Does demographic pattern matter for sustainable infrastructure policy?

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Abstract

Crafting public policy that matches with the growing population requires a strategic approach to harmonise with sustainable infrastructure development. Indonesia with more than a quarter billion populations has a distinctive character in the archipelago area. Considering the fact that government capacity is low in the good infrastructure provision, hence it will create competitiveness among private sectors involved in the provision of public infrastructure, which further will path the way to a much more accepted infrastructure development and meet the need of the growing population. Sustainable infrastructure development requires the establishment of good quality life, although it would be challenging for policy maker in the dynamic pattern of demography. The research aims is to investigate whether the demographic pattern matter for sustainable infrastructure policy. It is important to study as to whether infrastructure policies have been designed with the consideration of population pattern. Further, it is important also to study the Indonesian development planning experience in regards to demographic pattern. This research presents a historical review of National Development Planning of Indonesia compared with population data simulation since 1960-2010. The data were collected from secondary resources and accompanied by document analysis. The results confirmed that macroeconomic, ecological and individual welfare rationales are predominant in the policy making.

Keywords: demography; public infrastructure policy; development

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1. Introduction

The growing population in a country is always regarded as the main constraint in infrastructure management [1-3]. This brought a need in development planning to set up a strategic management in the public infrastructure provision. In many local authorities, this strategic management is translated into public policies in infrastructure provision to ensure that it adheres to the principles of sustainable development. China as the most populous in the world had the experience in development planning, particularly in the public infrastructure provision that responsive to its growing population. There are three key points of learning. First, In regards to control the population growth, China has been successfully enforced in one-child policy in family planning programme in 1980 [3]. Population control has considerably impacted on the unemployment issue of the young age population and also the deterioration of the environment [6]. Even, in terms of commodity supply can threats a poor country, which has problem in price control [1]. Furthermore, the population growth also related to the quality of life and accessible public service. Second, the urbanisation pattern which following the population booming has changed the cities through the attraction of employability [1]. Therefore, people mobility from the suburban area towards the central business district (CBD) can affect the level of service (LOS) in terms of highway, public space and it might increase the carbon emissions. Third, migration can affect the economic policy, particularly in the infrastructure provision to enable successful development activities [4]. To respond to those three problems, China has had the need to heighten its GDP to reach 8.5 percent between 1992-2011 to balance the rapid growth population and employment migration among urban area [4,1]. There is a gap among discussion of demographic pattern in this respect, regarding public policy in development planning between China and Indonesia as populous countries. Whilst Indonesian government plays the major role in strategic national development planning, there has been a tremendous lack in public infrastructure policy that meets the standard of public infrastructure, such as standard minimums for land used of settlements and public facilities (i.e. toll roads, parks, unit health services, green area, pedestrian and other facilities) in the turmoil of urbanism phenomenon or urban sprawl. The research aims is to investigate whether the demographic pattern matter for sustainable infrastructure policy. It is important to study as to whether infrastructure policies have been designed with the consideration of population pattern. Further, it is important also to study the Indonesian development planning experience in regards to demographic pattern.

This research used case study method to investigate whether public infrastructure policies have taken into account the demographic pattern such as migration, population growth and economic development. The data were collected from secondary resources and accompanied by document analysis. Data collection was achieved through public domain: National Planning’s documents (i.e. Bappenas), Demographic figures from the Central Statistics Bureau (Badan Pusat Statistik) and United Nation and some research article and other relevant data resources. This research presents a historical review of National Development Planning of Indonesia compared with population data simulation since 1960-2010.

2. Result and discussion

2.1. Infrastructure Policy between China and Indonesia

A lesson learnt from China’s strategic development planning as the most populous country in the world seems relevant to this discussion. Rapid growth of population radically changes China, in terms of economy and infrastructure development accordingly [1,2]. Between 1949-2007, China has implemented the population growth control throughout ‘one child policy’ as the focus of their national development policy, and as the result, there were fundamental changes in political and economic life of most Chinese citizen. Further, these changes have positively impacted on people’s wealth and increased economic [3]. Moreover, the migration issues also became a trigger for developing infrastructure (i.e. High-speed rail links Beijing- Chengdu -Shanghai) to accommodate the desires of the employment attractions from much faster grown cities (i.e. Chengdu, Chongqing, Hefei, Shanghai and Beijing) and taking into account in Urbanism effects since 1980 [1].

Historically, China has a successful transformation to the national economic growth rate 7-8 percent per annum, which built upon the large migration [1]. Moreover, the rapid economic growth has also become a central consideration of their governmental strategy. The sustainable economy of China has been maintained by the
infrastructure support. Since 1992-2011, China spends around 8.5 percent of the GDP for infrastructure development, such as roads, power industry, railway, water supply networks, telecoms, ports and airport [4]. Following the huge manufacturing export to the global market, China’s government utilises the urbanization and infrastructure development as the engine of economic transformation. Demographic control in between 1975-1980 significantly reduces the fertility rate (average number of children that would be born to a woman over her lifetime) from 4.77 to 3.01 [5]. Unsurprisingly, huge population become a potential resource of national development, whether to generate the manufacture industry, and stock of low-cost labour are radically changing the global economy. As Jacques [1] stated that in the next two decades, around 326 million people of China will live in the urban area. That urbanism also predicted can influence the competitive labour cost at coastal zone in Guangdong and the Yangzi delta, rather than nearest country like Indonesia and Vietnam [1]. Hence, the changes in demographic pattern were responded by China through public policies and further the public policies, particularly related to public infrastructure had enable China’s development success.

Similarly, in Indonesia, development policy experience induced by the demographic factors successfully achieved in some aspects. Successful population control has been achieved by family planning which brought a demographic transition as in China [6]. Whilst, the Indonesian government had reduced the fertility rate in from 5.3 in 1980 become 3.4 in 1990, unlike in China the population control seems not radically changes in 1980. However, the population growth remains a challenge for Indonesia particularly, in terms of the population distribution as the population density is concentrated in 5 largest Island (Java, Sumatera, Kalimantan, Sulawesi and Bali). The difference demographic policy in Indonesia rather than China appears in the national approaches. Family planning focus on ‘two child enough’ was successful control of populations in 1989 as indicated by fertility index in Table 1. In addition the success factor of decreasing fertility caused by by two programmes: expansion of education for women and usage of contraception since 1970 [6]. Nevertheless, the national migration factor also has a significant role in population control between 1971-1995. Based on the Indonesian Statistic, the urban population smoothly growth since 1960 around 15 to 50.34 percent or about 117 million in 2007. In the last decades, Indonesia has been distinguished as one of successful emerging economies [7]. However, the national policy development on the Infrastructure still mediocre performed, although the construction industry already reaches to a value around US$ 120 billion in 2010 [8,9]. Furthermore, the discrepancy of geographical distribution the population requires the different focus of government strategy to match the demographic pattern in such infrastructure development [10].

2.2. A Historical Review of Indonesian Development

During the national development experience, Indonesia had a long pathway to reach the ideal form of government system. Decentralisation process highlighted as the path of stepping stone to deliver the public service since the independence day in 1945. Political dynamic and tremendous economic downturn required Indonesia to try harmoniously meeting the expectation among executives and parliament members. Hyper-inflations and instability of the political atmosphere continuously changes the perspective of Indonesian development during the old order [11]. However, outstanding leadership of Soekarno has controversial in reconfiguring the national resources. The old order government has created the “Lighthouse Project” (Proyek Mercusuar) to build the international respects for Indonesian sovereignty. Between 1945-1965, public infrastructure development commemorated as the first monumental project in Indonesia. Some public buildings and civil works were built in the capital city, Jakarta. For instance, National Monument (Monas) and central park, The Istiqlal mosque, The Sarbini’s Hall (Balai Sarbini), Stadium of Gelora Senayan (Now its namely Gelora Bung Karno), which has international standard of capacity and facilities at that time [11]. The old order has been terminated by parliament’s impeachment and the new order was taking the role to govern the national development afterward.

The new order government has a distinctive style of leadership. Soeharto, as a former military member who had a background in agriculture projected, his passion in agriculture through the development strategies that emphasize in the building of infrastructure that support agricultural development and its product’s distribution. Mega projects of dam structure, irrigation system and highway projects are growing in radical changes during two decades. The development in new order government, notably as high successful economic growth that bring the Indonesian
In 1998, Soeharto as the President of Indonesia was being forced to step down from the government with massive people power (students and other activist). This marked the end of the new order. Afterward, the reformation order replaces the new order regime as a manifest of demanding democratic issues in national leader and political system. The euphoria of reformation order has created the radical changes in the government system. The multi-party in the election system (previously only three parties), national leader has limited changes to be elected the maximum in two periodicity, and promulgation the decentralised system into tier two of authorities in local level: province and municipal or city level [10]. Local autonomy became a political rider to break centralistic government as the previous two orders. The local autonomy issues following the new chapter of Indonesian development pathway. The democratic government creates the opportunities for local authority in development policy making. As indicated by the historical figure of development spending are growing since 2004 [12]. During that growing period, the Indonesia construction industry appears to be in its most awakening periods where the democratic process of procurement and accountability is officially concerned throughout the national budgetary constitution. However, the implementation of regulation of construction service industry has not been satisfactorily improved. This caused by in capability of public officials that cause inefficient and ineffective performance in public infrastructure development. Local autonomy creates a dilemma in the public infrastructure provision, in one hand it provides the opportunity to reconfigure the effective decision making, in the other hand the difference natural resources and human resources among local regions has sharpen the disparity of local revenue which narrowing to inequality of local development. Although the various fiscal policy schemes have been established to fill the gaps of local financial by central government, it seems insignificant for smaller regions with low-revenue and limited resources, whether natural and human resources [13].

2.3. Public Infrastructure Investment: A policy perspectives

In the traditional public administration paradigm, it is the responsibility of government to take care of the few matters that are not otherwise handled by the market, such as providing essential public goods or correcting occasional market failures [14]. Hanemann [15] offers a more economical restrictive definition, which emphasize three characters of public goods. Public goods should be non-excludable, non-rivalrous [16] and non-adjustable. Hence, public goods will be automatically available to everyone once provided to even only one person, moreover, the quantity available to one person (one person’s consumption) does not diminish the quantity available to another person to consume (non-rivalry). Therefore, it is not possible for anyone to refrain from consuming it once it is available (non-excludability). Neoclassical economic theory suggests that goods and services with such quality such as clean air, defence and street lightings should be provided at no cost to the general albeit with funding from taxes [15]. The provision of public goods often been used by developing countries as one of many solutions to tackle poverty. UNDP [17] suggested that a public works programme aimed at providing public goods including public infrastructure is one of another six strategies for employment creation.

Investment in infrastructure has consumed a major proportion of public sector spending, and claims for further investment continue [18]. Among other scholars, [19, 20, 21] have been attempting to study on how public infrastructure affect a nation’s development. As a result, leaders in many cities around the worlds have been experimenting with the urban development with emphasizes on various aspects aiming for one goal, that is the success of the urban development. Eduardo da Costa Paes [22], the mayor of Rio de Janeiro city in his TED talks explains the rules of thumb how public infrastructure in a city should be. This is called as “four commandments” should be taken into account in the public infrastructure provision. These four commandments are: first, a city should be environmentally friendly. This implies that the public infrastructure provision should also consider the need for green open space that will contribute to the environmental problems such as addressing climate change or even bigger issue such as global warming. This is, of course, in line with Millennium Development Goal number 7 – ensure environment sustainability. Second, a city has to deal with mobility and integration. Mobility and integration signify the provision of cheaper and more comfortable public transportation and even affordable by all members of the community regardless their economic status. The practice of public transportation in developing countries showed that this can be done with one of the principle of the Millennium Development Goals – Global (particularly private) partnership for development. Third, a city has to be socially integrated This requires every aspect related to population characteristics
and effect of migration should be regarded in the public service provision even if that will include bringing the public infrastructure at the very centre of a slum area for example. Fourth, a city has to use technology to present. The benefit of the advancement of information and communication technology is available for anyone to grab. The latest technology should be used to improve the provision of public infrastructure and to make public infrastructure even more meaningful to the whole society, economically and socially.

Whilst the old public administration paradigm put the burden of providing public infrastructure on the government hand, more contemporary public administration paradigms such as the entrepreneurial government [23] and New Public Service Paradigm [24] agree to shift the burden to or further share with the private or civil society through public-private partnership scheme [25,26,27,28,29] or co-production [30,31]. However, there is a strong message from the statistic view that public infrastructure provision by private cannot be met because of the private sector as Alison [32] put private sector heavily emphasized on profit gaining. Hence, most of the time public infrastructure works done by private sectors did not correspond to the community needs. We argue that for any public infrastructures works done by the private sector under any public-private partnership should incorporate the value of sustainability. Leunberger and Bartle [33] argue that values such as efficiency, equity and participation are overlap both in the tenets of public administration and sustainability concepts. Opp and Osgood [34] explain further these overlap. First, efficiency is a shared value both in sustainability and public administration: both emphasize the efficient use of scarce resources. Second, in terms of equity both seek equitable distribution of resources within and among communities; it also applies to the idea of having equitable access to available resources for current and future generations. Third, both public administration and sustainability seek to foster inclusive communities where participation in the political and decision-making process as well as the identification of policy solutions is robust.

Local government can engage sustainable policies and practices through both direct and indirect actions [35] and public-private partnership in the public infrastructure provision is regarded as an example of an indirect action by local government. Local government across the world, have implemented sustainable operations practices in their work [36,37,38]. And to encourage the private sector to adhere to three values of sustainability, local government applies green procurement practices (GPPs), or policies and procedures that require environmental factors be considered when choosing distributors and products [39,40,41,42].

Based upon Indonesian development experiences between 1945-2010, the challenges by each development order have been developed through multi-dimensional aspects. Economic development established as cooperative movement and centralise and decentralise system differs by each order. The Balancing the role of national government to stabilise the social-political situation predominantly exhausted. Between 1945-1969, dispute issues between elite politics influences the process establishing the structure of fundamental economy. Unsurprisingly, development policy derives the centralistic pattern in Java islands. Although, this phenomenon was occurring for a hundred years before the authoritarian system have been implemented in Java [43].

Since 1970-1990, the national population growth significantly increase between 2.1-2.3 percent, as well as economic growth. Even in 1989, Indonesia has been achieved for population control throughout “Family Planning” program and success to deliver the population mobility among islands in the same decade as can see in Table 1. Based upon the migrant stock International between 1990-2010, Indonesia only has total migrant around five hundred thousand per annum, and it seems insignificant to influence the national development [5]. Therefore, transmigration tends to reduce the region’s disparity, whether density population of Java Island or the degree of wealthiness. In this respect, the Indonesian government policy are challenged by the local issues: archipelago countries, multicultural issues and insufficient infrastructure.

Transmigration favours as strategic policy for decades of Indonesian development experiences, in terms of distributing population and proliferating infrastructure development as well as to boost the potential of the local economy, and closing the gap east and west. The lesson learnt from China experience, in managing distribution, population and urbanism [1], Indonesia has a distinctive character as maritime environment. In fact, the infrastructure development needs more efforts and a huge budgetary planning to overcome the nature of the local environment. Therefore, to ensure the sustainable development in this regard, the local government should be engaged with the private sector for investment capital of infrastructure budgets. In line with Nitisastro [6], in regard the sustainable development challenges, the government should be able to provide a strategic sense in terms of direction to the development and discard the “outdated regulatory function by encouraging participation from grass root level.”
3. Conclusion

It is evident from this study that demographic pattern has been incorporated in the infrastructure policies in Indonesia. Based on the overview of Indonesian development, it can be found that: first, in the Old Order, Sukarno as the president emphasized in the huge infrastructure development emphasized in the huge infrastructure to gain the international recognition hence legitimation. Facilitated with a centralistic democratic pattern in which no local autonomy for any local governments were possible. Second, In the New Order Regime, the public infrastructure policy reflected the preference of Suharto as the president to agriculture development. Hence, it emphasized in the development of public infrastructure to enable the agriculture development to thrive. The policies made in respond to demographic pattern during the New Order Regime such a family planning and transmigration programme has been considered successful. This in turn hand in hand with public infrastructure policy in agriculture development. This can only mean one thing: lower number and much dispersed population supported with high food security is sustainable development. Third, during the Reform Period, public infrastructure facing the challenges the local issues by the decentralisation system. Urbanism will be a prominent issues in terms of distributing sufficient infrastructure among the dense area and improving quality of public services managed by local authorities. However, at the Reformed Period, the engagement between local authorities and private sectors inevitably to infrastructure development. Finally, the demographic pattern have been taken on the lowest levels of authorities, hence the infrastructure policy expecting the local leaders consider to take into account the population control through their development planning.
Acknowledgements

Directorate General of Higher Education, Ministry of Research, Technology and Higher Education, Republic of Indonesia for Doctorate Scholarship support of first author, and Coventry University for the conference grant.

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