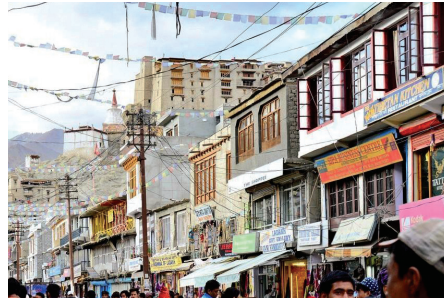




Talk Series



Page 1 SDG 11 Urbanisation in Leh



Page 4 Smart City Page 8

## RELEVANCE OF TRADITIONAL DRY TOILETS : REBECCA NORMAN

### Liveable Leh Talk Series:



Rebecca Norman (with green scarf) along with the participants.

Ladakh Ecological Development Group (LEDeG) organised its sixth talk of the ‘Talk Series’ under the Liveable Leh project, which is funded by European Union and BORDA, on February 15 at LEDeG Office in Karzoo. Rebecca Norman, a teacher, author and social reformer, who is associated with The Students’ Education and Cultural Movement of Ladakh (SECMOL), spoke about the relevance of Ladakhi dry compost toilet in water-

scarce Leh town.

Despite the inclement weather, more than 17 people turned up for her talk. Tenzin Motup, event manager, welcomed Rebecca and asked her to throw light on the prevalent practices of compost dry toilets in other parts of the world and also in Ladakh.

Rebecca, who is famous among the Ladakhis as Achey (elder sister) Becky, admitted that though she is not an



expert in this field, the topic is close to her heart. Becky began to talk about compost toilets and other ways to deal with the human waste. She said human is the first animal to foul or pollute its own ecosystem.

She explained the nutrient cycle to the audience, in which there is a movement and exchange of organic and inorganic material back into the production of living matter. The process is regulated by the food web pathways, which decompose organic matter into inorganic nutrients. (See diagram)

The nutrients are conserved in this cycle. We consider human faeces as waste and dump it into land or send it to faecal sludge treatment plants. As a result, the agricultural lands are losing

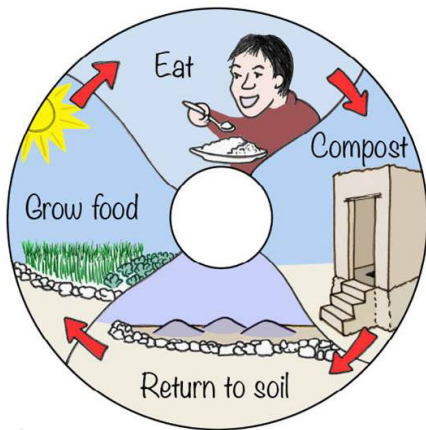
nutrients. To supply nutrients, we turn to fertilizers. To practice organic farming, we need to supplement these nutrients externally. We grow food, consume it and then waste the nutrients. This, Rebecca says, has become the norm. She vehemently disagrees the practice of seeing human faeces as waste. She advocates that human manure contains all the necessary nutrients. Since the people practiced agriculture using human waste as manure, it was a sustainable system for centuries for them.

She then shared few systems of collecting human waste which are popular with the people such as septic tanks, municipal sewage, large chamber compost toilets (Ladakhi) and small batch composters. The

majority of the flush toilets in Ladakh have a septic tank, but not a leach field. According to Rebecca, the septic tanks in the United States of America leach and pollute groundwater and nearby water bodies. Also, the nutrients eventually reach the ocean leading to growth of algae.

She said even the municipal sewage system is not full-proof. It is feasible in densely populated urban areas, but the users will dump everything—from chemicals, solvents, paints and micro-plastics, in it. People forget what they have dumped into it, but it will eventually cause lots of inconvenience to them.

She then talked about the sewage treatment plant (STP). The STPs remove all solid and nutrients, and



## Intact nutrient cycle

We are part of an ecosystem!



the water is discharged into a nearby water body. However, the chemicals and medicines, especially hormones, come through in the water thereby disrupting the ecosystem.

Rebecca then moved to Ladakhi compost toilets- a topic she admitted she is obsessed with. She said the Ladakhi dry-pit toilet preserves all nutrients for fields and gardens, and one needs to empty the toilet just once a year. However, it requires space and is difficult to construct in dense urban areas. It requires a cover material such as soil, ashes, autumn leaves, saw dust or dried animal manure, or else it starts stinking.

Rebecca said the dry toilets at SECMOL campus in Phey have double chambers. When one of the

chambers is filled, it is left unused for a year until it is fully decomposed. In the meantime, the second one is used. Rebecca said that dry compost toilets come in different shapes- squat (a hole in the floor), pedestal (raised seat for the elderly, physically disabled, injured who can't squat), seat (seat on top of the pedestal) and chute (vertical pipe from the toilet to manure chamber).

She then shared the different techniques of dry compost toilets used all over the world. She shared the 'humanure' technique with the audience. In the humanure technique, a seat is covered on a bucket filled with sawdust. Once the bucket is filled, it needs to be emptied and washed. The advantage is that it doesn't smell. She

then talked about the worm bin flush toilet. It is a normal toilet where she uses all commercial soaps and cleaners. The waste enters a chamber which is filled with wood chips and compost worms. The material breaks down into soluble nutrients and then goes to the underground perforated pipes which are then used to irrigate pine trees.

She also talked about Clivus Multrum and Separett toilets, both of which need ventilation fans. Rebecca said that though there are different situations, there isn't a single solution for them. According to her, larger but simpler systems are more robust. She also added that public toilets should be more full-proof. Once can experiment with toilets at family homes, but not with public or community toilets.

# URBANISATION IN LEH

## How to tackle this rapid growth?

### 11 SUSTAINABLE CITIES AND COMMUNITIES



Make Leh a world-class liveable city  
and sustainable tourist destination

Leh town is nestled in a fragile, even endangered, cultural and physical geography. Ever since it was ‘discovered’ as a destination for local and international tourists, Leh town has undergone rapid and unregulated urbanisation.

Urbanisation is an increase in the number of people living in towns and cities. Urbanisation occurs mainly because people move from rural areas to urban areas and it results in growth in the size of the urban population and the extent of urban areas. These changes in population lead to other changes in land use, economic activity and culture. Historically, urbanisation has been associated with significant economic and social transformations.

As per a report published by United Nations, 55% of the world’s population lives in urban areas, a proportion that is expected to increase to 68% by 2050. Projections show that urbanisation, the gradual shift in residence of the human population from rural to urban areas, combined with the overall growth of the world’s population could add another 2.5 billion people to urban areas by 2050, with close to 90% of this increase taking place in Asia and Africa.

With the spurt in footfall of both domestic and foreign tourists, tourism has emerged as an alternative livelihood for the residents of Ladakh. Since Leh town has become a center of tourist activities, there has been an exponential rise in exodus of people engaged in tourism activities from rural parts of Ladakh, including Kargil district, to Leh town. There is also an increase in the flow of labourers from neighbouring states to Leh outside Leh which has resulted in a significant increase in the population of Leh town in the summers. Leh town is currently at a crossroad of development which other Himalayan and Indian towns have gone through.



*The main market in Leh town was given a face-lift as a part of the Leh Beautification Project few years ago. As a result, the whole market area has been pedestrianised.*

Leh, like other Indian cities and towns, is experiencing rapid urbanisation thereby creating new challenges of infrastructures, urban design, and housing, as well as urban ecology. Urban modifications have considerably altered the appearance of Leh over the last few years. The beautification project in Leh is concentrated in and around the main bazaar and currently is the most visible and powerful instrument shaping the urban space. It is a subproject under the national “Urban Infrastructure Development Scheme for Small & Medium Towns” (UIDSSMT, Ministry of Urban Development 2009).

Beautifying a city involves dealing

with and reorganising environmental components essential to urban residents which aims to overcome nature-society dualisms. A city’s phenotype is deeply entangled with its ecologies, be it water supply, waste management or recreational areas. This becomes even more obvious in the context of Leh’s location in the arid Trans-Himalaya at an altitude of above 3,500m.

To help address these urban development challenges, the European Union and BMZ are supporting a project called “Liveable Leh” which will strengthen the capacities of the local governmental authorities to make Leh a more inclusive, liveable and resilient city. The Liveable Leh

project is aligned with the Sustainable Development Goals and SDG 11 is targeted for making Leh a sustainable city.

The Sustainable Development Goals, for the first time, express a wide recognition of the spatial dimension of development. This is clearly translated in the incorporation of SDG 11, “Make cities and human settlement inclusive, safe, resilient and sustainable”. This Goal has not only recognised the scale of the phenomenon of urbanisation, but also the role of cities in the global economy, the climate change agenda, in the use and consumption of natural resources, as well as their contribution to social advancement and innovations.



**11 SUSTAINABLE CITIES AND COMMUNITIES**



**MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT, AND SUSTAINABLE**

**GLOBALLY**

**HALF OF HUMANITY LIVES IN CITIES TODAY**



**AND BY 2030, 6 OUT OF 10 PEOPLE WILL LIVE IN CITIES**



**IN INDIA**

**BY 2030 INDIA WILL HAVE 7 MEGACITIES WITH POPULATIONS OVER 10 MILLION**



**31% LIVE IN URBAN AREAS**

**17% OF URBAN POPULATION LIVES IN SLUMS**

**13% OF URBAN HOUSEHOLDS DON'T HAVE SANITARY TOILETS**



**13% OF URBAN HOUSEHOLDS DON'T HAVE SANITARY TOILETS**



**62 MILLION**

**TONNES PER ANNUM WASTE GENERATED**

**2.5 MILLION**

**POLLUTION RELATED DEATHS IN 2015**

**Under SDG 11 following targets have been targeted:**

1. By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums
2. By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons
3. By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries
4. Strengthen efforts to protect and safeguard the world's cultural and natural heritage
5. By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations
6. By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management
7. By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities
8. Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning
9. By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels
10. Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials.

Under the Liveable Leh project, two café-cum-public convenience has been constructed in Zangsti and New Bus Stand respectively to reduce the woes of public traffic, especially in the winters. And to decongest traffic, work has already begun on the one-way and pedestrian-friendly Changspa Street. The Liveable Leh team members have also submitted designs for a public park and other public spaces around Leh town. By the end of this project we believe to achieve all the targets under SDG 11 in the context of Leh and make Leh as a world-class liveable city and a sustainable tourist destination.



*Bird's eye view of Old Town*



# SMART CITY: USING TECHNOLOGY TO TACKLE TRAFFIC AND SOCIAL ISOLATION IN MELBOURNE

*Sharing child pickup duties, getting people to the bus stop and consolidating deliveries are some of the ideas emerging in the Resilient Melbourne Citymart Challenge*

Source: The Guardian

Traffic congestion and social isolation are two concepts that don't immediately appear to be connected.

But in 2012, the Grattan Institute's Social Cities report drew a direct line between inefficient urban transport and less time spent with friends and family. One estimate suggested every 10 minutes of commuting equates to 10% fewer social connections, while other research has found that more than 10% of working parents spend more time commuting to work than they spend with their children. It's an issue that the city of Melbourne wants to get to grips with.

"Given congestion seems to be getting to be a greater scourge, more people are spending time in their vehicles, but by themselves, maybe listening to the radio. They're not connecting to their communities and their families," says Melbourne councillor Cathy Oke, chair of the environment portfolio.

"The city has two clear goals, not only

around our transport strategy and around reduction of congestion, but we also have a social connection goal."

And so the Resilient Melbourne Citymart Challenge was created. The brief: creative, feasible and impactful ideas to help to reduce transport congestion, and ideally also make the experience of travel more socially fulfilling. There have been some interesting ideas so far. One of the entrants is taking advantage of social networks to combat the problem of congestion around schools and children's events. Parachuute is a smartphone app developed by Maggie Scott and Mel Higgins to solve the problem that they as parents faced trying to be in two places at once – taking children to different schools, sports matches and parties – while also trying to fit in the demands of work and their own lives.

"The vision was about using technology to do probably what was done in the past; things like babysitting clubs, which were old-style models of commu-

nities helping each other," says Scott. Her previous role in strategy consulting for a health insurer got Scott thinking about parents struggling to shuttle multiple children to multiple events, and how this impacted their health and wellbeing.

The solution she and Higgins came up with was simple: leverage people's existing social networks to enable the exchange of transportation favours via an app.

People either join Parachuute themselves and invite others, or get invited to join by another app user. Then they set up their trusted network of other parents within the app who they can send requests for or offers of transportation to specific events, like school or weekend sport.

"We're hoping that it makes it less awkward to ask, and so therefore encourages people putting up their hand and saying: 'I can't do something – can you help me?'" Scott says. "It's really encouraging people to help each other."





*One of the Resilient Melbourne Citymart Challenge ideas makes it easier for parents to ask other parents for help juggling transport requirements*



*Transport on the Monash freeway in Melbourne.*

Two other entrants address what's known as the "last mile" problem. This describes the last leg of a journey of people or goods from a transportation hub –(such as a bus or train stop) to the final destination or home. This section of the journey is often inefficient and contributes to traffic congestion and safety issues. Brad Fischer from Last Mile Solutions is focusing on the problem of the last mile of parcel deliveries within Melbourne's CBD, an issue he's very familiar with from a long career in the distribution industry. "We know that in excess of 10,000 trucks and light commercial vehicles enter the city every day to deliver freight and in most cases, they're all going to the same locations," Fischer says. His aim is to reduce these duplicate deliveries by operating a consolidation centre on the edge of the CBD where delivery companies drop off their parcels. His company then uses non-road-based delivery methods, such as bicycle trolleys or couriers on foot, to take the deliveries to their destinations.

"Instead of 30 couriers going to the 16th floor of a high-rise tower, it will be one – my courier," Fischer says. Modelling done in partnership with the University of Melbourne suggests this approach could keep more than 4,000 of those delivery vehicles out of the CBD each day. It reduces traffic congestion, frees up parking spaces and could even enable parcel deliveries after hours when recipients are more likely to be at home. French company Navya is also tackling the last mile problem, although in this case, it's the "first-and-last-mile" problem of getting commuters to and from public transport. Navya's driverless electric shuttle buses are designed to make it easier for people to use public transport by offering a very local shuttle service to and from train, bus or tram stations. "All the governments invest in public transport – tram, underground, buses etc – but nobody can pick me up from my house to drop me at the first collecting point of transport," says Henri Coron, vice-president of sales at Navya.

Coron says the distance from people's homes to public transport can be a significant barrier to using public transport, and as a result many people decide to take their car to work instead. The shuttles can transport up to 15 people, taking a preplanned route, travelling no more than 45km per hour, and because they are driverless, they are safer and cheaper than having a human driver do that same route over and over again. More than 100 entrants have already registered in the challenge. Oke says the panel judging the results – which includes experts from the transport sector, academia, government departments and transport organisations – are well-equipped to know what will work. And although there is no investment promised as a prize, the city hopes to implement some of the ideas. "It's important that the panel who are assessing it are people who actually know the reality of the solutions and hopefully also could help make it a reality too," Oke says.

### Funded By:



### Partners:



<b>Editor</b>	:	<b>Tashi Lundup</b>
<b>Editorial Team</b>	:	<b>TenzinMotup, Fariha Yousuf,</b>
<b>Designer</b>	:	<b>Tundup Gyatso</b>