

Local People's Perceptions of Megaprojects: The Case of Suramadu, Indonesia

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For decades, megaprojects have been on the agendas of policymakers worldwide. The positive effects are often illustrated at the national or regional level, whereas the negative impacts are mostly felt at the local level, which is something that most literature on megaprojects neglects. Therefore, the following research focused on local people (residents and communities) to gain a deeper understanding of their perceptions of megaprojects, using the Suramadu Bridge in Indonesia as a case study. The research question was: “What are the perceptions of local people regarding the balance between the negative and the positive effects of megaprojects, and what factors affect their perceptions?” To answer this, both a survey and in-depth interviews were carried out. There were two main findings. Firstly, and interestingly, the vast majority of the respondents were supportive of the project, mainly for emotional reasons and because of their cultural background. However, certain groups reported experiencing the negative externalities of the project, which shows how contested megaprojects are in the eyes of local people. Secondly, an exploratory factor analysis revealed that there are three factors underlying people's perceptions, namely immaterial benefits, material benefits and specific employment opportunities. The strongest factor turned out to be, again surprisingly, immaterial benefits, implying that people may perceive a different reality caused by the project, involving intangible aspects such as pride and a new identity. We suggest that including people's perceptions in megaproject studies can contribute to more inclusive megaproject development processes.

1 Introduction

Cities all over the world have been building megaprojects since the 1980s. The term “megaproject” refers to a project that, compared to a regular construction project, has a greater magnitude of aspiration level, size, actor involvement, implementation time, complexity

and impacts (Flyvbjerg 2016). Megaprojects are usually large-scale transformational projects, affecting and involving numerous stakeholders with different interests. They also take a long time to develop and usually cost more than USD 1 billion (Flyvbjerg 2014). Some examples are the Big Dig project in Boston (United States), Shinkansen High-Speed Railways (Japan), the Sydney Opera House (Australia) and the Oresund Bridge (Sweden).

One of the driving forces behind megaprojects is globalisation. Megaprojects usually become part of the urban entrepreneurial strategy (Harvey 1989) to attract investment to the city as an answer to globalisation challenges. However, although some 8% of global gross domestic product is spent on these projects (Flyvbjerg 2014), the majority of them fail to meet the expected objectives for which they were built (Dimitriou 2014). Appraisals are often optimistic in terms of benefits but neglect environmental implications (Molle, Floch 2008). In practice, megaprojects have a significant effect on quality of life and the environment (Capka 2004). Whereas the benefits are expected at higher levels, the implications and negative impacts often crystallise at local levels. These may include displacement (Gellert, Lynch 2003), social polarisation (Moulaert et al. 2003), and environmental and social impacts (Brookes, Locatelli 2015; Gilbert et al. 2003). Therefore, a balance between the positive and negative effects on local people is mostly absent from megaproject development practices. This causes local people (residents and communities), particularly in the vicinity of the project, to be at a disadvantage in the overall development process.

Although numerous studies have investigated the impacts of megaprojects (Orueta, Fainstein 2008; Flyvbjerg et al. 2003; Olds 1995; Molle, Floch 2008; Storey, Hamilton 2003), they looked only at tangible economic costs and benefits. Furthermore, scholars, politicians, the media and the public have paid scant attention to the social implications of megaprojects (Drucker 1995) and have failed to focus on the local community level (Di Madaioni, Davis 2017). To be specific, to the best

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of our knowledge, the existing literature has so far overlooked the people's perceived reality of the impacts from a local perspective. This is surprising, since the impact of a megaproject on society is one of the leading dimensions of the megaproject's success (Shenhar, Holzmann 2017), along with people's satisfaction with the project (Fahri et al. 2015). Therefore, the present research set out to gain a deeper understanding of local people's perceptions of megaprojects, using the Suramadu Bridge in Indonesia as a case study. We addressed the research question: What are the perceptions of local people regarding the balance between the negative and the positive effects of megaprojects, and what factors affect their perceptions? Further, how does this work in the case of the Suramadu Bridge development?

In this article, we first present a review of the literature on megaprojects as a global ambition and discuss people's perceptions of megaprojects. We then present our empirical case of the Suramadu Bridge, which was opened in 2009. It is an unusual case, since ex-post assessments at the usage stage are rare because project proponents have little interest in public reviews (Gunton 2003). We used both quantitative methods (door-to-door surveys) and qualitative methods (in-depth interviews) to explore how people perceive the project and to configure the factors behind their perceptions using exploratory factor analysis. The analysis and results of the case study are presented before the discussion section. The article ends with some conclusions and recommendations for further research.

2 Two faces of megaprojects: global ambition and local perception

This section starts with a review of how cities have used megaprojects to cope with the challenges of globalisation. Megaprojects can bring tangible economic advantages to a city as well as intangible benefits regarding pride and identity. However, these positive impacts often do not extend to local people and communities. Therefore, people's perceptions of megaproject development are also reviewed. This culminates in the research design of the present research.

2.1 Megaprojects as a globalisation strategy

Initially, the most common goal of megaprojects is to deliver public goods, which is mainly

exemplified by the "old" types of megaproject (Lehrer, Laidley 2008) such as oil and gas industry projects (Merrow 2012), airports (Davies et al. 2009; Robbins 2015) and high-speed railways (Han et al. 2009). These types of megaproject are usually initiated or financed by the state, with top-down technocratic planning practices (Kennedy 2015). However, nowadays, globalisation has also contributed to the promotion of megaprojects. Globalisation is associated with social growth, economic dynamics, sustainability and competitiveness (Balkyte, Tvaronavičiene 2010). Some scholars relate globalisation to the opportunity to rescale the state's role in infrastructure provisions toward a supra-national scale (Brenner 1999). Thus, the development of megaprojects is encouraged in two ways, namely through cross-national partnerships and through technological innovations that enable big and complex constructions (Kardes et al. 2013).

To address the challenges of globalisation in terms of enhancing market accessibility and market size, as well as maintaining technological and institutional set up, a city must create a competitive environment (di Mauro, Forster 2008). This is costly financially and in terms of other essential resources, such as human capital, as well as in terms of cultural, intellectual, social and environmental aspects (Friedmann 2005). Some countries respond to these challenges by creating new agglomerations, ranging from industrial districts to competitiveness poles (Ganne, Lecler 2009). Others focus on megaprojects to generate area competitiveness (Guardia 2015).

Megaprojects are used to dealing with global competitiveness by showcasing the benefits in two ways. Firstly, the benefits are tangible and relate to material economic impacts. The projects are seen as a crucial development strategy because of their economic and technological developments (Darmaki, Rahman 2008). Economic impacts on land value, business, international trade, tourism, employment and taxation are often highlighted (Oliomogbe, Smith 2013). Some forms of megaprojects are expected to open land markets and attract investors, especially in the case of developing countries (Brahma 2015).

Secondly, the intangible benefits of megaprojects are also evident. Megaprojects work as monumental structures and cultural icons to acquire the status of a global city (Kong 2007; Sklair 2013). Public and private sectors alike try to draw global attention through the development of the most impressive, most spec-

tacular and most prominent mega-infrastructure projects (Shatkin 2007). Megaprojects can also incorporate cultural capital, creating new cultural urban spaces that share national and city identities (Kong 2007). Fame, aesthetics or the symbolic meanings of iconic megaprojects are stressed as crucial to give identity to a particular area (Sklair 2013). Beijing, for instance, chose to use modern, high-tech and futuristic architectural designs to brand its megaprojects (Ren 2008); the Oresund Bridge between Sweden and Denmark plays a significant role as an iconic symbol of political, economic and cultural integration across national borders (Löfgren 2015); and the Twin Petronas Towers in Malaysia were designed to elevate national pride and identity through a symbolic and material role in postcolonial nation-building (Bunnell 2013).

2.2 Perceptions about megaprojects

The global ambition to create both tangible and intangible benefits through megaprojects has been widely acknowledged in the megaproject literature. However, few studies have addressed the perception of local people regarding these benefits. Doucet et al. (2011) show the relevance of both: they found that although the immaterial benefits of megaprojects are less favourable than the tangible benefits, almost 50% of their respondents had positive views on the immaterial aspects of the project. Even if the project failed to deliver the tangible benefits, the spectacular image and circus-like concept of the project may still engender more positive views in people because of its ability to hide the real problems and hardship felt by them. This implies that not only the tangible economic benefits but also the intangible benefits matter in shaping people's perceptions of megaprojects.

Many different perceptions underlie stakeholders' actions and decisions (Diallo, Thuillier, in Nielsen et al. 2013). This makes it hard to systematically study the importance of the variation of factors underlying the perceptions because there are too many fragmented stakeholders, too many values and too many conflicted variables. For instance, the costs of impacts and inequalities to neighbouring communities are hard to capture (Van de Graaf, Sovacool 2014). In addition, local people may not be familiar with the project's implications, resulting in them perceiving the benefits more strongly than the negative spillover effects (Paul 1995). Moreover, local actors have

little power in megaproject development processes (Robbins 2015). Finally, perceptions are usually captured at a single moment, whereas they usually continue to change over time and space. The development of megaprojects always takes a long time, and each stage of the process (planning, construction and usage) involves dynamics and uncertainties that affect people's perceptions. During the process, the net benefit of project investments may turn from negative to positive, or vice versa (Campbell, Brown 2015). When the actual benefits of a megaproject do not meet the expectations that people had during the planning stages, their positive attitudes towards the project may become negative.

2.3 Bringing people back into megaproject studies

Research shows that megaprojects are often contested in nature (Sutherland et al. 2015; De Bruijn, Leijten 2007; Strauch et al. 2015; Shatkin 2014). Stakeholders perceive a megaproject differently based on their expectations of and experiences with the project. As secondary stakeholders who have little power, residents and local people may perceive a project positively or negatively based on their experiences of positive and negative impacts of the project and how the balance between these impacts could be achieved. We studied this in two ways: over time and considering different types of benefits.

First, the time dimension plays a prominent role in shaping the impacts of infrastructure projects, especially in creating sustainable projects (Steg, Gifford 2005). In particular, the "old" types of megaprojects that focus on public goods delivery usually have a low profit rate over a long period of time (Lami 2014). It is not until the usage stage that the benefits can be delivered to the general public. This causes perceptions to change over time, through the dynamics attached to the following three project stages:

1. Planning stage

Uncertainties in the planning stage usually result from uncertainty in predicting the actual impacts of projects and from conflicting interests among stakeholders. The planning stage needs to address the challenge of multilevel appraisal in the decision-making process, at national, regional and local levels (Grant-Muller et al. 2001). In addition, there is only a limited amount of information available, and it is often biased and judgmental (Samset 2013). This lack

of reliable information also stresses the influence of the political dimensions of megaproject development (Altshuler, Luberoff 2004).

2. Construction stage

During the construction stage, temporary negative and positive effects can become visible (Oosterhaven, Elhorst 2003). On the one hand, people may be negative due to disturbance from the construction, such as pollution (Li et al. 2002) or displacement (Gellert, Lynch 2003). On the other hand, megaproject construction can generate a significant number of local employment opportunities, which leads to positive views among the local people.

3. Usage stage

At the usage stage, the direct effects become visible and after a certain period of time the net benefits tend to become positive (Campbell, Brown 2015). In the case of a transport project, the benefits are mostly enjoyed by the users (Banister, Berechman 2001). The benefits could include decreased travel time, increased comfort and reliability, reduced accident probability and less congestion in other transport modes (De Rus 2008). These direct effects may lead to positive attitudes among people.

Secondly, the literature highlights many benefits of megaprojects that may affect people's perceptions, including the attraction of businesses and investors (Brahma 2015), growth and employment (Robbins 2015; Dimitriou et al. 2015), iconic symbols (Skair 2013; Löfgren 2015), area identity (Ren 2008; Kong 2007), a sense of place and identity making (Shaw, Montana 2016), new land use and spatial configuration (Kennedy et al. 2011; Douglass 2000; Douglass, Huang 2007), economic revitalisation and urban planning (Simon 2005), access to amenities (Lehrer, Laidley 2008), city transformation and identity (Dixon 2010), increased value to the city (Archibald et al. 2012) and changes in the city's spatial structure (Ponzini 2013).

3 Research design and data collection

To operationalise the factors identified, we converted the aspects of importance for influencing perception that were mentioned in the literature into a list of attributes, which we used in our questionnaire (Table 1).

"I feel that..."
... the project development has created new employment opportunities (i.e. non-construction jobs).
... my income has increased because of the project.
... because of the project, many investors and new businesses come to Madura and Surabaya.
... the cost of living is higher because of the project.
... the project gives the city a new identity.
... the project gives the city a positive value.
... the project represents the value of the city.
... I am proud of the project.
... many tourists come to the city because of the project.
... I am attached to the iconic symbol of the project.
... the project gives negative impressions of the city.
... the project was built for people outside Madura and Surabaya.
... I feel like a stranger because of the changes caused by the project.
... the aesthetic value of the project just wasted the government's money.
... the project contributes to improving the quality of life in the city.
... the project has led to significant positive changes to the city's spatial pattern and structure.
... I am proud to live in the city because of the project.
... the project has brought about significant positive changes to my quality of life.
... the project has improved access to amenities.
... I am attached to the spatial changes brought about by the project.
... the spatial changes brought about by the project are not for me.
... the spatial changes brought about by the project have a negative impact on the city.

Tab. 1: Attributes that possibly influence people's perceptions.

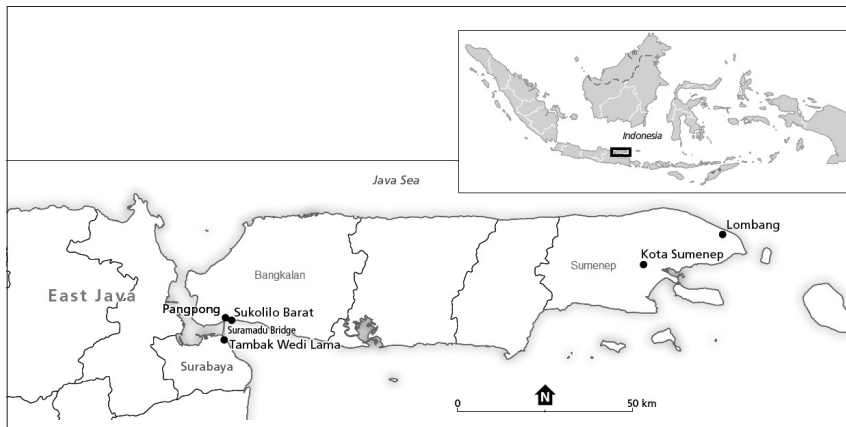


Fig. 1: Map of the fieldwork locations.

First, we did a door-to-door survey in three neighbourhoods. Two neighbourhoods are next to the bridge on the Surabaya and the Bangkalan side, respectively, and the third is in Sumenep, which is at the far end of the island of Madura (Figure 1). We incorporated the furthest city from the bridge to grasp the empirical findings on whether the bridge has broader economic implications on further jurisdictions, as has been claimed by literature on megaprojects (e.g. Oosterhaven, Elhorst 2003). Within the targeted neighbourhoods, the survey was conducted based on respondents' willingness to participate. If a targeted household did not wish to participate, the researchers moved on to the next household until 200 respondents in each neighbourhood had agreed to participate. In total, there were 587 valid responses. The questionnaire was translated into Bahasa Indonesia (the national language spoken throughout Indonesia) and the questions were worded in such a way that they were easy for the general public to understand. Respondents were asked to rate how much they agreed with the statements presented to them. Responses cover the three phases of the project development (planning, construction and usage) and were measured on a five-point scale.

To learn about experiences during the planning and construction stages, we also held 18 in-depth interviews with key informants who were recruited through snowball sampling, based on information obtained from respondents while conducting the door-to-door surveys. These informants included a representative of the development agency (1), sub-district heads and village heads (4), fishermen (3), street vendors (4), community figures (3) and academics from a local university (3). To explore the context of the project, we also conducted desk research on policy documents, information on

the official website of the development agency and the master plan of the Suramadu Bridge development.

4 Suramadu – the Indonesian anatomy of ambitions

This section presents the analysis and results based on the dynamics in the planning, construction and usage stages. The timeline of events was created from the information on the official website of BPWS (the development agency for Surabaya and Madura Area), which was later augmented with the results of the interviews and survey. Finally, the overall picture of the respondents' general perceptions of the project is presented.

4.1 Planning stage (1960–2003): conflicting benefits and externalities

The development of megaprojects usually takes a long time. Further, for strategic purposes, large infrastructure projects are usually perceived as “political activity”, which leads to various uncontrollable impacts (Lehtonen 2014). In this, many actors and interventions are involved and interrelated (Brockmann, Girmseheid 2007). This case was no exception: many stakeholders were involved in the lengthy development process, which was influenced by political activities, uncertainties and complexities.

The idea of connecting several of Indonesia's major islands arose in the 1960s. The national government, together with the Japanese Ministry of Transport, conducted feasibility studies. In 1989, it was concluded that the most feasible project would be a direct connection between Java and Madura. The bridge would connect two cities in East Java Province (Surabaya on Java

Island and Bangkalan on Madura Island) that are separated by the Strait of Madura. Surabaya is the capital of East Java Province, the second largest national economy (Indraprahasta, Derudder 2017). The city itself underwent explosive growth in the 1990s that was marked by the physical development of skyscraper offices and banks, apartment towers, five-star hotels and shopping malls (Dick 2003). While Surabaya has experienced increasing economic growth, Madura Island has not yet properly developed, and the island is lagging behind other areas in the East Java Province.

The Department of Public Works was responsible for the project implementation. Indonesian and Japanese project consortiums comprising numerous private and state-owned enterprises were formed. Between 1992 and 1995, feasibility studies, surveys, detailed engineering designs, action programmes, and environmental impact and mitigation studies were conducted. In 1995, the funding strategies were developed and the land acquisition took place. The 1997 economic crisis in Southeast Asia led to the postponement of the development. After the crisis, the provincial government of East Java attempted to get Suramadu back on the national agenda. Decentralisation in 1999 enabled the agreement between the provincial government and the national government to continue development. Following this agreement, in 2002, the governor of East Java called a public meeting with Madura's Muslim and community leaders to inform them about the project. Our survey outcomes show that the information feed to the communities seems to have been sufficient: approximately half of all respondents both close to and further away from the bridge stated that they felt they were well-informed about the project at the planning stage (Figure 2).

After the country regained stability, the Ministry of Public Works decided to continue the development and reformed the consortium responsible for the development. Because there had been a four-year delay, the impact assessment studies were updated. Based on a review of the *Feasibility Study of Surabaya and Madura Bridge 2002*, the bridge would bring two benefits. Firstly, it would reduce the travel time between Surabaya and Madura. Before the bridge was constructed, the only way to cross the strait was by one of the 18 ferries. In 2002, for example, over 10 000 vehicles per day made the crossing. The travel time was between one and two hours, depending on the point of departure in Madura. The bridge would reduce the travel

time to 15 minutes. Secondly, the megaproject development was expected to affect economic development (Flyvbjerg et al. 2003; Yu et al. 2012; Laksmanan, Anderson 2002; Summerhill 2005). Suramadu was expected to increase the goods and services demand and to influence regional economic growth especially concerning industry, trade, service, agriculture and goods flow.

Four sites were proposed for the USD 445 million megaproject, as they met the criterion of offering the opportunity to optimise the benefits and minimise the negative externalities. In the end, the Kenjeran-Labang crossing was chosen, as it had less maritime traffic, less geological complexity, fewer households to be resettled and fewer negative impacts. It was projected that in the development corridor, six districts in Surabaya and Madura would be affected: Tambaksari, Bulak and Kenjeran in Surabaya, and Labang, Tragah and Burneh in Madura, along with the fishermen working in the strait. Regarding the impacts during the planning stage, there was a notable reaction from the Muslim community. The interviews with key informants revealed that the Muslim community did not support the development because they feared that opening the island up to Surabaya Metropolitan City would weaken the Islamic identity in Madura. As one of the village heads highlighted during the interview, Madura is a deeply religious area with strong Islamic roots. To overcome this problem, the government negotiated with the Muslim community to ensure that the social benefits would not diminish the religious values on the island.

4.2 Construction stage (2003–2009): lack of local employment opportunities and failing compensation schemes

In 2003, the national government gave the go-ahead for the start of construction activities. Two Indonesian joint operation enterprises were assigned to construct the causeway projects, a consortium of Chinese contractors oversaw the main span of the bridge and a consortium of Indonesian contractors consisting of several state-owned companies was delegated to construct the approach bridge. It is in the nature of megaproject construction to generate employment opportunities. Almost half of the respondents living close to or further away from the bridge stated that the construction of the bridge had created employment opportunities (Figure 3). However, seven of the 18 interviewees said that the workers

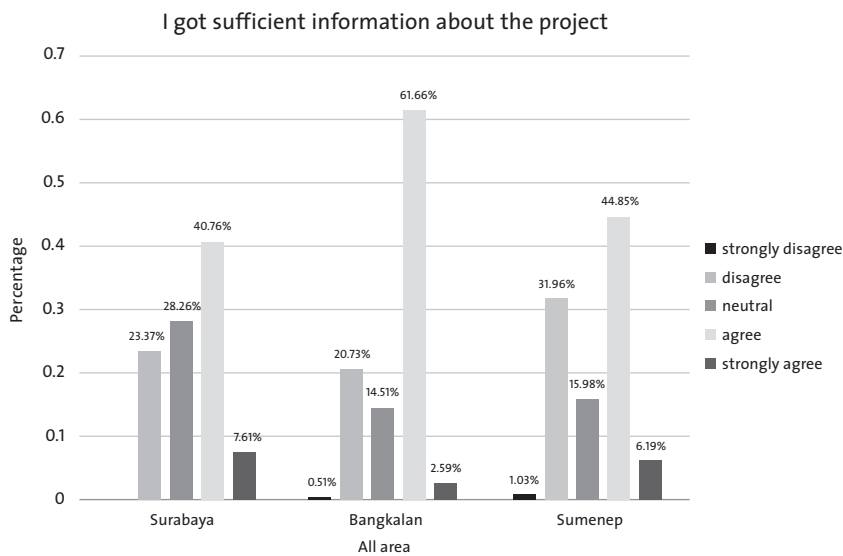


Fig. 2: Information feed at the planning stage.

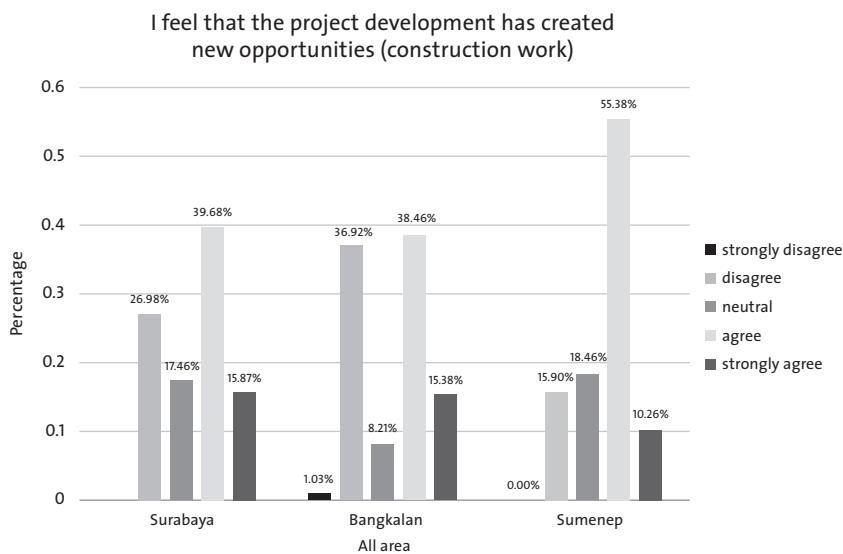


Fig. 3: Employment opportunities during the construction process.

had not been from their area. Thus, whereas the project created employment opportunities, the opportunities were generally not available to the local people.

There were two major construction events in 2004 and 2005 that affected the people in the area. The first was the clearing of World War II mines from the construction site, which later led to a decrease in fish stocks, which in turn led to a protest by the fishermen in Tamakwedi sub-district. In response, the relevant agency promised to compensate the fishermen by improving the public facilities for them. The

interviews with the fishermen revealed, however, that the agency had not yet fulfilled its promise. The second event was the erection of the piles and the main span. At the ceremonial event marking the erection of the main span, the Chinese ambassador declared that Suramadu would symbolise the bilateral relationship between China and Indonesia, because both the approach bridge and the main span were funded by a loan from the Chinese government. Despite the euphoria, people also felt the externalities of the pile-driving process. Some of the residents of Labang District reported that the

shock waves from the pile driving had damaged houses close to the site. Some interviewees also highlighted the noise and air pollution from the construction as externalities.

4.3 Usage stage (2009–present): displacements and unexpected personal benefits

Although the bridge was officially opened in June 2009, the government viewed the acceleration of social and economic growth on Madura Island as an ongoing process. Therefore, Badan Pengembangan Wilayah Surabaya Madura (BPWS, the Development Agency for Surabaya and Madura Area) was established to manage and facilitate the development of the area surrounding the bridge. In 2017, BPWS executed the Grand Design of Madura (Bangkalan) Development, consisting of the master plan of the urban development projects for the area surrounding the bridge and strategic programmes

to induce optimal indirect economic benefits for the island. The plan of the Suramadu project reflects the type of “old megaproject–new package” introduced by Lehrer and Laidley (2008) in which the economic ambition of megaprojects is connected with tourism development and incorporated designs by world-class architects. The plan includes six development areas next to the bridge on the Madura side, such as a theme park, a central business district, and public and residential areas (Figure 4).

Land acquisition for the project was in progress during the fieldwork for this study. From the interviews with village heads in Labang District, it appeared that some farmers had received significant financial compensation. However, as highlighted by one of the community figures in Labang District and four of the 18 respondents, this is not a sustainable solution, as the farmers can no longer work in the fields. Thus, some farmers have lost their livelihoods. To overcome this problem, urban devel-

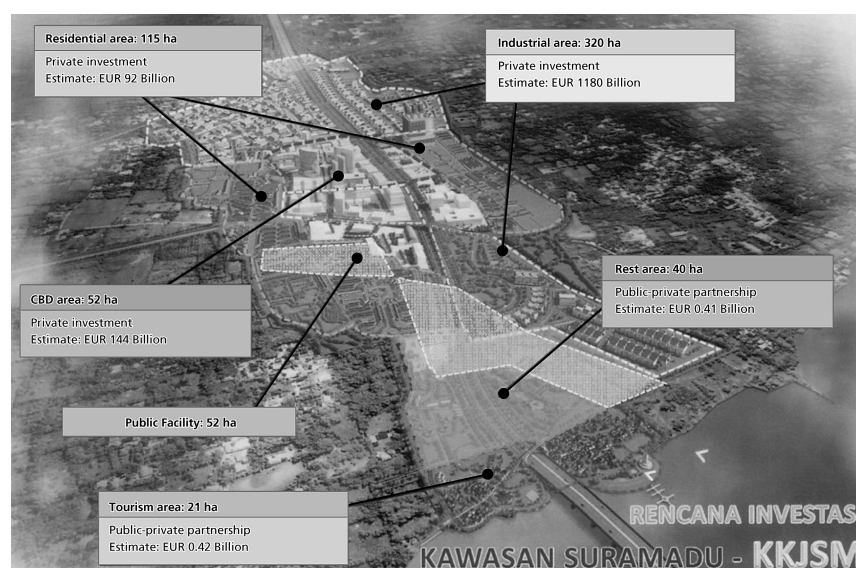


Fig. 4: Investment plan in KKJS (Kawasan Kaki Jembatan Suramadu – the area next to Suramadu Bridge), Madura side. (BPWS 2017)

		Frequency of crossing the bridge				Total
		Never	Seldom (once a year)	Occasionally (twice a month)	Often (at least twice a month)	
Personal benefits	Disagree	3.6%	1.5%	1.5%	1.8%	1.7%
	Neutral	14.3%	10.3%	7.9%	2.8%	8.0%
	Agree	64.3%	59.5%	54.5%	50.5%	55.9%
	Strongly agree	17.9%	28.7%	36.1%	45.0%	34.4%
Total		100.0%	100.0%	100.0%	100.0%	100.0%
		4.7%	32.6%	44.5%	18.2%	100.0%

Tab. 2: Cross tabulation between personal benefits and frequency of bridge usage.

opment projects in the area may be a suitable mitigation strategy to create new jobs for these people. At the same time, regarding the positive effects of the bridge, the vast majority of the respondents who regularly use the bridge benefit from the project (Table 2). Moreover, and interestingly, a significant number of people who do not use the bridge also regularly benefit from the project.

4.4 People's general perceptions about the Suramadu bridge

Despite the negative externalities over time – including the loss of local/religious identity, a lack of local employment opportunities, failing compensation schemes and various displacements – the majority of the respondents said that they felt well informed about and were personally benefiting from the bridge construction, regardless of whether they make use of the bridge. This raised the question of what other relevant factors about the bridge matter, besides its functional use. We performed exploratory factor analysis to generate appropriate factors reflecting respondents' general perceptions about the bridge. Using the attributes developed in the theoretical framework, we created a list of possible attributes (Table 3).

The reliability of these attributes was confirmed using Cronbach's alpha¹ to measure internal consistency. The test value is 0.806, which is significantly greater than 0.5. Factor analysis was applied to reduce these 11 attributes to a smaller number of underlying factors. Principal component analysis was conducted using orthogonal rotation (varimax). The value of Bartlett's test of sphericity² is 1697.5 ($p=0.000$), which means that the correlation

matrix is not an identity matrix. The correlation matrix demonstrates that all variables have a significant correlation at the 0.05 level. The value of KMO MSA³ is 0.818, which is greater than 0.6, and therefore the results were considered applicable for factor analysis (for further explanation of the application of Factor Analysis, see Aljandali 2017). Three factors were created from the analysis, namely immaterial benefits, material benefits and specific employment opportunities (Table 4).

(1) Factor 1: immaterial benefits

Five attributes emerged, with 34.972% variance. It was found that the ability of iconic megaprojects to give a new identity to the city (Kong 2007; Sklair 2013; Shatkin 2007) helps people perceive a project positively. The measure is intangible and is usually related to feelings of pride about the particular project. The bridge itself has become an iconic symbol of the area. In addition, Suramadu is well known as the country's longest bridge. It is depicted on the souvenirs sold by the informal local businesses around the bridge. It was also observed that this new identity makes a positive contribution to the city's quality of life.

(2) Factor 2: material benefits

Here, four attributes emerged, with 12.591% variance. The presence of tourists in the area is persistent, as was also highlighted in the interview with one of the village heads in the adjacent area on the Madura side. Many local people have set up stalls selling souvenirs, while others sell street food. The increased access to amenities is also relevant because people find it easier to access their daily needs and various entertainment options as it now takes only 15 minutes to get to Surabaya metropolitan area from Madura. The improvement in personal

No.	Attributes
1	New employment opportunities (non-construction jobs)
2	Income increase
3	Many investors and new businesses come to the area
4	New identity for the city
5	Value to the city
6	Feeling of pride
7	Attracts tourists
8	Improvement in quality of life in the city
9	Changes to the city's spatial pattern and structure
10	Significant increase in personal quality of life
11	Improved access to amenities

Tab. 3: Possible attributes.

Tab. 4: Factor structure for perception variables.

Description of factors and variables N = 587	Communalities	Factor Loadings
Factor 1: Immaterial benefits (34.972%)		
I feel that the project gives a new identity to the city	.596	.768
I feel that the project contributes to quality of life improvement in the city	.569	.732
I feel that the project gives positive value to the city	.563	.714
I feel that there have been significant positive changes in the city's spatial pattern and structure	.530	.672
I feel proud of the project	.557	.565
Factor 2: Material benefits (12.591%)		
I feel that many tourists come to the city because of the project	.569	.748
I feel that the project has brought about significant positive changes in my quality of life	.652	.703
I feel that the project has improved access to amenities	.510	.642
Many investors and new businesses now come to Madura and Surabaya	.617	.588
Factor 3: Specific employment opportunities (10.127%)		
I feel that the project development has created new employment opportunities (non-construction jobs)	.775	.843
I feel my income has increased because of the project	.407	.566

quality of life and the presence of new investors and new businesses highlight the relevance of a master plan for urban development projects.

(3) **Factor 3: specific employment opportunities** Two variables emerged here, with 10.127% variance. An increase in employment opportunities (direct, indirect and induced effects) is one of the most important criteria that governments and decision-makers are eager to evaluate in relation to new megaproject proposals (Dimitriou et al. 2015). An interview with one

of the leading community figures in Labang District revealed that the upcoming development would create a significant number of jobs for local people. The related agency, he added, promised to prioritise people whose land had been expropriated. It is interesting to note how this perception switched from negative to positive between the construction and the usage stage. However, since the percentage of variance is relatively small compared to the previous factors, we have to treat these conclusions with some caution.

After seeing the dynamics of Suramadu at each development stage, and the most important factors behind these dynamics, it is interesting to look at the overall perception of the people about the bridge (Figure 5).

Surprisingly, despite the negative impacts at each development stage mentioned by the interviewees, the vast majority of respondents reported feeling positive or very positive about the project; only approximately 2% of respondents reported not feeling positive about the bridge. There are two plausible reasons for this, related to the long and dynamic bridge development process. Firstly, the functional use of the project is considered a success, especially by commuters, as the bridge reduces travel time. The flow of goods has also been improved, as shown in an interview with a trader from a distant part of

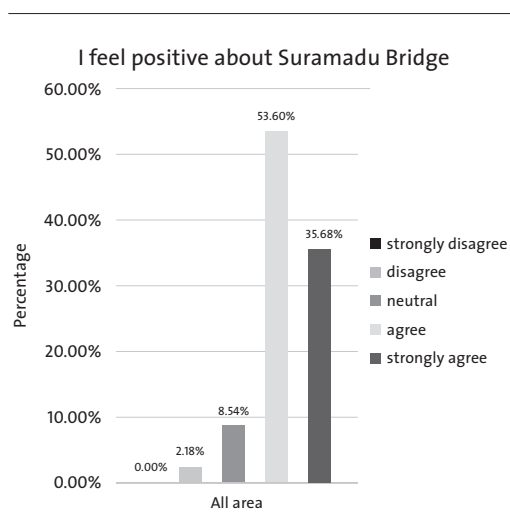


Fig. 5: Overall perception of the people about the bridge.

the island. Secondly, the fame of Suramadu as the longest bridge in the country has encouraged tourists to visit the area. Local people capitalise on this by opening informal businesses aimed at tourists.

5 Discussion and implications

To begin with, it is clear from the interviews that the national government perceives Suramadu as a means to boost the economy of Madura Island. This is a typical developing country phenomenon. Megaproject development in Istanbul, for example, has been perceived as a strategic instrument to achieve growth ambition through its ability to produce urban space and infrastructure (Dogan, Stupar 2017). Further, the long duration of the planning stage of the Suramadu project illustrates how the persistence of dynamics and the complexity in the development process may contribute to changing people's perceptions (Fainstein 2009; Flyvbjerg et al. 2003). The findings show a generally positive attitude, although the interviews with key informants also revealed concerns, fears and negative issues during the planning and construction stages. This underlines the contested nature of megaproject development (Sutherland et al. 2015; De Bruijn, Leijten 2007; Strauch et al. 2015; Shatkin 2014).

The Suramadu project is contested in two ways. Firstly, the negative views held by the groups of affected people are a typical case of NIMBYism (Not In My BackYard). Some of the literature on mega-infrastructure impacts shows how NIMBY effects occur due to externalities experienced by local people (Wolsink, Devilee 2009; Inhaber 1998). Secondly, megaprojects are also characterised by substantial and irreversible commitments in terms of cost, with a high probability of failure (Miller, Lessard 2008). As a result, negative perceptions can spread rapidly (Yung, Chan 2012). The situation is even worse in developing countries, where there are often difficulties in managing the social complexity of project acceptance and a lack of appropriate working conditions, threatening workers' health and safety (Othman, Ahmed 2013).

On the other hand, the support for the project is surprisingly overwhelming, especially from respondents living near the bridge. Based on field observations, we assume that there are two underlying reasons for the support. The first interprets the support as an emotional response. The local people are euphoric that

they now host a prestigious city icon after being neglected and experiencing slow economic growth for many years. With high hopes and expectations, they may ignore the impacts experienced and blindly support the project. The second plausible reason is the local people's socially accepting attitude, resulting from their cultural background, in perceiving their place in society. The culture of the majority of the people in the Surabaya area is famous for its Javanese parental-social-structure model that perceives the higher government tiers as parents who take good care of their children (see Hudalah et al. 2014). Therefore, people tend to have an accepting attitude and avoid conflict. Although the influence of culture on people having an accepting attitude needs further exploration in this case, we can assume that different cultures may accept megaprojects differently. That cultural awareness is of importance can also be observed in the development of Istanbul's new airport, in which the attempts to reduce the complexity, risk and uncertainty undertaken by the government have increased centralisation, and reduced transparency and public participation (Eren 2018).

As Lehtonen (2014) believes, context awareness is crucial as an interpretive framework for managing stakeholder perspectives. The cultural context in the eyes of the local people has personal and social implications influenced by individual and social values, including knowledge, belonging, attachment and commitment to a place (Shamai 1991). This could be a solution for contested megaprojects, namely to make room for context-specific place-making processes that suit local culture and values (Gellert, Lynch 2003).

Finally, the contested nature of megaprojects is also reflected in the creation of factors in the analysis. The emergence of immaterial benefits as the strongest factor is surprising. Echoing Doucet et al. (2011), the local people may still value the non-monetised benefits of the project despite its failure to deliver tangible economic benefits. The acknowledgment of intangible benefits as a local reality may be a departure point for more inclusive megaprojects. This could be done by, for instance, not translating the impact valuations of non-appreciable costs into monetary valuations (Korytárová, Hromádka 2014).

6 Conclusions

To address the often overlooked perceptions of local people in megaproject development, the present research analysed residents' perceptions of megaprojects using the case study of Suramadu Bridge, Indonesia, and came up with two interesting findings. Firstly, the vast majority of respondents were supportive of the project, mainly for emotional reasons and as a result of their cultural background. However, some of the key informants reported feeling the negative externalities of the project. This contrasting view shows how contested megaprojects are viewed in the eyes of local people. Secondly, an exploratory factor analysis showed that there are three factors that underlie people's perceptions, namely immaterial benefits, material benefits and specific employment opportunities. The strongest factor was, again surprisingly, immaterial benefits, which implies that people may perceive a different reality caused by the project, involving intangible aspects such as pride and a new identity.

Creating pride and a new identity for the city has long been associated with megaproject development; for instance, the development of Taipei Mass Rapid Transit, which transformed the civic identity of Taipei City (Lee 2015), and the state-led QV and Carlton Brewery developments that shape Melbourne's identity (Shaw, Montana 2016). Our case confirms that a megaproject's impact on the economy is not the only reason behind positive perceptions. Although, in the long run, the area identity may prosper from increased attraction (see Ashworth 2009), more people are enthusiastic because of the intangible pride created by the fact that the project is directly in their location. They can also be moved by their perceptions about immaterial benefits of megaprojects as long as the benefits (new identity and pride) represent their daily interactions with the project and the place.

Although these findings seem to suggest avenues towards more inclusive megaproject development processes, at the same time we need to stay critical and open to alternative explanations. Analysing people's perceptions could be a way to focus more on the social implications at the local community level and fill a gap in the literature (Di Maddaloni, Davis 2017). At the same time, the outcomes can also be explained as a case of politicising megaprojects, in which a positive perception is created despite negative local externalities. We observe similar cases in Turkey, for instance, where megaprojects are intentionally linked with national pride and

identity to secure local support (e.g. in the case of energy megaprojects, see Ediger, Durmaz 2016). In a nutshell, megaproject development is contested and will continue to be contested, because too many conflicting interests must be taken into account. Megaprojects can be seen as an anatomy of ambition (Flyvbjerg et al. 2003). However, local people and politicians have different views about the aims and externalities of megaprojects and are preoccupied with their own perceptions. The results of our analysis point in a direction that helps to better understand the perceived reality of people on a local scale, in which appreciation of the cultural context is of prime importance.

Therefore, for further research, we recommend exploring how cultural aspects might influence people's perception of megaprojects, especially in relation to a social-structure model of society. Further, the comparison between different countries in the case of immature economies is also worth further research due to differing social structures and the cultural aspects of societies that might result in different ways of perceiving megaprojects.

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Notes

- 1 Cronbach's alpha is a measure of internal consistency to see how a set of items relates to each other as a internally consistent group.
- 2 Bartlett's test of sphericity tests whether the correlation matrix is an identity matrix that indicates whether the variables are unrelated and whether they are suitable or unsuitable for structure detection.
- 3 The Kaiser-Meyer-Olkin (KMO) Test (i.e. a measure of sampling adequacy) is a measure of how suited the data is for Factor Analysis. The lower the proportion, the more suited the data is for Factor Analysis (based on Aljandali 2017).

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