MEGACITY ECONOMIES IN SOUTH ASIA: RURAL EXODUS, LATE INDUSTRIALIZATION, SMART CITIES AND INFORMAL GOVERNANCE[1]

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Abstract

South Asia, the least urbanized region of the world, is home to some of the largest, fastest growing, but also poorest cities. South Asia is also home to the largest number of people living in poverty and going hungry. Millions of small holders and landless peasants flee the rural areas, driven by miserable living conditions and a lack of perspective. However, finding a regular job in the cities is difficult, because South Asia missed the industrial revolution. Manufacturing nowhere in South Asia became the 'leading sector' and provided jobs for all the 'surplus labour'. Instead, services always have been more prominent. In the absence of large industrial employers, (city) governments not only have to provide public services like education, health, local transport, electric power, drinking water, sewerage and waste disposal, but also jobs for a growing number of urbanites. What is also needed everywhere in South Asia is housing. Solutions are required that need less government micro management and leaves room for private initiative. A good starting point would be to look at what holds South Asian cities together and guarantees some functioning.

Megacities in South Asia

Throughout history South Asian cities have been big in international comparison. At the height of the Indus civilization, long before Greek and Roman cities rose to fame, there were cities with tens of thousands of inhabitants, well lined roads, multi-storey building, water supply and a sewerage system that was introduced in Europe only in modern times. In colonial times, Kolkata rose to become the second city in the British empire. Today seven of the 30 largest cities of the world are to be found in South Asia; by 2030 nine of the world's megacities will be in South Asia.[2] Beyond the question what constitutes a μεγαπολις, a big city, the number of people or the area covered,[3] is the question whether the very big cities present us with a new class of problems that need special and new solutions.

Contrary to agriculture that happens in the countryside, in the *Landschaft* as we say in German, non-agricultural production and non-rural life is less space/area intensive. Urban settlements are determined by economies of scale and of agglomeration. Towns sprung up at the seats of power, at crossroads, river crossings, natural harbours. Wherever transport was 'broken', where people and goods had to change the means of transport, where taxes and tolls were collected, settlements came up for officials, soldiers, traders,

[2] The UN lists Delhi (2016: 26.5 million at position), Mumbai (21.4 / 4), Dhaka (18.2 / 11), Karachi (17.1 / 12), Kolkata (15.0 / 14), Bangalore (10.5 / 28), Chennai (10.1 /30). By 2030 Dhaka is expected to house 22.4 million people and move up to 6th, Karachi with 24.8 million to 7th and Lahore with 13.0 million to 27th position (UN 2016:4).

[3] The limit has been raised from 5 million and 8 million to 10 million. In South Asia the number of inhabitants usually refers to the urban agglomeration, elsewhere also to metropolitan area or city proper.

hospitality or artisans. Often these places were fortified. The availability of water was essential, even more so in the dry zones.

Early manufacturing depended on muscle power of man and beast, on water and wind and – later – on steam power. In the 19th century production was arranged along the transmission lines of a central source of power. This is why early factories were multi-storied, not level/linear arrangements like the 'big boxes' of today. Workers commuted on foot and lived near their places of work. Urban population density was extremely high, living was miserable and health conditions alarming.

The combustion and even more the electric motor allowed a more decentralized arrangement of production. Railways, trams, buses and later motorcycles and cars enabled labour to move further away from production. An old idea, already to be found in the *Arthashastra*, that the individual quarters of a town were assigned different functions (KAUTILYA 1992: 163-167) was later reflected by the planners of Islamabad and Chandigarh (and to some extent of Dhaka). Not self-contained small settlements (as envisaged for the garden-cities), but a mixture of all kinds of systems have become characteristic for bigger towns, not just for megacities. Traffic has become a nightmare even in smaller places.

The benefits of geographical nearness in principle would translate into low transport costs but can come at the price of slow speed. Transport costs, however, are only part of translocation costs or, more general, transaction costs, because of handling charges, fees, taxes, bribes etc. Vested interests of entrenched stakeholders become a disincentive for investors and lead to a rapid loss of attractiveness. This explains the rise and fall of world cities. In any case size not necessarily means importance (BRONGER 2012).

The concept of dis-economies of scale, developed in analogy to the economies of scale, takes care of the effect that costs, like those of information and control or of an overuse of resources (air pollution, water scarcity, traffic congestion), can rise over-proportionally, depending on technology and organization. In short: The optimal size of a city depends on many conditions and changes over time. Bigger is neither necessarily better nor worse.

Rural exodus

Rural exodus, i.e. the mass migration into the cities, has led to a more uneven distribution of population in space. Medieval cities in Europe were surprisingly small, population growth accelerated in the 18th century, especially in Great Britain and Ireland. It lead to a rapid urbanization as well as to trans-regional and international migration. What is often overlooked is that history has seen institutional restrictions on population growth and on migration, institutionally, legally and economically.

The combination of restrictions on marriage (age, celibacy, permits) and severe punishment for childbirth out of wedlock in many parts of Europe would be an example of an effective institutional instrument of family planning: in parts of Europe servants and maids needed a permission to marry etc. Until today, catholic priests and monks cannot marry. Agricultural labour was not free to leave the land and needed the consent of their lords. Taking residence in a town needed special permission. Owning property and paying tax were preconditions for the right to vote into the 20th century. Only after these restrictions were lifted, 'push and pull' as major forces of migration could fully unfold.

Interestingly, in India there seem to have been fewer restrictions on migration, marriage and the number of children, very different, for example, from China, where the *hukou* and the One-Child-Policy have been among the most stringent regulations anywhere.

Local government was limited throughout the colonial period for lack of power and of financial funds. The major attraction for urbanization most probably still is the hope for better prospects in the city as compared to the hopeless future in rural areas.

Nevertheless, the speed of urbanization in South Asia has been slow, e.g. in India (ELLIS & ROBERTS, 2016, p 51); the share of urban in total population rose from about ten per cent at the beginning of the 20th century (KUNDU, 2011, p 8) to a third in 2011. The subcontinent is the least urbanized region in the world. At the last count, i.e. the population census of 1998, Pakistan had 515 urban localities and an urban population of just 32.5 per cent (GoP, 2004, p 27). Like Germany (or China and the USA), especially India is polycentric. Even the biggest urban agglomerations house not more than three percent of the total population, as compared to a tenth in Pakistan, Bangladesh, Nepal or Sri Lanka. The share is higher in Afghanistan, where Kabul's population is expected to rise from 4.8 million in 2016 to 8.3 million in 2030, the fastest growth of any major South Asian city (UN, 2016, p 15).

Only Karachi, Delhi, Mumbai or Kolkata are 'national' cities, where you find large numbers of people from all over the country.[4] Most of the next tier cities (some of them megacities themselves) are the dominant centres of their respective provinces (Lahore in Punjab) or states (Chennai in Tamil Nadu, Bangaluru in Karnataka, Hyderabad in Telengana etc.). For the time being, the 'metros' (Karachi, Delhi, Mumbai, Kolkata, Chennai) seem to have reached their limits and second tier cities have been growing faster (UN 2016, pp 15-18).[5]

Late industrialization

When Europe and America started to industrialize, the colonial power rather de-industrialized and de-urbanized India. India had been one of the most important manufacturers throughout history (MADDISON, 2006). In the true sense of the word, goods were fabricated by hand. Dhaka *muslin* was a world-famous fine cotton cloth, exported to Europe since ancient times. Ironically, the Jacquard card, the forerunner of the computer punching card had its roots in India and enabled the colonial masters to mass produce textiles, export them to India and drive her out of the market. However, it is not so much that industrialization came so late to India, but it came slowly, hindered by colonial regulation and later by state intervention.

For some of the leaders of the Independence movement, industrialization had been almost synonymous with modernity with factories as its cathedrals. But other than in common theory, India always had a

[4] That also applies to Dhaka, but otherwise the population shares ethnicity, language and religion (most of them are Sunni Muslims).

[5] The three 'Mega Cities', i.e. urban agglomerations with more than ten million inhabitants (2011: Greater Mumbai 18.4 m; Delhi UA 16.3 m; Kolkata 14.1 m) grew between 2001 and 2011 by 12.1%; 26.7% and 6.9%, while total urban population grew by 31.8 % (DAS 2011).

surprisingly large non-agricultural sector, dominated by services (ZINGEL, 2015). When the 1950s saw an unprecedented rise in population growth, the unexpected additions to the labour force were not absorbed by the manufacturing sector. India missed the industrial revolution (ToI, 2004) and never managed to attract labour intensive export industries as China, despite the fact that colonial times India had been ahead of China, if we only think of Jamshed Tata building the first steel mill on mainland Asia more than a hundred years ago. Bangladesh and Sri Lanka saw some export led industrialization, but South Asia as a whole has seen a decline of the share of manufactured goods in merchandise exports (ELLIS & ROBERTS 2016, pp 23-24), a trend that Dani Rodrik calls 'Premature Deindustrialization' (RODRIK, 2016). Amrit Amirapu and Arvind Subramanian looked into the argument that 'services might provide a new path forward', but found when comparing India's comparative advantages that 'service subsectors (such a finance, insurance, and real estate [...] share manufacturing's flaws: they are too skill intensive and hence unaligned with India's comparative advantage' (AMIRAPU & SUBRAMANIAN, 2015). Prime Minister Narendra Modi's "Make in India" was a wakeup call to bring forward India's industrial development that has been disappointing in international comparison (LOPEZ-ACEVEDO et al., 2017). Going by World Bank figures, India's manufacturing outputt is just one eighth of that of China, despite the fact that both countries more or less had the same level of development until the 1970s (ZINGEL, 2015, p 2; WDI, 2016). In Pakistan industrialization lost its momentum in the 1960s (AHMED et al., 2015), its manufacturing value added per head of the population is much lower than in India, and even lower than in Bangladesh.[6]

In line with the slow development of industrial production, employment in manufacturing industry developed only slowly. Expectations that rapid industrialization would provide employment and income for a growing population were not met.

Smart cities

The concept of a smart city has been around since the end of last century and led to the Smart Cities Initiative in New York in the year 2000, focussing on passive structural integrity and monitoring; underground utilities mapping and visualization; green building monitoring and management and fluid systems water delivery and waste management (HALL, 2000, p 5). 'The vision of "Smart Cities" is the urban centre of the future, made safe, secure environmentally green, and efficient, because all structures – whether for power, water, transportation, etc. are designed, constructed, and maintained making use of advanced, integrated materials, sensors, electronics, and networks which are interfaced with computerized systems comprised of databases, tracking, and decision-making algorithms.' (HALL, 2000, p 1).

To give Make in India a boost, the Indian government has started the 'smart city' programme. The new programme to turn 100 towns into 'smart cities' cannot be more than a welcome pilot programme. In 2011 there were 7,935 towns and cities in India, 46 with more than one million inhabitants and 468 'class I' cities with more than one *lakh* (100,000) inhabitants (GoI, 2011, p 5). Slightly different, India's 'approach to the Smart Cities Mission as part of 'Make in India', aims at cities that provide core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment and application of 'smart' Solutions. The focus is on sustainable and inclusive development and the idea is to look at compact areas,

[6] In 2015 manufacturing value added in current US$ was 34.6 bn in Pakistan, 32.7 bn in Bangladesh and 315.4 bn in India (WDI).

create a replicable model which will act like a light house to other aspiring cities. The Smart Cities Mission is meant to set examples that can be replicated both within and outside the Smart City, catalysing the creation of similar Smart Cities in various regions and parts of the country.' (NPI, 2016)

A hundred smart cities are planned to be created all over India. A sum of US$1.2 bn has been allocated for the first year (DIPP, 2016). Cities have been invited to compete for the funds. The first twenty cities selected are the pilots and test cases for reduplication. It is a bold and timely programme. Partners from all over the world have been invited to join the programme. The CityScape conference, held in New Delhi in September/October 2016 served as a forum to exchange views on urban development (DIWH, 2016).

The Indian government expects the country's urban population to double by 2050. Another 400+ million people or ten million per year have to be accommodated (DIPP, 2016), hundreds of millions need jobs and have to be supplied with infrastructure and public services, in other words housing, employment, health and education, but also safety and security, legal protection and good governance.

Informal governance

Where such services cannot be provided by the state, others have to come in. The question is, who these others could be. First, public services are provided by the various tiers of government and administration, i.e. central, state and local plus state-owned enterprises, para-statals and semi-government organization. There also is a host of charitable, not for profit organizations, especially in health and education. Indian statistics distinguish an 'organized' and an 'unorganized' sector. The distinction refers to the number of workers. If we include agriculture, less than 10 per cent work in the 'organized' sector (SRIJA & SHIRKE 2014, p 40).

Outside India the distinction would rather be between the 'formal' and the 'informal' sector. The term 'informal' found entry into the international discourse first by describing labour relations that lacked a written contract and basic labour rights (ILO, 1972). Later the term was used for those sectors of the economy that were characterized by 'informal' labour relations. In India the term roughly corresponds with the 'unorganized' sector, if we include agriculture.[7] In the context of urbanization we speak of 'informal' living quarters that lack maintenance, are run down, lack proper roofing, plumbing and legal titles, erected without the permission of the land owners, often on public/railway land and described as slums, squatter or 'wild' settlements. There, many, if not most, services are provided by 'informal' agents that provide unlicenced services like water, power, health and education and even policing and security. Dhaka, where we conducted a major survey, is not alone in providing makeshift housing and water that is provided by

[7] According to ILO 83.6 per cent of non-agricultural employment are informally employed, more than in any other country surveyed (ILO 2012: table1). – In agriculture employment is almost totally informal (SRIJA and SHIRKE 2014:41-42).

private agents who use public sources illegally.[8] Karachi has become notorious for its water 'tanker mafia' (GAYER, 2008, p 35).

It is not a parallel, or separate sector, set apart from the formal sector. Both exist in a symbiotic relationship, which explains why we find informal and formal settlements so often in an immediate neighborhood: To give an example: People, employed by the government or large enterprises in the 'organized' sector employ servants as 'informal' labour, who in turn live in 'informal' settlements, where a slumlord protects them from eviction and a 'private' enterprise supplies them with water and power that was stolen from the official grid. He or she pays a kind tax to be saved from eviction by the joint forces of formal and informal governance.

Such deals might also apply to 'formal' quarters, where a registered housing society has built accommodation on land purchased or leased, with the necessary documentation. Home owners and other societies organized cleaning the streets, look after public parks and play grounds and employ security personnel. In short: Not all services are provided by local bodies or other government agencies. Much is left to private initiate of all sorts. This development goes hand in hand with the appropriation of the public space by private parties. Neighborhoods are being fenced in and become 'gated communities' not just for security reasons: Non-residents find they are no longer allowed to drive through such neighborhoods and park their cars there.

'Nearly 1 billion people who live in squatter settlements are those who came to the city in search of jobs, needed a place to live and, not being able to afford anything on the private market, built on land that was not their own. These informal settlements create a huge hidden economy [...] The builders of informal housing are the largest builders of housing in the world – and they are creating the cities of tomorrow.' (TIWARI, 2008, p 348).

In any case, the informal sector has its own formality, while the formal sector can be very informal. That means that the distinction between public and private, formal and informal, organized and unorganized has its limitations when it comes to describe the reality of urban arrangements. It always is necessary to have a closer look at the various institutional arrangements that all help to provide the necessary public services for a growing urban population.

Property rights and natural monopolies

[8] In the Megacities Programme of the German Rearch Foundation we looked at 'informal' arrangements that turned out to have their own formality, based on the cohesion of groups defined by language, religion, caste, *baradari*, tribe, descent or region of origin (ETZOLD et al. 2009).

Economically, there are two aspects that are responsible for the difficulties in providing urban public services: Property rights and natural monopolies.[9]

The lack of clearly defined, secure, accepted and uncontested rights to land is a major hindrance for urban development. Unfortunately, the property rights discussion often is narrowed down to individual ownership. The 'Tragedy of the Commons' (HARDIN, 1968), i.e. the danger of overusing natural resources, not necessarily is avoided by dividing up common property and 'privatization'. What is needed are arrangements that define who is entitled to what, where and when. The world over there are functioning housing societies that share ownership and obligations. But it needs rules and institutions to guarantee such rules and effective systems of checks and balances in case of violation of such rules.

Natural monopolies exist where high fix costs and comparatively low variable cost result from high initial (lumpy) investment, as is the case for railway lines, canals, power plants and distribution networks. Competition, one of the corner stones of markets and capitalism, cannot work, if there is only one supplier, if we think only of water pipes and electricity grids. Natural monopolies are defined by technology: Telephone lines were a perfect example for a natural monopoly, mobile phones are not. The danger of an abuse of monopolies, also applies to natural monopolies.

Whereas a private monopolist will limit supply and raise the price until he has realized his maximum profit (Cournot equilibrium), public monopolists, i.e. politicians and administrators when setting the price of public services, are tempted to lower it in order to bribe the electorate. This might be popular, but services suffer. Load shedding and power cuts are all too common signs of such inefficiencies.[10]

A 'public utility' (public or private) as the provider of a public good can realize the monopolists's profit (smaller quantities, higher prices), offer a cost-plus (some predefined margin) price, provide the product on a no profit/no loss basis, set the price at a below-average costs, or at a below variable costs level. In the latter case, a subsidy is needed to make good for the loss, or the service (for lack of funds) suffers. Regulation is needed to guarantee a fair price and a reliable service.

[9] 'The superiority of reward is not here the consequence of competition, but of its absence: not a compensation for disadvantages inherent in the employment, but an extra advantage; a kind of monopoly price, the effect not of a legal, but of what has been termed a natural monopoly...' (MILL 1848, II.14.13).

[10] As long as the price is set higher than average costs and lower than customers are willing to pay, the provider of a service (e.g. water, power) makes a profit that he can use for an expansion of a service or otherwise. If the price is set where average costs equal the price people are willing to pay, we have a no profit – no loss situation. If the price is further lowered, costs of repair and maintenance are no longer covered. If the price is set lower than variable costs (e.g. fuel for power generation), losses rise as production is increased. To avoid bankruptcy, the provider limits his output and, thus, losses. Supply has to be rationed (load shedding). As people are ready to pay more than the official price, the monopolist's rent becomes subject of corruption, services deteriorate further. For further reading on 'natural monopoly' see any good introduction into economics.

Governance: Who is the state in megacities?

There is a multitude of state and para-statal (semi-goverment) bodies active in urban government, plus substantial informal and/or illegal agencies (NGOs, cooperative/housing societies, mafia), exerting considerable informal governance, with overlapping and competing competences and areas of jurisdiction. Bigger cities enjoy more central government attention, but have not necessarily more freedom of self-government. Not only that there are so many cities and towns, they are to be developed by a 'soft state' (MYRDAL, 1970, pp 208-252) that is better at planning than at implementing.

Conclusion

Here it is, where smart solutions can help: Computerized metering and billing has been a great success everywhere. It shows, where public utilities lose money. The success of mobile phones would not have been possible without users having an instant cost control and providers can be sure that services are being (pre-)paid. In international comparison, we can see that new technologies find ready acceptance, where traditional services are ineffective and unattractive. Kenya has become a world leader in electronic banking by mobile phone. Mobile phone numbers have started to replace mailing addresses, transactions become recorded and guarantee transparency.

It would not be too farfetched to expect that smart solutions benefit especially people being employed by and living in the 'informal' sector.

What is more, smart solutions not only benefit the 'organized' or 'formal' sector. It is rather the opposite: Electronic information and communication has been benefiting especially the lower middle class and the residents of 'informal' housing.

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