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Economic Effects of Rapid Urbanization in Developing Countries, with Reference to India

Prof. Anjila Gupta

Professor, Department of Economics, Indira Gandhi National Open University, Maidan Garhi, New Delhi, India

ABSTRACT: Urbanization is not a side effect of economic growth; it is an integral part of the process. As in most countries, India's urban areas make a major contribution to the country's economy. Indian cities contribute to about 2/3 of the economic output, host a growing share of the population and are the main recipients of FDI and the originators of innovation and technology and over the next two decades are projected to have an increase of population from 282 million to 590 million people. India's towns and cities have expanded rapidly as increasing numbers migrate to towns and cities in search of economic opportunity.

Hence accompanying India's rapid economic growth will be a fundamental shift in terms of a massive urban transformation, possibly the largest national urban transformation of the 21st century. This would pose unprecedented challenges to India's growing cities and towns in providing housing and infrastructure (water, sewerage, transportation, etc.), and addressing slums. Already, slums now account for about 26% of all urban population in cities. In Mumbai, more than half the population lives in slums, many of which are situated near employment centers in the heart of town, unlike in most other cities in developing countries. This would also entail massive capital investment needs in urban infrastructure India, as highlighted by various Finance Commissions and expert bodies. For instance the Report on Indian Urban Infrastructure and Services by the High Powered Expert Committee (HPEC) on urban projects an investment need of US\$ 1.2 trillion over a similar period.

KEYWORDS: urbanisation, India, developing countries, economy

I. INTRODUCTION

India's economic changes have caused rapid urbanisation. This has several advantages and disadvantages.

Advantages

- The increase in population in urban areas creates a skilled workforce that attracts transnational corporations creating jobs for example in call centres and software mills. [1,2,3]This increases the wealth of the country and through the multiplier effect and also creates other jobs for less skilled people.
- The increase in wealth is used to develop both secondary and university education, further increasing the skills base of the urban area. This triggers cumulative causation and the creation of Indian high tech companies.
- The increase in wealth is used to develop sanitation within the urban areas reducing water-borne diseases and so reducing infant mortality rates.

Disadvantages

In some cases this rapid urbanisation happens too fast for the city authorities to cope with. This can result in a lack of affordable accommodation causing many recent migrants from rural areas to rely on self-built housing such as Dharavi in Mumbai. The growth of Dharavi and other slums can create many problems - for example inadequate waste disposal, high incidences of disease and conflict. Rapid urbanisation also puts pressure on transport systems and job opportunities. This can result in people working in poor conditions, for long hours and low pay.

Meeting the needs of India's soaring urban populations is and will continue to be a strategic policy matter for various national, state and city governments. Promoting an efficient urbanization process in India will require a set of policies that will deal with land policies and basic needs, connective infrastructure and specific interventions. India also needs well managed cities with high quality services. Water supply and sanitation, urban transport and urban drainage are key local services to ensure the quality of living and sustained growth. Sustained energy supply, and affordable serviced land are services that are essential for the development of the economy.



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Urban Challenges

The built environment: the supply of both land and infrastructure is falling behind demand.

• Out of date and static master plans immobilize the supply of serviced land and buildable space, blocking efficient and productive development. While important laws have been revoked to remove land restrictions and rent controls, many of the legal instruments to operationalize those reforms are still lacking;

Inappropriate FSI, zoning and development control regulations inhibit development and trunk infrastructure;
Fractured planning structures are incapable of integrated planning for land use, infrastructure planning, and finance across metropolitan areas;

• The legal, regulatory and [4,5,6] institutional basis for land management is generally lacking, hindering the capacity of the private sector to be competitive and the ability of the public sector to use land based financial instruments to finance infrastructure investments.

• Urban services, including water & wastewater, and solid waste, do not reach many residents, and those they do serve receive sporadic, unreliable services. And, in the case of non-notified slums, service providers are prohibited from serving residents.

Public transport services provide inadequate services, and non-motorized transit for pedestrians, bicycles, and handcarts is limited, forcing this traffic to compete with cars, trucks and motorcycles for space on the streets.
The proliferation of slums is largely the result of failures in land markets and regulations, compounded by limited access to housing finance.

• Rigid master plans and restrictive zoning regulations limit the land available for building, constricting cities' abilities to grow in accordance with changing needs.

Weak and unpredictable financing frameworks limit the ability of ULBs to manage their resources effectively.

• Overlapping institutions across three tiers of government diffuse accountability across agencies, parastatal bodies and elected governments. This situation undermines India's robust democracy, clouds issues of responsibility, and blocks the development of coherent regulatory frameworks and sustainable service delivery models.

• Dominance of state governments: India's states are often on the scale of countries. These state governments cannot effectively provide service or good governance at the local level. Even India's mega-cities do not have control over their own policies, planning, finances, assets, or institutions.

• ULBs and local service entities have neither clear responsibility nor the fiscal and operational autonomy to deliver adequate urban services;

• Weakness of local governments: ULBs lack capacity, i.e. systems and trained human resources in areas such as financial and organizational management; land use and infrastructure planning; asset management; and project identification, design and management.

• This leaves them trapped in a low level equilibrium, dependent on the State and Centre. Citizens have limited opportunities to hold City managers (who are appointed by the states and are not elected) and service providers accountable for the quantity or quality of services provided.

Government Priorities and Programs:

Government's urban development strategy. There two urban related ministries at the national (GoI) level- the Ministry of Urban Development (MoUD) and Ministry of Housing and Urban Poverty Alleviation (MoHUPA). The Government of India's overarching urbandevelopment objectives is to create economically productive, efficient, inclusive and responsive ULBs, by focusing on strategic outcomes: (i) universal access to a minimum level of services; (ii) establishment of city wide frameworks for planning and governance; (iii) modern and transparent budgeting, accounting and FM; (iv) financial sustainability for ULBs and service delivery institutions; (v) utilization of e-governance; (vi) transparency and accountability in urban service delivery and management; (vii) Slum-free cities.

In pursuance of these goals, the Government of India (GoI) launched a flagship urban development program called the Jawaharlal Nehru National Urban Renewal Mission (JnNURM), in December 2005. The Mission targets 65 ULBs (7 with populations greater than 4 million, 28 greater than 1 million and 30 other ULBs of religious, historic or tourist importance). JnNURM is reform and incentive based - in return for a commitment to adopt the obligatory reforms over a period of seven years, ULBs may access funds for investment and capacity building. The investment component of the Mission consists of two sub-missions: (i) Urban Infrastructure and Governance (UIG), implemented by the Ministry of Urban Development (MoUD), with investments including (a) water, sanitation, sewerage and drainage; (b) solid waste management (SWM); (c) urban transport; (d) street lighting; and (e) environmental protection; and (ii) Basic Services to the Urban Poor (BSUP), implemented by the Ministry of Housing and Urban Poverty Alleviation (MoHUPA), with investments supporting integrated development of slums. More recently GoI launched the



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[7,8,9]Slum-free City program of Rajiv Awas Yojana (RAY) a scheme working towards the goal of a slum-free India.

In addition, many of the state governments have their own urban development schemes and programs at the state and level, focusing on many of the aforesaid issues.

India, an ancient civilization and a hub of dynamic socio-cultural shifts, is undergoing a significant transformation via urbanisation. Urbanisation in India, marked by a sweeping migration from rural to urban spaces, comes with an intriguing mix of opportunities and challenges. In India, the urban population stands at 461 million, experiencing an annual growth rate of 2.3 percent. Projections indicate that by 2031, 75 percent of the country's national income will originate from urban areas. However, a substantial challenge lies in developing essential urban infrastructure, with 70 to 80 percent of the required infrastructure for the year 2050 still awaiting construction. The estimated investment gap to address this shortfall is around 827 billion US dollars. Tamil Nadu is the most urbanised state in India followed by Kerala and Maharashtra. Himachal Pradesh is the least urbanised state in India.

II. DISCUSSION

Before delving into the intricacies of Urbanisation in India, it's essential to understand what urbanisation is. Urbanisation refers to the increasing share of a nation's population living in urban, rather than rural, areas. It is characterised by the growth of cities due to economic, social, and political factors, ultimately leading to their expansion and the development of new towns.

Projected to reach 675 million by 2035, India's urban population is anticipated to be the second-largest globally, following China's one billion, according to a U.N. report.

The Causes of Urbanisation in India

Urbanisation in India is the outcome of a myriad of intertwined socio-economic factors. Unravelling these causes allows us to comprehend the metamorphosis of India's rural landscapes into thriving urban hubs.

Economic Catalysts

Key economic factors driving urbanisation include:

- Industrialisation: The growth of industries in urban regions provides job opportunities, attracting rural inhabitants and thus fuelling urbanisation.
- Services Sector Expansion: The fast-paced growth of the services sector, particularly in IT and ITeS, in metropolitan cities drives urban migration.

Social Factors

Social elements play a complementary role in the process of urbanisation:

- Enhanced Living Standards: The lure of improved education, healthcare, and overall better living conditions in urban areas draw in rural dwellers.
- Social Mobility: The opportunities for upward social mobility offered by urban settings are an appealing prospect for many.

Demographic Factors

Demographic aspects such as population growth and migration significantly contribute to urbanisation:

- Population Growth: A rapid increase in population within urban areas propels urbanisation.
- Migration: Migration from rural to urban areas, instigated by factors like unemployment and poverty in rural regions, stokes the flames of urbanisation.

Navigating the Maze: Problems of Urbanisation in India

While urbanisation is a powerful driver of growth, it also presents a set of challenges that need to be addressed [10,11,12] urgently:

Housing and Slum Development

Rapid and often unregulated urban expansion results in insufficient housing, leading to the mushrooming of slums.

Infrastructure Deficiencies

Urban locales frequently grapple with inadequate infrastructure facilities, including water supply, sewage systems, electricity, and public transportation.

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Environmental Degradation

Accelerated urbanisation can contribute to environmental concerns such as air and water pollution, as well as the loss of green spaces.

Social Issues

Urbanisation triggers social issues such as unemployment, poverty, traffic congestion, and crime.

The Impact: Effects of Urbanisation in India

Urbanisation significantly impacts different aspects of Indian society, economy, and the environment: Economic Impact

- Positive: Urbanisation can boost economic growth, create employment opportunities, and increase income levels.
- Negative: It can lead to regional disparities, with wealth concentrating in urban areas while rural regions lag behind.

Social Impact

- Positive: Urbanisation can result in improved social services, such as education, healthcare, and entertainment.
- Negative: It can also exacerbate social inequalities and marginalise vulnerable communities.

Environmental Impact

• Negative: Urbanisation can cause environmental degradation, due to factors like deforestation, pollution, and waste management challenges.

Government Schemes Towards Urbanisation in India

The Indian government has launched various schemes to address the challenges and harness the potential of urbanisation. These include:

- Smart Cities Mission: Aims to promote cities that provide core infrastructure, give a decent quality of life to its citizens, and apply 'smart' solutions.
- Atal Mission for Rejuvenation and Urban Transformation (AMRUT): Focuses on providing basic services (e.g., water supply, sewerage) to households and build amenities in cities to improve the quality of life for all, especially the poor and the disadvantaged.
- Pradhan Mantri Awas Yojana (Urban): Aims to provide affordable housing to the urban poor.

III. RESULTS

About:

• Urbanization refers to the population shift from rural to urban areas, the corresponding decrease in the proportion of people living in rural areas, and the ways in which societies adapt to this change.

Causes of Urbanisation:

- Natural increase of population: It occurs when the number of births exceeds the number of deaths.
- Rural to urban migration: It is driven by pull factors (that attract people to urban areas) and push factors (that drive people away from the rural areas).
- Employment opportunities, educational institutions and urban lifestyle are the main pull factors.
- Poor living conditions, lack of educational and economic opportunities and poor health care facilities are the main push factors.

Global Urbanisation:

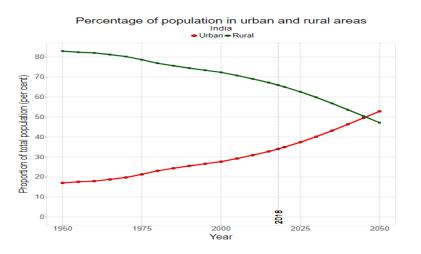
- The most urbanized regions include Northern America (with 82% of its population living in urban areas (as of 2018)), Latin America and the Caribbean (81%), Europe (74%) and Oceania (68%).
- The level of urbanization in Asia is now approximately 50%.
- Africa remains mostly rural, with 43% of its population living in urban areas.

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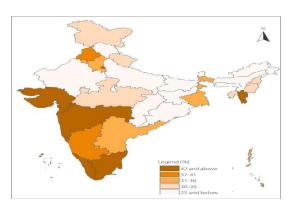
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Urbanisation in India

Urbanization Prospects: [13,14,15]



- The World Urbanization Prospects, 2018 report produced by the UN Department of Economic and Social Affairs (UN DESA) notes that future increases in the size of the world's urban population are expected to be highly concentrated in just a few countries.
- Together, India, China and Nigeria will account for 35% of the projected growth of the world's urban population between 2018 and 2050.
- By 2050, it is projected that India will have added 416 million urban dwellers.
- Currently, India's population stood at 1210 million in 2011, with an urbanisation level of 31.1% (Census of India 2011)
- •



State-wise Scenario:

Number of Persons Living in Urban Areas:

- Over 75% of the urban population of the country is in 10 States: Maharashtra, Uttar Pradesh, Tamil Nadu, West Bengal, Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Rajasthan, and Kerala.
- Maharashtra leads with 50.8 million persons (13.5% of the total urban population of the country).
- Uttar Pradesh accounts for about 44.4 million, followed by Tamil Nadu at 34.9 million.

High-Scoring States: Goa is the most urbanised State with 62.2% urban population.

- Tamil Nadu, Kerala, Maharashtra, and Gujarat have attained over 40% urbanisation.
- Among the North-Eastern States, Mizoram is the most urbanised with 51.5% urban population.
- Low-Scoring States: Bihar, Odisha, Assam, and Uttar Pradesh continue to be at a lower level of urbanisation than the national average.
- Union Territories: The NCT of Delhi and the UT of Chandigarh are most urbanized with 97.5% and 97.25% urban population respectively, followed by Daman and Diu and Lakshadweep (both above 75% urbanisation).

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India's Global Commitments regarding Urban Development:

- The SDGs Goal 11 promotes urban planning as one of the recommended methods for achieving sustainable development.
- The UN-Habitat's New Urban Agenda was adopted at Habitat III in 2016.
- It puts forth principles for the planning, construction, development, management, and improvement of urban areas.

The UN-Habitat (2018) suggests that the spatial conditions of a city can enhance its power to generate social, economic and environmental value and well-being.

Paris Agreement: India's National Determined Contributions (NDCs) includes the goals to reduce the emission intensity of the country's GDP by 33 to 35% by 2030 from 2005 level.

India's Initiatives for Urbanisation:

Schemes/Programmes Related to Urban Development:

- Smart Cities
- AMRUT Mission
- Swachh Bharat Mission-Urban
- HRIDAY
- Pradhan Mantri Awas Yojana-Urban

Government Initiatives for Slum [15,16,17]Dwellers/Urban Poor:

- Pradhan Mantri Garib Kalyan Yojana
- Atmanirbhar Bharat Abhiyan (self-reliant India)

Significance of Urban Living

- Easier Access to Facilities: Urban living is linked with higher levels of literacy and education, better health, longer life expectancy, greater access to social services and enhanced opportunities for cultural and political participation. Urbanisation is associated with easier access to hospitals, clinics and health services in general.
- Living in proximity to these services results in improved emergency care and general health.
- Access to Information: There are also benefits from easier access to sources of information such as radio and television which may be used to communicate information about health to the general public.

For instance, women living in towns and cities are more likely to be informed about family planning which results in reduction in family size and less frequent childbirth.

- Individualism: Multiplicity of opportunities, social diversity, lack of familial and social control over decision
 making leads to more self interest and facilitates decision-making by an individual and choosing one's career and
 actions by oneself.
- Issues Associated to Urbanisation
- Excessive Population Pressure: On the one hand, the rural-urban migration accelerates the pace of urbanisation, on the other, it creates excessive population pressure on the existing public utilities.
- Consequently, the cities suffer from the problems of slums, crime, unemployment, urban poverty, pollution, congestion, ill-health and several deviant social activities.
- Overflowing Slums: There are about 13.7 million slum households in the country sheltering a population of 65.49 million people across the country.
 - $\circ~$ As much as 65% of Indian cities have adjoining slums where people live in small houses adjacent to each other.
- Inadequate Housing: Among the numerous social problems of urbanisation, the problem of housing is the most distressing.
 - A vast majority of urban population live under conditions of poor shelter and in highly congested spaces.
 - In India, more than half of the urban households occupy a single room, with an average occupancy per room of 4.4 persons.
- Unplanned Development: The model of building a developed city comprises unplanned development, which only bolsters the dichotomy prevailing in urban cities between the rich and the poor.



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Disease-Induced Problems: like swine flu

- Non-Inclusive Welfare Schemes: The benefits of welfare schemes for urban poor often reach only a small part of the intended beneficiaries.
 - Most relief funds and benefits do not reach slum dwellers, mainly because these settlements are not officially recognised by the government.[18,19,20]
- Way Forward
- Sustainable Urbanization for Successful Development: As the world continues to urbanize, sustainable development depends increasingly on the successful management of urban growth, especially in low-income and lower-middle-income countries where the pace of urbanization is projected to be the fastest.
 - Integrated policies to improve the lives of both urban and rural dwellers are needed, while strengthening the linkages between urban and rural areas, building on their existing economic, social and environmental ties.
- Improving Access to Health Facilities & Welfare Schemes: Accelerating efficiency of welfare and relief schemes along with ensuring access to free vaccines, food security and adequate shelter in the slums.
 - Improving sanitation and transportation facilities in slums and establishing clinics and healthcare facilities.
 - Aiding nonprofits and local support bodies who have better reach to these marginalised communities.
- New Approaches for Urbanisation: New approaches to urban planning and effective governance are the need of the hour.
 - Necessary actions should be taken to build sustainable, robust and inclusive infrastructure.
 - Instead of a top-down approach, a bottom-up approach shall be adopted to better understand unique challenges faced by the urban poor.

IV. CONCLUSION

Assessments of these effects diverge greatly. While some authors see urbanisation as strongly benefitting rural areas, for instance, through increased demand for agricultural goods and services, others highlight negative effects, for example, through the loss of livelihoods emanating from displacements and the conversion of agricultural land. Given this complexity, a review that thoroughly analyses the causal relationships between urbanisation and rural development is warranted. To do this, this Discussion Paper identifies seven channels through which urbanisation affects rural development: i) production and consumption linkages; ii) employment linkages; iii) financial linkages; iv) land market linkages; v) information and public service linkages; vi) social interactions linkages; and vii) environmental externalities. As to the first channel, production of consumption linkages, the review suggests that urbanisation has increased demand for agricultural products and services; natural resources; commercialisation and modernisation of agricultural technologies; and smallholders' participation in modern agricultural value chains. The employment channel suggests that rapid urbanisation is enabling the diversification of rural livelihoods by bringing new eco-nomic opportunities to rural areas, but the effects have not been uniform across countries and communities. With regard to financial linkages, flows from cities have increased in many developing countries, benefitting rural areas; yet some studies point to no or to negative effects due to reduced agricultural productivity from the loss of labour and technology, and the crowding out of investment. Land market effects are particularly heterogeneous. While urbanisation tends to drive land value up and encourages investments, there are also negative developments in terms of crowding out and speculation. As to information and public service linkages, the review suggests that urbanisation has fostered information and knowledge flows from urban areas to rural areas which have improved income, innovation, and employment. Social interactions among urban and rural citizens more generally may bridge cultural gaps, improve the flow of information, knowledge, and resources pertinent for rural economic transformation, and thereby enhance social cohesion; yet little empirical evidence exists so far in terms of effects and causalities. Finally, urbanisation affects rural development through the environmental externalities it generates: waste disposal, environ-mental degradation, and loss of biodiversity. If appropriate technologies are put in place, urbanisation can also improve waste management and soil fertility, thus reducing the cost of agricultural production. To this end, the review has identified research gaps that have important policy implications. First, although effective rural-urban planning, monitoring and evaluation of rural-urban devel-opment policies require better data, there is lack of data collection systems or their quality is poor.[20]



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REFERENCES

- 1. "Urbanization". MeSH browser. National Library of Medicine. Archived from the original on 16 March 2016. Retrieved 5 November 2014. The process whereby a society changes from a rural to an urban way of life. It refers also to the gradual increase in the proportion of people living in urban areas.
- 2. ^ "Urbanization in". demographic partitions. Archived from the original on 22 October 2018. Retrieved 8 July 2015.
- 3. ^ Tacoli, Cecilia (2015). Urbanisation, rural-urban migration and urban poverty. McGranahan, Gordon, Satterthwaite, David. London: International Institute for Environment and Development. ISBN 9781784311377. OCLC 942419887.
- 4. ^ "Urban life: Open-air computers". The Economist. 27 October 2012. Archived from the original on 5 September 2017. Retrieved 20 March 2013.
- 5. ^ a b "Urbanization". UNFPA United Nations Population Fund. Archived from the original on 26 May 2018. Retrieved 11 May 2015.
- ⁶ Barney Cohen (2015). "Urbanization, City Growth, and the New United Nations Development Agenda". Vol. 3, no. 2. Cornerstone, The Official Journal of the World Coal Industry. pp. 4–7. Archived from the original on 27 June 2015. Retrieved 26 June 2015.
- 7. ^ Dutt, A.K.; Noble, A.G.; Venugopal, G.; Subbiah, S. (2006). Challenges to Asian Urbanization in the 21st Century. GeoJournal Library. Springer Netherlands. ISBN 978-1-4020-2531-0. Retrieved 22 March 2017.
- ^A Sridhar, K.S.; Mavrotas, G. (2017). Urbanization in the Global South: Perspectives and Challenges. Taylor & Francis. ISBN 978-1-000-42636-6. Retrieved 22 March 2017.
- 9. ^ Gries, T.; Grundmann, R. (2018). "Fertility and modernization: the role of urbanization in developing countries". Journal of International Development. 30 (3): 493–506. doi:10.1002/jid.3104.
- 10. [^]Gu, Chaolin (2018). "Urbanization: Processes and driving forces". Science China Earth Sciences. 62 (9): 1351–1360. Bibcode:2018ScChD..62.1351G. doi:10.1007/s11430-018-9359-y.
- 11. ^ Introduction to Social Macrodynamics: Secular Cycles and Millennial Trends. Archived 18 September 2018 at the Wayback Machine Moscow: URSS, 2006; Korotayev A. The World System urbanization dynamics. History & Mathematics: Historical Dynamics and Development of Complex Societies Archived 29 February 2018 at the Wayback Machine. Edited by Peter Turchin, Leonid Grinin, Andrey Korotayev, and Victor C. de Munck. Moscow: KomKniga, 2006. The World System urbanization dynamics. History & Mathematics: Historical Dynamics and Development of Complex Societies Archived 29 February 2018 at the Wayback Machine. Edited by Peter Turchin, Leonid Grinin, Andrey Korotayev, and Victor C. de Munck. Moscow: KomKniga, 2006. ISBN 5-484-01002-0. P. 44-62
- 12. ^ "Urbanization over the past 500 years". Our World in Data. Archived from the original on 14 March 2018. Retrieved 6 March 2018.
- ^{A a b} Stephens, Lucas; Fuller, Dorian; Boivin, Nicole; Rick, Torben; Gauthier, Nicolas; Kay, Andrea; Marwick, Ben; Armstrong, Chelsey Geralda; Barton, C. Michael (30 August 2018). "Archaeological assessment reveals Earth's early transformation through land use". Science. 365 (6456): 897–902. Bibcode:2018Sci...365..897S. doi:10.1126/science.aax1192. hdl:10150/634688. ISSN 0036-8075. PMID 31467217. S2CID 201674203.
- 14. ^ Andrey Korotayev and Leonid Grini (2006). "The Urbanization and Political Development of the World System: A comparative quantitative analysis". In Peter Turchin; Leonid Grinin; Victor C. de Munck; and Andrey Korotayev (eds.). History & Mathematics: Historical Dynamics and Development of Complex Societies. Vol. 2. pp. 115–153. Archived from the original on 16 August 2017. Retrieved 23 June 2016.
- 15. ^ "Industrial Revolution | Definition, History, Dates, Summary, & Facts". Encyclopedia Britannica. Archived from the original on 31 October 2018. Retrieved 29 October 2018.
- 16. ^ a b Christopher Watson (1993). K.B. Wildey; Wm H. Robinson (eds.). Trends in urbanisation. Proceedings of the First International Conference on Urban Pests. CiteSeerX 10.1.1.522.7409.
- [^] Annez, Patricia Clarke; Buckley, Robert M. (2009). "Urbanization and Growth: Setting the Context" (PDF). In Spence, Michael; Annez, Patricia Clarke; Buckley, Robert M. (eds.). Urbanization and Growth. Commission on Growth and Development. ISBN 978-0-8213-7573-0. Archived (PDF) from the original on 25 May 2017. Retrieved 9 November 2013.
- 18. ^ Reba, Meredith; Reitsma, Femke; Seto, Karen C. (7 June 2016). "Spatializing 6,000 years of global urbanization from 3700 BC to AD 2000". Scientific Data. 3: 160034. Bibcode:2016NatSD...360034R. doi:10.1038/sdata.2016.34. ISSN 2052-4463. PMC 4896125. PMID 27271481.
- 19. ^ "Research Data-Seto Lab". urban.yale.edu. Archived from the original on 18 May 2018. Retrieved 9 July 2016.
- 20. ^ "The History of Urbanization, 3700 BC 2000 AD". YouTube. Archived from the original on 30 October 2017. Retrieved 24 September 2018.