue plane that went to the site also met with disaster, killing an eminent physician. Some of the country's top conservationists were killed in the helicopter crash in Ghunsa in 2006. The 2018 crash of a Bangladeshi plane at Kathmandu airport cost the life of Nepal's foremost brain surgeon, and that of 10 promising students who had just graduated from medical school.

There is an unfair asymmetry in media reports of air and highway accidents. Plane crashes get much more media attention than road traffic accidents, even though 3,000 people are killed on highways every year in Nepal — more than tuberculosis, malaria and HIV combined. (One result of the pandemic was that the death toll on Nepal's roads was much lower in 2020 because of lockdowns.)

The reason for this disproportionate focus on aviation is that people in upper income brackets are involved, and the impact of a poor air safety record on tourism. For an industry that has such important bearing on the economy, one would have thought the government and private operators would have tried harder to improve air safety standards.

Maybe it is not so surprising when there is such a glaring lack of political will to clean up extortion and corruption in the migration sector -- even more important for the country's economy because of remittances from Nepalis working overseas.

An investigation committee is formed after every plane crash. A report is quietly released a few months later recommending safety measures. It goes on a shelf, its warnings and suggestions gather dust. The committees overlap, and sometimes have the same members.

Analysis of data from the past air crash investigations in Nepal show that most of the accidents have taken place in poor weather when perfectly airworthy planes slam into mountains. Only a few of these crashes have been due to mechanical failure. There were also no serious accidents with fatalities in the last 60 years on trunk routes between the capital and Tarai cities.

We know what the problem is (planes flying into clouds that hide mountains) and the solution (regulatory scrutiny, enforcement

of Visual Flight Rules (VFR), crew training, better forecasting for en route weather).

So it is shocking, but not surprising, that these deadly disasters keep happening.

Two nearly-identical crashes of the same type of aircraft belonging to the same airline on the same route in

similar weather, and almost at the same location prove that flight deck instrumentation and age of aircraft are not major factors.

A Tara Air Twin Otter hit a mountain above Dana in February 2016 while flying from Pokhara to Jomsom,

killing all 23 on board. Six years later on 29 May 2022, another Tara Twin Otter crashed up the valley, killing 22.

The plane in 2016 was a brand new upgraded Viking Air version of the Twin Otter that showed virtual terrain to pilots on the glass cockpit. The Twin Otter in this year's crash was 43-year-old with an analog flight deck. Both planes were flown by captains who had 30 years of experience flying Twin Otters in Nepal.

Yet both hit mountains in cloud. There is something else at play here. A culture of laxity, negligence and fatalism are underlying causes. Poor oversight by regulatory agencies and airline companies also play a part.

Making real-time en route weather available to pilots would help, together with stricter compliance to VFR.

Ultimately, Nepal needs more accountable leaders and better governance for this carnage in our skies to stop.



KUNDA DIXIT

**Nepal needs more accountable leaders and better governance for this carnage in our skies to stop.**

## 20 YEARS AGO THIS WEEK

### The Ship of State

*The disparity between the rich and poor is often the root cause of violent conflict, and was at the root of the 10-year Maoist insurgency. Yet, the economic gap has only increased over the years. Young men and women continue to migrate to India, the Gulf and Malaysia for jobs, while the rich get richer.*

*An editorial published in 2002 detailed the different classes of passengers on a flight out of Kathmandu. Unfortunately, despite progress in health, education and development, not much has changed in the last two decades. Excerpts from the editorial from issue #98 14-20 June 2002, 20 years ago this week:*

There were few tourists, but a recent flight out of Kathmandu was full. The back of the plane was packed with a hundred Nepali workers off to Malaysia -- most had sold their land to afford the ticket and fees of labour dalals euphemistically called "manpower agents." The middle of the plane had a boisterous group of a dozen senior civil servants of His Majesty's Government off for a two-week administration and management training of senior executives. And right in front was the Nepali delegation headed for a follow-up to the



World Food Summit in Rome.

There you had it: three classes of Nepali society (first, business and economy) that reflected the state of the country today. If there had been any doubts about it, now there shouldn't be: by every development indicator Nepal is the poorest country in one of the world's poorest regions. We are at the bottom of the heap. Even compared with the economic disparities within South Asian countries, according to the UN, the gap between rich and poor in Nepal is starker. But by far the most glaring indicator of development, or lack thereof, is hunger.

And there are more hungry people in Nepal today than ten years ago.

In 1992, there were 3.5 million Nepalis who were undernourished. Today, the number of chronically-hungry has gone up to 5 million. One in every five Nepalis (most of them women and children) doesn't get enough food to meet the minimum daily calorie requirement. Large parts of the chronically food-deficit mid and far-western districts face a food crisis of catastrophic proportions.

**From archive material of *Nepali Times* of the past 20 years, site search: [www.nepalitimes.com](http://www.nepalitimes.com)**

## ONLINE PACKAGES



HIMALAYAN MELTDOWN

The Himalaya is melting up to 0.7°C faster than the global average. The mountains are melting like ice cones. Snowlines have receded, glaciers have shrunk. At the current rate, two-third of the Himalayan ice will be gone by 2100. Air pollution is now turning out to be one of the major contributing factors for this meltdown. Watch this aerial video of the Everest region and read the story on *pages 10-11*.

### BRITISH CEMETARY

Though I have read numerous books on the history of the British Raj in India as well of stories of those who served virtually their entire lives in India and considered England a strange foreign country, I never really thought of the somewhat parallel stories of those who spent so much time in Nepal who died and are buried there ('Buried in history', Lisa Choegyal, #1115).

**Roger Ray**

● This book is very interesting. The variety of people buried there is unusual compared with most British cemeteries you find in India. And many of the people in the British Cemetery in Kathmandu seem more familiar. I taught English with a relative of one who was buried there and have a friend who knows the family of a child buried there. And of course there are several personalities who have left their mark in Nepal.

**Marianne Heredge**

● We highly recommend this book about the British Cemetery in Kathmandu. A fascinating read.

**Rural Assistance Nepal (RAN)**

### NEPALI MIGRANTS

A heartrending story of a father who invested each and every movement of his life to his son ('A Father's Sacrifice for His Son's Dream', *Nepali Times*, #1115). He sold his labour and life to see his family smile.

**Narayan Koirala**

● South Asia's lower strata is full of these kinds of stories, they inspire to no end. Unfortunately, not many are highlighted. Hats off to the *Nepali Times* for picking this up. Wishing Anil and the Mandal family well.

**John Shilshi**

### HEALTH INSURANCE

All the money going to making private health shareholders rich is exactly the amount of money lost to health care ('Dangers of privatising healthcare in Nepal', Gaj B Gurung and Sushil Koirala, [www.nepalitimes.com](http://www.nepalitimes.com))

**Robert Vermont**

### LEMON FARMING

Congratulations and best wishes to Hum Nath and Goma for their respectable and self-reliant business through which they have also been able to support their sons' education ('Money grows on trees here', Sahina Shrestha, #1115).

**Bindu Bhandari**

### FLASH MOUNTAINEERING

Climbing a sacred mountain, a mountain the Sherpas did not climb until rich foreigners came along ('Mt Everest in business class', Shankar Dahal, #1113). And let's not talk about how many guides, porters and yaks have died for this 'endeavour', and how much the environment has been degraded.

**Wild Yak**

● Government regulations are of no value whatsoever if everyone - including the government that creates them - ignores them completely.

**Aleksandr Verkovsyn**

### MENSTRUAL HYGIENE

There are so many big companies in our country ('Celebrating menstruation in Nepal', Sara Parkar and Madhusudan Subedi, #1113). If the government cannot make menstrual products tax-free, these companies should at least make sanitary pads available at minimal prices under their CSR.

**Anael Paudel**

### INDEPENDENT POLITICIANS

Never trust a man who insists on wearing shades indoors while advocating transparency ('Nepal's Gen Next', Sarala Gautam, #1115).

**Aleksandr Verkovsyn**

### NIJGAD

The judicial system of Nepal is now liberated ('Building Nijgad, come what may', Aria Shree Parasai, #1111)! We have three international airports and Nijgad is not the need of the hour.

**Norkyel Tseten**

### BICYCLE LANES

The proper place for bicycle lanes is the left bank of Bagmati ('Re-cycling Kathmandu is not so easy', Sarah Watson, [www.nepalitimes.com](http://www.nepalitimes.com)).

**Gauri Rimal**

### TARA AIR CRASH

Jomsom flight in monsoon after 8AM when flying gets tricky ('Pokhara-Jomsom flight with 22 missing', *Nepali Times*, [www.nepalitimes.com](http://www.nepalitimes.com)). Can't there be a safer flying protocol?

**RKC**

● I flew there several times. Very dangerous and unpredictable flight. One of the scariest in Nepal, worse than Lukla airport for me, especially with bad visibility and strong winds.

**Mikolaj Jezak**

## Times.com

## WHAT'S TRENDING



### Money grows on trees

by *Sahina Shrestha*

In the rugged hills of Palpa live 'Kagati Didi' Goma Bhandari and her husband Hum Nath, who over the years have cultivated on a piece of land considered too arid for farming, making the district Nepal's lemon capital. Read the profile online and watch the video.

**f Most reached and shared on Facebook**



### Rise of the Independents

Editorial

Independent leaders like Balen Shah and Harka Sampung have proven how democracy should function and that a candidate no longer needs a party ticket to contest and win local elections. Follow [www.nepalitimes.com](http://www.nepalitimes.com) for the latest political updates.

**t Most popular on Twitter**

### Father's sacrifice for son's dream

by *Nepali Times*

The 10th installment of Diaspora Diaries features daily-wage earner Laldev Mandal, who invested in his son's education so he could study computer engineering in Japan. Visit [nepalitimes.com](http://nepalitimes.com) for the full story.

**💬 Most commented**



### Buried in history

by *Lisa Choegyal*

Mark F Watson and Andrew R Hall's new book *Corner of a Foreign Field: The British Cemetery* at Kathmandu might be about expatriates who lived and died in Nepal over the past two centuries, but it is also a crucial piece of the country's history. Review on our website.

**🔍 Most visited online page**

## QUOTE TWEETS



**Nepali Times @NepaliTimes**

"If we promote a #bicycle day just once a week, we can reduce 1.5 million litres of fuel every year. We can save money as well as clean up the air."



**Sagar Onta @SagarOnta**

Let's close main roads in KTM Valley on Sundays and let people enjoy walking, biking and rolling down from the street. @ShahBalen @DhakalSaurav



**Dinesh Jabara @DineshJabara**

Every Friday's should be cycling day for workers and officers weather they are in Government department or private one



**Nepali Times @NepaliTimes**

#editorial Aborted landing in #Nijgad The project is a logging concession masquerading as an airport, it is a disastrous mix of kleptomania and megalomania



**Joe Niemczura, RN @ccnepal2013**

Agreed. Now the Pokhara and Bhairawa are coming on line, much of the pressure on KTM will be relieved.





# TIME TO MEET AGAIN

for a candelit dinner



TURKISH AIRLINES

01-4438363 | 01-4438436 | ktmsales@thy.com  
Products and services are subject to change depending on flight duration and aircraft.



PHOTOS: SANTOSH DAHIT



# Reaping the peace dividend

How a former teacher is far ahead of Nepal's politicians in turning wild cannabis into a cash crop

● **Santosh Dahit** in Dang

At the peak of the Maoist conflict in 2002, Prem Kumari Pun fled her village in the mountains of Rolpa for the relative safety of the plains. It was getting difficult to withstand frequent harassment and threats by

the army and Maoist guerrillas.

She quit her teaching job at a local school and moved down to Ghorahi. This meant she had to start from square one.

"We were in the war zone, and there would be battles in the surrounding mountains, bombs and bullets everywhere. We teachers would be treated with suspicion by

both sides," recalls Pun. "I loved to teach, and I worked very hard at my job. But saving my family was more important."

In Ghorahi, it was difficult for Prem Kumari to support herself and children without a job. She took up tailoring classes and was a determined student. She won the Best Trainee award in her class, and

was contemplating starting her own tailoring shop.

What helped was that as a girl in Rolpa, Prem Kumari had learnt to weave hemp from the cannabis plant that grows wild in the mountains of Nepal. She incorporated this skill into her sewing.

She registered her business

and started collecting hemp fibre in earnest. To keep up with demand, she ordered more of the material from Rukum, Doti and Accham districts to turn into hemp waistcoats, hats, caps, bags and shoes.

The material was new, and most customers in her shop were initially reluctant to try it. Many said it was too rough to be used for clothing.

"I remember gifting a waistcoat and hat made from hemp to an official at the district Home and Small Industries Office who was reluctant to wear it," says Pun. But a few days later, the man was at the shop to buy another pair.

The market for Prem Kumari's hemp products gradually grew, and customers were attracted to the uniqueness of the material which had a cooling effect in the summer and was warm in the winter.

Soon, she even had customers in Japan, UK and USA, where the environmental and fair trade movements had spread awareness in the public about fibres like hemp.

But then the Covid-19 pandemic hit, and Prem Kumari was forced to cut down staff of 250 to 12. With no international or domestic tourists for most of the past two years, she has been hard-pressed to find customers.

But there is optimism in the air again as business picks up. Prem Kumari's Rs7 million hemp clothing business is once more seeing up to Rs20,000 worth of sales a day.

Four years ago, Prem Kumari Pun was the recipient of the Best Entrepreneur Award at the National Industrial Goods and Technology Exhibition organised by the Home and Small Industries Development Committee in Kathmandu.

Now, Prem Kumari wants to help more entrepreneurs start their businesses but says the state needs to promote local initiatives. Spreading the success would allow Nepalis to finally reap a real 'peace dividend' 17 years after the conflict ended.

"We were internal conflict refugees, and had to start from scratch in a new place. But our success has shown that it is possible with determination and diligence," says Prem Kumari, adding, "but a little bit of support from the government to provide low-interest loans without collateral, especially for women could help." 🇳🇵

## prabhu BANK

### Turkish awards

Turkish Airlines was awarded the Best Food & Beverage in Europe and Best Seat Comfort in Europe categories at the Airline Passenger Experience Association (APEX) 2022 Passenger Choice Awards making the carrier the recipient



of most recognition at a Dublin event that used 1.2 million passenger votes. Says Turkish Airlines Chair Ahmet Bolat: "We are always working to provide service beyond our passengers' expectations. We see travel as a concept beyond just transportation and consider the journey as an enjoyable and comfortable experience."

### Powerful export

Nepal Electricity Authority (NEA) has started exporting surplus hydropower at a competitive rate in the Indian Energy Exchange market. The Central Electricity Authority of India had approved purchase of 364MW generated from six hydropower projects in Nepal -- the 37.7MW Trisuli and Devghat, 140MW Kali Gandaki I, 68MW Middle Marsyangdi, 67MW Marsyangdi and 51MW Likhu-4. India has refused to buy from plants with Chinese investment or contractors.

### Forex decline

Despite government policies to discourage imports, Nepal's foreign exchange is declining. According to Nepal Rastra Bank, the country's foreign exchange reserves until mid May was Rs9.28 billion, down from Rs9.61 billion a month earlier. This is 21.1% less than the same period last year.

### PepsiCo Sting

PepsiCo has launched its new energy drink, Sting, in Nepal with a TTV campaign. The 250ml packs will be sold across retail outlets as well as being available in major e-commerce platforms.

### Daayitwa Eco Talks

Daayitwa Kicked off its policy dialogues 'ECO Talk' with the first titled 'Promoting women-led indigenous enterprises to accelerate economic growth in Nepal' this week. The panel looked



at challenges of inclusive financial investment, innovative ways of resource mobilisation, and parliament action to promote women-led indigenous enterprises. Five other dialogues are planned.

### Global IME

IME digital solutions and Jyoti Bikash Bank have launched a cashback offer of Rs1,000 for every premium life insurance paid. Customers also have the



chance to win a smart watch. The Bank will also be constructing a new corporate office in Kathmandu's Lazimpat that will provide the same services to customers like its other offices.

### NOC loss

Nepal Oil Corporation (NOC) which buys petroleum products from India has incurred a loss of Rs47 billion in the last 10 months, and this is expected to reach Rs60 billion next month. NOC blames this on its inability to adjust petroleum prices despite hiking petrol to Rs178 per litre, and diesel and kerosene to Rs165.

### Chery Tiggo Pro

Chery cars has launched the Tiggo 8 pro that packs a combination of 1.6 turbocharge gasoline direct-injection and 7-speed dual-clutch transmission, advance driver assistance system and other features. The car comes in 6 colours with a starting price of Rs9,950,000.

### Nabil's public loos

Nabil Bank will now allow the general public to use its toilet for free under a new agreement with the Kathmandu Metropolitan City. The move makes Nabil the first bank to do so. The service will be available for free for five years and the bank will bear repair, clean and bear water costs.

### JICA-Nepal on climate

JICA Nepal and the Ministry of Forest and Environment this week signed a Technical Cooperation Project on Climate Change Adaptation through Sustainable Forest Management. The five-year project aims to strengthen institutional capacity of government entities responsible for sustainable forest management at national and local levels. JICA has been supporting the forestry sector of Nepal since the 1990s.

### Tata GenVoltz

Tata Motors has launched GenVoltz generators that come with low operating costs and 25- 125kVA configurations. The generators are fuel efficient and adhere to latest



CPCB II emission norms. Says Rajan Babu Shrestha of Sipradi Trading: "With Tata Motors gensets, we are confident we will be the most reliable brand for power backups of all industrial and infrastructural needs."

# 60 YEARS of LIVING DANGEROUSLY

**M**ost aviation accidents in Nepal between 1952-2022 were caused by planes flying into mountains hidden in clouds, known to air crash investigators as Controlled Flight into Terrain (CFIT).

Major air crashes in 60 years: **67**

Total CFIT: **30**

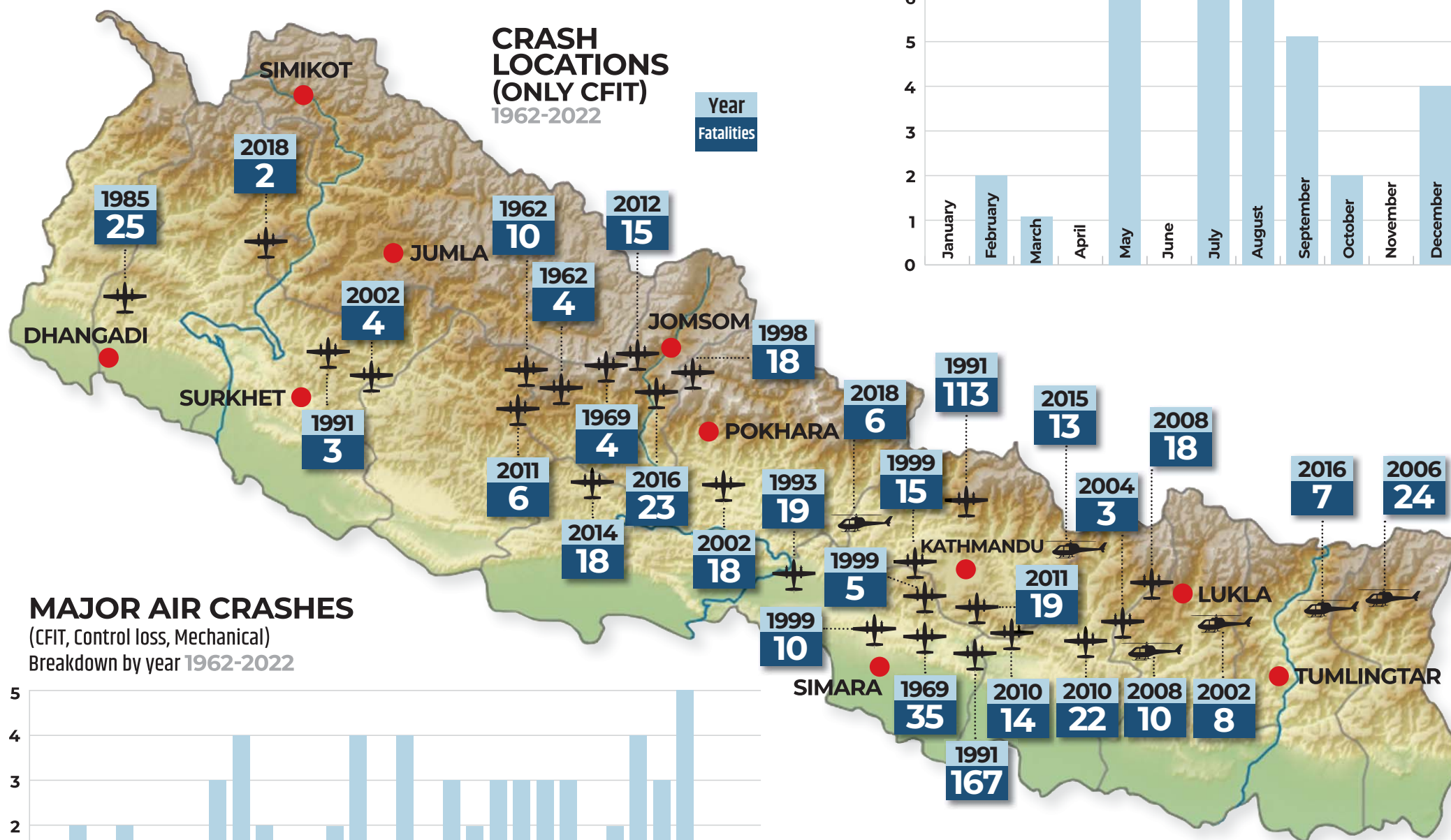
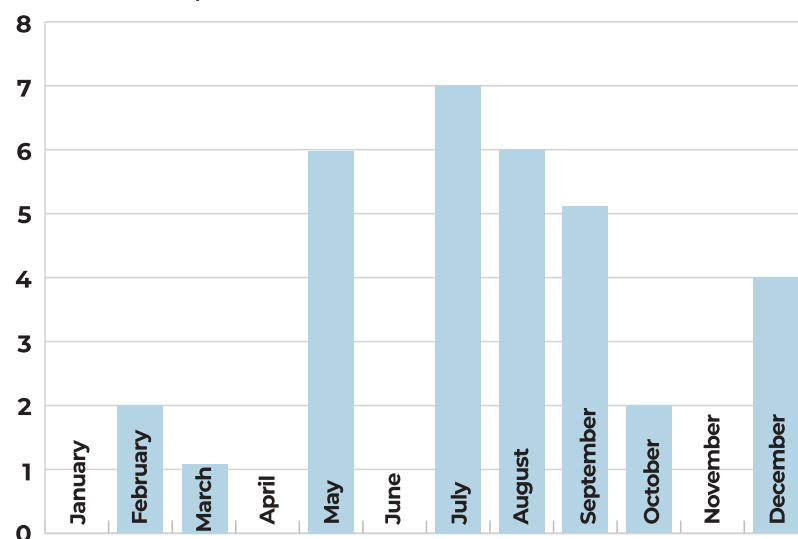
Total air crash fatalities in 50 years: **818**

CFIT fatalities: **752** (92%)

## CFIT

1962-2022

### Breakdown by month in which CFIT accidents occurred

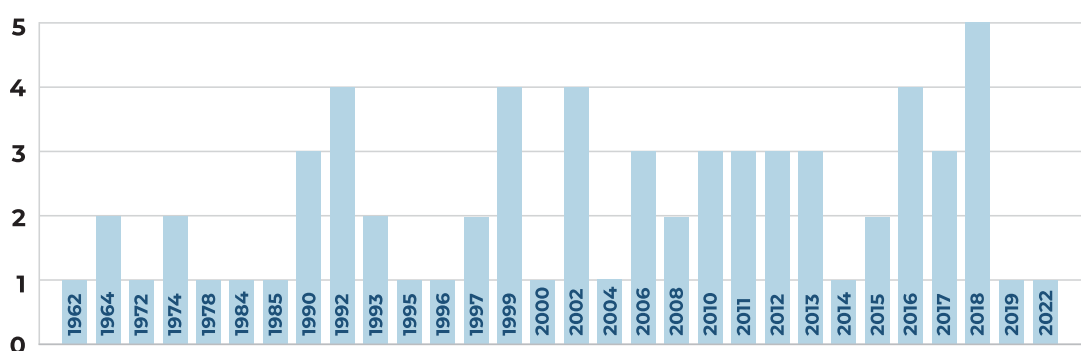


SOURCE: AVIATION SAFETY NETWORK, CAAN, NEPALI TIMES ARCHIVE  
GRAPHICS: KIRAN MAHARJAN

## MAJOR AIR CRASHES

(CFIT, Control loss, Mechanical)

### Breakdown by year 1962-2022



Pilots in Nepal are trained not to fly into clouds because there could be mountains in them, yet it continues to happen

● **Kunda Dixit**

What is it about air crashes in Nepal that very similar accidents tragically keep happening again and again in the same kind of terrain and weather?

A *Nepali Times* analysis of plane crash data from the past 60 years shows that 92% of the fatalities have been in accidents categorised as Controlled Flight Into Terrain (CFIT) in which an airworthy aircraft slams into a mountain hidden in cloud.

Nepal is the most challenging country in the world for aviation because of treacherous terrain and weather. Short runways carved out of mountains add to the challenge. Weak regulatory oversight, commercial pressure, failure to follow procedures by flight crew are cited as reasons for most crashes. These sentences from past air crash investigations in Nepal all point to only one type of malfunction:

'Crew made incorrect judgment of the deteriorating weather condition'

'Violation of regulation to fly in VFR at all times'

'Probable cause was continuation of the flight despite unfavorable weather conditions'  
'Ineffective safety and crew training by airline'

'Inappropriate and insufficient crew coordination'

'Crew's over-confidence, casual non-compliance of SOPs about VFR.'

Nearly all major crashes in the past 60 years have occurred on mountain routes. Most mishaps were in the monsoon or during winter rains. Very few were caused by mechanical failure, loss of control, or bird strikes. There have been no fatal crashes on Tarai trunk routes in that period (*see graphics, above*).

After every CFIT, investigation reports have pointed to the same reason: failure to abide by Visual Flight Rules (VFR) while flying in the mountains in poor weather. Most cockpit crew, including the ones flying the Tara Air Twin Otter that crashed near Jomsom on 30 May, appear to have been caught unawares by a sudden change in en route weather.

Aviation safety experts say this means pilots need to be mindful of not just the weather at the origin and destination airports, but also have precise real-time information of conditions along their flight path. A past crash report recommended equipment to beam live weather conditions on accident-prone routes like Pokhara-Jomsom. The equipment was never installed.

The Civil Aviation Authority of Nepal (CAAN) ought to take a lead by coordinating with the Department of Meteorology and Hydrology to use existing and proposed Doppler radar stations, locating them along dangerous air routes. Webcams at critical waypoints like Lamjura, Ghorepani,



KUNDA DIXIT

# Serial tragedies

- ✚ In 1962, a C-47 on a flight from Kathmandu to Delhi went missing. The plane with 10 passengers, including Nepal's ambassador to India, was only found a week later.
- ✚ A MI-17 helicopter carrying mountaineering guides disappeared in pre-monsoon clouds in 2002 on a flight from Makalu Base Camp to Lukla. It has never been found.
- ✚ In 1991, two Airbus 310s crashed within two months of each other during the monsoon while on final approach to Kathmandu airport, killing a total of 280 people.
- ✚ Another MI-17 helicopter slammed into a mountain below Kangchenjunga in 2006 in bad weather, killed 24 people that included Nepal's pioneer conservationists.
- ✚ A US Marine Corps Bell UH-1Y Venom evacuating survivors of the 2015 earthquake impacted on high terrain obscured by cloud cover in Dolakha, killing all 13 on board. In 2008, a MI-17 chartered by UNMIN flew into a mountain in Sindhuli killing all 10 passengers.
- ✚ Two Twin Otters from the same airline on the same route flying in similar weather crashed at nearly the same place along the Kali Gandaki gorge about eight years apart.


Lete, and Virgin Pass could stream live images of visibility and cloud. Such weather cameras have proved their worth for bush pilots in Alaska and other far flung areas of the world. Following the latest crash near Jomsom that killed 22 people, flights are now required to have go, no-go clearance from air traffic controllers of en route weather. This requirement has grounded most Pokhara-Jomsom flights.

This rule pre-supposes that CFIT incidents are mostly due to pilot error, and therefore hands the decision to controllers who may actually have even less information about en route weather.

It is the flight crew which has visual reference to conditions along the way, and are in the best position to make a judgment to fly on or turn back. (*Editorial, page 2*)

Capt Prabhakar Ghimire was a former air traffic controller with 30 years of experience flying Twin Otters and knew the terrain like the back of his hand. Initial reports of the 29 May crash say he made a steep banking climb to remain VFR and avoid cloud before impact.

Handing flight clearance based on en route weather to controllers may lead to needless cancellations, or increase pressure on pilots to fly even when the weather along the way is bad.

More loss of lives can be reduced with VFR training compliance for crew, and real-time visual en route weather information. 

● Gautama V Vajracharya

Some monsoonal Vedic concepts and rituals related to cows remain discernible in the annual religious observances of South Asia, particularly in the Newar rituals and festivals of Kathmandu Valley.

My investigation into frog hymns and ancient Newar rituals and seasonal festivals, and particularly into the custom of frog worship, is related to my own life experience.

Before I left Nepal for the United States in 1974, I had never been outside of the monsoonal land of the Himalayan rimlands. While working with renowned art historian Pratapaditya Pal as a trainee at the Los Angeles County Museum of Art, I became familiar with important art history books by Zimmer, Coomaraswamy, and Kramrisch.

Because these scholars frequently refer to Vedic literature to explain Indian art, I began to take an interest in Vedic studies. After finishing my job at the museum, I started my PhD at the Department of South Asian Studies at the University of Wisconsin.

Compared to Kathmandu and Los Angeles, Madison is extremely cold. Winter lasts almost half of the year, and trees appear dead. Many varieties of birds migrate South, and reptiles, squirrels, rabbits, and frogs hibernate under the frozen ground. Cows remain inside their stalls for at least four months.

Only after snowmelt around the beginning of May does hibernation finally end. The vernal sun enlivens the earth. All of a sudden, the bushes and trees turn fresh and green, the frogs come out and within a week they start croaking, which is in fact their mating call.

When the cows come out of the barn after a long period of imprisonment, they jump around the pasture in a way that can only be described as dancing. All this was a new experience for me.

In most parts of South Asia, including the Kathmandu Valley, creatures do not hibernate – they estivate. During the hot summer season, snakes, turtles, and frogs hide underground.

Water buffaloes and elephants cover themselves with mud and spend time in the water. Frogs and other estivating creatures emerge from the ground immediately after the first monsoonal showers. In accordance with the ancient tendency to reverse cause and effect, it was believed that it rained when frogs start croaking.

Thus, not only Newar farmers but also Vedic people believed that frogs were rainmakers. A careful study of Vedic frog hymns also taught me of the existence of two different agrarian lifestyles in the world. In the regions in which frogs hibernate, planting begins after the vernal sun melts the snow and ice. This explains the popularity of solar deities there.

In the regions in which the frogs estivate, agriculture begins after the monsoon rains – which is why, in the Subcontinent rain gods rather than the sun god play a significant role in cultural history.



# MONSOON CULTURE

Some of the seasonal elements of Kathmandu Valley rituals date back to Vedic times



NTARCHIVE

This observation helped me identify some of the great gods of Vedic Aryans, which originally belonged to a hibernation culture but gradually became the gods of the monsoon. According to the Atharvaveda 4.15.12, for instance, it is when the great god Varuṇa pours water from heaven that the frogs start croaking.

In the last three millennia, South Asian culture has gone through a metamorphic development discernible only through scholarly investigations.

This was indeed an eye-opening moment in my life. As a result, I quickly realised that Śrāvaṇī, the full-moon day of the month of Śrāvaṇa, is significant for many reasons. According to the Newar calendar, this is the day when the

Himalayan river Sihlu, like the Sarasvati River, descends from heaven as a rain river.

This is also the day when the Vedic academic session of the rainy season begins and disciples are invested with the sacred thread, upavīta, and thus become blessed with their second or spiritual birth and are qualified to learn the Vedas by heart.

On this day, all over South Asia, Brahmins, even now, ritually change their upavīta. Interestingly, however, on exactly the same day the Newars of the Kathmandu Valley worship frogs.

This should not be considered coincidental. The Rigvedic frog hymn clearly indicates that the monsoonal session for chanting and memorising Vedic hymns begins

exactly when the dry summer ends and frogs start croaking. Thus, the author of the hymn, with a sense of humour, compares the croaking frogs to the disciples who repeat after their teachers.

At present, the full-moon day of Śrāvaṇa is not the beginning of the monsoon season but nearly the end of the season. Thus, we immediately notice that the Newar frog worship on this day contrasts with the Rigvedic frog hymn that describes the croaking of the frogs when the monsoon begins.

Although, at first glance, such a time difference may appear to be problematic, in fact, it helps us understand the pre-Vedic antiquity of the Newar ritual of frog worship. In Vedic times the phenomenon of the monsoon began near the

full-moon day of Śrāvaṇa, when the grass turns green.

Therefore, in the Ramayana, the following month, Proṣṭhapada, or Bhādrapada, was understood to be the first month of the rainy season. Because of this archaic connection between Śrāvaṇī and the beginning of monsoon, the practice of the Newar ritual of the frogs on this important day is as old as the Rigvedic hymn.

Because the Rigvedic people became familiar with the South Asian phenomena of estivation and monsoonal rain only after they migrated to the Himalayan foothills, it is even possible that the custom of frog worship is pre-Vedic.

Further support of our view derives from the real meaning of a significant Vedic word, samvatsara.



MONIKA DEUPALA



HARI BHAKTA DANGOL



NT ARCHIVE

Although in the Rigveda the word samvatsara was already used for the entire 12-month year, when it is used in the context of the pregnancy of a cow, the atmospheric mother or mothers, it means a period of gestation lasting less than ten lunar months, from autumn to the rainy season.

Although I was familiar with these traditional concepts when I wrote about frog hymns, I was not sure about the origin of this system of reckoning time. It was only a few years ago that I became familiar with the Vedic ritual called vṛṣotsarga (release of bulls) a practical annual ritual related to the autumnal impregnation of cows with the expectation of the calves being born at the beginning of the monsoon when plenty of green vegetation becomes available for the mother cows and calves.

This finding made it very clear to me that autumnal cow worship and the Newar custom of celebrating the New Year as the day of foetus worship and the monsoonal procession of calves is directly related to the Vedic custom of autumnal conception and monsoonal birth.

There is a difference of approximately 290 days between the autumnal ritual of the Newars called Hmapuja or Mopuja (‘foetus worship’) and the monsoon festival called Gaijatra (‘cow procession’) which coincides with the expected gestation period of cows known to Vedic people as samvatsara.

The Newar ritual of feeding frogs is immediately followed by the festive procession of the cow, which was actually the expected day for the monsoonal birth of the calves. Children participate in the cow procession by turning themselves into calves, wearing cow masks.

Recently, I noticed that in the procession some children also dress as baby Krishnas, with flutes and the hairdo adorned with peacock feathers. The procession of the cows has gone through multiple changes over the centuries, but we have good reason to believe that the participation of the baby Krishnas in the procession is related to the original concept.

The eighth day of Krishna, or Kṛṣṇāṣṭamī, which is believed to be the birthday of Krishna, takes place exactly eight days after Śrāvaṇī, seven days after the monsoonal cow festival. (On 19 August this year.)

This is because in ancient South Asia, the birth of a baby was not celebrated on the exact day of the birth, but only when the chief dangers for a child and mother were past. In fact, Kṛṣṇāṣṭamī is not the exact day when Krishna was born, but the day of the celebration (jayanti) of his birth.

A popular Hindu story relates that on a stormy night when the Yamunā River was flooded, Vāsudeva escaped from prison and saved the life of his newly born child, Krishna. Although Vāsudeva is interpreted as a patronymic word for Krishna, the cult of Vāsudeva is not the same as the cult of Krishna.

For instance, the former has no association with Krishna’s romance with Rādhā and gopīs. The early cult of Vāsudeva was popular in India around the 1st century BCE, when not only Hindus but also foreigners, such as the Greek ambassador Heliodorus, were accepted as devotees of the Vaishnava deity.

The Greek ambassador erected a pillar in Beshnagar in honour of the god and the pillar is still standing in situ, but the image of Garuda surmounted on the pillar is missing. This is actually one of the earliest Hindu monuments to have survived.

In the Mahabharata and Amarakośa, Vāsudeva has an interesting epithet Ānakadundubhi ‘A Drum called Ānaka’. According to the epic, this name was given to him at his birth because the gods, foreseeing that Vishnu would take a human form in his family, sounded the heavenly drum Ānaka for joy.

This Hindu story, however, does not explain the significance of Ānakadundubhi in the Buddhist Jātaka story and its association with the much earlier Vedic belief that the sound of the thunder is the sound of the celestial cloud drum.

Jātaka 2.344 tells that Ānakadundubhi was made of a golden crab’s claws. When this divine crab died, asuras made the

cloud drum, ālambaraḍundubhi, out of a claw, whereas the Daśārha warriors of the earth made the Ānaka drum out of the other claw.

There was prosperity in the kingdom of the Daśārha because the sound of the Ānaka drum could make rain. Keeping the tradition of the hibernation culture of their earlier homeland, Vedic priests continued the custom of beating the drum in the Mahāvratā ritual performed ‘at the winter solstice, for the purpose driving away influences hostile to the return of sun’ even though in most of the Subcontinent, one does not need to worry about the return of the sun.

Thus, cloud and rain symbolism of the drum also began to appear in Vedic literature, alongside the solar cult. For instance, Jaiminiya Brāhmaṇa 2.404 and 3.105 relate that the sound of the atmospheric drum causes the aerial waterpots to overflow. Likewise, the sound of the earthly drum (bhūmidundubhi), whose mouth is covered by the skin of a bull, rains when bitten ritually (varṣukaḥ parjanya bhavati 3.118).

Thus, Vāsudeva’s epithet, Ānakadundubhi, may suggest that Vāsudeva received this name because originally, he was a divinity of the thunder cloud. His real name, Vāsudeva, the god of vasu, ‘agrarian prosperity’, resembles Vasudhārā, worshipped by Buddhists as the goddess of the rice paddy. The Vedic version of Vasudhārā is vāsur dhārā, symbolically identified with a cow. Her milk is rain flowing from her udders as clouds (Śatapatha Brahmana 9.3.3.15).

Agrarian wealth, vasu, is also associated with frogs. According to the Rigvedic frog hymn 7.103.10, the greenish-yellow frogs which croak at the beginning of the monsoon are the givers of vasu. Thus, the celebration of the birthday of Krishna (the son of the thundercloud at the very beginning of monsoonal rains) clearly indicates that baby Krishna was a rain child.

The eighth day of the dark half of the month of Bhādra, which is considered the birthday of Krishna, was actually the Vedic Ekāṣṭakā,

the eighth day after the full moon. A main point of our argument is based on the Maitrāyaṇī Saṃhitā (2.5.9), which refers to two different Ekāṣṭakās, designated as Ekāṣṭakā and Aparā Ekāṣṭakā.

References to the Ekāṣṭakā of the month Māgha are, however, found in other Vedic texts as well. This Ekāṣṭakā is certainly different from Aparā Ekāṣṭakā, briefly mentioned in the Maitrāyaṇī Saṃhitā (4.2.8) as the day when newborn calves were collected each year for the ritual performed for the wellbeing of the calves.

In the Rigveda, frogs are eulogised as cow-givers. This makes sense because calves were expected to be born when frogs start croaking. The well-known Ekāṣṭakā hymn of the Atharvaveda is also related to the monsoonal birth of calves.

In this hymn, Ekāṣṭakā is identified with devānām rātri, ‘the nighttime of the god’. The Ramayana refers to the rainy season as varṣārātra, which cannot be ignored as a post-Vedic development because the rainy season is equated with night in several Vedic texts, including the Rigveda (1.38.9).

Furthermore, we can clearly see the reflection of the Rigvedic frog hymn in the Ekāṣṭakā hymn of the Atharvaveda, particularly in the following sūkta (3.10.5). ‘vānaspatyā grāvāno ghoṣamakrātā haviṣkṛṇvantāḥ parivatsariṇam = The mortar and pestle (like cloud) made thundering sound while preparing the oblation of the parivatsara time.’

Undoubtedly this sūkta was an imitation of one found in a Rigvedic frog hymn (7.103.8): ‘brāhmaṇasaḥ somino vācamakrātā brahma kṛṇvanta parivatsariṇam = The soma drinking Brahmins made (loud) sound while chanting the prayer of the parivatsara time.’ As in several other Vedic expressions, the grinding sound of the mortar and pestle in this Atharva hymn is equated with thunder.

The Lomash Rishi Cave inscription of the Maurya emperor Ashok refers to the rainy season as ghoṣāgama samaya ‘thunder time’. This cannot be the Maurya period

invention because already in the frog hymn of the Atharvaveda, ghoṣa is a word for the thunder.

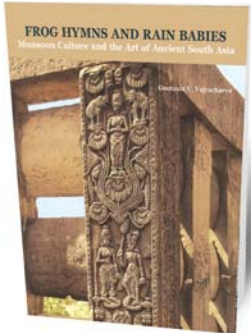
Evidently, in the Rigvedic frog hymn and Ekāṣṭakā hymn, the word parivatsariṇa has the same meaning. In the frog hymn (7.103. 7) the word is used to describe the time when brahmins start chanting Vedic mantra and the frog start croaking, in the Ekāṣṭakā hymn the rumbling sound of the thunder at the onset of the rainy season. Thus, we know that Ekāṣṭakā hymn is closely associated with the beginning of the monsoonal phenomena.

This is why Ekāṣṭakā is described as the wife of Samvatsara, who remains inactive during the gloomy days of two months of the rainy season. Thus, it becomes evident that the monsoonal Ekāṣṭakā on which newly born calves were collected is the same as Krishna’s birthday, celebrated eight days after the full-moon day of Śrāvaṇa.

This is the reason that on the day of the cow procession of the Kathmandu Valley, which is observed seven days before Kṛṣṇāṣṭamī (on 12 August this year), baby Krishna participates in the festival together with real calves and children representing the calves.

Baby Krishna was therefore the auspicious rain-child representing all newly born offspring of during the year. 🌧️

**Gautama Vajra Vajracharya** was born into a Newar family in Kathmandu in 1940. He is a Nepali Sanskritist and scholar specialising in the art and iconography of the Indian Subcontinent. This article is adapted from his keynote address to the Madan Puraskar and Jagadamba Sri Award Ceremony in Kathmandu in October 2021.



EVENTS



**For our furry friends**  
Watch '777 Charlie', a movie about a man and a dog and the heartwarming soulful bond they have. All proceeds will be used for spaying the street dogs of Kathmandu.  
*18 June, Labim Mall, Ticket: Rs1,000, 12:15pm onwards*

**Charity Beer Festival**  
Enjoy a fun beer festival with friends and family. All funds raised will go to building a model school for children with Down Syndrome and autism.  
*18 June, 11pm onwards, Malla Hotel*

**Meditative Mandala**  
Cultivate mindfulness with a meditative mandala workshop conducted by Coco at Avata Yogshala. Register online.  
*18 June, 3pm-4.30pm, Baluwatar*

**Book launch**  
Climate fiction anthology 'In 100 years' will be launched this Saturday with support from Quixote's Cove.  
*18 June, 3pm-5pm, Base Camp Bar, Sanepa*



**Temple Hike**  
Pack the bags and water bottles for the six-hour Bhuwaneshwori temple hike this weekend. Call for more details.  
*18 June, Ticket: Rs600, 9851204085*

DINING



**Anatolia**  
Anatolia's Indian and Turkish dishes are packed with spices and an unforgettable assortment of flavours. From the Mutton Kofta Curry to the Baklava, one will keep wanting more. All the food is halal.  
*Thamel, (01) 4258757*

MUSIC

**World Music Day**  
Enjoy blues and rock music from The Midnight Riders and Newaz this World Music Day.  
*21 June, Alliance Française, Jhamsikhel*



**Sabin Rai and Pharoah**  
Sabin Rai and the Pharoah will be performing live this Friday with DJ session from Bee Bass, Aavii and Samten.  
*17 June, Club Playboy, 6pm onwards*

**Music classes**  
Sign unto learn Bansuri, Madal, Tabla and Western interments like Piano, Guitar, Drum, Bass, Saxophone, and Violin at Kathmandu Jazz Conservatory. Call for more details.  
*(01) 5443554, 9813556945*



**The Phoenix Mob**  
Check out the new album launch of The Phoenix Mob and special performances from ZIRANA, Dmitri and KTM Souljah.  
*17 June, Ticket: Rs500, Beers N' Cheers, (01) 5524860*

**NEWAZ**  
Chill with your friends to the tunes of Newaz as they belt out songs from their new album 'Kama', and enjoy a show from ASM.  
*18 June, Ticket: Rs500, Jhamsikhel, (01) 5524860*

**Attic**  
Tantalise your taste buds with Attic's signature Royal Aloo and other tasty dishes. Scrumptious BBQ Night every Friday and Saturday.  
*Gyaneshwor, (01) 4417843*



**Trisara**  
Enjoy great snacks and dishes from Trisara. Don't miss out on the tasty corn and also the baked goods right next door.  
*Lazimpat, 9818353523*

GETAWAY




**The Fulbari Resort & Spa**  
The ultimate getaway for those looking for a short break, Fulbari is far from everything but at the centre of all that matters.  
*Pokhara, (061) 432451*

**Hotel Heritage Bhaktapur**  
A Newa-style boutique hotel that incorporates the rich art and architecture of the ancient town.  
*Suryabinayak, (01) 6611628*

**Grand Norling Hotel**  
Enjoy a calm and relaxing stay with spacious bedroom, a large balcony overlooking the golf course and the forests along with sightings of monkeys and deer herds.  
*Gokarna, (01) 4910193*

**Mount Princess**  
Surrounded by mountains and greenery, Mount Princess is a haven for city-dwellers. Spend the morning sipping a warm cup of Nepali tea while taking in the breathtaking views.  
*Dhulikhel, (01) 490616*




**Riverside Springs Resort**  
This resort some 100km from Kathmandu and on the way to Pokhara and Chitwan offers horse-back riding, rafting and a huge swimming pool.  
*Kurintar, (01) 5544263*






**Chez Caroline**  
For authentic French and continental cuisine in town, look no further from this quaint establishment.  
*Baber Mahal Revisited, (01) 4263070/ 4264187*

**Embassy**  
Enjoy a hearty meal in this centrally located restaurant known for its lively ambience and assorted menu. Try the Duck Breast, served on a bed of mashed potatoes and roasted vegetables in a rich peppery steak sauce.  
*Lazimpat, 9802024040*

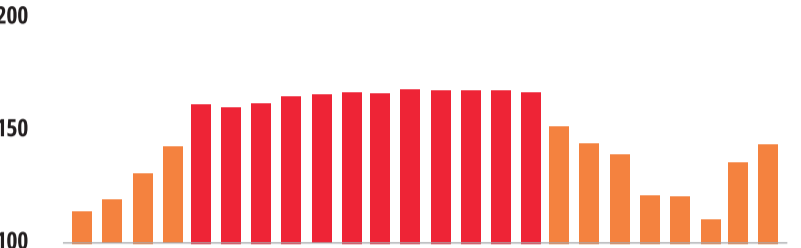
WEEKEND WEATHER



**Monsoon with a Bang**  
The southwest monsoon is here with a bang this year with sustained lightning and thunderstorms. The retreat of the high-level westerly jet stream to the north allows the incursion of moisture-laden air from the Bay of Bengal, and the sustained heat wave in the plains drives the convection systems. It will be another week before we get the moderate long duration rain more characteristic of the monsoon. The westerlies are still playing tug-of-war with the monsoon. Expect overcast skies with intermittent showers into the weekend, with a continuation of thunderstorm activity at night.

FRIDAY	SATURDAY	SUNDAY
 26° 19°	 25° 19°	 25° 19°

AIR QUALITY INDEX



**Kathmandu AQI from 9AM 15 June - 8AM 16 June measured at US Embassy, Phora Darbar**  
The measurements of Kathmandu Valley's Air Quality Index (AQI) at Phora Darbar this week shows a gradual improvement. The suspended particles are regularly washed down by the heavy rain, but as the live AQI graph on [www.nepalitimes.com](http://www.nepalitimes.com) shows, the relief lasts only a few hours before vehicular emissions pollute the air again. The wet roads also have fine dust as the mud dries up, adding to the particulate load in the air. The message is: keep the masks on outdoors even if Covid-19 is less of a risk.

OUR PICK



"When you look at me, what do I look at?" Marianne has been called to Brittany to paint a portrait of a young woman of the gentry named Héloïse, who is to be married off to a Milanese nobleman. Héloïse has previously refused to pose for portraits, as she does not want to be married – and so, Marianne acts as Héloïse's hired companion and accompanies her on daily walks along the rugged coastline to memorise Héloïse's features, to be able to paint her in secret. Written and directed by Céline Sciamma, the 2019 Cannes-favourite *Portrait of a young woman in a green dress* is an intellectually erotic study of power and passion, at once unsentimental, subtle and electric, that examines the relationship between the observer and the observed, and the unbridled creative and transgressive powers of art in the absence of the male gaze – and presence too, for there are none in the film. Stars Noémie Merlant, Adèle Haenel, Luana Bajrami and Valeria Golino.


**कोभिड-१९ विरुद्धको खोप सरकारले निःशुल्क लगाइरहेको छ ।**



**अबैध रुपमा खोप बेच्ने र किनेर लगाउने दुवैलाई प्रचलित कानुन बमोजिम कडा कारवाही हुनेछ ।**  
**कोरोना विरुद्धको खोप बेचबिखन भएको थाहा पाउने जो कोहीले स्थानीय प्रशासन, प्रहरी कार्यालय, पालिका वा स्वास्थ्य कार्यालयमा यथार्थ जानकारी गराउनु हुन अनुरोध छ ।**


**बजारमा लुकिछिपी बेच्न राखिएका खोपहरु नक्कली हुन सक्छन् ।**





**#SERIOUSABOUTBEER**

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Drink responsibly

● Sarah Watson

It was 2:35AM on 11 June when a 4.7 magnitude earthquake shook Kathmandu residents from their sleep, but it is doubtful whether it will jolt many out of complacency about seismic risk.

The tremor did not cause any damage, but it brought back memories of the 2015 earthquake, and forced some to reflect on the safety of Kathmandu’s buildings. The 2015 quake saw the collapse of predominantly brick, mud, and mortar buildings, feeding public perception that concrete structures are more durable.

However, civil engineers and architects say technologies like rammed earth would be environmentally more sustainable and earthquake-resilient. But reinforced concrete is preferred, with Nepal’s domestic cement production more than tripling from 3 million tonnes to 10 million tonnes in the six years since the earthquake.

By coincidence, on the day of the 11 June quake, architects gathered for a workshop in Patan to take stock of progress so far.

Rammed earth construction uses locally-sourced soil often combined with gravel and reinforced with steel bars and limited concrete. It involves no machinery and therefore less emissions, a contrast to brick kilns that contribute heavily to Kathmandu’s pollution. Materials are also largely sourced locally, which reduces both cost of transportation and fossil fuels.

Narayan Acharya, the director of Sustainable Future Nepal, built his own house in Kathmandu with locally-sourced materials and rammed earth techniques. He has now built 10 more structures in the Valley.

“It is warm in the winter and cool for the monsoon, we should promote that all over Nepal,” says Acharya, adding that rammed earth structures are both sustainable, comfortable and can retain the traditional Newa style. While the walls are made of compacted soil and other materials, the structures are resistant to monsoon weather. He also has a built-in water recycling system and a biogas tank.

Rammed earth projects have been particularly successful in Nepal’s rural environments. In 2020, the Bayalpata Hospital in Accham (*pictured, right*) was built with rammed earth technology and won international design awards.



PHOTOS: ABARI

# Foundations for sustainable buildings

Despite benefits of rammed earth technology, Kathmandu has yet to adopt this sustainable building technique



MONIKA DEUPALA

Despite these successes, rammed earth technology has yet to establish a wider hold in Kathmandu.

“There are not as many rammed earth structures in Kathmandu,” explains Tyler Survant, an architect and founder of Better Building Bureau, alongside Anna Leshnick.

One reason for the lack of rammed earth structures in Kathmandu is the misconception that mud mortar buildings are weaker. In 2015, the majority of fallen buildings in the earthquake were brick and mud mortar. But those fallen buildings were not built with rammed earth techniques, and many violated building codes.

“They do not believe mud is strong enough,” says Acharya about rammed earth structures. “It is important to overcome that misconception.”

Experts warn that public confidence in concrete construction is misleading. “Do not believe for a second that concrete won’t be impacted in an earthquake,” says Jharna Joshi, an architect and professor at Kathmandu University. A slightly longer or more intense earthquake could have also brought down concrete structures in 2015.

According to Survant, current building codes limit rammed earth structures to two and a half stories, making them less popular in a dense, city environment that builds upwards, even though these buildings could go up to three stories.

Building codes require adjacent residential buildings, even in concrete, to not exceed three stories, but contractors often add additional concrete floors on top of existing structures. “There is a building code, but people do not follow the rules,” adds Acharya. “Since land is very expensive, some build six stories to not lose any value.”

Acharya says his rammed earth structures did not crack in the last earthquake. Earth buildings are used internationally and historically, with structures found in Chile, India, Nepal, and Iran. “Earth structures have been part of vernacular for millennia,” says Survant, adding that the technology has been tested in other countries. Rammed earth structures use reinforced ring beams, steel bars, and up to 10% concrete that interlock the earth walls.

“The concrete and rebar is providing the same support, but with far less concrete and using local materials,” he adds.

Rammed earth’s costs come from its added insulation, and the experienced builders required, including a structural engineer. Other financial and environmental costs, however, are avoided. There is far less transport of concrete to a building site, and no brick production in polluting kilns.

“If you calculate all the costs, it is competitive, this can be cheaper,” says Acharya. “And rammed earth is not just for the short term, it is built to last.”

Rammed earth’s materials are unlikely to contribute to future waste and environmental impact because when demolished, the material can be reused.

Joshi explains that after the 1934 earthquake, Kathmandu was rebuilt with traditional timber salvaged from previous structures. After 2015, most buildings are now concrete, which may contribute to longterm waste. “We need to upcycle existing materials. If you build in concrete, there is no way you can reuse those materials,” she adds. 🇳🇵

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TATA



# Dirty snow defrosts Nepal's

Dust and soot in the air don't just kill people, but also cause Himalayan glaciers to melt faster

● Sonia Awale



**DIRTY ICE:** Soot and dust particles from pollution that settle on the Khumbu Glacier makes it melt faster.



PADAM GHALEY

**THAWING OUT:** Wreckage of a helicopter that crashed in 2002 emerges from the North Dhaulagiri Glacier which has shrunk because of the combined action of climate change and soot/dust deposition on the ice.



KUNDA DIXIT

**ON THE THIN ICE:** The Lobuje Icefall in the Khumbu is now a hanging glacier, having retreated above the cliff. The ice is dirty because of pollution deposits.

Fine suspended particles in the air have reached harmful levels, and are reducing the average lifespan of people in urban Nepal by at least two years. Now, scientists have found that pollution is also causing Himalayan glaciers to melt faster than earlier thought.

The role of dust particles is said to be an important driver in reducing the reflectivity of snow and ice, so that they absorb more sunlight and melt faster. And there is more dust blowing

into the mountains because of desertification, changing agricultural practices, intense storms, and dust being blown off mountain slopes that have lost snow cover.

'Because a majority of (Himalayan) snowmelt is generated from seasonal snowpack below 5,000m, dust deposition via elevated aerosol levels can cause a large snow surface albedo reduction and influence snowmelt,' notes a new study in the science journal

*Nature*. 'Moreover, the influence of dust on snow darkening is greater than that of black carbon above 4,000m.'

Greenhouse gas buildup in the atmosphere is set to raise global average temperatures by at least 2°C above pre-industrial levels by 2050, and this is still the main reason Nepal's glaciers are receding and shrinking. But controlling soot particles and reducing dust in the air could slow the process.

The *Nature* study found that

black carbon particles have a larger snow albedo darkening effect than dust because it is darker. But dust contributes more to melting because there is up to 1,000 times more of it than soot.

'Temperatures are increasing faster in the Himalaya, this makes weather conditions more unstable prompting long distance transport of dust and other particles more likely,' explains climate scientist Binod Pokharel. The new study now confirms that the role of dust

deposit in melting Himalayan ice is greater than previously thought.

Now that the monsoon is here, people in Kathmandu Valley find it easier to breathe since the air quality index (AQI) is better. But vehicular emissions and brick kiln smoke keep the concentration of suspended soot particles in the air at unhealthy levels.

Dirtier air increases the incidence of chronic obstructive pulmonary disease (COPD), lung cancer, bronchitis, stroke, mental

# mountains



EELUM DIXIT

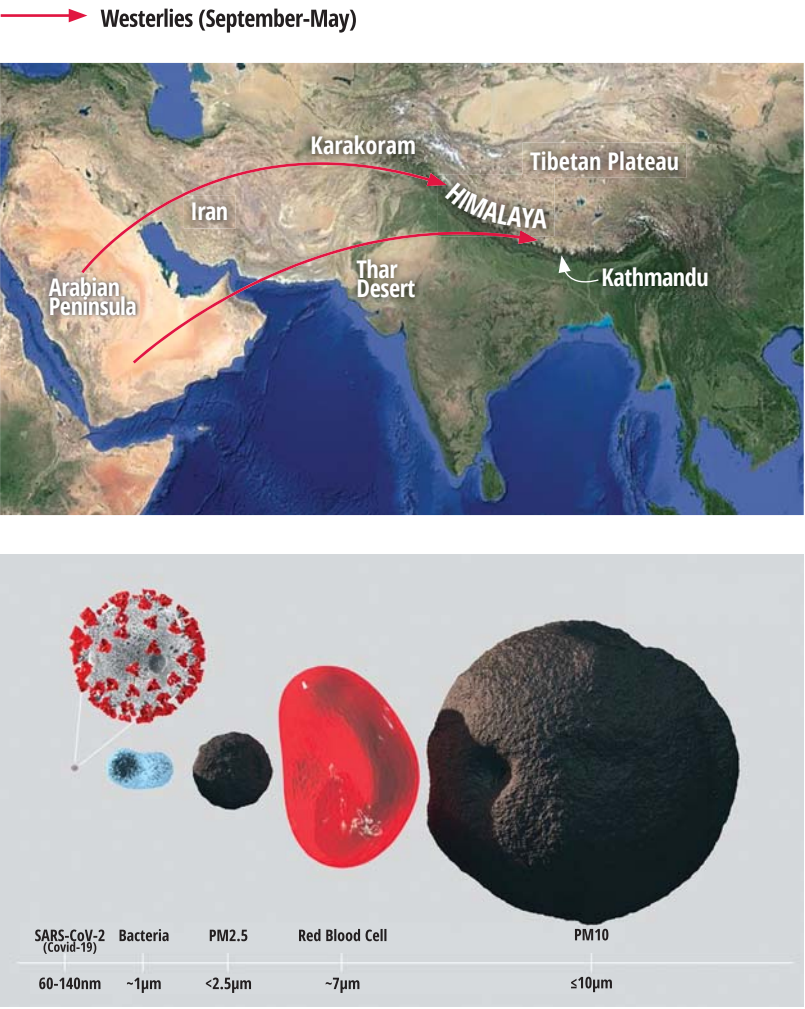
retardation and congenital heart defects. Particles less than 2.5 microns are especially dangerous because they can cross the air-blood barrier in the lung capillaries. Previous studies on Langtang Glacier showed that while global warming was still the main cause of melting, up to 20% of the defrosting was due to snow darkening because of soot deposition. The Himalaya is already warming up to 0.7°C faster than

the global average, and these suspended particles are increasing the rate of melting. What is new in the research is that dust particles are more responsible than black carbon from pollution simply because there is more of it. Black carbon in soot from diesel exhaust, thermal power plants, brick kilns and wildfires are transported by wind to glaciers and snowfields, darkening them and making them absorb more sunlight.

Now, climate change is triggering more intense sand and dust storms and prevailing winds during the pre-monsoon and carrying them over long distances to deposit them in the high Himalaya. But it is not only the origin of dust but the concentration and composition of the pollutant that makes a difference on how it adds to the climate crisis, says meteorologist Namindra Dahal. For example, suspended

## DUST to DUST

Prevailing winds in spring blow sand dust from the Arabian Peninsula, Iran, Pakistan and India to the Himalaya, depositing them on glaciers which are already shrinking due to climate change, and making them melt faster.



particles over cities in India and China have greater inorganic fossil fuel components, while dust being blown in from the Arabian desert have more mineral content. Prevailing winds are from the west for nine months in a year, and blow in sand and soot from West Asia and India to Nepal. Studies have shown that water in Nepal's lakes and rivers at higher elevations already have greater concentrations of dust and carbon particles. "In the past, the air was clean but its composition has changed over the years and that has become a matter of concern due to suspended particles it constitutes, including dust," explains Dahal. "And all this pollution ultimately ends up in the Himalaya, making it melt even faster." At the current rate of melting, and if nothing is done to reduce greenhouse gas emissions, two-thirds of Himalayan ice will be gone by the turn of the century, studies have forecast. This week, Nepal's delegation at the UN Climate Conference in Bonn once again urged the developed world to address loss and damage

caused by the climate crisis, help the country adapt to extreme weather and prevent glacial lake outburst floods. However, Nepal must also show a commitment to reducing the increased amount of suspended soot and dust in the air — not just to slow melting of the mountains but also to lessen public health risk. Respiratory problems caused by air pollution alone killed nearly 45,000 people in Nepal in 2019. Switching to electric public transport and battery-powered two-wheelers would not just clean up the air, but also use surplus hydropower and reduce Nepal's petroleum import bill. While much of air pollution is indeed transboundary in nature, but increasingly it is local emissions that worsen the impact on public health and make glaciers melt faster. Says Namindra Dahal: "Just look at our roads, the dust is killing people and it is killing the mountains. Unless we do our part we have no moral right to demand compensation on the global stage." 🇳🇵

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# SAVE THE BUDGET

NEW FISCAL YEAR

OLD PRICE

As we all know that the prices shall rise after the announcement of the fiscal year budget for 2079/80.

## WE PROUDLY ANNOUNCE

THAT OUR PRICES ARE STILL THE SAME AS BEFORE

\*TERMS & CONDITIONS APPLY

# First, the good news

There comes a time in every journo's career when we get tired of being the purveyors of only bad news. It is our duty to set that right, so we print below stories that somehow didn't make it:

### No Oil Price Hike This Week

BY OUR CRUDE CORRESPONDENT

In another departure from the norm, Nepal Oil Corruption (NOC) failed to jack up the price of petrol and diesel this week, saying it was too busy calculating the bonus for its employees after crude oil prices broke the \$120/barrel mark. NOC has also been making a bonanza during the monsoon season as international airlines have to make long holds, and need full refuelling at Kathmandu for flights back.

"Since aviation fuel in Nepal is the costliest in the world, we benefit greatly from bad weather and air traffic congestion," said an NOC source who could not hide his glee. "But rest assured we will make up for not increasing gas prices at the pumps by a double digit hike next week."

The source also told this reporter off the record that NOC had come up with a clever plan to cap prices at petrol pumps. This is a highly classified state secret, but if you promise not to tell anyone, we can confidentially divulge that the plan entails allowing distributors to adulterate petrol with vodka to stabilise the price at Rs100/litre.

*(This news item is brought to you by High Octane Stolichnaya Vodka: Put a Tiger in Your Tank)*

### Chobar High Dam To Be Built

BY AN ELECTRIFIED REPORTER

The five-party coalition has given the green light for a hydroelectric dam at Chobar Gorge that will solve Nepal's electricity crisis and Kathmandu's uncontrolled urbanisation in one swell foop. It will also reverse

Manjushree's ill-advised move to drain the lake which, it has been revealed, was done without conducting a proper Environmental Impact Assessment (EIA).

The 200m Chobar High Dam will create a massive reservoir that will submerge Kathmandu, Patan and Bhaktapur and turn the Valley once more into a pristine pre-historic lake. Besides allowing Nepal to have a trade surplus with India, the project will reduce domestic electricity demand by removing Kathmandu from the map, and decentralise politics with devolution of federal power to the provinces.

### Journos Irked by Continued Freedom

BY A DISGRUNTLED HACK

Nepal's media fraternity is threatening a pen-down strike unless the grabberment immediately imposes restrictions on the press and enforces self-censorship.

"Nepal's big neighbours have attained double digit growth by cracking down on press freedom," complained a veteran editor on condition of anonymity. "How come I am still free to call our prime minister an Ass? It's been a week and they have still not arrested me. What do I have to do, burn some tyres at Maitighar?"

The All-Nepal Federation of Unjustly Undetained Newspersons (ANFUND) threatened to launch a nationwide stir if their demand to be detained without further ado is not met with immediate effect by the concerned higher-up authoritarians.

The statement said: "If they don't put us under house arrest, then we'll go into cardiac arrest."



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