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Toll roads and the development of new settlements

The case of Surabaya compared to Jakarta

Throughout history, communication and transportation have been the primary generators of new settlements, especially where two or more modes of communication and transportation intersected. Great civilizations were established in the deltas of major rivers such as the Nile, Euphrates, Indus, and Yangtze. These ancient civilizations were the result of communication, the exchange of resources, and increasing mobility of human beings.

In Indonesia as well, towns and cities were basically the product of the intersection of water and land communication routes and the growth of transportation. Before the establishment of Surabaya, Tuban and Gresik were the main seaports of East Java, enabling communication with foreign countries from China to the Middle East and Europe. Surabaya, founded on sediments brought downstream by the Brantas River, was of tactical importance because of its strategic geographical position connecting the inland capital of the Majapahit kingdom with the Java Sea and overseas destinations. Gradually, Surabaya gained more importance and eventually became the main city in Indonesia from the sixteenth century until the establishment of the Dutch colonial government. The town managed to maintain this position until Batavia (later Jakarta) became the seat of the colonial government in the early nineteenth century. With the introduction of the new decentralization law (22/1999), which gives considerable autonomy to local administration and which has been in effect since 1 January 2002, Surabaya has been given the opportunity to regain its previous importance.

An important means to stimulate growth of the economy was the construction of major roads, including many freeways, whether with or without tollbooths. In the 1970s, the central government initiated the construction of trans-island highways on major islands of Indonesia, such as the Trans-Sumatran Highway, Trans-Kalimantan Highway, and the Trans-Irian (now Papua) Highway. Toll roads were also constructed in many cities, for two reasons: to boost urban growth by connecting several towns and cities and to generate income.

Another reason for the creation of toll roads was to stimulate the growth of business, especially the construction of expensive new settlements, mainly around Jakarta. The Jakarta experience revealed the important reciprocal relationship between the development of toll roads and new settlements. Almost all planners and decision-makers agree that the construction of a toll road can be used to generate new settlements or to increase the scale of existing settlements. However, this generally assumed relationship – of toll roads as generators of new settlements – is not always the case, as will be demonstrated in this article based on a comparative study of the experiences of Jakarta and Surabaya. The case of Jakarta has been extensively charted and discussed by Winarso (this volume); the emphasis here is on the experience of Surabaya. This article is based on a number of unpublished studies on the impact of the toll road and the development of new settlements in the western part of Surabaya, conducted in the middle of 2001 by the Laboratory for Housing and Human Settlements of the Institut Teknologi Surabaya (Institut Teknologi 10 Nopember).

Background: Urban-21

Around 1900, urban areas became dominant for many reasons. One was that the size of the total urban population surpassed that of the rural population and is still increasing. This trend is irreversible and has both positive and negative consequences, particularly for developing countries that have no experience with rapid urbanization and lack support for managing it. The challenge of increasing urbanization and globalization were the dominant issues at the Habitat II Conference (City Summit) in Istanbul (June 1996) and the Istanbul+5 Conference in New York (June 2001).

A topic that was insufficiently addressed at these two conferences is that the dynamic growth of urban areas cannot be contained within either political or administrative boundaries. Towns and cities cannot survive or exist by themselves, but need each other's support as well as that of a rural hinterland. The 'ecological footprint' concept promoted by William Reese is growing in importance, and needs to be examined further as an inevitable reality for towns and cities. The members of the Laboratory of Housing and Human Settlements of the Institut Teknologi Surabaya coined the term 'Urban-21' for the new paradigm of urbanism in the twenty-first century. The term Urban-21, or 'Urban Agglomerated Area', refers to a network of towns and cities; the concept applies to a situation common in Europe, now emerging as a feature in several parts of Indonesia.

The symposium 'Citizen and City in the Year 2000' held in 1970 under the auspices of the European Cultural Foundation (1971), the City Summit

in Istanbul, and the Istanbul+5 meeting in New York have provided the input for the five main points of Urban-21. The first is globalization, including the network between cities, the exchange of information, the ease of movement of goods and people, and cheap and rapid passenger transport between cities. The second characteristic is agglomerating and networking. Agglomerating is the process by which physical boundaries between one city and the other become indistinguishable. Networking means that towns and cities are linked by a mutual interest in economic and social relationships, while preserving their individuality and physical distinctions. The third feature is the humanization of cultural and social needs. This includes privacy, socialization, and creativity. The fourth characteristic is the rise of information and telecommunications technology. Work patterns change from physical to mental work, and in the movement of products, physical transportation is replaced by the flow of digital products through a cyber network. The fifth and last characteristic is the sustainability of diversity, which refers to the enrichment of the quality of life in terms of ideas, preferences, behaviour, and intelligence.

When the Urban-21 programme was formulated, one question was how the potential of high-quality communication, the exchange of various resources, and the dynamic movement of goods, people, and ideas was to be transformed and accumulated effectively in order to enrich the formation of networks of cities. Another question was how to smoothly effect the transformation from the current separate, diverse, and multiple conditions of urban areas to the integrated Urban-21 characteristics of adjacent towns and cities.

The examples of tourism in Bali and Jamaica function as cases for comparative analysis. Both islands have enjoyed a significant increase in the scale and quality of the tourist industry. Bali offers more and better facilities and more accommodation in different towns on the island than Jamaica does. In terms of tourist satisfaction, Bali is ahead of Jamaica. However, if one looks at the tourist industry's benefit to local people, the result is the opposite. The revenue turnover is greater in Bali than in Jamaica, yet, compared to Jamaica, only a small fraction of the dollars earned really reaches the pockets of the local people. In Jamaica, most of the facilities for serving tourists are in the hands of local people. This is the case for hotels, transportation, and most other amenities. In Bali, by contrast, locals drive taxis owned by people from Jakarta or Surabaya. And the Balinese often tend guests and sell drinks to customers who stay in luxurious hotels owned by franchised companies, or offer merchandise produced by multinational companies, instead of local products. In short, tourism on Bali is of high quality with little positive impact on local inhabitants, whereas tourism in Jamaica is of less quality, but fully benefits the local community.

Generators of new settlements

Road construction, or more generally speaking the development of urban infrastructure, is the primary factor that facilitates and guides other developments, especially the emergence of new settlements. Next to road construction, the second factor generating the development of new settlements is the establishment of employment centres such as industries and shopping malls. Third, strategic public planning has sometimes been responsible for generating the development of settlements and new towns, as seen in big cities such as Jakarta and Surabaya. Although these three generators of new settlements – roads, employment, and planning – may operate in all processes of the development of new settlements, each individual case of new towns follows a unique pattern. It is therefore risky to transfer experiences from one place to another, without a good understanding of local peculiarities and the need to adapt general insights to idiosyncratic conditions. This article will compare the experiences of two cities. In particular, I will compare the relationship between toll roads and the establishment of new towns in Jakarta with the effect of a toll road in Surabaya. In the conclusion, the relevance of the findings on toll roads in Surabaya for the Urban-21 model will be set out.

The construction of roads – whether they be arterial roads, collector roads, or freeways – is believed to be the most effective means of facilitating the development of a virgin area. Road construction has many proven beneficial effects: increase in prices of land (and future property), participation of other investors, development of new facilities and functions, and improvement of the area's competitiveness. Later on, all the changes set in motion by the new road lead to an increase in various revenues that recover the investments made in constructing the road. Providing collector and bypass roads was the most attractive and frequently used way of generating other urban functions and properties, particularly housing and the development of new settlements. The conventional belief was that a close link existed between the construction of major roads and the development of new settlements, with the prospect of creating profit. It was also assumed that the existence of roads increased the link between cities and towns, creating a network of large urban areas. This article focuses on the experiences in Surabaya, Indonesia's second largest city, compared to the national capital of Jakarta, between the height of economic growth and the period of economic crisis, or roughly from 1990 onwards.

In economic terms, in the first part of the 1990s Indonesia was classified as one of the East Asian tigers. The Asian crisis that emerged in 1997 hit the formal sector of the economy, but the majority of informal economic actors are still functioning and are able to sustain an economic growth that is still significant at a rate of around four to five per cent. All of the world's major religions are practised in Indonesia, a country that has the largest number of

Muslims in the world. At present, the Indonesian people are learning about real democracy the hard way. The false democracy of the New Order (1966-1998) constrained the sound development of towns and cities as a way to improve the country's social and economic situation. However, the last two smooth, democratic changes of president and vice-president are proof that Indonesia is a quick learner in democracy.

Before discussing the Surabaya case, it is important to take a brief look at the set-up of the greater Jakarta area (Jabotabek) in numeric terms (URDI 1999). Jabotabek covers only 0.33 per cent of Indonesia's total land area and houses 10.61 per cent of the total population. In monetary terms, it contributed 21 per cent of the gross national product in 1995. Financial and property businesses in Jabotabek account for as much as 84.5 per cent of national business in this sector. Needless to say, 75 per cent of money in Indonesia circulates in Jakarta, but this share is currently decreasing sharply in scale and scope, with two new laws on regional autonomy. These laws were passed in April 1999 and became effective on 1 January 2001; one law regulates the division of responsibilities between national and regional government (22/1999) and the other (25/1999) gives the province and district a larger share of regionally collected revenues. As a result, since the 2001 fiscal year, about three-fifths of the national budget has been allocated and transferred directly to the treasuries of the various local governments. The decentralization of the government budget and the shift of money circulation out of Jakarta will definitely change the picture of the development of infrastructure and new settlements in and around Jakarta. Yet the existence of no less than twenty new high-class settlements around Jakarta, built at the peak of economic growth, still plays an important role in the economic development of Jabotabek.

The latest figures, for 2000, on the development of housing around Jakarta indicate that of the 129 housing projects built since the 1980s in the western part of Jakarta, only three are stagnating due to the economic crisis, thirteen are still being marketed, and the rest have been sold and are nearly fully occupied. As can be seen on road maps, most of the settlements are located within easy reach of existing toll roads. During peak hours most of the toll roads and the interchanges are congested for hours with traffic jams. Obviously, car culture still predominates among the inhabitants of the housing estates in and around Jakarta. This is one of the reasons why, even in the current situation of economic crisis, the sight of imported luxury cars is still common. Showrooms still display well-known brands such as Ferrari, Mercedes, BMW, and Jaguar.

Indonesia's urban population growth is slowing down significantly from 1.97 per cent in the 1980s to 1.35 per cent in the 1990s. Many cities experienced a population growth close to zero, even though most of the last decade of the twentieth century was a time of high economic growth (Table 1).

Table 1. The fifteen largest municipalities in Indonesia in 1990 and 2000 (in thousands of inhabitants)

		1990 population			2000 population
1	Surabaya	2,483.87	1	Surabaya	2,588.82
2	East Jakarta	2,067.21	2	East Jakarta	2,348.96
3	Bandung	2,058.65	3	Bandung	2,141.84
4	South Jakarta	1,913.08	4	West Jakarta	1,910.47
5	West Jakarta	1,822.76	5	Medan	1,899.33
6	Medan	1,730.75	6	South Jakarta	1,792.21
7	North Jakarta	1,369.64	7	Bekasi	1,639.29
8	Semarang	1,250.97	8	Palembang	1,441.52
9	Palembang	1,144.28	9	North Jakarta	1,440.46
10	Central Jakarta	1,086.59	10	Semarang	1,345.07
11	Makasar	944.69	11	Tangerang	1,311.75
12	Malang	695.62	12	Depok	1,146.06
13	Bandar Lampung	636.71	13	Makasar	1,091.64
14	Padang	631.54	14	Central Jakarta	892.75
15	Surakarta	504.18	15	Malang	749.77

The special territory of the national capital, Jakarta, is split into five municipalities: Central, North, West, South, and East Jakarta. Taken together, the population of these five municipalities was 8,259,280 in 1990 and 8,384,850 in 2000. Bekasi, Tangerang, and Depok became municipalities after 1990.

Source: Central Bureau of Statistics (2001).

As can be seen in Table 1, three new cities of over one million people, namely Bekasi, Tangerang, and Depok, emerged in the ten years after the 1990 census alone, that is, in less than one generation. The construction of the new Sukarno-Hatta airport, followed by industrial and housing areas along the toll road to the airport, generated the growth of Tangerang, located west of Jakarta. Bekasi, in the east, also depended on the toll road, but Depok, south of Jakarta, was designated to be served by a local train service to and from Jakarta from the beginning. It is important to note that the highly developed municipalities of Central and South Jakarta experienced negative population growth. Another tendency deserving of mention is the deceleration of population growth in other major cities. In the last decade, Jakarta as a whole had a growth rate of only 0.16 per cent and Surabaya of 0.43 per cent. Yet the first two-thirds of the 1990s was a period of high economic growth. Nowadays, as a result of the monetary and economic crisis and the implementation of the revised local autonomy law, there are many difficulties in urban develop-

ment that need to be dealt with. An alternative urban development strategy must be formulated in response to the challenging changes. It is particularly important to understand the role that existing new towns need to play in the future. A large amount of credit was invested in the development of these new towns, which will still need to be serviced for a long time to come.

The toll roads of Surabaya

Surabaya is the oldest city still going by the same name in Indonesia. Surabaya came into being in the thirteenth century, through the agglomeration of villages in the Brantas River delta. It is recorded that in 1293, Kublai Khan's army was sent to request the East Javanese king's subordination to the seat of the Mongol Empire. Kublai Khan's forces were defeated and pushed back from the Surabaya port in shame. The Dutch East India Company later founded Batavia (the present Jakarta) on the remnants of an older Javanese town early in the seventeenth century. Batavia is thus of much more recent origin than Surabaya. The colonial government's location of the central administration in Batavia, and the extension of the colonial administration in the early twentieth century significantly reduced Surabaya's economic importance. After independence in 1945, a highly centralized Indonesian government was adopted, which further strengthened Jakarta's position as the main city. Yet Surabaya still enjoys economic growth at an annual rate higher than the national average. The new 1999 autonomy law was a positive change, and Surabaya is once again free from the central government's influence.

Master plans for Jakarta and Surabaya were formulated in the early 1970s. The plans consisted of two different development strategies. Jakarta adopted a strategy designed to result in a highly controlled development corridor and Surabaya adopted a networking model focusing on the urban road structure. These patterns also took into consideration the need to connect the two big cities with neighbouring towns and cities.

A toll road for Surabaya was introduced in the 1980s for two reasons. The first and main reason was to connect Surabaya with towns and cities lying outside the greater Surabaya area. Constructing the toll road would also provide easy access to the Surabaya port, Tanjung Perak. Tanjung Perak is Indonesia's second largest port and serves various needs advancing the livelihood and development of the eastern part of Indonesia. The toll road also facilitates international cargo handling to and from Indonesia.

The toll road's second purpose was to stimulate the development of the western part of the city. Geologically, the land in the western part of Surabaya is less fertile and unstable, being the extension of a range of hills with a

Surabaya and vicinity, with toll roads

high lime concentration. East of Surabaya, the soils were formed in a long-term sedimentation process, fed by East Java's main river, the River Brantas. Historically, Surabaya's natural development trend has been to expand to the east, leaving the western part idle with a low land price. During Surabaya's long history, residential development of the eastern part received greater prominence and was more attractive than that of the western part. The shoreline, however, limits expansion to the east, as well as to the north. Development to the south would incur a ribbon type of development with all the concomitant undesirable effects. To avoid chaotic expansion of the city, slowing down the trend of development to the eastern and southern parts of the city is extremely important. Therefore, development to the west is most favourable and needs to be supported. This was the reason for encouraging investment in the toll road in the western part of the city as an incentive to stimulate this development and to ease the pressure on the eastern part. As has been mentioned, a very large tract of land west of Surabaya was available at a low price, at least up until the economic boom of the early 1990s.

The toll road located to the west of the city connects Surabaya with the industrial town of Gresik (35 kilometres from the centre) to the north-west and with Pasuruan (45 kilometres) to the southeast. Both Gresik and Pasuruan are rapidly industrializing towns. Plans have been made to extend the toll road to almost twice its present length to reach more distant towns and cities, as it cannot cope with the growth in traffic of passengers and goods anymore. After the economic crisis, which started in 1997, the amount of traffic travelling to and from town, mostly to mountain resorts and other holiday destinations, increased more than was anticipated, especially on holidays and on weekends.

It is obvious that the private sector will not ignore the opportunities on the west side of the city, with or without the provision of a bypass or toll road.¹ In contrast to Jakarta, the development of new settlements in the greater Surabaya area was not dictated or determined by the location of the toll road. The development of new settlements to the west depended on the existence of a network of arterial and collector roads, connecting the housing estates to the city centre.

Many studies suggest that the same principles that operate in the western part of Surabaya apply to the development of new settlements in other parts of Surabaya and also beyond the administrative boundaries of the city. New centres of employment are followed by the provision of a road network, and the roads in turn generate the expansion of existing informal settlements as well as the growth of many new formal housing projects undertaken by

¹ In the vocabulary of Indonesian urban planners, both toll roads and bypass roads are newly constructed roads for motorized vehicles, circumventing old roads clogged up with slow traffic. A toll road requires payment from drivers who want access, while a bypass road is free.

the private sector. Although some of the new housing projects were served neither by a toll road nor by a bypass road, they developed well, because they were connected to the city centre through a network of semi-concentric ring roads and local roads. The network of concentric and arterial roads also links all parts of the city to areas far beyond the municipal boundaries, reaching regions under the administrative authority of neighbouring local governments. Inhabitants of new housing projects live in a dualistic situation; administratively they fall under the neighbouring local government, but they commute to Surabaya for work and services daily.

Patterns of preferences

In early 2001, a study was carried out by the Laboratory for Housing and Human Settlements of Institut Teknologi Surabaya, looking at patterns of preferences of both real estate developers and consumers/inhabitants of housing projects. The study was executed with randomly selected respondents in forty formal and informal settlements built within the toll road's catchment area and provides a variety of interesting information. The inhabitants articulated many reasons why they opted to stay in the newly developed settlements, whether close to or far away from the toll road. A distinction can be made between people living in the real estate sector's formal settlements, people who have built their own dwellings in informal *kampung*, and expatriates.

The study challenges conventional belief in the great influence of toll roads on the development of new settlements. It contradicts the commonly assumed preference for living in a settlement with easy access to the toll road. Respondents, in fact, generally view the toll road's existence as a convenience rather than as a necessity.

Respondents did not contradict all conventional beliefs, and also showed similarities with voices heard in Jakarta, expressing a desire for better access to both the city centre and out-of-town destinations, an increase in land value, complaints about environmental pollution – such as noise, dust, and car fumes – and the feeling of a significant decrease in personal privacy.

As for the real estate developers surveyed, they realized that the economic scale and potential of the Greater Surabaya Area (Gerbangertosusila, Gresik-Jombang-Mojokerto-Surabaya-Sidoarjo-Lamongan) is much less than that of Jabotabek. Although Greater Surabaya is the second largest agglomeration in Indonesia, the scale of its economy is only about one-tenth of Greater Jakarta's. Therefore, from the private sector view, the economic pressure to invest in this area and the expected benefits are much less than in Jakarta.

It is interesting to note the unique pattern of preferences expressed by expatriates living in this area, who also influence the development of new settlements around Jakarta and Surabaya. They opted for large plots and big buildings, good amenities including the availability of a golf course, and easy access to the harbour and the airport. For them, price has never been a constraint in choosing housing types or localities. Easy access to the city centre was not a preference for expatriates, as most of their daily needs are met either within the settlements, or are taken care of by a chauffeured company car.

Like other big Indonesian cities, Surabaya has a substantial number of expatriates, working mostly in industries within the greater Surabaya area. For them the existence of a toll road to the west is an important factor in their choice of housing. The toll road provides a direct connection to the airport and the seaport as well as an easy link to almost all towns and cities in the Greater Surabaya area. Security and easy access are the first considerations in choosing a housing location. The accessibility of the International School, golf courses, shopping malls, large public buildings, and other amenities are additional attractive elements. Although the overall climatic and environmental conditions to the west of Surabaya are dry and less fertile, making it costly to reach reasonably good environmental conditions (a green garden not suffering from soil erosion), the natural environment did not deter them from choosing the western part of the city to live in. Developers have invested in the planting of trees and other greenery to compensate for these unfavourable conditions.

The higher-income groups living west of Surabaya obviously are more dependent on road transportation and feel a greater need to reside close to the toll road than people living in the self-built settlements, or *kampung*. As mentioned before, for the latter group, the existence of the toll road was generally not the reason they chose to live in the western part of Surabaya. Nevertheless, the toll road does have an impact on their residential situation. One-third of the respondents who were living in that area before the toll road was built said they had improved their own dwellings after the road's construction, in order to keep up with the area's overall development. They also felt they were more exposed to public view than before. Most of them agreed that the toll road had increased and was continuing to increase significantly the value of their immovable property; naturally, they liked this effect. In the initial stage of the toll road's existence, the increase in property value amounted to 20 per cent annually; the value has more than tripled in the last two decades. The economic crisis has not influenced western Surabaya's attractiveness negatively, nor has it affected the increase of property values east of Surabaya, for that matter. By 2001, the price increase had returned to normal and the appeal of this area was still on the rise.

On average, middle-income families use the toll road most often: twice a week or more. The people living in the self-built *kampung* use the toll road less than one-tenth as often as those living in the new formal residential areas. Yet they still consider the toll road useful and important. About 60 per cent of respondents, both in the new real estate and in the self-built *kampung*, declared that they were not motivated to buy a car, or an additional car, by the availability of the toll road. Everybody agreed that the toll road had brought them within easy reach of the city centre and beyond. Smooth transportation to the workplace and other destinations was considered a convenience, but not a necessity.

Conclusion

Since the economic crisis, neither a new toll road nor an extension of an existing one has been built. By 2001, however, many new buildings were emerging in the big cities, such as the new wing of Surabaya's main shopping centre, housing the expensive SOGO department store. The main reason that no toll roads have been built since the beginning of the crisis is the obvious lack of funds necessary for construction. Two additional reasons should be mentioned. The first is the general slump in property supply, including high-class housing, which relies on the support of a toll road. The other is the freezing of toll rates at pre-crisis level. The last increase before the crisis was high and arbitrary, taken by the local government at the suggestion of the toll road operators, who were connected to decision makers in the central government. After this, in the current Reformasi mood, a new toll increase was politically unacceptable.

A few conclusions can be drawn from the discussion in this article. In principle, the toll road in Surabaya did strengthen the development of the Urban-21 model. The direct impact is felt best at the micro level. If planned well, toll roads and other major roads can be used to direct development trends with a reasonable estimate of their impact. The type of development that will be encouraged should, however, be considered carefully: agglomeration, or the networking of settlements in the hinterland. The emphasis should be on the need for exchange of resources and mobility of people and ideas. Some significant influences at the macro level should also be considered: toll roads will have an important impact on towns' and cities' capacity to meet the challenges of a globalizing world in the twenty-first century. The following five findings deserve particular attention.

First, the development of a transportation network and the improvement of existing roads more efficiently link new towns and cities than does dependence on the availability of a toll or bypass road. Toll roads and bypass

roads are more expensive and are beyond the control of the public.

Second, the construction of toll roads may encourage the development of new settlements, both formal real estate and informal self-built neighbourhoods, and toll roads are followed by other urban functions. This is basically due to the conducive atmosphere of development itself rather than to the impact of transportation availability provided by the roads.

Third, the availability and quality of infrastructure, in particular major roads and utilities, will increase the value of land and buildings. This is shown by the increase in revenues from land and property tax.

Fourth, the correlation between the availability of a toll road and the desire to buy a first or an additional car is limited. Rather, the increase in car ownership, and the use of cars, should be seen as stemming from the limited availability of high-quality public transport in Indonesia. People did travel more, making use of the new toll road, but they did not necessarily purchase first or additional personal cars.

Fifth, toll roads and bypass roads increased inhabitants' awareness of the physical condition of the built environment. This led to an expression of the self through the house, also influenced by the increase in prominence of their settlement.

The findings in this article are not definitive and need to be pursued in more detailed studies. Contradictory characteristics between the cases of Surabaya and Jakarta may lead to wrong conclusions on the impact of future toll roads as a means to improve the viability and prospect of new real estate projects. The study can help provide understanding for different consequences that might arise in the future.

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