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Urban Cannibalism: A Self-Destructive Decay – The Duality of Ecological Dismay; Gurgaon

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ABSTRACT: The world economy gravitates towards the urban centers through infrastructural matrix which sometimes disassociated the centers form their immediate geographical setting while liberating towards globally connected economies. The withdrawal or the negligence is the cause of ever expanding urban boundaries which may engulf ecologically sensitive environmental identities. The effect of such expansion results in environmental and ecological decay and marked by catastrophic events.

This paper aims to shed light on the quantity (undercharged ground water) and the quality (leachate aquifers) of ground water as an ecological dismay of self-destructive decay or self-contamination, called *Urban Cannibalism* of Gurgaon. The unfolding and looking deeper into 'the Millennium City' is about investigating the justification of labelling and branding that the city stands for, through environmental sustainability. This cannibalism is unique to cities as an effect of outrageous outlook for sensitive urban ecologies in the light of globalized economic glamour.

I. INTRODUCTION ECONOMICS AND ENVIRONMENTALISM

Planetary urbanization which is defined by cities is under laid by global identities and aspirations of worldwide networked civilization of 21st century. In the worldwide network of global economics, the trade of ideas and ideologies along with ever-expanding infrastructural matrix, the world is undergoing through *global connectivity revolution* of infrastructure where geography is no longer a destiny (Khanna, 2016). The functional geography today, is a resultant of how do we use the world (Fig. 1).

"We are replacing borders and politics with economic connection". - Phil Johnson

The networked urban evolution depending on functional geography other than political geography, causes great environmental dismay in their immediate local context. Urban centers are not only related to integration of multiple infrastructure lines and a geographical location where ethnicities mingle, but also a place of rapid transformations indicative through transforming land use. Amidst rapid urbanization as a fuel of this productive connectivity, redraws the map away from states and borders and, the local effects extends the urban landscape into agriculture based ru-rban and rural settings.

Fig. 1. Global Connectography; The connected geographies.

The disparity within the same geography, the global and local, densifies the economic gains on one side and, pressurizes the occupied ecosystem on the other due to large urban agglomerations and overcrowding. The developing economies especially of Africa and Asia are experiencing explosive growth of urbanization at roughly 4% per year (Leitmann, 1995). It is the self-deteriorating act in which the urbanites are changing the urban landscape like never before by developing the *urban ills* and can be regarded as the *Environmentalism by Bureaucrats*.

It is a state of growth in which the environment is deteriorated by the forces of modernity which are economically pivoted. Although globalization and sustainable development are contested concepts, they are both directly and indirectly linked to debates about the roles of powerful actors (Voisey and O'Riordan 1997; Baker et al. 1997; Amin 1997). The degradation and marginalization of ecology put *Environmental identities* (here, environmental identity is a distinct characteristics or entity of the ecological elements which are sensitive enough to be altered) under threat by corporate exploitation and damaging of land. Ecological marginalization entails the taking-over of local natural resources by powerful private and/or state interests, and the gradual or immediate disorganization of the ecosystem via withdrawals and additions. The marginalization is also the transformations made in the sensitive environmental identities through qualitative and quantitative exploitations for the gains of the stakeholders (economic actors, the state, and international as well as global institutions).

"At the global level, all future population growth will thus be in towns and cities. Most of this growth will be in developing countries. This vast urban expansion in developing countries has global implications. Cities are already the locus of nearly all major economic, social, demographic and environmental transformations. What happens in the cities of the less developed world in coming years will shape prospects..." (The United Nations Population Fund, 2007).

II. URBANIZING GURGAON'S ENVIRONMENT

The capital city of one of the fastest growing economies, Delhi and its region is the second largest urban center of the world. Fifteen miles south of Delhi, Gurgaon having 'gaon' that means a village (ancestral village of Guru Dronacharya) as a suffix to its name, now labelled as the Millennium City of the country. The modern reincarnation of Gurgaon from Mahabharata's days epitomizes the pace of growth. It has grown from being a class III town till 1970 to a city with only more than a lakh population and in 2011 it has crossed 10 lakh population mark (Fig. 2).

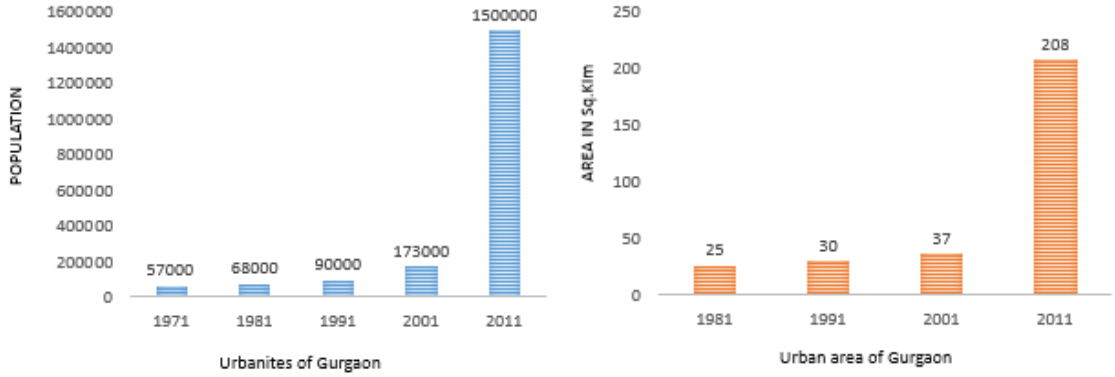

Fig. 2. Growing Mega satellite.

Part of the state of Punjab until 1966 when the state of Haryana was formulated, Gurgaon was designated as one of the Haryana districts. Initially, most of the area was agricultural in nature being an agro-based economy. Since 1970s, the growth started picking up at a slight pace and the town and the population started expanding outwardly (Fig. 3). As an outcome of the new liberal system in the 1990s, the huge population has moved into the city and giving it a growth spurt form a cluster of farmer's village with wild animals similar to cows, known for their strangely bluish tint in early 1970's.But it was with establishment of HUDA (Haryana Urban Development Authority) under HUDA act, 1977 the growth and development of Gurgaon gained the momentum. This momentum has been built with the advent of both auto industries and the private developers from 1981 onwards.

Demand for housing steadily increased, followed by demand for commercial space as multinational corporations began arriving to take advantage of India's emerging outsourcing industry. Gurgaon was classified as a priority town in metropolitan area, thus supplemented to Delhi's needs. With an easy access to the Domestic and International Airport and, the administrative hub of the country as Delhi with access to excellent rail and road, this connectivity has facilitated in forming a base for business as well as corporate job hub in the city. Globalization, a way towards new *connectographical modernity*, has brought in plethora of jobs by the latter half of 1990s such as call centers, KPOs, BPOs, IT sector, etc.

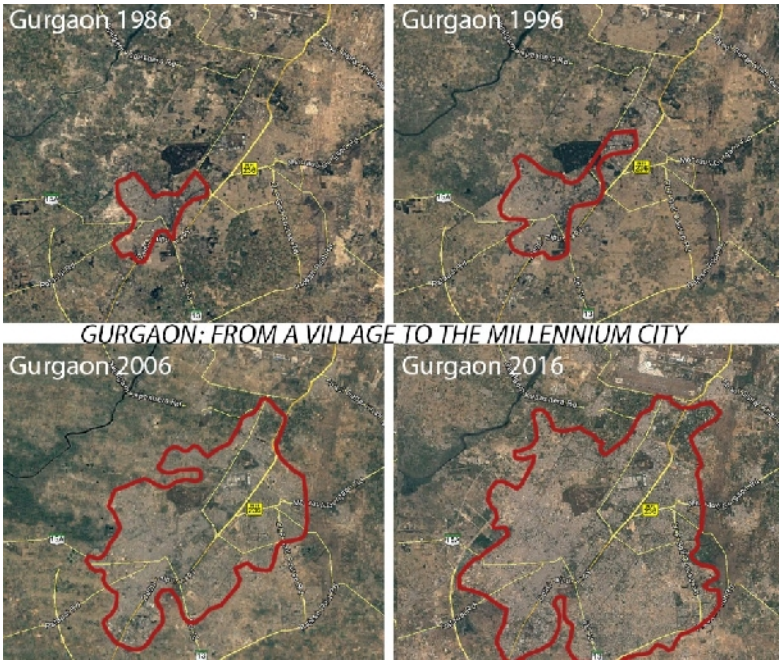

Fig. 3. Hinterland in stress.

III. THE PARALLELISM OF ISSUES

Global connectography, as discussed above had played a crucial role in altering the demographic situation of the settlement and transformed a village into a millennium city. The sprawling urbanism has put the immediate hinterland in stress and resulted in the transformation of land use, which are not minor enough to be neglected (Fig. 4). It was the journey from the lush green fields to the cropping of gray concrete structures. We were gearing up towards the ecological dismay by pressurizing the landscape with human growth, altering the microclimate and contaminating the ecological identity of the region.

Man's impact on nature can be understood in the duality of self-hazards possessed in the global city, Gurgaon. While developing the glamour's global image, the local is affected in parallelism of issues, one by the concrete weeds in the form of real-estate asset which does not allow rain water to percolate and recharge the ground water, results in flash floods and deepens water table and secondly, by toxicating the infiltration points of ground water by depositing solid waste and contaminating aquifers through leachates.

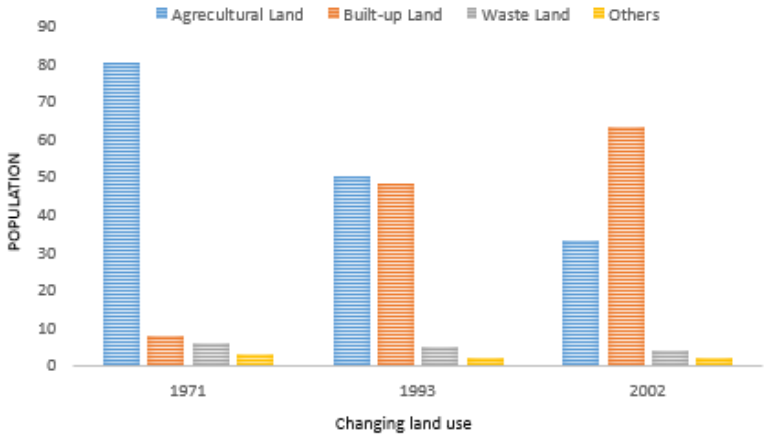

Fig. 4. From the green to gray.

IV. SINKING URBANISM

Due to unprecedented pace of urbanization, like any other growing city from north to south in the nation, Gurgaon crumbles in rain. The inefficient drainage systems and poor planning, particularly which neglects ecological sensitivity in terms of lakes recharging catchments and gradients for ground water recharges in the country's overcrowded metropolises, turns roads into rivers. About 77 per cent of the annual rainfall in the district is received during the south-west monsoon months and when 25 % of the month's rains in three hours (in July, 2016), the results are urban runoff.

Fig. 5. Relationship between impervious surfaces and surface runoff.

An urban phenomena of collection of excess rain water on impervious surfaces (roads, parking lots and sidewalks) which are constructed during land development leads to urban runoff (Fig. 5). The amount of water remains on the surface is greater than the absorbable and the lessened recharged water table remains unquenched and results in flooding. This water is beyond the overwhelmed capacity of drains, if they exist as Jyoti Sagar, a lawyer and civic activist: "Like a spaceship, you had these shiny buildings, and underneath you had a huge pit where everybody's waste was going."Gurgaon, more MNC headquarters per sq. km now seems also need to have more boats per sq. km (Fig. 6). The urban flood occurred in Gurgaon is a result of ever-expanding concretisation of absorbable natural ground. The magnitude of the crisis will keep on increasing as the water has no infiltration points. Even a minor rainfall can make the city stand still as the ground losses its capacity to absorb and recharge the ground water. The effect is also seen, as groundwater level has reached a "dark zone", which according to officials, is 20 metres below the surface in north India. This also prohibits extraction of ground water which comes with excess and scarcity of natural water available to our cities through the year.

Fig. 6: Floating in growth.

V. OUTSPREADING CANNIBALISM: CONTAMINATING AQUAFERS

The process of eating oneself or urban cannibalism does not stop here. It propagates in another direction of Leachate- a fetid, viscous liquid discharge noxious for the environment. Because of its geographical location at higher gradients, Bandhawari, a village between Gurgaon and Faridabad, is a critical recharge point for the water table from Aravalli range (Fig. 7). With 11 lakh tonnes of untreated garbage collected, not in days or weeks but three years, it's a matter of time before it contaminates all the aquafers. The rocky fissures of the Aravalli's directs leachates towards the groundwater aquifer which are fed by rain in the form of giant cesspool behind the waste treatment plant. The leachate collected primarily from household solid waste seeps into aquifers here, and spread rapidly in the ground water of neighbouring mega towns because of the outward groundwater flow.

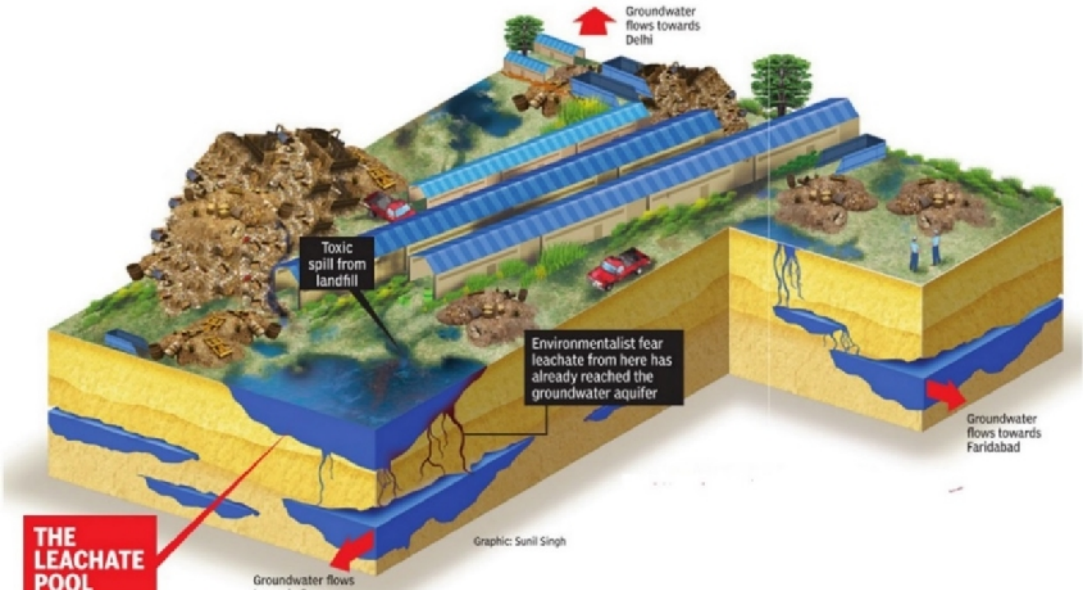

Fig. 7. Uncontaminated at risk.

The grave ecological problem causing fluoride, phenolic compound, cadmium and mercury poisoning can be seen in water samples collected by Haryana State Pollution Control Board in August, 2016 from three different places — from a pond behind the Bandhwari plant (Sample 1), a tube-well at a petrol pump located diagonally opposite the plant (Sample 2) and a tube-well at Teen Murti Hanuman Mandir near the toll plaza of Gurgaon-Faridabad Road (Sample 3) (Fig. 8).

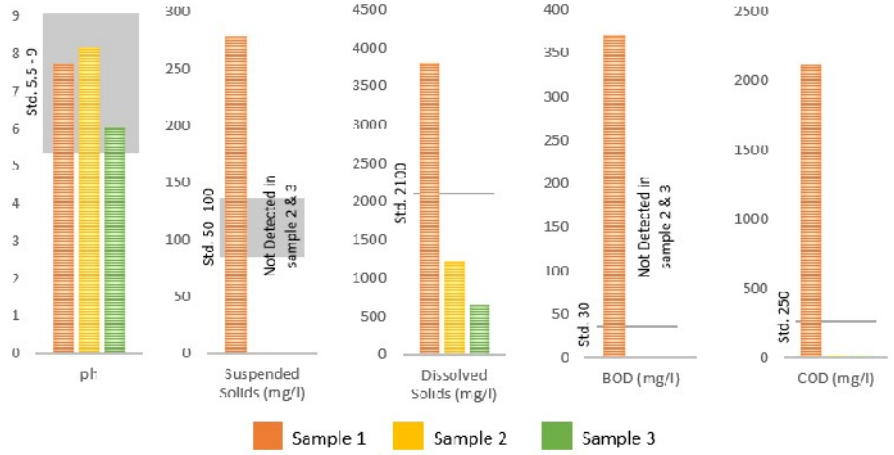

Fig. 8. Growing Bars.

Cost and benefits associated with environmental change are distributed unequally as this will slowly poison everything around it. The interconnected aquafers of the region are on the trigger to get contaminated and progressively leading to a human disaster. Even the functional waste treatment plant has heard the local villager's complaints of leachate leaking from the site along with the bad smell from groundwater. The air has turned perennially fetid for them and it will soon start affecting wildlife in the region. Among many violations made by the plant's operator, absence of non-permeable lining system at the base and walls of the disposal area, making no provisions for leachate collection and treatment, are among many to count. Due to fewer profit margins for the care takers of defunct waste treatment plant, the latchets will trigger intestinal problems and skin diseases if it mixes with ground water.

VI. WAY FORWARD: CONTEXTUALISING ECOLOGY

Urbanisation, as an economically driven force which marginalises ecology, need to be organised for the progressive sustainable urbanism. In the absence of prominent municipal action plans and their implementation and, where private developers have become a significant stakeholder for the infrastructural development, the duality of issues can be handled in various ways and scales. As an immediate course of action for Gurgaon, the urban floods shall be mitigated by land use development controls and zoning guidelines, which can *sensitize* the area as per surrounding ecological fragility. By minimizing impervious surfaces to avoiding unnecessary hardscape, encourage minimum width for sidewalks, use of pavers set in earth for driveways and walkways and other design techniques to allow maximum water infiltration will be crucial to deal with urban runoff. Other low impact development strategies for urban runoff can be the provision of holding ponds (also called detention basins) to buffer riverine peak flows, use of energy dissipaters in channels to reduce stream velocity. For the contamination of aquafers through leachates, firstly involves careful planning of the waste dumping site, which is questionable in case of Gurgaon, along with the collection and removal of leachates from the landfill at a rate sufficient to prevent its percolation or seepage. Liners as a screen and collection device shall be used along with leachate drainage system, filters and sumps or leachate well. The theoretical principles which are available, such as $I = PAT$ equation may help in understanding the issues under economic and technological context.

Here, environmental impact (I) or degradation is caused by the combination of an already very large and increasing human population (P), continually increasing economic growth or per capita affluence (A), and the application of resource depleting and polluting technology (T).

Fig. 9. Nature is robust, not mankind.

Not only planning, but also its implantation which needs to be interdisciplinary along with various possible stakeholders. The process of formulating Masterplans do consider the importance of multiple disciplines for the development of a city but, as the process lead to its implementation, it loses its essence of committing satisfactory operation with disciplines such as Environmental planning, Urban Design, Urban Anthropology and many others. This gap between planning and execution is clearly indicated in unscientific implementation of guidelines laid and followed and, mostly act when the harm is already made. Another breach is through the lack of public awareness and its participation in implementation of local programs. The cognizance and involvement with contextual ecological assets will create *communal pride* and sense of protection to sensitive environmental identities (Fig. 9).

VII. CONCLUSION

Gurgaon had been marketed as Millennium City, yet it had become an unmanageable city. Merely renaming Gurgaon as *Gurugram* does not mean development. The new urban personality of the Gurgaon is marked with transforming its landscape.

Planning is solving issues through strategies, before they occur. Environmental matters are fragile enough for such catastrophic event which are less of warning but the issue themselves. Urban cannibalism is a destructive way of irrationally altering our environment through rapid urbanization and in return, get distrusted. Urban floods of Mumbai in July 2005, Chennai Urban floods of November 2015, Air pollution in Delhi, NCR in October 2016, Landslide disaster of Shenzhen and

others like ground water contamination and depletion and, urban heat island effect are yet another form of urban cannibalism. Along with situational unawareness, we can clearly see that cities do not want to learn from fellow cities, which should not be the case. Sustainability is not charity towards environment; it's an only opportunity to inherit a better life. Rebellion urge is to design the cities on contextual urban ecological guidelines. More acceptable cultural relationship with the environment need to be established which will lead to healthier urban ecologies with better environmental governance.

"*We do not inherit the earth from our ancestors,*
We borrow it from our children."–Native Americans

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