Bangalore: Globalisation and Fragmentation in India's Hightech-Capital

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Summary

The meteoric rise of the South Indian megacity of Bangalore (alias Bengaluru) to a globally integrated location of software development and other modern service industries produces profound changes in the metropolitan social map, creating aggravating disparities and a highly fragmented and polarised urban society. Bangalore is becoming what is called a multiply divided city where both social and geographical barriers are reinforced. While a relatively tiny stratum of an affluent urban elite takes benefit from these transformations, the urban poor are further marginalised.

1   Introduction

During the 1990s, the emerging megacity of Bangalore (re-named as Bengaluru in 2006) with its six million inhabitants developed into one of the hot new tech cities worldwide. Currently the metropolis absorbs about four billion US-Dollar in foreign direct investments and its per capita income is the highest of any Indian city. For many supporters of a deregulated and liberalised global economy, the city, which has been labelled the 'Electronics Capital of India' and 'India's Silicon Valley', represents one particularly positive showcase of the new opportunities for Newly Industrialising Countries to benefit from recent trends in economic globalisation. In order to augment this optimistic perspective with a more sceptical point of view, this paper focuses on the risks and negative effects of globalisation on the metropolitan social map. The central objective is to analyse the interrelations between globalisation, metropolitan restructuring and the capabilities of the most vulnerable urban dwellers to secure their livelihoods in a sustainable manner.

2   Bangalore's Meteoric Rise to a Globally Integrated 'E-Region'

Bangalore, the state capital of Karnataka, is located on the southern part of the Deccan Plateau near the border of two other South Indian states, Tamil Nadu and Andhra Pradesh, and not far from the third, Kerala. At an elevation of about 900m, it is

known for its mild, salubrious climate and until recently was regarded as a 'pensioners paradise' because, by Indian standards, it was a quiet and well-established city. Since the 1980s, Bangalore has enjoyed the doubtful reputation of being one of the fastest growing cities in Asia. From 1981 to 2004 its population doubled to about six million. It is now the fifth largest city in India after Mumbai, Kolkata, Delhi and Chennai. According to projections, Bangalore will have approximately eight million inhabitants by 2010 and will thus become the largest metropolis in South India (Fig. 1).

Bangalore, founded in 1537, has had a long history as a centre of textile and silk production. Industrialisation started during the early twentieth century. Industrial growth received a fillip from the support of many newly established technical and academic institutions. During World War II, the city saw the establishment of a number of large public sector industries. Since India's independence in 1947, the tradition of public sector involvement has continued. Moreover, India's first prime minister J. Nehru (1947-64) sought to turn Bangalore into India's intellectual capital, India's 'City of the Future'. Since then, four phases can be distinguished in the economic history of the city (Heitzman 1999). The first phase, during the 1950s and 1960s, was dominated by the Government of India's initiatives in locating large public sector heavy industries like Bharat Heavy Electrical Limited (BHEL), Bharat Earth Movers Limited (BEML), Hindustan Machine Tools (HMT), Indian Telephone Industries (ITI) and knowledge-based production facilities like Hindustan Aeronautics Limited (HAL) and National Aerospace Laboratories (NAL). These institutions still have a major impact on the city. Their direct impact, including the management of their own townships, housing schemes, and transport systems, was supplemented by the numerous subcontracting opportunities they provided for small and medium enterprises.

The second phase, beginning in the late 1960s and running through the 1970s, witnessed the rapid growth of state government bureaucracy and state-run businesses. In 1972, the Government of India set up ISRO, India's premier space research organisation. The third phase began during the 1980s, when Bangalore experienced the effects of preliminary liberalisation launched by Prime Minister R. Gandhi (1984-89), and private enterprises became growth engines. The fourth phase, starting in the late 1980s, brought increasing and more varied relationships with multinational corporations. During the 1990s, Bangalore developed into a preferred location for high-technology industries such as electronics, information and communication technology (ICT) and IT-enabling services and it emerged as a globally integrated centre of high-technology research and production (Fromhold-Eisebith 2001; Dittrich 2003, 2004; Heitzman 2004). Only recently did biotechnology emerge as another rapidly expanding field. Bangalore accounts for about 50% of biotechnology companies in India. Biocon, the nation's leading biotech-company, is headquartered there. The metropolis is also becoming an important destination for the automotive industry. Besides Mico-Bosch, India's premier automotive compo-

nent manufacturer, Hindustan Motors, Toyota and Volvo Trucks have manufacturing plants there.

Figure 1: Population growth of India's metropolitan cities 1980-2010
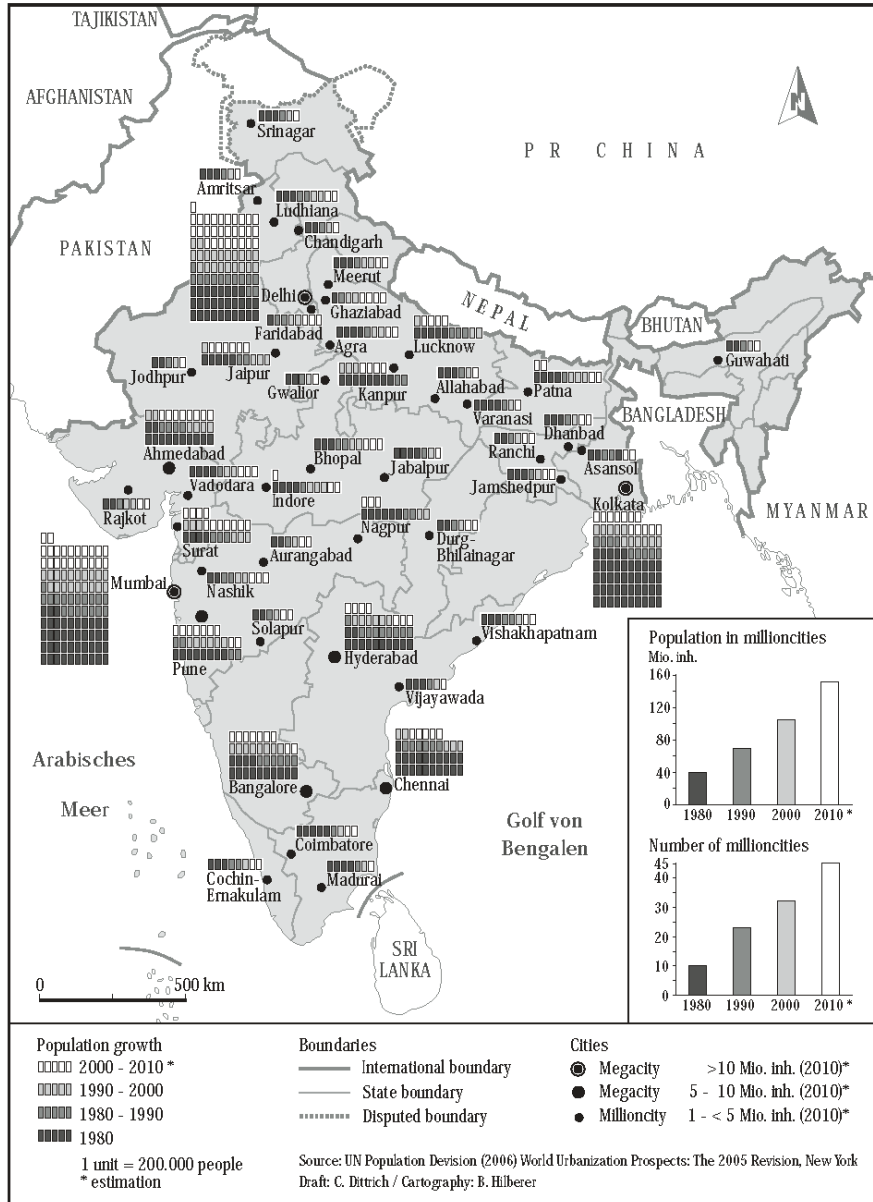
The meteoric rise of Bangalore to a globally integrated 'e-region' was not a mere coincidence but resulted from a combination of favourable enabling conditions: (1) the city's reputation as one of Asia's leading locations of education and research; today Bangalore has three universities, 14 engineering colleges, and a plethora of well-reputed research institutes devoted to aeronautics and space, science, health and so forth. There are also various industrial-training institutes, including the Indian Institute of Science, the Indian Institute of Management, and the Indian Institute of Information Technology; (2) the large number of large-scale and knowledge-based public sector industries and the numerous small-scale workshops which service them; (3) the availability of an apparently inexhaustibly large labour pool of highly-skilled, English-speaking and relatively inexpensive young urban professionals; (4) investor-friendly government policies; (5) a more stable and liberal socio-political environment with lower real estate prices and cost of living than in Mumbai and Delhi; and (6) the salubrious climate of the so-called Garden City.

Currently, more than 1,300 electronics and ICT companies along with numerous services and supplier firms are going about their business there, employing 170,000 people, about 30% of them women. Among these companies are almost all the global giants of the e-business sector which run either wholly-owned or partially-owned subsidiaries or joint ventures with domestic partners. In the meantime, some prominent domestic software firms are developing as global players, for example Wipro and Infosys Technologies, the latter of which was recently placed among the top 10 of the world's "Information Technology Top 100"-list. Bangalore's ICT-industry is divided into three main clusters (Fig. 2): the International Tech Park, one of India's first world-class plug-and-play ICT parks located in the suburb of White-fields; Electronics City in the southern outskirts which houses more than one hundred ICT-companies, including such leaders as Hewlett-Packard, Motorola and Siemens (Wipro and Infosys are also headquartered there); and the Software Technology Park of India, a government agency that provides high speed connectivity to technology parks, freedom for 100% foreign equity investment and tax incentives. Besides these main clusters many of the small and medium-scale ICT-firms have settled in isolated office blocks in high income neighbourhoods. Bangalore's ICT-industry is highly export-oriented and handles a spectrum of services that ranges from fairly low-tech, labour intensive activities like call centres, data entry, transcribing work and web applications to much higher value-added activities like developing end-user applications and software packages, or services such as consultancy and system integration.

Bangalore's software and service industries still grow at rates that are amazing compared to world standards – around 30% annually – and were worth about 5 billion US-dollars in 2004. Out of the total software and services exports, almost two thirds were to the Americas (USA, Canada and Latin America), 24% to Europe, and 9% to the Asia-Pacific market. The USA continue to be Bangalore's largest export destination (Nasscom 2004).

To summarise, the present economic scenario of Bangalore can be characterised as follows: The large public sector industries and the private textile and garment production units still have an important impact on the city's economy. Together with all their subcontracting units these two pillars of the formal economy are employing approximately 250,000 people. However, the public sector heavy industries in particular are subject to profound reorganisation processes that have already resulted in substantial staff cuts. The ICT-sector is by far the most dynamic part of the city's economy. It is expected, however, that further trends in rationalisation and newly emerging competitors like the other metropolitan cities of Chennai, Hyderabad, Pune and the capital region of Delhi will reduce the speed of Bangalore's ICT-sector expansion and will in particular reduce low-skilled labour opportunities.

The other parts of the city's modern private service sectors have also shown a massive expansion, because they benefited from the recent software boom and the growing purchasing power of the newly emerging middle-classes (for example the retail trade with luxuries and semi-luxuries, banking, accountancy, advertising and law firms, real estate business, private education and health institutions). Besides that, the central, state and municipal government institutions and many parastatal agencies are still providing employment to tens of thousands of people. However, the downsizing programme recently implemented by the state government has already cut hundreds of office jobs.

Apart from all this, a massive expansion of the so-called informal economies has to be recognised, resulting from the large influx of migrant labour to the city and the rather restricted absorption capacity of the formal economy. The urban informal sector consists for example of wide parts of the construction and transport sector, the catering and craftsmen's trade, the petty trade and home-based fabrication system and of the wide range of domestic helpers. Unregulated, mostly unhealthy, low-paid and often seasonally limited employment opportunities prevail. The urban informal economy is also increasing, however, because the medium-size and large industries, trapped in an increasingly competitive economic environment, tend to outsource more and more segments of their production work to informal manufacturing units. One further reason is the rapidly rising cost of living. To secure their livelihoods poorer families in particular are increasingly forced to take up additional income sources in the informal sector. All in all, the more or less localised informal economy employs much larger numbers of workers than all the formal sectors combined, amounting to about three-quarters of the urban workforce.

3   The Consequences of the Software-Boom: Bangalore a Multiply Divided City

The integration of Bangalore into the globalising network of trade and the highly competitive framework of inter-city linkages has induced profound changes in the settlement pattern as well as in the urban social setting. Besides that, the public in-

frastructure is feeling the strain. Its improvement could not keep pace with the tremendous population growth and the requirements of the new and globalising economic players. The consequences are frequent power cuts and a looming water shortage with water only available every other day. Moreover, the public tap water is highly contaminated, despite its chlorination. Due to the water shortage the better-off neigbourhoods and service industries draw their water from private boreholes, which results in a dramatic lowering of the water table. During the monsoon season, the city's insufficient and poorly maintained drainage system is absolutely overburdened. Excess surface water and sewage frequently overflow onto the roads and flood low-lying residential areas. Additionally, the disposal of solid waste and sewage remains a largely unsolved problem. Bangalore generates about 3,000 tonnes of solid waste per day, of which only about 1,100 tonnes are collected and sent to composting units. The remaining solid waste collected by the municipality is dumped in open spaces or on roadsides outside the city. The unplanned nature of growth in the city resulted in massive traffic gridlocks. The tremendous increase in vehicular traffic by approximately 10% a year has led to a situation where Bangaloreans, formerly envied for their pleasant climate and fresh air, have to endure the highest level of air pollution in the country. Bangalore's vehicular traffic has increased manifold, with 1.6 million registered vehicles in the city, the second highest number after Delhi.

The gross deficiencies in civic infrastructure and the patent lack of coordination between six core agencies responsible for urban development have created a sense of disappointment among the modern service industries. Some of the major software companies have already relocated part of their business to other Indian locations that offer advantages Bangalore used to offer some years ago. Bangalore also lost out in the race for the three billion US-dollar FAB City project, a silicon chip manufacturing facility, mainly because the political crisis erupted at a time when the promoters were anxious to finalise the location. India's first FAB City is now projected to be built on the outskirts of Hyderabad (Jafri 2006).

Bangalore's elite fear that the city will no longer be the saving grace of urban India and have begun to tackle the city's problems. The chief minister of Karnataka, who also holds the portfolio for urban development, declared his determination to sustain Bangalore's primacy. Advertising slogans claim that Bangalore will be India's Singapore and will compete not only with other Indian cities but with the real Silicon Valley in California. The final aim is to make Bangalore more competitive globally. Since then, the state government response has focussed on instituting dedicated investments for mega-projects, most significantly in infrastructure which forms the basis for these types of projects. One example is the billion Rupies 'mega-city project' which focusses on modernising Bangalore by urban renewal and urban design. The funds allocated to Bangalore's core agencies are for constructing fly-overs, ring roads and other grade separators, for the provision of fibre-optic services in high-value industrial areas and for the construction of a new international airport at Devanahalli, 30km north of Bangalore. The construction of the six-lane Bangalore-

Devanahalli expressway is nearly complete. It is obvious that all these investments are exclusively responses to the demands of the modern industrial sector but have little value in the common resident's daily lives.

For about one decade Bangalore has been witnessing a realty boom with skyrocketing prices. Particularly, the sector of the Outer Ring Road, where a number of large investment projects are expected to be realised, experiences an escalation of land prices. Within one year the price per hectare of land in Sarjapur, a little town located about 30 km from Bangalore's CBD increased more than ten times. Large numbers of ICT and business parks, commercial complexes, malls, upmarket townships and stylish apartment blocks are coming up particularly in the urban mid-periphery while governmental investments in providing shelter and affordable housing to the urban poor have been substantially reduced and the protection of tenants gradually removed. The low-cost housing rents are sharply increasing, however, because of the continuingly high level of demand. It is estimated that there is a shortage in the low-cost rental housing sector of Bangalore of about 400,000 units.

In the course of upgrading favourable locations in the city centre the municipality has bulldozed 'illegal', self-built housing in the name of civic modernisation 'clean up' programmes and the population has been forced to shift to undeveloped areas on the urban fringe. The surge in the housing and real estate sector overburdens the financial capabilities of the lower middle-classes as well. They are gradually pushed from the formal to the informal housing market. The infiltration of lower middle-class people into many of the more than eight hundred slum settlements that already give shelter to about 1.5 million people certainly results in their constructional and social upgrading. However, the resident slum population is forced to leave their homes and to resettle in unexploited marginal settlements often located far away from the large urban labour markets where they make their living.

At the same time, upmarket service complexes, self-contained apartment-complexes and Euro-American style gated residential enclaves for the elites have sprung up both close to the modern city centre and in the newly developed high-income residential areas of the urban mid-periphery. On the urban fringe luxurious club-houses with swimming-pools surrounded by discotheques, tennis clubs and golf courses have also been erected to cater to the new lifestyles of the most privileged.

This reorganisation of urban settlement structures has resulted in aggravated disparities in the urban landscape. Despite all globalisation processes the city centre is still characterised by the dualism of indigenous urban settlement areas and the former British cantonment, where the modern Central Business and Administration Districts (CBD, CAD) are located nowadays. A 'cordon sanitaire' consisting of an extensive green buffer zone separates the two distinct areas and is clearly visible even today. Both the urban mid-periphery and periphery are increasingly marked by a highly fragmented and polarised spatial structure that exhibits extreme social disparities (Fig. 2). This patchwork of unevenly developed locations and neighbour-

hoods consists of (1) mainly globally integrated corporate economies, concentrated in and around the CBD and CAD or within master planned neighbourhoods and dedicated industrial estates located mostly in south and, more recently, east Bangalore; (2) mainly domestic market-oriented corporate economies (large public sector undertakings with their own townships, and private sector companies in master planned industrial estates) in mid- and peripheral zones and above all located along the arterial roads in north-west and east Bangalore. The peripheral areas with their basic levels of infrastructure and services also serve as dormitory communities with residents travelling to the main city for employment; (3) wide areas dominated by localised economic coalitions in almost unplanned areas where the bulk of the city population lives and where land, infrastructure and civic amenities are the key issues. Examples are the bazaar areas in and around the traditional wholesale and retail nodes of the city, or small-scale businesses in the commercial streets of both older and recently developed residential areas as well as in and around the industrial belt on the western and northern parts of the city. Within these localised economic coalitions a distinction has to be made between those areas closely tied to the corporate sector economies while assuming important supplementary functions with respect to subcontracting and labour supply, and those areas that are largely disconnected from supra-regional production and trade and left on their own under conditions of extreme poverty (for example illegal slum settlements).

With the exception of the largely excluded socio-economic zones, the other sectors of this highly fragmented urban system are closely connected by various asymmetric linkages. In line with the new politico-economic paradigm, the globally integrated economic sector plays a prominent part in reorganising the utilisation of land, capital, public investments, production processes and labour. The subcontracting system leads to the further expansion of informal wage employment. Conversely, the informal economies subsidise the corporate ones because of low wages and missing protective labour legislation and are thus acting to preserve the position of the corporate economies in the highly competitive world market environment.

This fragmented and polarised urban structure follows the trend of heightened wealth inequalities. Figure 3 presents a picture of the pronounced socioeconomic differentiation in Bangalore.

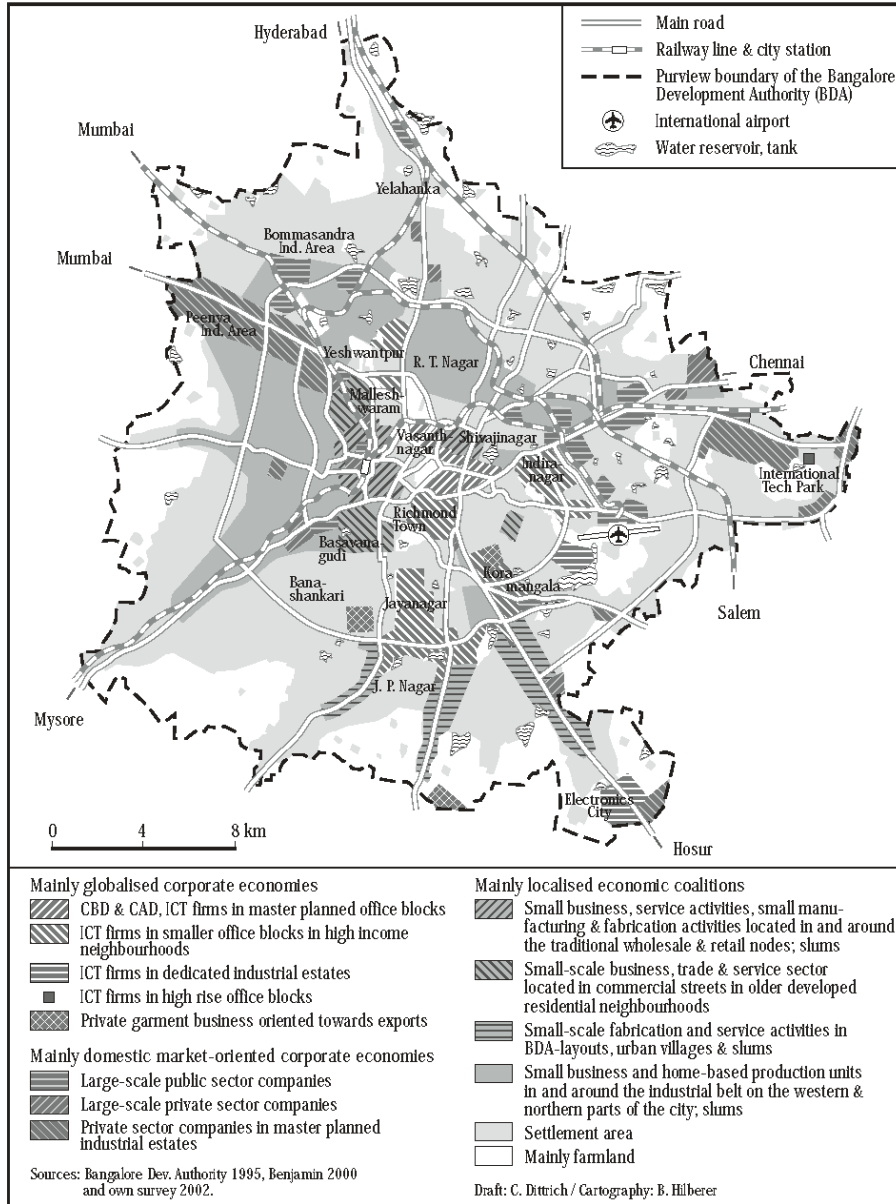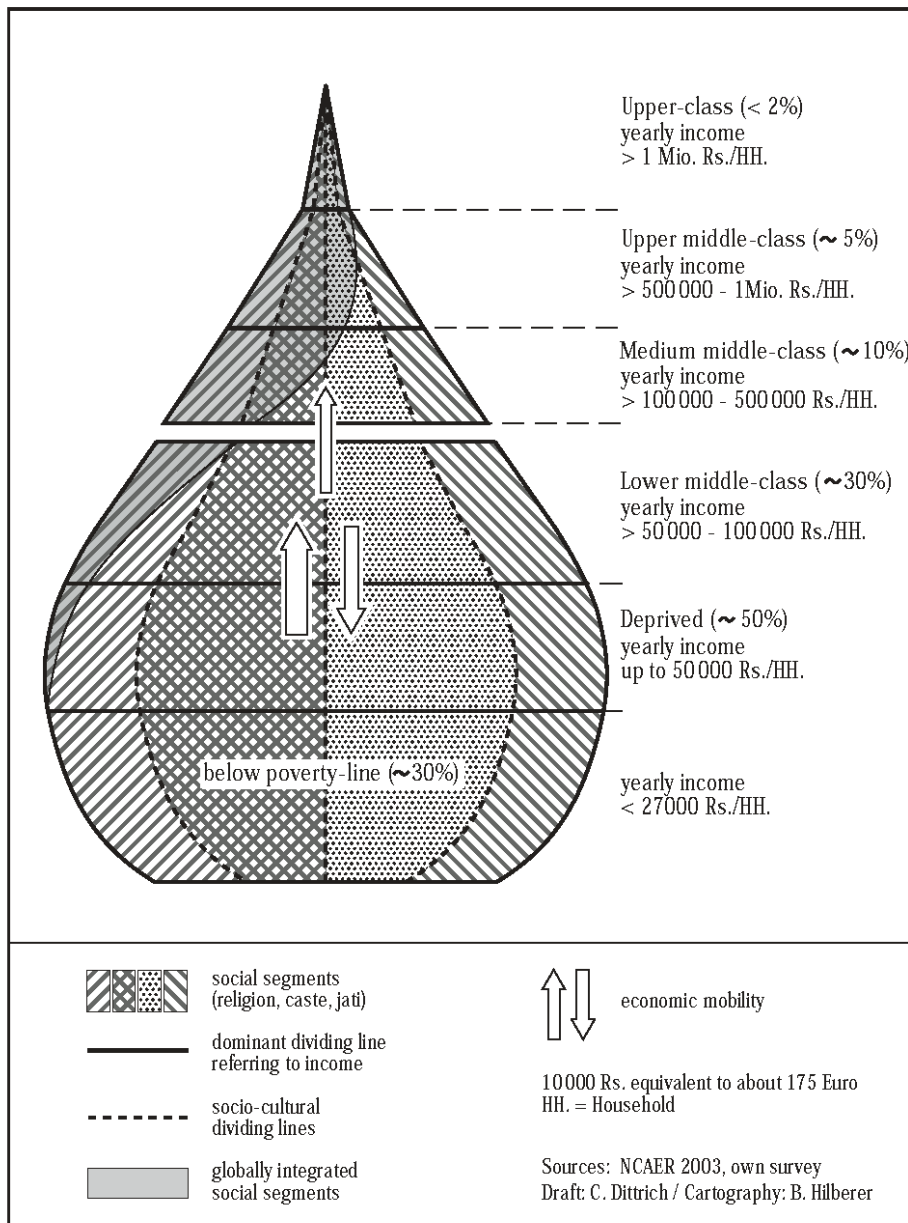**Fig. 2:   Fragmented economic landscape of Bangalore**

Fig. 3: Bangalore: Polarisation under the impact of globalisation

Upper-class (< 2%)
yearly income
> 1 Mio. Rs./HH.

Upper middle-class (~ 5%)
yearly income
> 500 000 - 1Mio. Rs./HH.

Medium middle-class (~10%)
yearly income
> 100 000 - 500 000 Rs./HH.

Lower middle-class (~30%)
yearly income
> 50 000 - 100 000 Rs./HH.

Deprived (~ 50%)
yearly income
up to 50 000 Rs./HH.

below poverty-line (~30%)

yearly income
< 27000 Rs./HH.

social segments
(religion, caste, jati)

dominant dividing line
referring to income

socio-cultural
dividing lines

globally integrated
social segments

economic mobility

10 000 Rs. equivalent to about 175 Euro
HH. = Household

Sources: NCAER 2003, own survey
Draft: C. Dittrich / Cartography: B. Hilberer

The income gap between the privileged and the deprived is tending to widen further. While wage levels in the modern services rise every year, those in the informal sector tend to stagnate. A junior software specialist can currently earn about Rs. 10,000 per month, while the salary of a senior manager exceeds Rs. 500,000 exclusive of all perks and other incentives (Rs. 10,000 are equivalent to about 230 US-Dollar). In comparison, many workers lack a steady and sufficient income. Salaries in the informal sector are mostly paid on a daily or weekly basis. A daily-waged electrician or mason will earn about Rs. 4,000 per month at the most, an unskilled labourer about Rs. 1,500 to 2,000 and a female domestic helper only Rs. 300 to 1,000. This is completely insufficient for satisfying the basic needs of a family. The increasing income disparities are accompanied by diminishing legal rights and rampant corruption. Little can be done in day-to-day life without bribery of some form or another. Members of the underprivileged urban population, consisting of the downtrodden Dalit and Adivasi, of lower Vaishya (Hindu caste of artisans) and Shudra (Hindu-caste of agriculturalists) and of many people of Muslim faith are increasingly unable to enforce their legal rights because they are not in the position to play the game according to the rules set up by the urban elites. Rising costs of living for basic foods, fuel, housing and public transport produce further losses of purchasing power which mean additional risks for their fragile livelihoods.

Apart from this, a growing number of employees of large-scale public enterprises and of government institutions also feel the strain of globalisation. During the last few years thousands of them have been laid off. They are now confronted with a considerable reduction in their standard of living, with new experiences of social descent and exposure to much higher risks for their livelihoods. Labelled as the 'new urban poor' they have to be designated as the true 'losers of globalisation' (Dittrich 2004).

In the meantime a promising new urban middle-class has emerged. These socio-economic 'climbers' consisting of, for example, the new computer elite or the self-employed and freelance workers of the modern service sector profit from the new Bangalore because they are now in the position to influence the city's political agenda. This section of 10 to 15% of the urban population is increasingly adopting westernised lifestyles and consumption habits and is always inclined to be motivated by self-interest. This urban stratum is not homogenous, however. It is split into many reference groups with varying socio-economic backgrounds and interests. The resulting conflicts are reflected in vigorous rivalries for access to prime land, to the best private colleges and to the highly desirable employment opportunities in the modern service sector. Because of this merciless competition, many of the lower middle-class families are doomed to economic failure, which leads to tendencies of political radicalisation. This trend of social fragmentation catalyses urban conflicts that find expression in an increasing number of crimes and communal clashes and in violent conflicts between the supporters and opponents of the globalisation project. During the last decade several anti-globalisation campaigns were fought in Banga-

lore, for example the campaign of the local farmer unions against the US-based multinational companies Cargill and Montsanto, the demolition of the Kentucky Fried Chicken branch, or the massive clashes during the Miss World campaign in the late 1990s.

At the top end of the city's socioeconomic pyramid is a tiny but heterogenous and competing urban elite consisting of two resident Hindu caste groups (Vokkaliga and Lingayat), of local Brahmin, resident Anglo-Indians (mostly followers of the Roman Catholic Church) and of some well-off business families of Muslim faith. This mainly conservative core-elite traditionally holds many of the key positions in the politico-economic arena. But the newly established service elite, tied to foreign investors in a close coalition of interests, is attempting to achieve more influence and power resulting in aggravated conflicts over the utilisation of resources and power. Meanwhile, the well-off sections of society have lost any interest in tackling the problem of the appalling civic conditions of the urban poor.

4   Vulnerable Livelihoods under Threat

While Bangalore developed into a globally integrated 'e-region' where the privileged could prosper, a large portion of the metropolitan population could not improve their living conditions. For them, living in poorly maintained housing estates or ostracised marginal settlements, the city's internationalisation, the reduction of public welfare programmes and the allocation of scarce public resources in support of mega-projects was accompanied by higher exposure to risks and increasing livelihood insecurities. Due to loss of socio-economic entitlements and patron-client relationships that are exploitative, non-transparent and corrupt the asset basis of the poor (which is already inadequate, unstable and insecure) is subject to further decline. The most vulnerable population groups have lost almost all capacities and capabilities to satisfy their daily basic needs and to cope with the present risks, not to mention adverse developments in the future. Most affected are the poorest and weakest members of society, for example the socially excluded female-headed households, illiterate, old, sick and handicapped persons who are not covered by public social security schemes at all, families afflicted with alcoholism and drug abuse and those redundant workers unable to cope with socio-economic decline. These groups, accounting for about 20% of the urban underclass, are particularly exposed to long-term unemployment, stigmatisation, exploitative patron-client relationships, legal arbitrariness, uncertain land tenure and preventable diseases and health risks.

However, the marginalised urban communities also form the basis of social creativity and welfare. Beyond the reach of governmental institutions and according to traditional social hierarchies and distinct cultural habits, various informal microsystems of power and command and networks of mutual support and solidarity have arisen. They provide access to informal credit, finance, employment and education

and therefore contribute to stabilising the highly fragile livelihoods of the most vulnerable groups at least to some extent.

The marginalised urban stratum, however, does not represent a homogenous social segment endowed with common interests struggling for survival in close solidarity. Furthermore, their sense of civil responsibility is increasingly diminished due to the recent processes of commercialisation and individualisation. Only those endowed with broader asset bases enabling them to combine both short-term survival and long-term livelihood improvement strategies can hope to benefit from the city's modernisation. These families tend to direct almost all of their efforts toward securing long-term access to the new Bangalore and taking advantage of their slightly better-off position while exploiting the subordinate community members. One can say that the selective internationalisation of Bangalore produces 'winners' and 'losers' at the bottom end of the urban society as well.

Conclusion

Bangalore's meteoric rise to a globally integrated location of modern service industries reflects the recent trends of economic globalisation. The city's emergence as one of the hot new tech-cities, however, should not obscure the fact that this development was mainly due to massive foreign investments, leaving Bangalore highly dependent on powerful global investors and vulnerable to crises in the global politico-economic environment. Its integration into the highly competitive framework of inter-city linkages produces profound processes of urban restructuring creating new disparities and a highly fragmented and polarised urban society. Bangalore is becoming what is called a multiply divided city where both social and geographical barriers are reinforced. While a relatively tiny stratum of affluents benefits from these transformations, the living conditions of the majority of the urban population are subject to deterioration. The livelihoods of the most vulnerable groups are most exposed to risks and adverse future developments. The internationalisation of Bangalore has had mainly negative impacts on the urban poor.

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