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COVER STORY

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ART

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CULTURE

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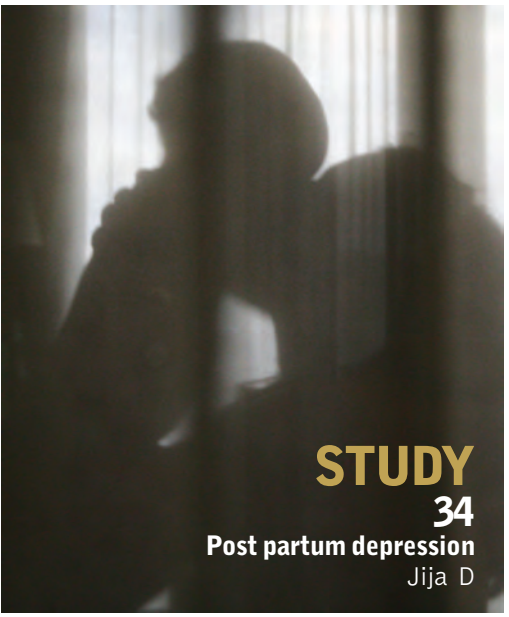
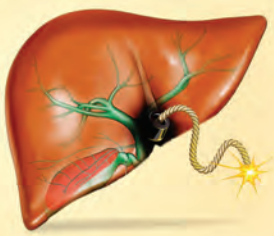


STUDY

Attaining Energy, Water and Food Security for all is the greatest challenge nowadays. This challenge is going to be severe in the near future. Globally, Climate change had become a vital issue of our time and the biggest challenge for attaining sustainable development.

FEATURE

HEALTH



Hepatitis is a disease affecting millions of people around the world cutting across the population regardless of the economic, social and cultural strata.

TOURISM

OBSERVANCES

Tiger inhabits all major forest types of India including dry and moist deciduous, thorny, semi evergreen, evergreen and even the swampy mangroves of Sundarbans delta. In Assam tigers occupy the tall grass vegetation.

EDITORIAL

History of Kerala writ in waters

Rivers have had major influences on the political as well as cultural life of Kerala. It is a fact that many centers of civilization and learning flourished around the river basins. Several places of historical and cultural importance are located on the banks of the rivers. Tirunavai, the place where Mamankam was held under the presidency of the Zamorins, is situated on the banks of the Bhratapuzha. Kaladi, the birth place of Sankaracharya, stands on the banks of the river Periyar. Aluva where the famous Sivaratri festival is held every year is on the banks of Periyar. The places of religious importance such as Aranmula, Chengannur, Maramon and Edathwa are on the banks of Pamba.

Kerala is proud of its water potential. There are forty four rivers that water the state year round. There are 41 west flowing rivers in the state besides three east flowing rivers which are the distributaries of the Kaveri. Out of these 44, only four of the rivers exceed 100 miles in length. They are the Bharapuzha (156 miles), the Periyar (142 miles), the Pamba (110 miles) and the Beypore or Chaliyar (105 Miles). All other rivers are relatively small, the average length being about 40 miles. Majority of the rivers spring from the Western Ghats and flow westwards into the Arabian Sea.

The concept of linking of rivers or inter-basin transfer of water is based on the availability of surplus of water in the donor river especially at the point of diversion to the deficit river basin. The surplus or deficit in a basin is determined on the basis of availability at 75% dependability, import, export, and existing and future needs. The Pamba-Achenkovil-Vaipar link project was included in the first batch of 8 pre-feasibility study reports of interlinking projects submitted to the Prime Minister, by the task force constituted by the Government of India. In this context, Kerala Calling gives an in depth Research Study on the impact of this PAVL Project.

Pamba and Achenkovil rivers are the integral components of ecological systems. These rivers drain out to the Vembanadu Lake through Kuttanad, which is the rice bowl of the State. As Chief Minister Oommen Chandy said, the study by IIT, Delhi had clearly shown that there was no surplus water in Pampa and Achenkovil rivers. Not only that, it also predicted that in the coming years there will be shortage of water in these rivers. The cover story says, "the computation of surplus water in Pamba and Achenkovil rivers in Kerala is misleading. High water requirement for the pollution abetment of the Holy Pamba river during the Sabarimala pilgrim season, the flushing requirement for salinity in the rice fields of Kuttanad, water required for salinity/pollution abetment in the Vembanad wetland system and the storage requirement for the proposed hydro power stations in these basins may not be accounted for the water balance computation."

Moreover the structural interventions proposed in the PAVL Project and its impact on the biodiversity of Western Ghats is also a matter of study. The large-scale deforestation in the rain-fed area of Pamba and Achenkovil will lead to the drying up of many perennial streams and wet lands in the Western Ghats. Kerala can't withstand without rivers. As Donald Worster says, "to write history without putting any water in it is to leave out a large part of the story. Human experience has not been as dry as that."

Mini Antony IAS
Editor-in-Chief

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The President of India Shri Pranab Mukherjee at Sree Padmanabhaswamy Temple

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Sankar's Cartoon Museum Dedicated to the Nation

Chief Minister Oommen Chandy dedicated India's first National Cartoon Museum and Art Gallery to Cartoonist Shankar at Krishnapuram near Kayamkulam. "The museum is the pride of the state. The government is entitled to the task of future development of the museum. It is a great honour to the state for setting up the first museum in the name of the internationally acclaimed cartoonist," said Chief Minister Oommen Chandy in his inaugural speech. Minister for Cultural Affairs, K C Joseph, who presided over the function, said that the museum, which is the first of its kind in the state and would be elevated to the 'top cartoon study centre' in the country.

The museum, constructed under the aegis of Kerala Lalithakala Akademi and designed in a 15,000-sq ft area, has showcased Shankar's major works. His tools including brush, pen, easel, table, overcoat and dolls have been displayed at the museum. Almost 120 original cartoons have been received from his daughters. Cartoons featuring Gandhiji, Jawaharlal Nehru and Indira Gandhi are among them. A water-coloured portrait of Nehru is the major attraction at the museum. Cartoons of Abu Abraham, O V Vijayan, Kutty, Samuel, B M Gafoor, John Mathew, Thomas P Mohan, Kerala Varma, K S Pillai, P K Manthri along with Shankar's students and existing cartoonists including Yesudasan and B G Varma were also exhibited here.

Kerala will host a Global Agro meet and an exhibition on hi-tech agriculture and food processing at Kochi from November 6-7, said Chief Minister Oommen Chandy while releasing the logo of the event. This will be one of the biggest events to showcase value-added agriculture and food processing products and technologies. Kerala State Industrial Development Corporation (KSIDC) will be the nodal agency for the meet, being organised in association with the department of agriculture, the Confederation of Indian Industry, and the International Competency Centre for Organic Agriculture (ICCOA)" said the Chief Minister.

"Food accounts for nearly 55 percent of exports from Kerala. Kerala produces 97 per cent of country's pepper, 70 per cent of cocoa and 25 per cent of coffee. Also 16 per cent of cashews and about 42 per cent of coconuts in the country come from Kerala. The potential in this sector is immense and through this event we expect to provide fresh opportunities for our farmers besides showcasing the latest farming

Chief Minister Receives Articles Used by Diwan

Chief Minister Oommen Chandy received the articles used by Sir T Madhava Rao, the erstwhile Diwan of Travnacore in a function held at Secretariat . Thanjavur Madhava Rao's granddaughter, Oormila Lal, handed over articles used by the Diwan to the Chief Minister, so as to be preserved in Keralam Museum of History and Heritage.

"The items will be treasured by the government and will be kept as a special contribution," said the Chief Minister while remembering the contributions made by the former Diwan to the development of Travancore on the occasion. He expressed his gratitude to Oormila Lal for contributing the items to the museum.

The articles consisted of two daggers, one sword with silver handle, two bronze utensils, seven stainless silver spoons, two hair combs made of ivory and a music box used during the times of Maharaja Uthram Thirunal. Oormila Lal decided to donate the items to government custody following the request made to her by Executive Director of Keralam Museum, S Raimon, and Director of Archives-Kerala State, Rejikumar. "I feel honoured that these relics have been accepted by the government of Kerala and will find a place of honour in the well-known Keralam Museum of History and Heritage and will remain there for posterity," said Oormila Lal.

She also announced that the biography of Sir T Madhava Rao, 'Statesman, Extraordinaire-Life and Times of Rajah Sir Thanjavur Madhava Rao', written by her, will be published in about two months and its royalty will be donated to the museum after her death, for the purpose of maintenance of the articles donated by her and for the purpose of research studies related to Sir T Madhava Rao. Minister for Cultural Affairs K C Joseph was also present at the function.

Kerala to host Global Agro Meet

and agriculture equipment," added the CM.

Agriculture Minister K.P. Mohanan said that this event would help in equipping our farmers with the latest developments in the farming and agriculture sector. Value-added agriculture and food processing are regarded as sun-rise sector of Kerala economy in view of their large potential for economic growth. Combining these advantages together, the Global Agro Meet will bring all stakeholders on a single platform. There will be special sessions on value-added products with a focus on pineapple, spices, coconut products, processed food, dairy, poultry, fisheries, animal husbandry and horticulture. This event will be held along with "BIOFACH INDIA -2014", which offers the organic food industry the world over to look for investments here.

Strengthen Child Counselling Facilities: K C Joseph

A proper counselling system in schools, supported by subsequent psychotherapy sessions is pivotal, said Minister of Rural Development and Culture K.C. Joseph. He was inaugurating the seminar on consultation on strengthening counselling facilities in schools, child care homes and institutions for the differently-abled children organised by the Kerala State Commission for Protection of Child Rights. "Going by the disturbing cases of assault on children, some as young as three years old, perpetrated by members of their immediate family shows that a child could trust nobody. A proper counseling system is necessary for healing them. The government would study the suggestions put forward", added the Minister.

Two PATA Awards for Kerala Tourism

Kerala Tourism has bagged two top honours at the prestigious Pacific Asia Travel Association (PATA) Awards for this year. The state Tourism Department's Responsible Tourism initiative in Kumarakom and its hugely popular online newsletter have won the PATA Gold Awards, said an announcement from the Macau Government Tourism Office, which supports and sponsors the awards. Kumarakom Responsible Tourism Project won in the Corporate Social Responsibility category while Kerala Tourism e-Newsletter received the recognition in the Marketing Media section.

This is the second consecutive PATA Gold award for the Kerala Tourism e-Newsletter, which is designed and developed by Invis Multimedia. There are 20 winners of the PATA Awards this year, selected from 181 entries from 66 organisations and individuals worldwide. "We are proud of this top international honour which will inspire us to continue our efforts in rural tourism development and also take the brand of Kerala far and wide," said Tourism Minister A P Anilkumar. The awards will be presented on September 19 at the Diamond Island City Hall in Cambodia's capital, Phnom Penh

Minister for Industries P K Kunhalikutty flags of the YES van in connection with Youth Entrepreneurship Meet

KAT Goes Online

Kerala Administrative Tribunal (KAT) went global on the World Wide Web. The newly-launched website of KAT - www.keralaadministrative tribunal.gov.in and a kiosk, which are intended to provide details and clarity of court procedures, will offer wide range of services to litigants and advocates. KAT chairman Justice K Balakrishnan Nair inaugurated the official website and kiosk of the Tribunal.

By recording the procedures and details of cases, from the stage of filing to disposal in a centralised server, the system developed by National Informatics Centre (NIC) here would enable the users to track the case status and retrieve information on litigations. NIC created the website and a web-based software Case information System of Kerala Administrative Tribunal (CISKAT) which allow the employees of KAT to update case related files and documentations in an open source server which would be available on the website. It offers options to search the case lists of KAT, case status, judgments, cases filed and advocates concerned.

Online Receipt Accounting System Introduced in State

An online receipt accounting system for financial transactions came into effect in the state. The new system, e-treasury.kerala.gov.in, enables the remitters to make online payment using net banking facility of designated banks. The remitters no longer need to visit treasury to get their chalans verified by the officer. All electronic remittances will be carried out through an e-chalan generated from e-treasury. The agency banks shall designate one nodal branch to carry out all electronic transactions through e-treasury. The interactions between electronic treasury and nodal branch of agency banks shall be done at fixed intervals through a predefined messaging format.

The remitter can access e-treasury portal and furnish the required details to generate e-chalan with a unique Government Reference Number (GRN). Thereafter, payment can be made using net-banking facility of the designated bank. On completing the payment procedure, another unique reference number- Bank Reference Number (BRN) - will be generated. The payment confirmation will then be passed to treasury portal which will generate an e-acknowledgment to the remitter with both GRN & BRN.

The information to be keyed in for generating e-chalan will be minimised in such a way that basic data of repeated remitters of uniform nature, will be pre-stored in treasury portal so as to avoid repeated entry every time. All other details may be either pre-fetched or selectable. Upon selecting the purpose and department, the head of account shall be automatically populated in the treasury portal.

The existing procedure for accepting government receipts of Commercial Taxes, Motor Vehicles, State Excise Departments will continue as such till the same is integrated to the e-treasury system. However, those departments having no e-payment system at present shall operationalise and integrate their e-payment system to e-treasury portal immediately, says a circular issued by Finance Department.

NFSA to be enforced in State from 2nd Oct

The National Food Security Act (NFSA) will be enforced in the state from 2nd October, said Food and Civil Supplies Minister Anoop Jacob. New ration cards will be issued in the state by 1st March, 2015. The NFSA will be implemented by including BPL/AAY card holders as well as families included in the BPL list of 2009 but who were not issued ration cards, said the Minister.

While the government has stopped issuing new cards, temporary cards will be issued if required. Pre-populated data cards will be issued to card holders through the ration shops. The filled-in cards will be collected back by conducting camps. The draft list will be prepared at the panchayat level and published after scrutiny by rationing inspectors. Specially formed committees formed in all local bodies will be handling complaints and grievances related to the draft list.

Further appeals can be filed before the District Collector concerned. The distribution of data forms will begin in September and the camps for collecting them will be held in October. The draft list will be published in December. The final list will be published in January 2015 after settling complaints.

Chief Minister Oommen Chandy releases the book on Right to Service Act published by I&PRD

GIFT inks MoU with National Law School

Gulati Institute of Finance and Taxation (GIFT) under the finance department signed an MoU with the National Law School of India University, Bangalore, for joint academic research. The MoU will facilitate both institutes to start inter-disciplinary programmes and launch consultancy services in more sectors. "The joint academic activities to be initiated by both institutes will help give a deeper perspective on the taxation and public finance sectors," said chief minister Oommen Chandy, at the MoU signing ceremony.

Minister for Culture K C Joseph presents the Pravasi Kalaretna Award to veteran artiste Mallika Sarabhai

32 Municipalities in the State to be Upgraded

The government has decided to upgrade 32 municipalities in the state, said Minister for Urban Affairs Manjalamkuzhi Ali. The municipalities will be upgraded for administrative convenience as well as to ensure development proportionate to population and revenue. Municipalities which have more than Rs four crore annual revenue and a population of more than 50,000 people are being upgraded as first grade ones, the Minister added.

Thrippunithura, Thrikkakkara, Kalamassery, Ponnani, Malappuram, Manjeri, Payyannur, Kanhangad, Taliparamba, Neyyattinkara, Thodupuzha, Irinjalakkuda, Kunnamkulam, Nedumangad and Pala would now onwards be first grade municipalities. Municipalities with more than Rs 2 crore annual income and more than 25,000 population will be upgraded as second grade ones. Varkala, Marad, Eloor, Ottapalam, Kalpetta, Mattannur, Kottakkal, Chavakkad, Koyilandi, Mavelikkara, Koothuparamba, Karunagappally, Nilambur, South Paravoor, Chittoor Thathamangalam, Adoor and Neeleswaram municipalities would be elevated to second grade status.

OBITUARY

Hitmaker' Sasikumar rests in memory

Film director Sasikumar (86), referred to as the first 'hitmaker' of Malayalam film industry, passed away. Sasikumar, who directed 141 films, is also a recipient of J C Daniel Award. Born in Alappuzha in 1928 as Nambiathussery Varkey John, Sasikumar started his film career in his college days. He started his career as an actor and later turned to film direction with the support of producer Kunchakko of Udaya Films. His first venture was a documentary for FACT, tiled "Onakkazhcha".

Sasikumar made his directorial debut with "Oral Koodi Kallanayi" in 1960 by teaming up with scriptwriter S L Puram Sadanandan. He ruled the Malayalam filmdom for 37 years since his first superhit, "Kudumbini", in 1964. Prem Nazir had donned the lead role in 84 movies directed by Sasikumar while Sheela was the heroine in 47 films. In 1977, he directed a staggering 15 films, a record.

His hit movies include Thommante Makkal, Rest House, Porter Kunjali, Balyakalasakhi, Thuruppu Gulan, Thiruvabharanam, Panchavadi, Night Duty, Lanka Dahanam , Picnic, Chattambi Kalyani, Pick Pocket, Mudra Mothiram, Karipuranda Jeevithangal, Nagamadathu Thampuratty, Post Mortem, Pathamudayam and Madrassile Mon. His last movie to hit the screen was "Dollar" in 1993. He is survived by daughters Usha Thomas and Sheela John.

What is a

The first Kochi-Muziris Biennale took place in Kochi between December 12, 2012 and March 13, 2013. The Biennale was an exhibition of contemporary art featuring close to 90 Indian and international artists and was acclaimed as one of the most successful art biennials in the world by artists and curators. A biennale offers an opportunity for artists to present their works in a space alternative to the institutions of the gallery and the museum. The temporality of a biennale and its plainly public nature means that it is able to respond quicker to the requirements and suggestions of contemporary art along with having greater range than a gallery or a museum. A biennial like the Kochi-Muziris Biennale also affords a forum outside of the pressures and distortions of the art market, thus sustaining a space that protects and projects the freedom of artistic invention. A biennale is also an occasion for art to exit its sometimes restricted and sterilised environs into a larger, complex public. This public nature of the biennale

biennale?

means that it becomes an eminent point of contact between art and community, exposing one to the other thus bringing about transformations in aesthetic sensibility.

Biennials come to be fields for the emergence of the new and the diverse, thus also becoming locations for thinking about and discussing not only questions of art but also larger issues of culture and society.

Kochi-Muziris Biennale

It would not be amiss to say that the Kochi-Muziris Biennale could not have been held elsewhere. There is an intimate relation between the idea and the ambition of the Biennale and its location in Kochi.

Kochi has been and continues to be home to a variety of different communities both from within India and outside. This cosmopolitanism of Kochi presumably derives from its continuity with the ancient port of Muziris, today covered and preserved by mud and mythology. It is the strength of this alternative cosmopolitanism that the hyphenation of the Biennale seeks to invoke.

This essential connection between the place and event

was demonstrated in the site-specificity of the artworks at the first Kochi-Muziris Biennale. Artist Vivan Sundaram composed his installation 'Black Gold' of pieces of pottery excavated at Pattanam, speculated to be the site of Muziris. Portuguese artist Rigo23 reflected on the Portuguese history of Kochi through his installation at the Calvathy dockyard. Amanullah Mojadidi set up an imaginary excavation site of objects related to a Kabul-born person who died in British custody in Kochi, thus presenting the process of unearthing our intersected identities. The scattered grindstones presented by Sheela Gowda and Christoph Storz spread out on to the jetty, indicating the spices that used to be ground in them in addition to their transport across the oceans. Sanchayan Ghosh's sound-based installation displayed the diversity of origins of Malayalam words and Malayalam-speakers by bringing out the variations of the same lexeme as spoken in Kochi. Invoking the privileges granted by the Chera king to the West Asian communities, Joseph Semah put up 72 copper plates and 72 drawings as visual guides to this connection between Kerala and West Asia.

KMB 2012

The first Kochi-Muziris Biennale opened on December 12, 2012 and continued for 96 days till March 13, 2013. The curators for the this first edition were Malayalee artists Riyas Komu and Bose Krishnamachari. The Biennale featured 89 artists from 23 different countries, including 44 artists from India. It was the city of Kochi itself, esp the historic Fort Kochi area that was both prompt as well as site for the artworks. Venues included Aspinwall House, David Hall, Pepper House, Calvathy Jetty, Cabral Yard, Dutch Warehouse, Jew Town Godown, Parade Ground, Durbar Hall (in Ernakulam), etc.

The Biennale attracted close to 4 lakh visitors, with its emphasis on education meaning that over 30,000 school children also visited the Biennale. Over 1600 students from 25 local schools participated in the Children's Biennale art camp.

The presence of the Kochi-Muziris Biennale was felt online as well with the website kochimuzirisbiennale.org received over 22 million hits in the duration of the Biennale. The event's Facebook page notched up over 20,000 likes during this period as well. The Kochi-Muziris Biennale 2012 was also the first biennale to be archived and digitised by Google Art. This project has meant that anyone who was unable to come to Kochi to witness the Biennale would still be able to get a feel of the event.

The success of the Biennale was recognised with various awards as well. In February 2014, Kochi-Muziris Biennale won the prestigious national award for 'Most Innovative and Unique Tourism Project' in the Niche Tourism segment from the Government of India's National

Tourism Awards

This award to Kerala Tourism by the Government of India acknowledges the role of Kochi-Muziris Biennale in enhancing the value of Kerala as a tourism destination. The Kochi-Muziris Biennale 2012 also won awards from Conde Nast Traveller, Architectural Digest and Forbes magazines.

A report by the international auditing and accounting firm on the impact of the Kochi-Muziris Biennale, released by the Chief Minister Oommen Chandy in June 2014 states that the event has created a positive and lasting impact on the economy of Kerala, benefiting the state in many sectors,

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including culture, tourism, and transportation. Some examples include the rise in occupancy rates in Kochi from 50% in previous years to 65% during the time of the Biennale; creation of temporary and permanent employment opportunities, with over 30% job retention; spike in tourist arrivals of 52% for domestic tourists and 8% for foreign tourists during the Biennale; and the generation of media revenue of over 90 crore rupees.

Of course, the presence and impact of an event like the Biennale is not entirely amenable to quantification. As we know, the distinct project of Kerala's modernity that has been acknowledged around the world, particularly in other parts of the Global South, finds its source in aesthetic interventions as well. The Kochi-Muziris Biennale's continuity with this project is observed by Chris Dercon, Director of the Tate Modern in London who proposed that the interest of local people in and the located nature of the Biennale puts forward a new model of self-representation.

The arrival of novel and varied artistic practices and perspectives from around the world meant that the Biennale also became an occasion for thinking about and discussing art and cultural practices. The Kochi-Muziris Biennale 2012 provided a space for debates about the nature of art and possibilities of creative action, both formally through talks and symposiums, and otherwise.

The Biennale also witnessed the energisation of public space and heritage locations in the city of Kochi. The Durbal Hall has been renovated and is now a world-class exhibition space for art. Various heritage buildings in Fort Kochi and Mattancherry hosted the Biennale, and this has inspired fresh perspectives about the architectural potential of the region. The placing of art in public areas amongst people has highlighted the possibilities of the public sphere.

The exposure to this diversity of creative practices ensures not only the all-round development of an individual, but also ignites the spirit of the whole people of Kochi and Kerala.

KMB 2014

The Kochi-Muziris Biennale 2014 intends to continue the work of the previous edition, bringing to Kochi new artworks and ideas. Thematically, the Kochi-Muziris Biennale 2014 will reflect on the transformations set off by what is known as the European Age of Discovery, famously symbolised by Columbus's failed and Vasco da Gama's fruitful attempt to discover a sea-route to India. The symposium will be an intellectual exploration of this crucial moment in history, the repercussions of which are still being felt today. The curator for this iteration of the Biennale will be Bombay-based artist Jitish Kallat.

The second Kochi-Muziris Biennale will also feature 80-90 artists from all over the world, and will seek the energies of the city of Kochi over a period of 108 days, from December 12, 2014 to March 29, 2015. This time around, running parallel to the Biennale will be two other biennales.

The Students Biennale will feature the work of selected students from art schools around India, thus hosting a survey of different styles and kinds of work being done in India as well as being an opportunity to consider art education in India. The Children's Biennale will be a space for school children in India to exhibit their skills and be exposed to contemporary art ideas and practices.■

MALEEHA RAGHAVIAH

Onam

The changing colours of a favoured festival

What is interesting is that though the onasadya has not been swept under the carpet like many other rituals associated with Onam, its contours have changed. The difference is that many in today's generation do not cook the sadya in one's home.

Onam has travelled a long way from the downright rural ritual that is used to be to a crassly commercial celebration of the post modern period. The tone and tenor of the festivities once rooted in agricultural ceremonies has given way to pomp and pageantry. Yet, strands of traditionalism continue despite the festival getting wacky

With the warp and weft of Kerala's social fabric having undergone a sea change, it is only natural that Onam, the hoary yet the most favoured festival of the Malayali has also travelled a long way from its original form. What is noticeable is that like all other festivals of this land, Onam too has been evolving in keeping with the changing social milieu, to keep pace with contemporary society's preferences.

Imagine an Onam season of a century ago? It would have been a purely ritualistic event steeped in

Today the mood of Onam is so different from the festival of yore. The change has not been sudden but rather the festival has undergone transformations through different stages, as society evolved to flaunt the Onam of today's post modern age.

agricultural traditions and practices. It was downright rural, rooted to the soil, sans pomp and show, ensconced in the myth of Maveli. With the harvesting season being at the core of Onam, it was the time when the expansive paddy fields as far as the eye could behold, rolled out, at its bountiful best. The golden grains would be ready for harvest after a laborious spell of tending and caring, when the South West Monsoon would have swept over Kerala in all its fury.

The recently–harvested paddy would provide the steaming rice for the lunch on Thiruvonam day and everybody gorged to fill. One has read in novels how in those days rice was available in abundance only for a few months after Onam till the granaries in taravads and households had their storage of paddy. And then the scarcity would begin, and one had to wait for the next Onam season to eat rice to fill.

The vegetables and tubers freshly plucked from the household's own courtyard-the yam and pumpkin and the long beans and brinjal would grace the sadya. The payasam would no doubt be made of the puthari invariably cooked in tender toddy with molasses and coconut milk providing that special flavour. The onasadya of yore would have been a much Spartan fare, a poor cousin in comparison to the multi-itemed meal that is showcased today as the Thiruvonam day lunch. Over time, new delicacies have been added to the sadya. An entire gamut frills associated with Onam has been transformed beyond recognition - the onakodi, the athapookalam, the folk art forms and the like.

What is interesting is that though the onasadya has not been swept under the carpet like many other rituals associated with Onam, its contours have changed. The difference is that many in today's generation do not cook the sadya in one's home. They ate the traditional Onam lunch at one of the restaurants that served it in style, paying a whopping sum, the advertisements having been put out days in advance to lure customers. Or had it home- delivered replete with the unavoidable plantain leaf from one of the many eating joints that took home dispatch orders.

Today the mood of Onam is so different from the festival of yore. The change has not been sudden but rather

the festival has undergone transformations through different stages, as society evolved to flaunt the Onam of today's post modern age. With urbanization, paddy fields have been disappearing, and rice has started arriving through the public distribution system and is available in the open market with better transport facilities. The athapookalam has not been given a total go by. Many homes continue to sport the flower carpet for the ten days prescribed. The only difference is that now we use the flowers transported from miles away – from Karnataka and Tamil Nadu, to decorate our front yard, and not from the fences and spaces in our neighbourhood.

These traditional flower carpets have now entered the public space, and continue to be part of hotly contested competitions. Similar is the case with folk art forms associated with Onam. The State Government has gone the whole hog to showcase Onam festivities to attract tourists both domestic and foreign, and thereby popularise our cultural traditions. For the last many years the State machinery is geared during the season, to organise programmes during the Onam Week.

The age-old saying "kaanam vittum onam unnanam" has assumed new permutations today. If the dictum of the Onam of yore was to be indulgent as far as the onasadya was concerned, now the trend is to engage in a shopping spree, for everything round the globe. Be it in splashing on clothes, electronic gadgets, gold, cars, houses, the list is endless. Government offices and others chip in, by providing bonus and cash advance facilities. Commercial establishments cash in on this trend to launch new products and experience maximum sales during the Onam season, with rebates and offer packages that entice customers especially the young. Fashion statements in dress, jewellery, footwear, are often made during this time. It has become customary since the last few years for shopping malls and hubs to sport Maveli look – alikes and solicit customers to exclusive purchases.

Onam has indeed come a long way.■

The writer is a journalist based in Kozhikode

Dr. DINESAN V P

PAVLProject

The Pamba-Achenkovil-Vaipar link project was included in the first batch of 8 pre-feasibility study reports of interlinking projects submitted to the Prime Minister, by the task force constituted by the Government of India

The Pamba-Achenkovil-Vaipar Link Project (PAVLP) is one among the 30 inter-basin water transfer schemes formulated by the National Water Development Agency (NWDA) in 1982.

Pamba and Achenkovil rivers are not interstate rivers, since the whole catchment area of both these rivers falls within Kerala. The proposed project was prepared under the wrong impression that the two rivers, Pamba and Achenkovil, in Kerala have surplus water. In fact, Pamba and Achenkovil river basins are water deficit and the diversion of 634 MCM water from these rivers will aggravate the water deficit situations in these rivers and adversely affect the hydro-environmental status of five districts viz. Idukki, Pathanamthitta, Kottayam, Alappuzha and Ernankulam. Both, Pamba and Achenkovil rivers are flowing through the Kuttanad region before draining into the Vembanad Lake. The Vembanad Lake is one of the largest wetland systems in India of international importance. The implementation of PAVL project will adversely affect rice farming in the Kuttanad region, environmental degradation of Vembanad lake, hamper the bio-diversity of the Western Ghats and reduction in the potential hydropower generation in Pamba.

The Indian Rivers Interlink project consists of two components: Northern Himalayan River Development and Southern Peninsular River Development. The Peninsular river development project is expected to provide additional irrigation to 1,30,000 sq km and generation of 4 GW additional power. The Pamba-Achenkovil-Vaipar link Project is one among the Southern Peninsular River Development schemes.

Pamba-Achenkovil-Vaipar Link Project (PAVLP)

The Pamba-Achenkovil-Vaipar link project was included in the first batch of 8 pre-feasibility study reports of interlinking projects submitted to the Prime Minister, by the task force headed by Suresh Prabhu, constituted by the Government of India in accordance with the Hon'ble Supreme Court's direction on 30-10-2002.

This project proposal envisages a diversion of 634 MCM water from Pamba and Achenkovil rivers in Kerala to the Vaipar basin in Tamil Nadu for irrigating 91400 ha in the drought-prone districts of Tirunelveli, Chidambaranar and Kamarajar and for generating 500 MW peaking power through a pumped storage scheme. The project also envisaged a regulated release of 150 MCM to Kerala during lean flow period. According to the preliminary studies and surveys done

that will leave high and dry

by NWDA, west flowing Pamba and Achenkovil rivers of Kerala have a total surplus of 3127 MCM of water at 75% dependability after meeting all their present and future requirements.

The computation of surplus water in Pamba and Achenkovil rivers in Kerala is misleading. High water requirement for the pollution abetment of the holy Pamba river during the Sabarimala pilgrim season, the flushing requirement for salinity in the rice fields of Kuttanad, water required for salinity/pollution abetment in the Vembanad wetland system and the storage requirement for the proposed hydro power stations in these basins may not be accounted for the water balance computation.

Proposed Structural Interventions in PAVL Project

The proposed Pamba-Achenkovil-Vaipar Link project has three storage reservoirs, two tunnels, necessary canal system and a few power generating units. The PAVL project proposes 150 m high concrete dam, having 774 m length across Pamba-Kallar at Punnamedu with a storage capacity of 208 MCM, a 160 m high and 738 m long concrete dam, across Achenkovil-Kallar at Chittarmuzhi with a storage capacity of 497 MCM, and 35 m high concrete gravity dam across Achenkovil river with a storage capacity of 30.6 MCM.

The Punnamedu and Chittarmuzhi reservoirs are interconnected by a 5m dia, 8 km long tunnel for diverting the water of Punnamedu reservoir to Achenkovil reservoir. Water from Achenkovil has to be pumped to

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Chittarmuzhi reservoir. The water from Achenkovil Kallar (Chittarmuzhi) reservoir will be diverted through a 8m dia, 9 km long tunnel to cross the western ghats. The main canal will take off from the tunnel exit and run for a length of 50.68 km before reaching Alagar, a tributary of Vaipar river. (Mekkara Dam has been constructed by Tamil Nadu at Adaivinarcoil on Hanumanthodu, a tributary of Alagar). Peaking power station of 500 MW installed capacity is located at the toe of Achenkovil Kallar dam (Chittarmuzhi). Six mini hydropower plants with a cumulative installed capacity of 8.37 MW are located near the inlet of the inter connecting tunnel of Punnamedu and Achenkovil Kallar reservoir, toe of Achenkovil-Kallar and Achenkovil dam and at four canal drops on the main canal.

The peaking power plants comprise of 5 units of 100 MW each. Three of the units are reversible type. 10 MCM of water is released from Achenkovil-Kallar reservoir (Chittarmuzhi) for power generation during 6 hours peak load and the water will be pumped back to Chittarmuzhi reservoir during the remaining period. The project will require 2283 MU of energy to lift the water to Achenkovil-Kallar. About 1095 MU and 19 MU energy will be generated during the peak hours and other periods. The total cost of the project including the power required for pumping has been estimated at Rs. 2588 corers with 8% annual escalation in 2000-01.

Hydrological Characteristics of Pamba and Achenkovil

The Pamba and Achenkovil rivers originate from the Western Ghats and flow through the Central Travancore region and finally drain into the Vembanadu lake through Kuttanad, which is the rice bowl of Kerala. The entire catchments of both these rivers are within Kerala. Hence, they are not interstate rivers. The production and productivity of Kuttanad largely depends on the monsoon flows of rivers draining through Kuttanad. Both these river basins fall in the tropical monsoon climatic region of Kerala where rainfall is the major climatic factor. The southwest monsoon (between June and September) and the northeast monsoon (October-November) are the two monsoon periods of which southwest monsoon are more predominant. Waters of these rivers is being utilized for domestic, irrigation, industrial, hydropower generation, eco-restoration of the wetland system etc.

The restoration of the ecological balance of Vembanadu lake and the salinity abetment in the rice fields of 'Kuttanad largely depends on the floodwaters of Pamba and Achenkovil rivers. These rivers are the integral components of ecological systems and an inextricable part of the cultural, social, economic and spiritual lives of the people.

Pamba river

The Holy River Pamba is the third largest river in the State, 176 km long with a catchment area of 2,235 sq km. The river originates from Pulachimalai in the Western Ghats at an elevation of 1650 m above MSL and flows through Pathanamthitta, Idukki, Alleppey districts and finally joins the Vembanad

Lake. Kakkiyar, Arudai, Kakkadar, Kallar, Pambi and Pambiyar are the major tributaries of Pamba. Pamba-Kallar is one of its tributaries, which joins it at Vadaserikara. The major land utilization of Pamba basin includes forest (36%), cultivated area (38%), water bodies (20%) rocks and built up area (6%). Plantation accounts for the major portion of the cultivated area (43%) followed by mixed crops, coconut, paddy and sugarcane.

The average annual rainfall received in the basin is about 3243 mm. Of which, south-west monsoon contributes about 66% of the rainfall and north-east monsoon contributes 17%. Remaining 17% of the rainfall is received from the summer showers. Sabarigiri hydel project (300 MW) consists of Pamba and Kakki reservoirs, Kakkad hydel project (50MW) and Pamba Irrigation Scheme (Diversion) are the present major projects existing in Pamba basin.

Analysis of the runoff data indicate that about 65% of the river flow occurs during the south-west monsoon, about 23% during the north-east monsoon and the remaining 12% during the summer months between December and May.

The annual water potential of Pamba basin has been estimated at 3509 Million Cubic Metres (MCM). The present and the projected future (2051 AD) annual water demand for various purposes of the basin during monsoon and non-monsoon periods is about 3028 MCM and 3040 MCM respectively. The water balance computation within the river basin reveals that it experiences water deficit both during the non-monsoon and monsoon periods, even 88% of the river flows occurs during the monsoon season between June and November. The estimated annual water deficit of the basin (by 2051 AD) will be 3537 MCM.

Achenkovil river

Achenkovil river is 128 km long with a catchment area of 1484 sq km. Achenkovil river originates from the Pasukidamettu Hills in the Western Ghats at an elevation of 700 m above MSL and flows through Pathanamthitta, Kollam and Alappuzha districts. The Achenkovil joins with Pamba at Veeyapuram near Harippad. Kallar is the major tributary of Achenkovil. The major land utilization of Pamba basin includes forest (19%), cultivated area (75%), water bodies (4%) rocks and built up area (2%). Plantation accounts for the major portion of the cultivated area (39%) followed mixed crops, coconut, paddy and sugarcane.

The average annual rainfall received in the basin is 2500 mm. Of which, south-west monsoon contributes about 58% of the rainfall and north-east monsoon contributes 22%. Remaining 20% of the rainfall is received from the summer showers. As such, there is no major project in the Achenkovil basin. Other than the proposed Achenkovil hydel project (50 MW), KSEB proposed three more projects such as Twin Kallar (60 MW), Vakkallar (24 MW) and Chelikkallar (15MW) for approval.

Analysis of runoff data indicated that about 64% of the river flow occurs during the south-west monsoon, about 28% during the north-east monsoon and the remaining 9% during the dry season between December and May.

The annual water potential of Achenkovil basin has been estimated at 1575 MCM. The present and the projected future (2051 AD) annual water demand for various purposes of the basin during the monsoon and the non-monsoon periods is about 756 MCM and 778 MCM. The water balance computation within the river basin reveals that, it experiences water deficit during the non-monsoon periods and surplus during the monsoon periods. Of course 92% of the river flow occurs during the monsoon season between June and November. The estimated annual water deficit of Achenkovil basin by 2051 will be 459 MCM.

The restoration of the ecological balance of Vembanadu lake and the salinity abetment in the rice fields of 'Kuttanad largely depends on the floodwaters of Pamba and Achenkovil rivers. These rivers are the integral components of ecological systems and an inextricable part of the cultural, social, economic and spiritual lives of the people.

Hydro-Environmental Impact of PAVL Project

Pamba and Achenkovil rivers are the integral components of ecological systems, and an inextricable part of the cultural, social, economical and spiritual lives of the people of Central Travancore. These rivers drain out to the Vembanadu Lake through Kuttanad, which is the rice bowl of the State. The proposed project was prepared under the wrong impression that the two rivers in Kerala have surplus water. In fact these two river basins are water deficit and the diversion of water from these rivers will adversely affect the hydro-environmental status of the Central Travancore.

Water Deficit and Acute Scarcity in the Basin Area

The population growth, urbanization, agriculture growth, industrial development and eco-restoration have increased high water demand in Pamba-Achenkovil basins. Both the Pamba and Achenkovil rivers have been found dry along many stretches during the summer months, giving rise to an acute drought situation even on the river banks. The drinking water schemes in these rivers stop working on account of the depletion of water level during the summer. The Central Water Commission (CWC) studies have found that the salinity intrusion in the Pamba has already reached beyond Edayaranmula; a distance of over 40 km.

These rivers are already in a dying stage due to over exploitation of river sand and other unscientific human interventions. As the summer progresses the river gets reduced to water pools at many places. The tailrace water coming from Sabarigiri Power House at Moozhiar maintains the minimum lean flow in Pamba to some extent. Over the past few years there has been a considerable reduction in lean flows as a result of reduced storage in the Sabarigiri reservoir as a consequence of reduced in-flow.

The hydrologic investigation reveals that the water availability of Pamba and Achenkovil rivers show large spatial and temporal variations and hence, it does not match with the seasonal water demand for various purposes. The water availability is high (90%) during the monsoon period between June to November and very low (10%) during the non-monsoon period between December and May. Whereas, the water demand for various purposes are normally high during the non-monsoon period. The water demand for the pollution abetment in Pamba river during the Sabarimala pilgrim season alone will be 4,745 MCM.

The water balance of these basins has shown an annual water deficit situation for meeting various demands. The annual water deficit by meeting the projected future water demands in Pamba and Achenkovil will be 3537 MCM and 459 MCM respectively.

Hence, the diversion of 634 MCM monsoon water from these rivers would reduce the river flows and aggravate the water deficit in these basins and will lead to acute water scarcity for meeting various water demands such as domestic, agriculture, industrial and eco-restoration of wetlands in the Central Travancore region.

Socio-Economic Disaster in Kuttanad

Kuttanad, located below sea level, is the rice bowl of Kerala. Polder farming is being carried out in Kuttanad to control the water in-flow and out-flow arrangements. The flood water/excess water in the polders is drained out by using pumps during the farming periods. The monsoon flows flush the sediment load from the river bed and deposit fertile silt on the Kuttanad flood plain and thereby restore the

dynamic equilibrium of the River and increase the productivity of Kuttanad rice fields. The fertile silt deposition on the Kuttanad flood plain results in high yields in Kuttanad rice farms. Annually about 200,000 tones of paddy are produced in Kuttanad.

Closing of Thanneermukkam barrage during the lean flow period in December prevents the salinity intrusion in Kuttanad. The barrage is opened after the harvest in Kuttanad region during March and the salinity level will increase in the Kuttanad region. The monsoon flows in rivers draining through Kuttanad will flush out salinity from the Kuttanad rice fields. A large scale diversion of monsoon water from the upper catchment areas of Pamba and Achenkovil would lead to high salinity in Kuttanad throughout the season and rice cultivation would be practically impossible.

Salt water intrusion due to reduced fresh water flow to Kuttanad will result in increased soil salinity, which will ruin the productivity of the paddy growing areas in Kuttanad, which in turn will result in desperate poverty since more than 60% of people of Kuttanad depend on agriculture for their livelihoods. Hence, a large scale diversion of water from the upper catchment areas of Pamba and Achenkovil would lead to an ecological and socio-economic disaster in Kuttanad.

Ecological Degradation of Vembanad Lake

The Vembanad-Kol wetland system associated with ten drainage basins, characterized by a continuous chain of lagoons or backwaters 96 km long and covering an area of 1512 sq km, is one of the largest wetland system in Kerala. It has been declared as a Ramsar site in November 2002, in view of its rich aquatic and terrestrial bio-diversity. The Vembanad region supports the third largest population of more than 20,000 waterfowls in India during the winter months. Ninety-one species of resident / local migratory and 50 species of migratory birds are found in the Kol area. The birds come from different regions and stay here for breeding and feeding. The soft organically rich sedimentary substratum of the inshore region is an ideal habitat of shrimps.

Mangrove vegetation is abundant at Kumarakom, Vypeen, Kannamali and Chettuva. The giant fresh water prawn offers a lucrative fishery resource with a total production of 300-400 tons/ year. Country canoes with arched roof are also used for transporting materials like sand, coconut husk, coir, household items, agricultural products, fishes, clams, shells etc. The quality of water of the wetlands is important for the 'Flora and Fauna' depending on it. The pollution level of Vembanad lake is alarmingly high due to the disposal of urban, agriculture and industrial effluent into the lake system.

A large scale diversion of monsoon water from the upper catchment areas of Pamba and Achenkovil and subsequent reduction in fresh water flows, changes in the Hydro Period will lead to irreparable environmental damages to the Vembanad wetland system.

Stability and Safety Issues of Large Dams

Dams across the rivers, often several of them along the course of the same river, may often adversely affect the flow pattern, extent and nature of sediment formation and deposition, riverine biodiversity and the quality of water.

The PAVL Project, in fact, proposes very large dams. It proposes 150 m high concrete dam on Pamba-Kallar at Punnamedu, a 160 m high concrete dam on Achenkovil-Kallar at Chittarmuzhi and 35 m high concrete gravity dam on Achenkovil river for diverting 634 MCM water from Pamba and Achenkovil rivers of Kerala to Vaipar in Tamil Nadu. All these large dams are to be constructed in the Kerala region. The life-span of these large dams is very short in view of their safety. Moreover, the structural stability and safety of large dams having heights more than 150 m is highly risky in view of the safety of a large population residing downstream of these dams in Kerala.

Submergence of Forest Land and Social Issues

The Punnamedu reservoir in Pamba will submerge an area of 440 ha, which is entirely a forest area. The submergence area under Achenkovil Kalar is 1240.7 ha comprising 871.7 ha of virgin forest and 369 ha of teak forest plantation. The Achenkovil dam will submerge an area of 323 ha comprising of 86 ha of virgin forest, 218 ha of forest plantation and 19 ha cultivable land. About 297 persons will be affected due to submergence of Achenkovil reservoir in Achenkovil village. The rehabilitation of the affected population will create social issues. Formulating an acceptable rehabilitation package for the PAVL Project will be a serious issue to be addressed very systematically.

Water Resources Projects in Pamba and Achenkovil Basins

There are a number of hydroelectric, irrigation and domestic water supply schemes in Pamba basin. Few more project proposals for

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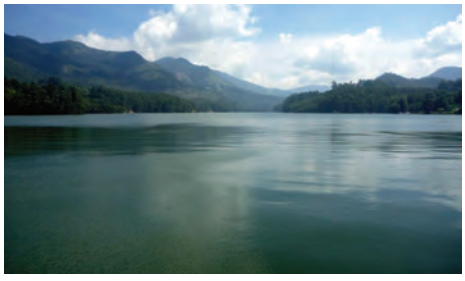

A large scale diversion of monsoon water from the upper catchment areas of Pamba and Achenkovil and subsequent reduction in fresh water flows, changes in the Hydro Period will lead to irreparable environmental damages to the Vembanad wetland system.

PhotoFeature

Nehru Trophy Boat Race

Photos by
Dalu
Parameswaran
I&PRD


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FULL TEXT

Speech by the President of India, Shri Pranab Mukherjee at the inauguration of Platinum Jubilee Celebration of the College of Engineering Trivandrum

I am happy to join you for the inauguration of the Platinum Jubilee of the College of Engineering Trivandrum (CET), which is the oldest engineering college in Kerala. First of all, let me congratulate you all on this institution crossing a significant milestone.

CET is one of the pioneers in engineering education in the country. Established in 1939, this institute owes its glory and stature to the vision of the Maharaja of erstwhile Travancore, Balarama Varma; the support rendered by the state government; the hard work of the faculty and staff who have served this college since inception; the unrelenting support of thousands of alumni, and the dedication of the students. It is a delight to see this Institute spread over an expanse of 80 acres of lush greenery. With four thousand students on its rolls and three hundred faculty members, CET offers eight under-graduate and 23 post-graduate courses, besides doctoral programmes. Counted as one of the important engineering institutes in our country, CET has emerged as a shining example of a state government institution achieving national reputation.

Education has a pivotal role to play in building a nation's soft power. Nelson Mandela had said and I quote: "Education is the most powerful weapon which you can use to change the world" (unquote). History bears testimony to the fact that great nations have progressed on the strength of an able workforce. We are pursuing a high growth strategy to make India a front-ranking nation in the world. This requires significant contribution from the knowledge sectors. One of the crucial academic streams that produce skilled personnel for the economy is engineering. It is a field of study which is vital for fulfilling our developmental objectives. Our engineering colleges therefore have a key task to produce highly competent engineers and scientists who can become an asset for the profession and the country.

Engineering is a sought-after discipline and accounts for one fourth of the total enrolment in higher education. The annual enrolment in engineering in India tripled during the course of the Eleventh Plan period to 55 lakh at the end of this period. A number of engineering colleges have been started in recent years and the capacity of existing ones increased. More institutes have also been envisaged in the coming years. The acid test before our institutions is to produce a large cadre of scientific and technical manpower without sacrificing standards.

Our higher academic institutions, including engineering colleges, have some distance to cover in the journey of quality. Many meritorious students opt for higher studies abroad. We have to retain them by offering world-class education in their own country. Unfortunately, superior quality institutions to meet the expectations of bright students are few. It is a worrisome indicator that no single engineering institute or a university from India is ranked within the top two hundred universities in the world as per reputed international surveys. This is in stark contrast to the higher education sector prevalent in ancient times. Seats of learning like Takshashila, Nalanda, Vikramashila, Valabhi, Somapura and Odantapuri had dominated the world higher education system for about eighteen hundred years beginning Sixth Century BC. Takshashila was a meeting ground of scholars from four different civilizations – Indian, Chinese, Greek and Persian. Efficient management took our ancient universities to great heights before they declined by the Thirteenth Century AD. Today, we languish behind many nations.

It is possible to reclaim the pre-eminent position but for that all-round changes are required in our educational system. Curricular reforms for regular revision and up-gradation of curricula, introduction of choice-based credit system and examination reforms to bring in holistic assessment must take place. A culture of excellence must be promoted. One or two departments in which an institute has special capability must be nurtured as Centres of Excellence. Formal linkage with the Industry must be established to have

regular flow of inputs from industry experts on course curricula and research. Engineering programmes must be periodically evaluated based on industry trends.

The governance structure must facilitate transparent and faster decision-making. Alumni must be associated and their experience and expertise utilized for overall development of the institute. I am happy to note that the alumni of CET, many of whom are eminent scientists, technocrats and bureaucrats, have a strong network. It must be leveraged for the benefit of this institute. Being one of the institutions spearheading engineering education, you have an important role in setting benchmarks.

Intellectual collaboration amongst Indian institutions and with institutions abroad can provide impetus to knowledge generation and sharing. Expertise in key areas must be developed by associating with other knowledge-generating institutions. In the context of ICT (information and communication technology) solutions, it is imperative for our institutions to be on existing knowledge networks.

Recently, India has entered as a permanent member of the Washington Accord, an agreement for engineering degrees between the accreditation bodies of its 17 signatories. It will bestow significant benefits, in terms of recognition of Indian engineering degrees abroad and better prospects of Indian engineers. The onus is on our engineering colleges to adhere to the requisite accreditation standards.

Indian institutes must evolve from being a mere teaching institution to a knowledge-creating one. For that, research pursuits must be promoted through institutional support mechanisms. Research activity of an institute must focus on issues and problems that are peculiar to that region. Research must also endeavour to find ways of achieving greater efficiency in utilizing existing resources. In the face of increasing resource constraints, growth will be influenced positively by the velocity of technological developments. Recognizing this, Governments around the world have made a concerted effort to encourage innovation. As for India, we have dedicated the decade 2010-20 to innovation. The Science, Technology and Innovation (STI) Policy 2013 calls for an innovation-led development. This policy reflects the need to right-size our research and development system.

Engineering institutions are a fertile ground for innovation. You must work towards making the STI policy a success. You must ensure that research positions are filled up by talented people. You must mentor grassroots innovators to develop their ideas into useful products, benefitting the common man. I am happy to note the facilities being provided by the Technology Business Incubation Centre and the Centre for Engineering Research and Development at CET towards promoting research and encouraging innovation. I am told that a research park within the CET campus is being set up with the aim to propel breakthroughs in engineering science. The fact that 30 per cent of students graduating from CET join higher studies and research programmes shows the kind of interest in research that this institute has been able to generate amongst its students. It is heartening to learn that papers presented in national and international conferences by the faculty of CET have been recognized for their academic excellence.

This Institute, in its journey so far, has rendered outstanding education to generations of students. It has produced wonderful engineers who have done their alma mater and the country proud. Completion of 75 years is an occasion to reflect on what needs to be done to take the legacy of this institution forward and achieve greater success. I am sure that the activities being planned as part of the Platinum Jubilee celebrations – conferences, fests, exhibitions and adoption of village – will give enough food for thought for launching the next phase of development. I wish all of you a successful conduct of the events. I also wish you all the very best for the future.

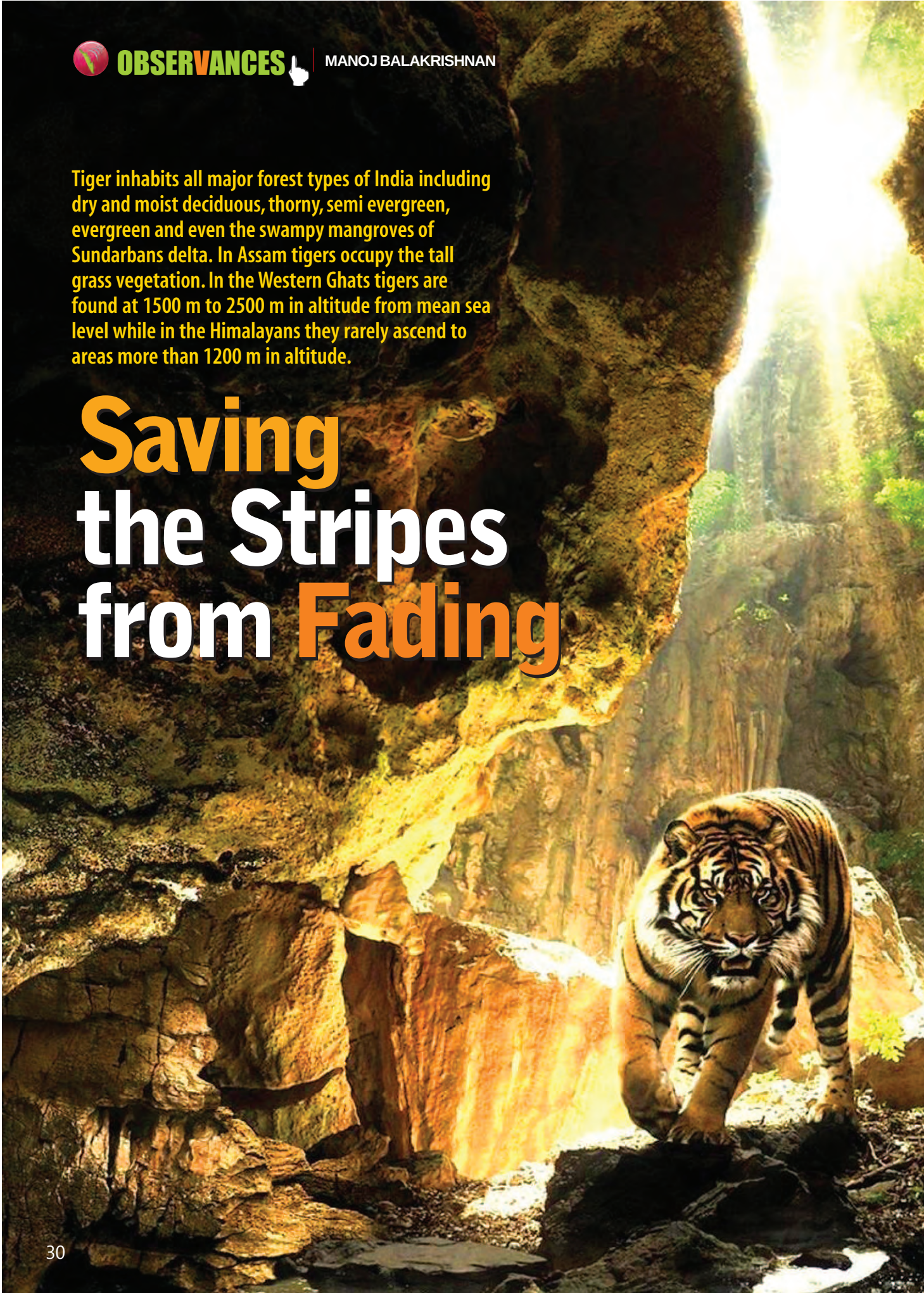
Thank you.

Jai Hind.

MANOJ BALAKRISHNAN

Tiger inhabits all major forest types of India including dry and moist deciduous, thorny, semi evergreen, evergreen and even the swampy mangroves of Sundarbans delta. In Assam tigers occupy the tall grass vegetation. In the Western Ghats tigers are found at 1500 m to 2500 m in altitude from mean sea level while in the Himalayans they rarely ascend to areas more than 1200 m in altitude.

Saving the Stripes from Fading



The life-size feline figure dressed with black stripes on orange coat moving gently through thick woody forest is the royal appearance of tigers to be experienced in their own natural habitat. Once again another Tiger Day is over. Observation of the International Tiger Day is one among several decisions emerged in the International Forum for Tiger Conservation (the global tiger summit of 2010). Leaders representing the thirteen tiger ranging countries and international organisations like WWF, Global Environment Facility, Save the Tiger Fund, World Bank etc assembled at St. Petersburg of Russia to discuss and resolve the declining numbers of tigers globally. Yes the state of tiger is sadly unsafe in its natural habitat wherever it occurs. If the present condition continues, after two or three decades the tiger may become extinct in the wild. The leaders of the summit arrived at the St. Petersburg declaration which emphasised to double the present number of naturally occurring wild tigers by the year 2022. India is home to almost more than half of these wild tigers. India was represented in the summit by a team led by Sathyaprakash Yadhav of the Ministry of Environment and Forests, Government of India.

In the land where tigers roam they are the symbol of powerful, majestic, fearful, and magical. The association of tigers with fertility is most clearly evident in tribal myth and Chinese belief. Tiger is the vehicle of Shiva Durga. Tiger is associated with lord Ayyappa as well. Tiger as an embodiment of power is depicted throughout the Indian history. The famous seal from Harappa showing a man grappling with two tigers; one on either side of him is an example. The consecration ceremony of the king ('Rajasuya') in ancient times required the king to tread upon a tigerskin signifying the kings strength. This is depicted in the coin of Samudragupta where he is wrestling with a tiger and inscribed as 'Vyaghraprahara' – the tiger conqueror. Probably the ferocity and springing power of the tigers made it difficult to hunt them until the wise use of gun. Today tiger is one among the most iconic animals on earth symbolising wilderness and fading naturescapes.

Tiger (Panthera tigris) belongs to the cat family (Felidae) of mammals. Tigers once occurred widely across Asia, from Turkey to the eastern coast of Russia. Over the past

Popular Name	Species	Population Trend	Status
Bengal Tiger	Panthera tigris tigris	Decreasing	Endangered
Siberian/ Amur Tiger	Panthera tigris altaica	Stable	Endangered
South China Tiger	Panthera tigris amoyensis	Unknown	Critically Endangered
IndoChinese Tiger	Panthera tigris corbetti	Decreasing	Endangered
Malayan Tiger	Panthera tigris jacksoni	Decreasing	Endangered
Sumatran Tiger	Panthera tigris sumatrae	Decreasing	Endangered
Bali Tiger	Panthera tigris balica		Extinct (1937)
Caspian Tiger	Panthera tigris virgata		Extinct (1970)
Javan Tiger	Panthera tigris sondaica		Extinct (1980)

100 years, they have lost most of their historic range, and have been extirpated from southwest and central Asia, from the islands of Java and Bali, and from a large portion of Southeast and Eastern Asia. Today, they range from the Siberian taiga to open grasslands and tropical mangrove swamps. Tigers are endangered animals and are classified into nine subspecies based upon genetic studies. They are following in Table.

The last three subspecies of tigers are extinct in the wild during various phases of time till date. The existing wild populations of tigers belonging to the remaining six subspecies are also facing various levels of threat. Among these six the Indian species Panthera tigris tigris 'Royal Bengal Tiger' or simply the 'Bengal Tiger' is the most abundant and most geographically distributed one. The Siberian tiger is the largest among all subspecies, with a massive body and thick fur. As we move down to increasingly warmer climates on earth the tiger becomes smaller in size, darker in colour and short haired. In the past; around a century back tiger occupied a wider area covering most of the Asia from turkey to Russian Manchuria, Yes tiger is an adaptable animal and is widely distributed geographically, ranging from cold temperate climates to humid tropics. Only exception is that tigers are absent from hot deserts like Thar and Sahara.

Tiger inhabits all major forest types of India including dry and moist deciduous, thorny, semi evergreen, evergreen and even the swampy mangroves of Sundarbans delta. In Assam tigers occupy the tall grass vegetation. In the Western Ghats tigers are found at 1500 m to 2500 m in altitude from mean sea level while in the Himalayans they rarely ascend to areas more than 1200 m in altitude. The whole of India except for high Himalaya's, distant islands and hot deserts is a 'tiger land'. Yet some natural habitat features are crucial requirement for the continued existence of tigers in one place and they include;

1. Ample vegetative cover,
2. Water to quench thirst and cool the body and,
3. Availability of prey.

Mostly adult tigers lead a secretive and solitary life. Tigers are generally nocturnal but may venture during daylight especially dawn and dusk hours. Tigers never expose themselves unnecessarily. Tigers are well known for the territorial behaviour and territory they maintain. The sizes of territories

The association of tigers with fertility is most clearly evident in tribal myth and Chinese belief. Tiger is the vehicle of Shiva Durga. Tiger is associated with lord Ayyappa as well. Tiger as an embodiment of power is depicted throughout the Indian history. The famous seal from Harappa showing a man grappling with two tigers; one on either side of him is an example. The consecration ceremony of the king ('Rajasuya') in ancient times required the king to tread upon a tigerskin signifying the kings strength.

vary according to time, space and the sub-species. Tigers are situated at the top of the ecological food chain. Their preferred and essential food is hoofed animals such as deer, wild cattle and wild pigs. An adult tiger can consume 10-40 kg of meet at a time. Tigers hunt primarily by sight and sound rather than smell and prefer to hunt alone. Tigers stalk their prey and once they have reached close proximity; attack from the side or rear, and kill the prey before consuming. Breeding is frequent during November –April. The gestation period is usually 100-105 days and live birth occurs in a secretive location. Tigers give birth to 2-4 cubs with an interval of 3-4 years. Juvenile mortality is high and approximately half of all cubs of a litter do not survive more than two years of age. The individuals are independent at an age of two years and attain sexual maturity at 3-4 years. Tiger are known to have longevity of 14-16 years in the wild and up to 22 years in the zoo.

Globally the numbers of tigers are thought to have fallen by over 95% since the turn of 20th century. Irrespective of the wide distribution and diverse habitat of tigers world over, their numbers are declining. Today tigers are able to occupy only 7% of their historic range on earth.

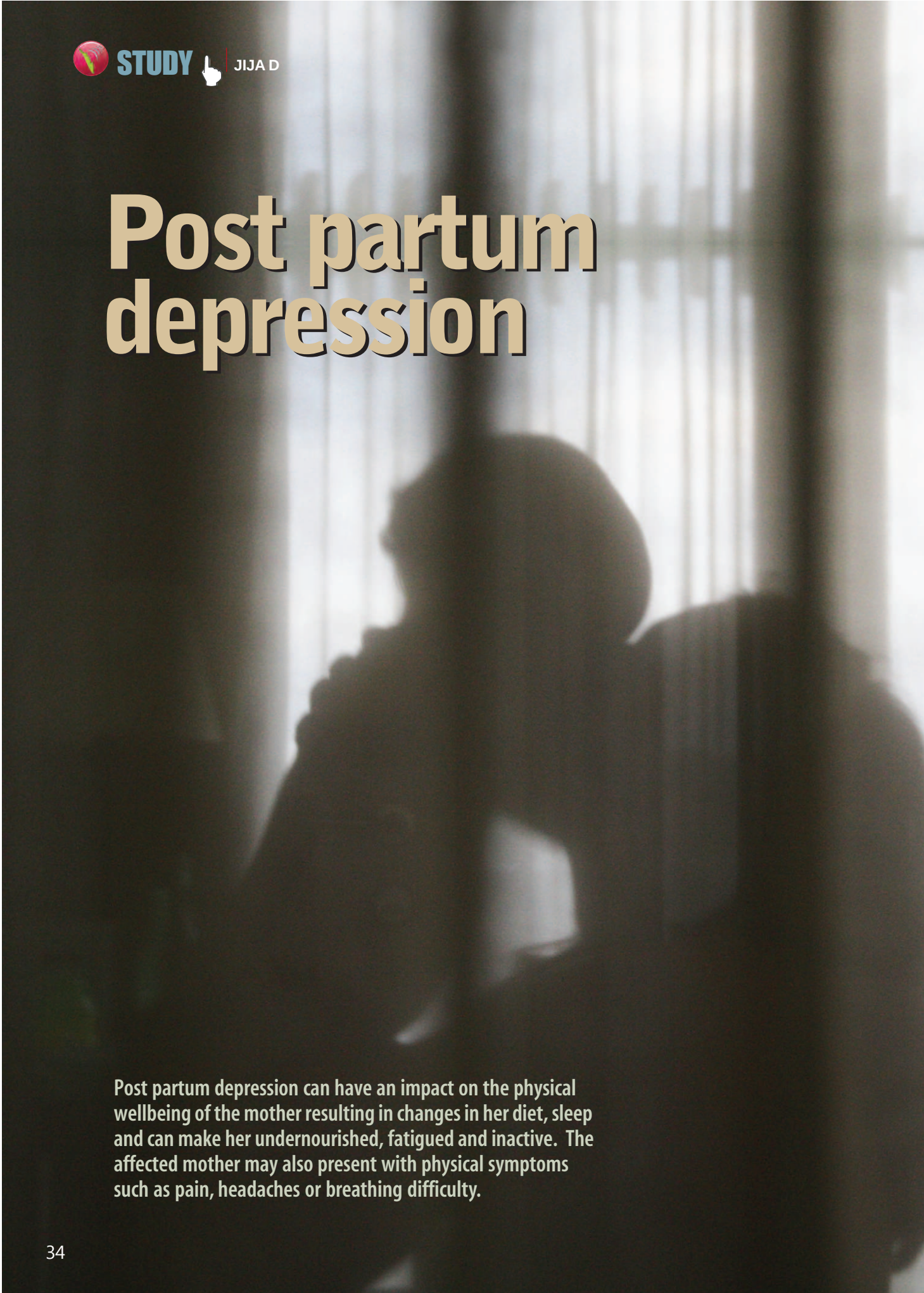
Principally the decline is driven by hunting, loss of prey, loss of habitat and habitat fragmentation. Due to these reason and anthropogenic pressure many of the global tiger population have become non-viable now. The three subspecies Balinese, Javan and Caspian have already become extinct. The number of tigers in India - the stronghold of the species- is declined to 1700-1900 levels. If the wild tiger population continues to decline at the current rate their natural recovery may not be easy. Why should we save tigers? Saving tiger is protecting the habitat where tiger lives. Protecting the tiger habitat ensures the conservation of biodiversity as well as conservation of other endangered, endemic and priority species of that territory. Being an apex predator tiger plays a key role in maintaining healthy ecosystems. This ensures sustainable flow of ecosystem services which we require to lead a normal life on earth. Tiger conservation projects are known to provide alternative lively hoods for rural communities which can raise their income levels too. The Project Tiger launched by the government of India in 1973 and presently implemented by the National Tiger Conservation Authority (NTCA) is a best example. It has become one of the largest species conservation programmes of the world so far.

According to WWF, Kerala has an area of 13367 km2 forest cover categorized as tiger conservation priority areas. Kerala has two notable tiger reserves viz Parambikulam and Periyar. The protected Areas in Kerala encompass an area of 5991 km2. The moist deciduous forests and mountain rain forests of southern Western Ghats constitutes two of the WWFs 200 global terrestrial ecoregions due to their unique biodiversity with high levels of endemism and the potential ecosystem services they deliver. The Western Ghats tiger populations are more connected with each other when compared to tiger populations in Central India and the Shivalik-Gangetic plains landscapes. And the habitat matrix in the Western Ghats is more conducive for tiger occupancy. But the habitat connectivity is threatened by plantations, agriculture, industrial, and infrastructure development. This problem has to be solved properly.

The Global Tiger Summit in St. Petersburg, Russian Federation, was convened from 21 – 24 November 2010, with the common goal of tiger conservation. This was during the Year of the Tiger in the Chinese Lunar Calendar. In the summit it was decided to celebrate Global Tiger Day (International Tiger Day) annually on 29 July. By the adoption of the St. Petersburg Declaration, the tiger range countries of the world call upon the international community to join together on the road to Global Tiger recovery.■

The writer is Sr. Wildlife Assistant

Post partum depression



Post partum depression can have an impact on the physical wellbeing of the mother resulting in changes in her diet, sleep and can make her undernourished, fatigued and inactive. The affected mother may also present with physical symptoms such as pain, headaches or breathing difficulty.

Child birth can be joyful to some, but for some women it may be an unpleasant experience. The period following child birth is a time with increased risk for the development of mental health problems. Vast majority of mothers have feelings of sadness and changes in mood after chidbirth. This is common and it is known as baby blues. Baby blues usually occurs within few days following delivery and subside within two weeks. Baby blues are probably due to hormonal changes. It is a normal event and there is no need for treatment, except the love and support from the family .

Post partum depression is one of the most common mental health problems following childbirth affecting 10-15% of women. It is more serious and long lasting than baby blues. Postpartum depression is characterised by depression within four weeks after delivery. Depression refers to a mental disorder affecting a person's mood.

Signs and symptoms

The signs and symptoms of postpartum depression is much different from that of baby blues. Symptoms of post partum depression are more severe and long lasting than baby blues. The symptoms of postpartum depression include feelings of severe sadness, frequent crying, irritability, tiredness, decreased appetite and increased or decreased sleep. Women with postpartum depression may have feelings of worthlessness, show least concern over baby and ignore the needs of the baby.

Causes

The cause for postpartum depression is thought to be due to hormonal changes that occur following child birth. There will a change in the level of oestrogen, progestrone and thyroid hormone which can predispose to postpartum depression.

There are certain factors which makes mothers vulnerable to postpartum depression. The risk factors include previous history of depression or anxiety during pregnancy, any diseases during pregnancy, difficulty in delivery, disease of the baby, poor marital adjustment, stressful life events and lack of support.

Postpartum depression interferes with the ability to care for the child as well as her own health. Postpartum depression also affects the relationship with the partner as well as with others. Thus it affects not only the mother, baby but also the entire family.

Post partum depression can have an impact on the physical wellbeing of the mother resulting in changes in her diet, sleep and can make her undernourished, fatigued and inactive. The affected mother may also present with physical symptoms such as pain, headaches or breathing difficulty. Mothers with post partum depression are found to be less affectionate toward their infants and less responsive to their cries. A depressed mother often neglects the baby and fails to establish secure attachment with baby. As a result, child often has developmental problems and delays.

Children of depressed mothers often learn to walk and talk late when compared to others. They may show more aggressive, hyperactive behaviour and often fails to establish secure relation with others. They are often more fearful and anxious. Partners of those affected with depression are often confused and feel helpless. They often has to take multiple responsibilities if the mother is unable to do the household works and care of baby.

Preventive Measures

Postpartum depression can be prevented if some measures are taken by the mother, husband and by the family members. The new mother has to ensure that she gets adequate sleep by seeking help from the husband and taking naps when the baby is sleeping. She should set aside time for some relaxation like gardening or listening to music. She has to eat nutritious diet and has to do regular exercise. The mother should share her feelings, preferably face to face with some one close and avoid having unrealistic expectation to be a super mother. The partner can help a lot in overcoming the post partum depression. He can offer support by helping in child care and encourage her to open up her feelings.

Family members should be sensitive to the fact that new mother often feels ignored as the family will be more concerned about the baby rather than mother after delivery. They have to be considerate to the needs of mother and should offer help when needed. Maternal mental health problems imposes a heavy burden to the individual, family and society as a whole. World Health Organisation has given importance for the early detection and treatment of maternal mental health problems because of its long term consequences.■

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FEATURE | G S UNNIKRISHNAN NAIR

3 IDEAS

Catch the Rain

K.R.Gopinath

Kerala is going to face acute water shortage in the future. One of the wettest places in the country, the state is already lagging behind in per capita availability of drinking water. Many lakes and rivers, which were the source of drinking and irrigation water to many, have been reduced to thin streams. Adding to this, the state has been experiencing low rainfall regularly since 1980. The fact that the steep slopes of the Western Ghats carry rainwater to the sea within 48 hours of their precipitation on the hills has been repeatedly ignored.

"The lone solution to overcome this grave situation is to harvest rainwater in whatever way possible. Rainwater Harvesting is simple and cost effective. Apart from domestic rainwater harvest, we should concentrate on large rain harvest systems that could store lakhs of liters of water. Community rain harvest has shown significant results in the states where it had been implemented. But in Kerala, we are still lagging behind as far as conservation of water is concerned. Many Indian states are in front of us as far as rainwater harvesting is concerned."-Says K.R.Gopinath, rainwater-harvesting expert.

K.R.Gopinath, native of Thiruvananthapuram has over 13 years experience in rainwater harvest. A graduate in Engineering, Gopinath took up rainwater harvest as his life mission during 2001.Then he was working in a Steel factory at Chennai. The dried open well in his residence infused a desire in him to know more about rainwater harvesting. This motivated him to the launch of K.R.G.Rain water foundation. That year itself, Gopinath was given the Indira Gandhi Priyadarshini Award for his outstanding contributions in water conservation sector. Now, Gopinath along with his team of experts implement rain harvest systems throughout the country. The organization has done lot of field research work and standardized techniques for effective harvest of rainwater.

"The basic principle is to catch and store rain from where it falls. Rainwater Harvesting is the accumulating, channelizing and storing of rainwater at surface or in sub-surface aquifers, before it is lost as surface run-off. The water bearing geographical formation is called aquifer. Generally, rainwater is either harvested from the ground or from a roof. The rate at which water can be collected from either system is reliant on the plan area of the system, its efficiency, and its intensity of rainfall. On the average rainfall of 1000mm, approximately

Rainwater Harvesting Pond at TATA Motors Ltd., Dorabji Park, Jharkhand

Attaining Energy, Water and Food Security for all is the greatest challenge nowadays. This challenge is going to be severe in the near future. Globally, Climate change had become a vital issue of our time and the biggest challenge for attaining sustainable development. We need to find a bio economic path towards sustainable development. The need of the hour is to improve our energy security with increased investments in renewable energy. We must also use technology to build smart and green cities and villages. Energy, Water and Food are interdependent. Bringing to the forefront of the sustainable development agenda the energy-water-food nexus and putting natural capital at the center will enhance the sustainability and resilience of ecosystems. It is a matter of concern that we in Kerala are not giving these issues their due importance. But in many other places, keralites are on the forefront of such eco-friendly initiatives. Let us meet three exceptional keralites, who offer some realistic ideas that could help in meeting the above goals.

Pond at TATA Motors Ltd., Jamshedpur - Capacity 20,00,000 l/day

Raiwater Harvesting Pond at TATA Steel Ltd., Odisha - Capacity 30,00,000 l/day

10,000 liters of rainwater gets collected in one acre of land." -says K.R.Gopinath.

Depending on the terrain, geology and gradient, different methods are adopted or harvesting rain. The tactic involves storing, spreading, percolating and blocking. Due to severe depletion of groundwater many open wells, bore wells and hand pumps are being dried. They can be converted into useful recharge wells. In slope lands, construction of bunds will slow down the run of water, enabling stagnation and percolation. In deep slopes, trenches and a series of ponds can be made.

In flat terrain, storing ponds are built along with canals. K.R.G.Rainwater forum adopts a number of systems to harvest rainwater ranging from very simple to the complex industrial systems. In urban areas roof top rainwater harvesting is done through recharge pit, recharge trench, existing tube wells or trench with recharge well. In rural areas rain water harvesting is done through gully plug, contour bunds, gabion structure, percolation tank, check dams, dug well recharge, ground water dams etc.

"Many countries like USA, Germany, Japan, Australia, Egypt, Israel, Spain, Sweden, Russia, Mexico, and France have adopted rainwater harvesting methods to overcome water shortage. Israel, where rainwater is scanty has become self sufficient in its water requirements by adopting various rain water harvesting techniques. In India, we have successfully completed the Technical Feasibility Study for 33 Municipalities of Gujarat State and 14 Municipalities in Andhra Pradesh. Many rain harvest systems have been completed at these places and some are near completion. We have implemented Rainwater harvesting Project in more than 5000 individual houses and private buildings in Chennai. Appreciating my advice, Chief Minister Jayalalitha inaugurated 'Rain Center of Chennai' few years back. Subsequently she made rainwater-harvesting compulsory for Chennai citizens'. This has made a dramatic impact in the water scenery of Chennai city. In fact, the water level in many places have raised more than 2-3 meters resulting in copious yield of water in bore wells, hand pumps and wells of many residents in Chennai city. The Kerala government has, in principle, decided to make rainwater harvesting mandatory for new buildings and houses and I hope that it will be implemented soon in its true spirit" -Explained K.R.Gopinath.

Many Indian companies have realized the potential of rainwater harvest. KRG implemented innovative and unique rainwater-harvesting projects for various

Companies including the Tata group, TVS, Indian Oil Corporation, ITC, Hindustan Coca Cola Beverages, United Breweries, Coca-Cola, L & T Ltd, Hiranandani Constuctions Pvt. Ltd Pepsi and Hiranandani constructions.

"We have erected the biggest rainwater harvesting project for M/s. St. Gobain Glass (India) Ltd., Chennai during the year 2004, for a storage capacity of 50,000 m3, with a total project cost of approximately Rs. 4 crores and this industry is saving not less than Rs. 40 lakh per year by way of not purchasing water from outside. The second biggest rainwater harvesting project implemented by us for M/s. Tata Motors Ltd., Jamshedpur during the year 2005, with a storage capacity of 35,000 m3, with a cost of approximately Rs. 3.5 crores, and saving Rs. 50 lakh per year."-Says K.R.G.

Two innovative projects implemented by the foundation was widely appreciated for their efficiency and aesthetic value; one at Noamundi, Jharkhand State and another one at Joda, Orissa State for the mines of Tata Steel Ltd. This have been conceived and implemented during the year 2010 and 2011 respectively. By implementing these two projects, Tata Steel Ltd., are getting approximately 36 lakh liters of water per day and it is adequate to meet their demand for expansion programme of the Mines division. By virtue of executing Novamundi project the water level in a region has been steadily rising; resulting in satisfactory yield from water extraction structures like hand pumps and bore wells. This project has got award for the most innovative rainwater-harvesting project of the country by Confederation of Indian Industries. KRG Foundation has beautified these rainwater harvest systems with gardens, statues and fountains so that they became picnic spots as well.

KRG also took interest into innovative projects like Traffic and Water Logging solutions in Mumbai, Water harvesting at National Highways and River linking project for Porbandar district. Now settled in Chennai, the rain man, K.R.Gopinath warns that if we in Kerala remain ignorant about rainwater harvest, the day is not far away that we lag behind even Rajasthan as far as access to drinking water is concerned. According to Gopinath, with rainwater harvest Kerala can gradually become self sufficient in drinking water. Rainwater harvest will also be a good solution for flooding in the cities during rainy days. He stresses that rainwater harvest is not the responsibility of Government alone; it has to become everybody's business.

Energy from Waste

According to Rajendran, community biogas plants have good prospect in Kerala also. Apart from Institutions; residential flats, hospitals, hostels and bus stands can construct these biogas plants and reduce their dependency on L.P.G and electricity.

The steep hike in the price of LPG cylinder and its short supply are affecting millions of households in India. In a state like Kerala, which is more dependent on LPG, the situation is further worst. But in our neighboring state of Tamilnadu, an alternate energy source is becoming popular. For instance, the steep hike in the price of LPG cylinder or its short supply does not seem to worry the households of Komarapalayam near Sathyamangalam in Erode district. They can meet all their cooking needs from the community biogas plant installed here. Human excreta (night soil) from 30 community toilets are used for production of biogas. A community kitchen with biogas stoves is installed in the village, where the housewives come and cook their food. This community kitchen meets the cooking need of 160 families living in the vicinity. The whole technology is the brainchild of V.R. Rajendran, a native of Chakkupallam, Idukki.

Rajendran began constructing community biogas plants 20 years back and has completed about thousand plants in Tamil nadu, Andhrapradesh, Kerala, Pondicherry and Andaman and Nicobar Islands. Rajendran was a civil works contractor at Kumily. Innovative mind led him into the field of biogas production from human excreta.

"Toilet linked biogas plants are common in China, Japan, Korea and some African countries. During 1992, I proposed a project for biogas production from sewage to the Madurai District Collector, which was accepted. This biogas plant provided cooking gas for the houses in a slum of Madurai. The project was widely appreciated and Dinathanthi, the leading Tamil Daily published a report on this. Thus the idea became popular in TN. Subsequently, I constructed anther community biogas unit at Pondichery.The human excreta from the toilets in the bus stand was used to generate biogas, which

was further used to generate electricity. This was used for lighting the electric bulbs installed at the bus stand. This project also got wide publicity. Subsequently I launched my company Nirmal Biogen Ltd during 1996. I received requests from many Panchats and municipalities in Tamilnadu and from many mills, college hostels and all. People started to realize the potential of these community biogas plats. -Says Rajendran.

According to Rajendran, a human being produces 500 gm of excreta daily on an average. The daily excreta of 100 persons can produce 5 Kg methane, which is sufficient to meet the daily cooking need of 40 persons. The excreta from the toilets are transferred through pipes into the bio-digester made of concrete and bricks underneath the toilet. In the bio-digester, anaerobic bacteria will act on the excreta, which results in the formation of methane gas. Differences in temperature between the bio-digester and the outside activate the bacteria. Methane will reach the kitchen though tubes and can be used for cooking. The gas produced in these plants can also be used for generating electricity through gas generators. The slurry that remains after gas production is free of foul smell. This can be used as organic manure for crops and for fish farming.

In Tamilnadu, many panchayats and municipalities have installed community biogas plants, so also many educational institutions and mills. These plants could also solve the problem of open defecation and related diseases. For example, Bharat Nagar ward of Thambaram Municipality near Chennai was infamous for its nastiness and open defecation till 2012 has become the best-maintained locality in the municipality now. A public toilet, which has been lying in a dilapidated condition for more than seven years turned out to be the "game changer". The authorities renovated the toilet and a community kitchen and Rajendran built a bio-digester at a total cost of `25 lakh.

"The project would not have materialized but for Sivasubramonian, the Councillor of Tambaram. Convincing the people was a big challenge. He took it as a challenge and visited all the houses in the ward to create awareness among the residents. Now every day the women in the ward cook food in the modern community kitchen built by me. The granite and marble laden community kitchen boasts of 12 pollution free gas stoves. At a time 12 women can cook here. It won't take more than 15 minutes for them to cook the food. These housewives do not spend a single rupee on cooking gas or any other fuel. The community kitchen in Bharat Nagar is as clean as the kitchens using LPG or microwave ovens."-Rajendran said.

The biogas constructed by Rajendran at Jamal Mohamed College, Trichy was also widely acclaimed. It was a case of double benefit for the College that has managed to resolve its waste management issue and reduce expenditure on LPG with three night soil based biogas plants on the premises constructed during 2005, 2006 and 2010. With around 3000 students residing as inmates on the campus, the college braved the hassles of cleaning septic tanks on the premises twice a year. Now they have done away with all septic tanks in the hostels and the waste is directed towards the biogas plants. The three plants serve three of the six messes catering to 1,800 students. The odorless waste generated after gas production is routed into the basins of coconut palms in the college premises. After the success of this unit, Rajendran constructed biogas plants for the hostels of many educational Institutions like Madras IIT, Colleges under SRM, Montfort School, Yercaud and mills like Kovai K.P.R.Mills.

According to Rajendran, community biogas plants have good prospect in Kerala also. Apart from Institutions; residential flats, hospitals, hostels and bus stands can construct these biogas plants and reduce their dependency on L.P.G and electricity. In Kerala, Rajendran constructed the first community biogas plants during 1998 at Muringoor Divine Dhyana Kenram.Later he constructed plants for Thrissur Jubilee Mission hospital, Pushpagiri hospital, Thiruvalla and

Kottayam Medical College.

Rajendran says- "Pilgrim centers can solve their waste disposal problem through community biogas plants. The project for construction of community biogas plant at Palani temple is under progress. The gas generated from the excreta of pilgrims will be used to light up the new bus stand there. I have submitted a plan to the Kerala Government for setting up a 3 MW power plant at Sabbatical. About 800 toilets are there in Sabarimala and roughly 45 Ton human waste is produced daily during pilgrim season. According to my estimate the daily excreta of a person is worth Rs.6/- in terms of the energy that it will produce. One need not grimace at the thought of using methane gas generated in public toilets for cooking purpose " explained Rajendran.

Rajendran won energy conservation awards from Government of Kerala, Government of Tamilnadu, Administration of Pondicherry and Andaman Nicobar Administration. Colombo Open University gave honorary Doctorate to Rajendran considering his ideas and contributions in this field. Rajendran's latest initiative is to use methane generated from community biogas plants as fuel for automobiles and trials are going on.

Green Shield against global warming

Cover the concrete jungles with a vertical gardens, this will save city dwellers from scorching heat, yield vegetables for the home and serve as a green armor against global warming" says John Stephen. The tall vertical GI frames on his terrace are thickly covered with climbers like pumpkin, bearing fruits in abundance. John Stephen, a USA returnee is offering a novel greening concept for the cities, "Oxy farming".

John Stephen returned to Vennala, Kochi in 2008 from the US after living there for 33 years since he was 30 years old. In the USA, eventhough John was working in the Oil Industry, he interacted with the farmers and cowboys there. Having a rural background, interest in farming was there with him since early childhood. This motivated John to do research on high intensity farming in lesser area. Oxy farming concept was evolved thus. He field- tested the concept in US and it proved to be a huge success.

"The surface land has less than 3% oxygen in soil and roots need 5 10% oxygen for healthy growth. The heat radiation from the sun dries up the soil moisture and there is almost 7 hours of heat radiation upon the vegetable soft skin. Even human beings cannot stand one hour of sun heat and the sun's extreme heat kills all micronutrients in the vegetables. What we need is vegetables with good Oxygen and nutritional content in it. So instead of soil I grow them in fiber basket (Baskets filled with coir fiber). 90% of our energy comes from oxygen; only 10% comes from food and water. If oxygen supply to the cells gets reduced they become prone to diseases like cancer. So oxygen rich food is what we want"-says John.

A model of Oxy farming can be seen in John's house and terrace. The double storied house is covered with wines and creepers from ground portion up to the terrace. Plants that emit oxygen in abundance are grown around the house. According to John, vegetables and other plants are grown in his urban farm in an atmosphere having 21% Oxygen. Apart from growing them in fiber baskets water is sprinkled at the root zone through an automatic irrigation system. Bio-fertilizers, which are Microbial inoculants consisting of living cells of microorganism like bacteria, algae and fungi alone or combination, are supplied to the crops

though irrigation water. They make available all the nutrients including minor ones to the crops and helps in pathogen free productivity. Mist irrigation also work automatically enriching the atmosphere with moisture.

Five vertical GI frames erected on the terrace provide 500sq feet vertical atmosphere. Wines and climbers trailed on these frames act as green shields for the concrete structure. The frames also serve as a multi-tier system for placing fiber baskets planted with vegetables. The whole system reduces the effect of UV radiation and global warming, cut down atmospheric pollution, reduce electricity consumption by reducing heat absorption, act as Oxygen power houses, provide year round vegetables from minimum area with less labor and water and provide a cool and green city ambience. Temperatures are often a few degrees higher in cities than they are in their surrounding rural areas. This temperature discrepancy is the result of a bizarre phenomenon known as the urban heat island effect. The green blankets of Oxy farming could also help to reduce this devastating situation.

"The terrace area of my home is about 1000sq feet. The whole area is utilized for producing Oxy Vegetables and wine Grape farming. The productivity of vertical farming is 5 to 9 times that of conventional farming. Climate change could lead to even warmer temperatures in cities but the new atmospheric technology brings forth good harvest even in extremely bad weather conditions. These vegetables and fruits have higher quantity of oxygen with higher levels micronutrients. I have been doing this for the past 5 years and I think that it is my moral responsibly to introduce more and more people to this farming method"-John explains.

Another concept that John puts foreword is the production of Oxy milk. In this method many types of oxygen rich green fodders like elephant grass, green leaves like moringa and different types of grains are fed to the cattle. They are grown in pollution free, comfortable surroundings with good aeration. According to John, the Oxy milk produced by the cattle grown under this system will be rich in nutrients and Oxygen.

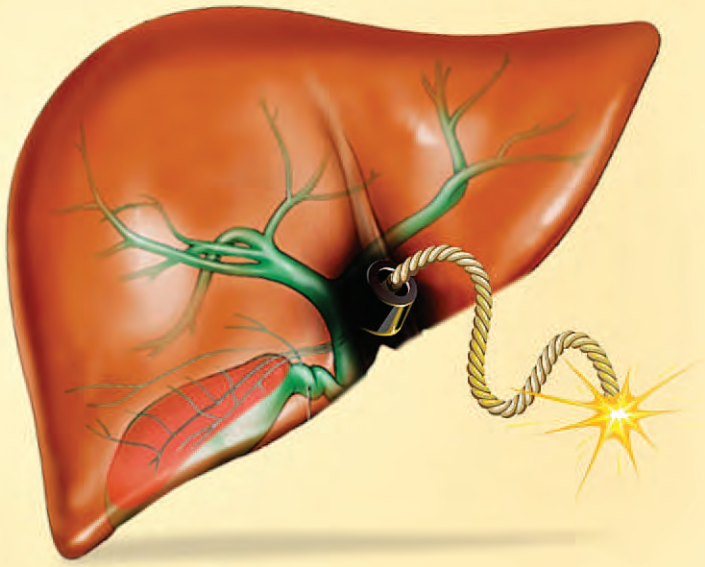
"I established a small dairy in a village in Cochin, where I researched for three years on Raw Oxy milk production. The efforts bore fruits and I successfully achieved the know-how to produce Oxy milk through the many green fodders absolutely free from insects, bacteria, fungi and other pathogens. I have also developed a multi tier system in which cattle and fodder can be grown utilizing the vertical space. The fodder waste can be utilized for producing electricity for the unit"- says John.

At 70, John is still very energetic and healthy. He attributes this to his habit of consuming oxy vegetables, oxy milk, Oxy Alkaline water with 74 minerals and physical exercise through farming activities. "In Global Warming era, Vegetables and crops must produce good yields while at the same time conserving land and water should be of foremost importance. Only then we can be proud that we are leaving behind something wonderful for the future generation and not borrowing from the future for our livelihood. I am fully equipped with the know-how and the practical aspects of how to bring about this change and I am sure that likeminded people would accept them. I had discussions with ICAR (Indian Council for Agricultural Research) and they have shown keen interest in the concept, "says John.

Population growth, an expanding middle class with changing lifestyles and diets, and the urgent need to improve water, energy and food security for the poorest -all place growing pressure on limited resources. Green, sustainable and futuristic development pathways are need of the hour. The small steps put forward by these three individuals in this direction will have better and wider implications in the future.■

Dr. BIPIN GOPAL

Combating Hepatitis



Hepatitis is a disease affecting millions of people around the world cutting across the population regardless of the economic, social and cultural strata. Hepatitis by definition is infection of liver due to a variety of reasons and the commonest among that is viral origin. The viral hepatitis occurring due to Hepatitis A, B and C viruses are common in our state even though other strains like E, D and G have also been identified in the state. Other viruses like Epstein Barr virus Cytomegalovirus, Herpes virus etc may also end up in Hepatitis but are less common. To familiarize with the disease the two major types, Hepatitis A and B may be discussed in detail.

Hepatitis B

This type of Hepatitis owing to the infectivity and high mortality rates has acclaimed as the silent killer. The Hepatitis B virus was discovered by BLUMBERG in 1963. More than 2 billion people worldwide have evidence of HBV infection and approximately 240 billion people are carriers. Death is mainly due to the complications such as cirrhosis of liver, liver cancer and Chronic Liver disease.

India falls in the group of moderate endemic countries for Hepatitis B and in Kerala also the disease continues to figure out as one of the major illness adversely portraying in the state health profile for the last decade. In 2013 the number of Hepatitis B cases in the state was 1107 out of which 20 had succumbed to the disease. In 2014 over 719 cases have already been reported and five deaths have also been registered. In 2013 Kollam had the highest number of cases followed by Thiruvananthapuram and Wayanad and rest of the districts had an even distribution. Since the figures are extracted from the Government data source the figures could be much higher if private institutions are also considered.

Who harbors the disease

Man is the only reservoir of infection. Not all persons who have been infected with Hepatitis B shows the symptoms of disease, but they can be infective and such cases are termed as carriers and it is due to the high prevalence of carriers that the disease spreads in the community silently.

Incubation period

It may vary from 60 days to six months. The infective period is the incubation period, acute phase and throughout the carrier stage.

Source

The source of infection is mainly blood and body fluids. It can survive outside the body for several days depending on the environment. Blood, semen and even saliva of the infected person can harbor the virus.

Age and sex

These are not a barrier for this disease as the disease can affect all age groups and both sexes.

Risk group

People who are working close contact with blood and body fluids falls under the risk category. Medical professionals, laboratory technicians, blood and tissue handlers, hospital attendants come under this group. Professional blood donors, Sex workers, Homosexuals, injectable drug users also figure in risk category.

Symptoms

Initial features are of nonspecific flu-like symptoms, and may include malaise, muscle and joint aches, fever, nausea or vomiting, diarrhea and headache. More specific symptoms seen are profound loss of appetite, dark urine, yellowing of the eyes and skin (jaundice) and abdominal discomfort.

Physical findings are usually minimal, apart from jaundice, tender enlargement of the liver, enlarged lymph nodes in some cases and enlargement of the spleen. Acute viral hepatitis is more likely to be asymptomatic in children

The Hepatitis B has three distinct antigens-the surface antigen (HbsAg), the core Antigen (HbcAg) and e antigen (HbeAg). Patients with hepatitis B infection will have one or more antibodies against the antigens which will constitute as useful markers of HBV infection.

How the disease spreads?

Since Hepatitis B virus is present in blood and body fluids, the most important mode of transmission is blood borne and often transmitted by infected blood and blood products through transfusions, handling of infected blood, accidental inoculation during surgical and dental procedures, dialysis, using unsterile syringes, tattooing, body piercing and even through shaving razors and tooth brushes. Infected mothers can transmit the disease to the off springs. Sexual transmission is one important mode of transmission. Unprotected sex with infected partners and homosexuals are susceptible to this disease

Complications

Hepatitis B virus may not be dominant when the patient is immunologically stable and surfaces whenever the immunity is affected or general health is impaired. Major complications are fulminant hepatitis, chronic hepatitis, cirrhosis, primary liver cancer etc. It is estimated that nearly 600000 people die of complications every year.

Prevention

Specific treatment for Hepatitis B is yet to be developed. Enhancing the immunity, precautionary measures for better liver health, avoiding circumstances leading to liver failure are the important measures to be adopted in managing Hepatitis.

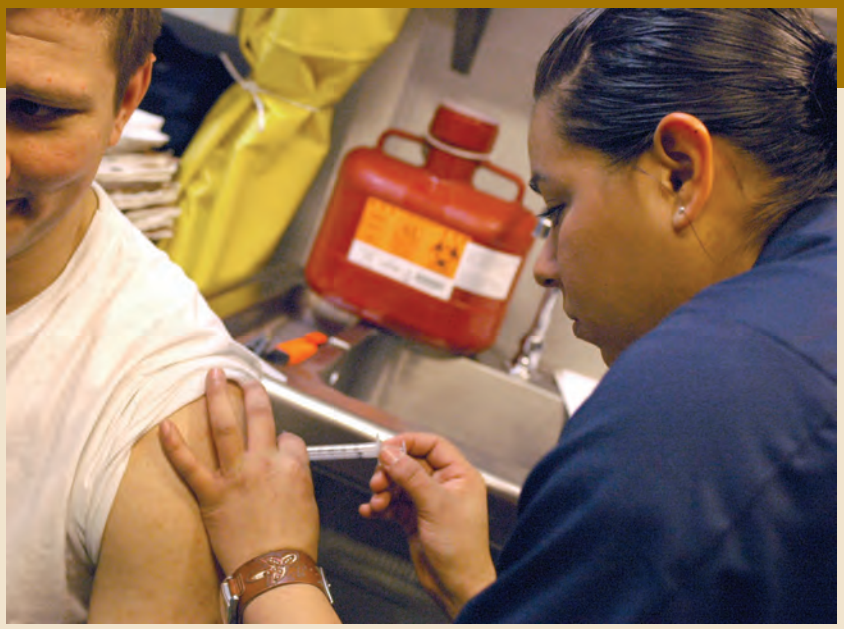
The best option is to prevent the occurrence of the infection by vaccination. Recombinant Hepatitis B vaccine which was introduced in 1986 is accepted by WHO in controlling Hepatitis B globally. The vaccine is available as monovalent formulation or in combination with other vaccines like DPT and HIB.

The first dosage is to be taken at birth and 3 doses should be given along with DPT and HIB at the interval of one month (6, 10 and 14 weeks). Children, adolescents and adults who have not received vaccination can avail

World Hepatitis Day

World Hepatitis Day is celebrated on July 28th on the birthday of Baruch Samuel Blumberg who discovered the Hepatitis virus in 1963. The day is celebrated all over the world for promoting the use of Hepatitis vaccine, for creating awareness of the diseases among the general public, Strengthening prevention, screening and control of viral hepatitis and its related diseases. Even after the discovery of the virus, the disease continues to creep into the society silently affecting millions and erasing precious lives. This year on his birthday, let us all join together in the fight against the disease by changing our attitude, lifestyle, and practices with a commitment for change in personal life and social living.

Hepatitis A



Hepatitis A is endemic in most of the countries and due to the high incidence of asymptomatic and subclinical cases the exact burden of disease is difficult to estimate. Poor sanitary conditions, hygienic practices, poor water treatment facilities, over crowding, drinking water scarcity are some of the conditions favoring the spread of disease. The disease is epidemiologically important due to its potential for incidence of epidemics.

The disease spreads mainly through faeco- oral route. The faecal shedding of the virus is high in the incubation period which is 10 to 15 days, and in the acute phase. This is a highly resistant virus which can survive in well water up to 2months and can withstand heating up to 60 degree up to one year and is unaffected by regular chlorination.

Man is the only reservoir. Infective period is two weeks prior to onset of jaundice and one week after that. Feces, blood, body fluids and rarely urine also may transmit the virus. Both sexes are equally susceptible and children have a slight preponderance for harboring the infection. In 2013, 10700 suspect cases and 6166 confirmed cases were detected in Kerala out of which 14 suspected and 8 confirmed cases succumbed to the disease. The disease load could be much more considering the sub clinical and asymptomatic cases.

The disease is transmitted by direct contact, contaminated water, food, milk etc. The transmission through body fluids is rare. Sexual transmission is possible in homosexuals because of oral- anal contact. Initial features are of nonspecific flu-like symptoms, and may include malaise, muscle and jointaches, fever, nausea or vomiting, diarrhea etc. More specific symptoms seen are profound loss of appetite, dark urine, yellowing of the eyes and skin (jaundice) and abdominal discomfort. Diagnosis is done by doing Liver function Test, demonstration of Anti HAv particles in suspected samples and IgM specific anti HAv in blood.

Treatment is mainly preventive and vaccines have been developed. Live attenuated vaccine which is a single dose vaccine and Formaldehyde an inactivated vaccine which is given in 2 doses with six months interval are in use and is effective. Human immunoglobulin is also given as a remedy for immediate post exposure period.

Preventive measures

Isolation of cases, disinfection of feces and fomites, the use of 0.5 % sodium hypochlorite for disinfection is recommended. Promoting personal hygiene and maintaining good environmental sanitation are the best measures the public can adopt for preventing the disease.

Hand washing practices with soap before food and after toilet, cleaning of vegetables and fruits with clean water when used raw, using hot water for drinking purpose, super chlorination of wells, avoiding fruit juices and local ice at time of epidemics are simple methods the people can practice for preventing the spread of disease.

Septic tanks and scientific disposal of excreta and preventing its contamination with drinking water source, purification of drinking water source for mass distribution, proper sewage disposal system have to be implemented.

the vaccination at any point of time. Three doses 0, 1, 2 or 0, 1,6 can be adopted.

Hepatitis B immunoglobulin

For immediate protection Hepatitis B immunoglobulin is the treatment of choice. This is recommended when there is accident inoculation of Hepatitis B virus, following organ transplantation for newborns born to carrier mothers, sexual contact with infected persons etc and should be given within 6 hours and not greater than 48 hours. Two doses should be given with an interval of one month. Combination of Hepatitis B vaccination and Human Immunoglobulin may also be given in special situations.

Investigations

Liver Function test, presence of HBsAg in blood, Anti HBc, IgM, IgG

Screening

As a rule, it is better to avoid transmission of diseases though the negligence of humans. Screening tests for Hepatitis shall be carried out for blood transfusion, organ transplant and other blood and human products. People working in high risk jobs like surgeons, lab technicians, and staff nurses shall take all precautions like wearing of protective gloves, screening of patients before procedure etc.■

The writer is Assistant Director, DHS

PAVLProject A link that will leave Kerala high and dry

Contd. from Page 25

hydroelectric, irrigation and domestic water supply schemes have been submitted for approval. Sabarigiri hydel project (300 MW) consists of Pamba and Kakki reservoirs, Kakkad hydel project (50 MW) and Pamba Irrigation Scheme (Diversion) are the present major projects existing in the Pamba basin. The diversions of water from the upper catchment of Pamba basin will hamper the existing and proposed new water resource projects in the basin.

Threat to Biodiversity of Western Ghats

Stretching like a spine down the western edge of India, the Western Ghats is a unique mountain range that harbours an incredible diversity of flora and fauna. Although the Western Ghats cover less than 6 percent of the land area of India, it contains more than 30 percent of the country's mammals, birds, reptiles, amphibians and fish species and many animals are still being discovered.

The peaks of the Western Ghats intercept the south-western monsoon winds, which bring heavy rains between June and September. These rains feed many rivers that originate in the mountains. This diverse biological haven is under tremendous pressure from a variety of human activities. Only one-third of the Western Ghats still clings to its natural vegetation, and those remaining forests are highly fragmented and face the threat of increasing degradation. In order to conserve the endangered spacious / bio diversity in Western Ghats, Govt. India has constituted a high level committee chaired by Prof. Madhav Gadgil, and later on Dr Kasturirangan for the preparation of conservation plans.

Unfortunately, all the reservoirs and tunnels proposed in the PAVL Project are in the dense forest region of the Western Ghats in Kerala. The proposed project necessitates large-scale deforestation for the dams and canal construction. The proposed three reservoirs on the Pamba and Achenkovil rivers alone will submerge 2004 ha of virgin forest in the Western Ghats. In addition, 10 sq km of virgin forests in the Konni and Achenkovil divisions will be destroyed, once the project materializes.

The structural interventions proposed in the PAVL Project will seriously hamper the biodiversity of Western Ghats in Kerala. The large-scale deforestation in the rain-fed area of Pamba and Achenkovil will lead to the drying up of many perennial streams and wet lands in the Western Ghats. In fact, all the structural interventions proposed for the PAVL is not on par with the conservation plans recommended by the Gadgil and Kasturirangan Committees.

Water Quality Deterioration

The disposal of liquid and solid wastes from the townships and municipalities along the river banks, the ingress of chemical pesticides and fertilizers applied in the agriculture area, saline ingress due to reduction in river flow downstream are all problems which permanently threaten the Pamba and Achenkovil river ecosystem. About 3 million pilgrims are coming for Sabarimala darsan during the period between November and February. The pollution during the Sabarimala pilgrim season in Pamba river is very high. Traditional inland fishing communities, who have been exclusively living off fishing for several centuries are losing their livelihoods due to the cumulative effect of all the above-mentioned threats. The past few years have also witnessed worsening drinking water scarcity in the midlands and plains of the river basin in the form of lowering water table, saline ingress moving upwards indicating that the river flow has reduced drastically. The water quality data reveal that 80% of river water samples and dug well water samples are affected by bacteriological contaminations. Monsoon flows in Pamba and Achenkovil flush the pollution load in these rivers to a large extent. A large scale diversion of monsoon water from the upper catchment areas of Pamba and Achenkovil and subsequent reduction in fresh water flows will degrade the water quality status of these river systems. Ultimately, it will adversely affect the river ecosystem, religious significance, boat race, water resource projects in these river basins.

Adverse Effect on Inland Navigation

The Vembanad wetlands form a part of the National Waterway 3. Most of the rivers draining into the wetland system are navigable in the lower reaches. It is estimated that a total length of 105.6 km is navigable in Pamba and Achenkovil rivers. Flow reduction in these rivers will seriously affect the inland navigation in these reaches, where a number of people still depend on inland water for travel as well as material transport. If the upstream water courses become dry, the entire purpose of National Waterway 3 will be defeated.

Concept of Surplus and Deficit

Looking at PAVL Project, the concept of transferring water from surplus to deficit regions and creating a win-win situation sounds perfect. But from a holistic point of view, every drop of water performs some ecological service at all times. The ecosystems have evolved over a period of thousands of years to make optimum use of the water available. Hence, any amount of water diverted from or to a region will cause damage proportional to the amount diverted. There is nothing as 'surplus' water from the holistic point of view.

Can Lead to Contention Kerala and Tamil Nadu

As such there is no water sharing agreement with Tamil Nadu on PAVL Project. Once we have an agreement then only the project will materialize. A number of interstate conflicts between the neighboring States over water remain unresolved for decades now (for example the Mullaperiyar). The PAVL project, which requires many dams and tunnels / canal in Kerala region, could become a major bone of contention between Kerala and Tamil Nadu.■

The writer is Scientist, CWRDM, Kunnamangalam

SURESH MUTHUKULAM

Mussaenda

the spectacular flowering shrub

The ever green tropical shrub with clusters of small, tubular flowers is the Mussaenda, which is a genus of flowering plants. Several species in this genus are cultivated as ornamental plants which provide quite a good show to all gardens. One of the striking features of Mussaenda flower is with large showy "petals "which are in fact enlarged floral sepals itself. These surround the yellow, cream or white flowers. The plant's colour come from the bracts and not the small, often yellow, white or orange flowers at the centre of each bract. This is just like the tropical beauties Bougainvillea and Heliconia. The bracts of Mussaenda can be of different colours like rose, white, red, pale pink and sometimes a mixture of different colours. Mussaendas belong to the family of flowering plants like Gardenia, Ixora, Pentas etc.

Mussaendas are a group of highly ornamental plants suited to tropical and sub tropical climate which is used both in landscape beautification as well as in floral decorations. They are native to Asia, such as Thailand, the West Indies and parts of tropical West Africa. Let us have a look into the popular varieties of Mussaenda.

Mussaenda erythrophylla

They produce vibrant red flower clusters and prefer to grow in full sun which can also tolerate semi-shade. This is an ornamental shrub or tree that can reach a height of 30 ft, but in cultivation it ranges from 3 to 10 feet tall. The leaves are medium to dark green, silky, hairy, round to ovate and strongly veined. It flowers almost non-stop through the year with several flowers borne in branching terminal panicles. Each flower is composed of a small ceramic white corolla which is five lobed; funnel shaped with a crimson-red centre along with a single round-ovate enlarged bright red sepal (bract).

It is these stunning blood red sepals that give it the name Ashanti Blood or Red Flag Bush. Being a year round performer, this is most ideal as an ornamental plant for parks and public gardens, streets, highways or roadsides. This is also good for landscaping as a single decorative specimen or amidst a group of low-growing plants in a border. This is suitable to be grown in containers or in ground or as an accent plant. Attractive to bees, butterflies, humming birds and other insect pollinators. This is a fast growing plant with dense foliage and will become more developed with regular pruning. Pruning is necessary to keep the plant shape which helps in the growth of more branches and produces more bracts.

Mussaenda philippica

A native of Philippines, this is also known as White Mussaenda which grows as a shrub or small tree 3 to 5 metres tall. The leaves are oblongate-ovate to oblong-lanceolate pointed at both ends. The flowers are borne in small numbers in terminal part. They have white sepals and orange-yellow, flowers. The most common variety in White Mussaenda is Dona Aurora.

Mussaenda frondosa

This is also known as Wild Mussaenda which is a smaller shrub of 1.5 to 2 metres height. Like the other Mussaendas the large showy petals are visible as pale white coloured leaves that surround the true blooms. The clusters of orange yellow tubular flowers can also be seen beside the large white bracts. The foliage is lighter green than many other species. The plant also known as Vellila has got excellent medicinal properties and used in the treatment of cough, bronchitis, fever, wounds, ulcer, jaundice etc and the leaves make an excellent shampoo also.

Mussaenda luteola

This is a native of Ethiopia, Sudan, Kenya etc. This shrub has white floral sepals and creamy yellow flowers. The plant blooms all year round in the tropics and sub tropics. The flowers produce a faint perfume also. The golden star shaped blooms are surrounded by creamy yellow bracts. This small tropical shrub is excellent for growing in containers. This grows well in sunlight to partial shade and a well drained soil.

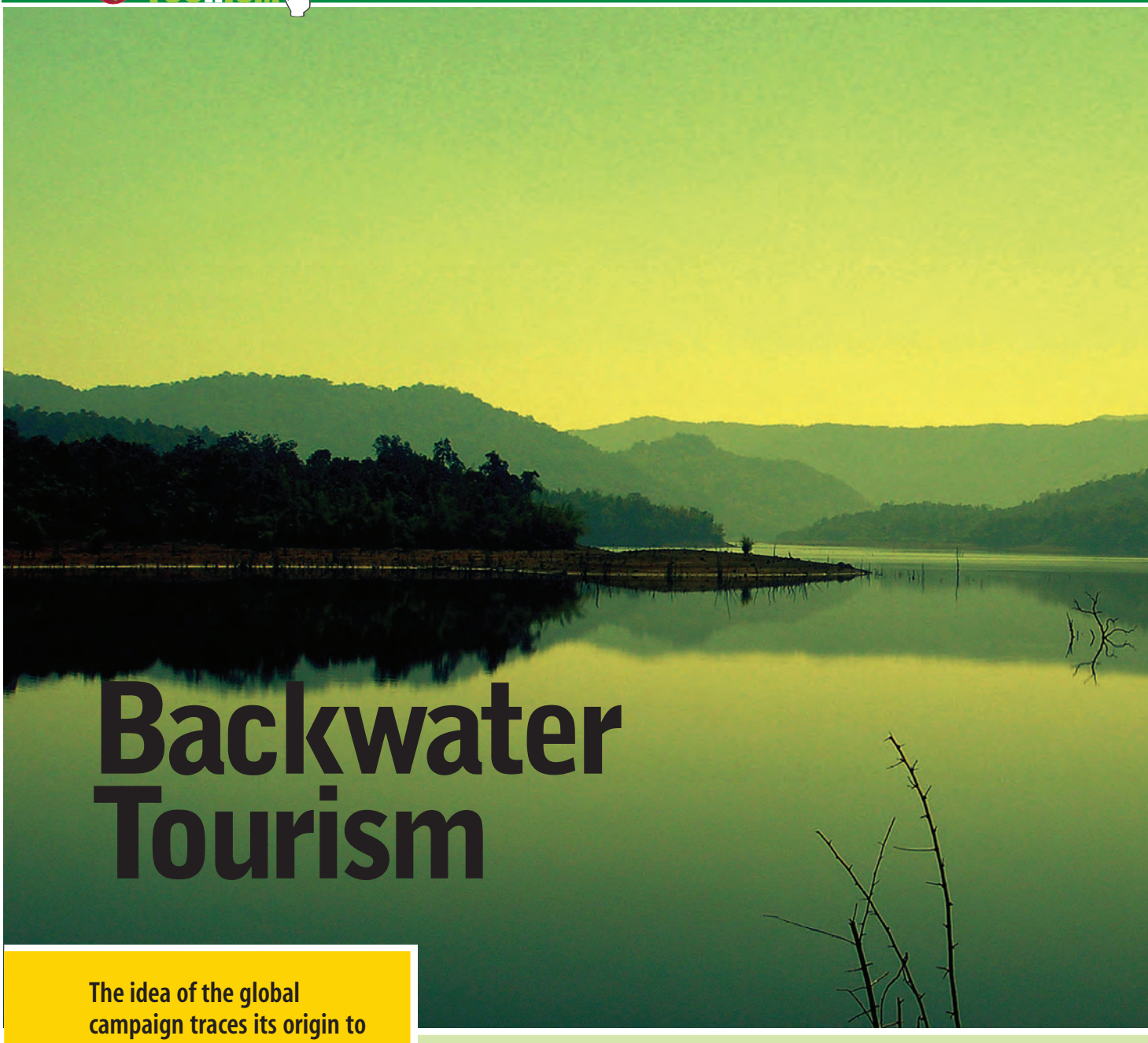
Mussaenda incana

This is native to India and Malaysia. It has bright yellow flowers and creamy yellow sepals. This is a low growing shrub 1 to 2 metre tall. This is suitable to be grown as a ground cover. There are certain hybrids also in Mussaenda such as Marmalade, Capricorn Dream, Capricorn Ice etc. Mussaendas are generally planted at the rear of garden borders.

Mussaendas can be propagated using semi-hard wood cuttings. The cuttings can be 6 to 8 inches long with a bottom slanting cut just below a leaf node or joint and the top cut should always be straight across and just above the node. Smearing any available rooting hormone powder at the lower cut end will enhance rooting process when planted in a porous well aerated medium consisting of sand, charcoal pieces, brick etc and kept in semi-shade. Mussaenda layers are also now available for planting. Timely pruning is also important to control the unwanted growth of the plant.

Mussaenda can be grown as a free standing specimen or as a shrub border in the home garden. Mussaendas are suitable for low maintenance gardens also. Mussaenda is common in Kerala homesteads where it is locally called Mosantha.

ABIN K I



Backwater Tourism

The idea of the global campaign traces its origin to the "fascinating water world experience" narrated by tourist who visited God's Own Country. The aerial view was chosen in order to capture the planet like expansiveness and the diversity of life in the backwaters. The Great Backwaters campaign features the first of its class high quality aerial photographs of the placid backwaters.

Many tourist destinations are bestowed with great reserves of water like ocean, beaches, rivers etc. but there is none as gifted as like the serene backwaters - known as the mascot of Kerala tourism where nature's most amazing resource creates a magical world for the travelers to rest and relax. The backwaters of Kerala are not only about houseboats to cruise but it is also about discovering a fascinating water world unlike any other on our planet.

After the launch of successful campaigns like Your Moment is Waiting and Home of Ayurveda a campaign exclusively for promoting the backwaters titled 'The Great Backwaters is making waves on international shores and in cyber space. The department of Kerala Tourism has chosen the virtual world to launch the 'Great Backwaters' campaign to unveil the potentials of state's backwaters as a single attraction and a once in a lifetime experience like the Great Wall of China or the Grand Canyon of the USA for the travelers.

A survey conducted by National

Backwaters are a chain of brackish lagoons and lakes lying parallel to the Sea. The prominent backwaters in the state are Vembanad and Ashtamudi. Vembanad is known as the hub of backwater tourism while Ashtamudi is known as the gateway to backwaters. Ashtamudi, Sasthamkotta and Vembanad are the three Ramsar sites from Kerala. The Great Backwaters campaign - is a visual symphony in greens that plays up the lifestyle, culture, heritage, cuisine and unique ecosystem of the backwaters. The main intention of the campaign is to focus on one of the USP (Unique Selling Proposition) - backwaters of the state tourism, target niche audiences, to unveil the rustic life along the backwaters and promote it as a self-contained experience to holiday makers. The campaign had won the Golden City Gate awards 2014 in ITB Berlin in print category. The award is considered as the Oscars of Tourism. This campaign is advancing Kerala's image on the world tourism map.

Geographic Traveler in 2009 had listed Kerala backwaters as one among the top 133 attractions in the world and put it ahead of the world wonder Taj Mahal. The backwaters of Kerala surpass the prominent heritage tourism destination Agra which hosts three iconic world heritage sites of Taj Mahal, Agra Fort and Fatehpur Sikri. The feedback of tourists who had visited the backwaters indicated that it could be a standalone experience for the traveler as this is an ecosystem truly unique to the state offering tremendous opportunities for tourism developments.

Aerial Photography

The idea of the global campaign traces its origin to the "fascinating water world experience" narrated by tourist who visited God's Own Country. The aerial view was chosen in order to capture the planet like expansiveness and the diversity of life in the backwaters. The Great Backwaters campaign features the first of its class high quality aerial photographs of the placid backwaters. The unique images of the serene backwaters were captured for the domestic and international campaign by advanced cameras secured in a highly sophisticated and custom designed eight-rotor helicam. The aerial shoot was controlled from a customized boat equipped with a miniature helipad to facilitate the takeoff and landing of the helicam. The aerial shoot of the backwaters was mainly done in Alappuzha. The twenty five member crew which shot across the backwaters was led by aerial photographer Ville M. J Hyvonen from Finland and Shelton Pinheiro who is the creative director of

Stark Communications. Play back singer and music director Alphons set the music.

The print version of great backwaters campaign launched November last year was a great success in the European markets and this tempted the department to come up with a two minute video. The Great Backwaters campaign includes digital marketing activities, and the launch of a separate micro website www.greatbackwaters.com. The campaign is aimed at bringing an unparalleled surge of tourists to the state from both within the country and abroad. An aerial photograph of the backwaters under the campaign is revealed bit by bit with each tweet with the hash tag Great Backwaters. The entire image will be revealed once a considerable number of tweets with the hash tag appear.

The promotional campaign on the great backwaters gives a glimpse into the culture that is specific to the region consisting of images of villagers comprising of school children, coconut climbers, toddy tappers, fishermen, swimmers, ducks, boats and mangroves seamlessly merge into the landscape as aerial shots and underwater images blend to yield a clear portrait of the leisurely lifestyle of the region.

Innovative techniques

Kerala Tourism is a pioneer in using the innovative means of technology to promote its destinations and attractions through the website (www.keralatourism.org) which had already won several national and international awards. The Great Backwaters campaign is a product of the use of cutting edge technology which has never been attempted in Kerala or in the country before for promoting an attraction. The main intention of the campaign is to focus on one of the USP (Unique Selling Proposition) of the state tourism, target niche audiences, to unveil the rustic life along the backwaters and promote it as a self-contained experience to holiday makers.

The campaign is a tribute to the millions of travelers across the world who embraces technology every day for knowing and visiting their favorite attractions and destinations. The campaign in multiple languages features high quality aerial photographs of backwaters. It is also one among the largest aerial still photography projects ever undertaken in the state and shot within ten days and the cost was rupees seventy lakhs.

Finally to conclude the backwaters deserves a special campaign to showcase its vast potential as a leading international tourist attraction. The primitive relationship between mankind and water comes alive whether it is the canal networks, floating markets, houseboats, snake boat races or a whole way of life that thrives around water; this is a miracle of nature that will captivate the world. A cruise along the backwaters of Kerala in a houseboat is the most enchanting holiday experience for the domestic and foreign tourists arriving in the country and over the years backwaters and houseboats have become the mascots of Kerala Tourism.■

The writer is Lecturer in Tourism, Mahatma Gandhi University, Kottayam

G.O. (P) No. 311/14/Fin. dated.30-07-2014

The guidelines for the execution of the public works through accredited agencies are revised vide this order. According to this order, hereinafter only accredited agencies authorized by the Finance department shall be eligible for execution of public works of government departments and organizations. The revised guidelines will applicable for all public works executed through government accredited agencies with effect from 1st August, 2014 onwards.

G.O. (Rt) No.437/14/SJD. dated.10-07-2014

The department of Social Justice and institutions under the department are implementing many new initiatives focusing on women and children, marginalized, differently abled and those in need of social security. With a view to carry out massive and systematic campaigns of these initiatives through IEC and social media, a steering committee headed by Additional Chief Secretary/Secretary of the department is constituted.

G.O. (MS) No.21/14/ITD. dated.4-07-2014

Government has permitted the Director, State IT mission to design and operate www.eservices.kerala.gov.in as the state service portal for state service delivery gateway (SSDG), for launching services to citizens identified under SSDG. The content architecture of the portal shall be in accordance with the state portal framework which act as a single point of interface for all information and services related to the state government.