

The Financial Model of Land Lease Improving Toll Road Development a Delphi Survey and Critical Success Evaluation

¹Yusuf Latief, ¹Lukas B. Sihombing, ¹Ayomi D Rarasati and ²Andreas Wibowo
¹Department of Civil Engineering, Universitas Indonesia, 16424 Depok, Indonesia
²Agency for Research and Development, Ministry of Public Works and Housing,
40393 Bandung, Indonesia

Abstract: One of the largest impediments to toll road development is land acquisition. In an ideal perspective, the required land should be acquired before a toll road project begins. However, the reality often does not meet the expectation. The government which should accept the liability in the first place, often finds it difficult to afford it. Given the stringent budget constraints of the government, project sponsors, for many reasons should not be expected to take on the full responsibility of dealing with it either. Innovative instruments other than that practiced now must be fostered. In this study, a discourse on the application of a land lease model is provided. This has been widely used in many other countries and a set of success factors has been identified to make this model work in Indonesia. A total of 23 Critical Success Factors (CSFs) have been identified from a literature review. A Delphi survey involving a panel of knowledgeable experts was employed to examine toll road authority, guarantee institution and private investor group variables. Based on the survey, it has been found that the quality of land lease data, the design plan and integrated location, the transparent negotiation on an investment agreement as well as agreements negotiated to protect private investors and the government were the most important CSFs.

Key words: Financial innovation, land leases, Indonesian toll roads, critical success factors, toll road project

INTRODUCTION

Land leases which are not owned by the user are an input in the complex production process, immobile and non-depreciable (Bierlen and Parsch, 1996). Land leasing is an activity to rent land which is significantly related to the size and acreage (Conway, 1986). Leasing land is “a voluntary transaction in which property rights such as user and income rights are transferred from landowners to tenants” (Slangen and Polman, 2008). In Indonesia, based on the minister of finance regulation No. 78/PMK.06/2014 on procedures for the utilization of Barang Milik Negara (BMN; state-owned properties), it reveals that state-owned land can be leased. The purpose of a lease is so a BMN item can be used by another party for a specified period in exchange for a cash reward. For Indonesian toll roads, land adjacent to toll facilities is leased for usually advertisement, installation of utilities, building leases and rest stops and services for additional revenues for toll road operation. These revenues are included in cash flows and financial viabilities of toll road projects. Based on the 2015 annual report by Jasa Marga, land lease capital accounted for 24.24% of the total of “other operating services” or 1.62% of the total revenues.

However for some cases there is no appropriate funding mix between traditional funding and innovative financing (Chen, 2012). There is a lack of clarity as to why sales methods may affect the price, making it more difficult to understand. This often happens as evidence shows inefficiencies in market land leases (Yao, 2000). In this study, a discourse is offered on the application of the land lease model which has been widely used in many other countries. This study identifies a set of success factors to make this model work in Indonesia.

Success factors for land leases: Many factors potentially affect financial performance in land leases for toll road development. These can be identified from many resources such as selection criteria for land leases to foreign investors and CSFs for public land management. Olivier (2009) proposed four factors to get the best land lease usage such as transparent negotiation, government protection for the tenants, local government and investor concern for maintaining the environment and protection of the land lease under international law. Meanwhile, other factors include effective land management, structural conditions of leased land and duration of land lease. Zhang *et al.* (2006) proposed a list of leases

Table 1: Success factors for toll road land leases

| Code | Factors | References |
|------|---|-------------------------------|
| F1 | Agreements negotiated to protect private investors and the state | Anastasia Telesetsky |
| F2 | Investor protection of the tenant if there is a change of land ownership | Bedelian (2012) |
| F3 | Effective land management | Matthew |
| F4 | The structural conditions of leased land | |
| F5 | Duration of land lease | |
| F6 | Minimum lease of 20 years | |
| F7 | Transparent regulations on land lease | Naidu and Reddy (2002) |
| F8 | Design plan and integrated location | Shann Turnbull |
| F9 | International policy administration system of land lease standardization | Zulkifli <i>et al.</i> (2015) |
| F10 | Quality of land lease data | Jagerskog and Kim (2016) |
| F11 | More intense land lease payments | Yao (2000) |
| F12 | Land characteristic | Zhang <i>et al.</i> (2006) |
| F13 | Accessibility to the leased land | |
| F14 | Provision of services to tenants | |
| F15 | Transparent negotiation of investment agreement | Olivier (2009) |
| F16 | The government protects the tenants | |
| F17 | The local government and investors care about maintaining the environment | |
| F18 | Protection of the land lease under international law | |
| F19 | A policy change in land ownership | Bezabih (2007) |
| F20 | Understanding of the parties in land property ownership | Westen (2001) |
| F21 | Transformation of land lease rights involves government control | Daryono |
| F22 | Good administration of land lease | |
| F23 | Lease contract with a fixed price | Lee (2011) |

Table 2: Respondent descriptions

| Name code | Experience (years) | Education | Expert area |
|-----------|--------------------|-----------|--------------------------|
| Expert 1 | 19 | Master | Infrastructure financing |
| Expert 2 | 25 | Master | Toll road investment |
| Expert 3 | 15 | Master | Toll road investment |
| Expert 4 | 20 | Master | Toll road investment |
| Expert 5 | 20 | Master | Toll road investment |
| Expert 6 | 28 | Master | Toll road investment |
| Expert 7 | 40 | Bachelor | Toll road investment |
| Expert 8 | 20 | Master | Toll road investment |
| Expert 9 | 10 | Doctoral | Infrastructure financing |
| Expert 10 | 27 | Doctoral | Toll road investment |

from non-industrial private forest lands such as land characteristic, accessibility and provision of services to tenants. Jagerskog and Kim (2016) investigated land acquisition as a means to mitigate water scarcity and reduce conflict found in the quality of land lease data. Based on a comprehensive literature review, a tentative list of CSF land leases for toll road developments is compiled in Table 1. The list will be validated through interviews with professionals from the industry.

MATERIALS AND METHODS

Rockart (1979) proposed a CSF approach as an effective means in determining the significant information needs and efficiency in terms of time, process and outcome. In addition, “the CSF process provides a clear, explicit and shared understanding of the organization’s business environment and the actions which are necessary” (Rockart and Forster, 1989). The CSF approach is therefore appropriate for understanding land leases for toll road development in this study. Running a financial model using land leases in toll road development

is determined by a large number of factors including regulation, characteristic, protection and so on. The critical factors should be identified and acted upon by the government and investors. In addition, the Delphi method is also used by researchers for factor identification.

Data survey: A questionnaire survey was conducted in the Indonesian toll road industry in 2016 to identify CSFs for land leases. Respondents were invited to assess the importance of the 23 factors provided in Table 1 using a 6-point Likert scale with “6” denoting extremely important and “1” as negligible. The respondents were also encouraged to add factors that were not included in the original questionnaire. The respondents were experienced professionals from infrastructure toll road investors in Indonesia. Ten questionnaires were distributed to the toll road authority of Indonesia, infrastructure financing institutions, State-owned Enterprises (SoE) and private investors. The distribution of respondent’s work experience, companies and core businesses are shown in Table 2.

RESULTS AND DISCUSSION

The collected data was analyzed with a “Mean Score” (MS) method and Relative Importance Indices (RII) method which are adopted from (Park, 2009) to determine CSFs of land leases implementation for Indonesian toll road investments. The MS for each factor is computed with the following equation:

$$MS = \frac{\sum(f \times s)}{N} \quad (1 \leq MS \leq 6) \quad (1)$$

Where:

s = Score given to each factor by the respondents, ranging from 1-6

f = Frequency of responses to each rating for each factor

N = The total number of respondents for that factor

The 6-point scale was then transformed to an RII to determine the rankings of the factors and verify the evaluation by MS. RII was calculated using the following equation:

$$RII = \frac{\text{Total point score}}{6 \times N} \quad (0 \leq RII \leq 1) \quad (2)$$

where the total point score is the summation of all the ratings for a given factor and 6 is the possible maximum score.

Ranking analysis: MS, Standard Deviation (SD) and RII for each factor are calculated and shown in ranked order in Table 3. If 2 or more factors obtained the same RII value the rank is based on their standard deviation values: the

lower, the higher rank. If the RII value and standard deviation are both the same, the higher MS will result in the higher rank. Again, if the RII value, SD and the MS of factors are the same they will be assigned the same rank. As the 6-point likert scale is used, an MS value of 5.00 is set as the demarcation for defining CSFs. As a result, there are 17 factors meeting this criterion. These factors can be further analyzed as follows. In this study, only the top five ranked CSFs of land leases are discussed.

Quality of land lease data: According to Table 3, the quality of land lease data (F10) is ranked as the most important CSF for land leases of Indonesian toll roads, with an RII value of 0.90. As an expert stated: “the main factor of a land lease is the quality of land lease data, whether the land is in dispute or not”. In order to mitigate risk and reduce conflict the quality of land lease data is the key indicator in land acquisition (Jagerskog and Kim, 2016). Therefore, it is necessary for tenants to have quality information about land data.

Transformation of land lease rights involving government control: This factor (F21) is the next ranked factor. Transformation is aimed to avoid creating a legal vacuum and to protect the existing landholder interests from arbitrary and unjust acts, revocation or land grabbing. As an expert said: “government involvement in the process of control is essential for the transfer of land lease rights.” Therefore, it is important for the government to create an institution to be involved in the control process.

Design plan and integrated location: This factor (F8) is identified as the third most important CSFs of land leases

Table 3: Rank of land lease CSFs

| Ranks | Factors | RII | SD | MS |
|-------|--|------|------|------|
| 1 | F10: Quality of land lease data | 0.90 | 0.70 | 5.40 |
| 2 | F21: Transformation of land lease rights involving government control | 0.88 | 0.48 | 5.30 |
| 3 | F8: Design plan and integrated location | 0.88 | 0.67 | 5.30 |
| 3 | F15: Transparent negotiation of investment agreement | 0.88 | 0.67 | 5.30 |
| 4 | F1: Agreements negotiated to protect private investors and the state | 0.87 | 0.44 | 5.78 |
| 5 | F17: The local government and investors care about maintaining the environment | 0.87 | 0.63 | 5.20 |
| 5 | F19: A policy change on land ownership | 0.87 | 0.63 | 5.20 |
| 6 | F7: Transparent regulations on land lease | 0.87 | 0.79 | 5.20 |
| 7 | F20: Understanding of the parties regarding land property ownership | 0.85 | 0.74 | 5.10 |
| 8 | F9: International policy administration system of land lease standardization | 0.85 | 0.88 | 5.10 |
| 9 | F2: Investor protection of the tenant if there is a change of land ownership | 0.83 | 0.53 | 5.56 |
| 10 | F16: The government protects the tenants | 0.82 | 0.53 | 5.44 |
| 11 | F22: Good administration of land lease | 0.80 | 0.50 | 5.33 |
| 12 | F3: Effective land management | 0.77 | 0.60 | 5.11 |
| 13 | F11: More intense land lease payments | 0.77 | 0.60 | 5.11 |
| 14 | F5: Duration of land lease | 0.75 | 0.71 | 5.00 |
| 15 | F13: Accessibility to the leased land | 0.75 | 0.87 | 5.00 |
| 16 | F23: Lease contract with a fixed price | 0.73 | 0.78 | 4.89 |
| 17 | F4: The structural conditions of leased land | 0.72 | 0.67 | 4.78 |
| 18 | F12: Land characteristic | 0.72 | 0.83 | 4.78 |
| 19 | F14: Provision of services to tenants | 0.70 | 0.71 | 4.67 |
| 20 | F6: Minimum lease of 20 year | 0.67 | 0.73 | 4.44 |
| 21 | F18: Protection of land lease under international law | 0.67 | 1.01 | 4.44 |

for toll road development. The facility for design plan and integration of land leases are related to the economic structure of a cooperative. As an expert said: “land to be leased should be planned and integrated to allow their tenants to be more confident and to gain more profit.

Transparent negotiation in the investment agreement:

This factor (F15) is the third most important CSFs of land leases for toll road development. Moreover, it is essential that land leases contracts are fully transparent and that the revenues are also dedicated for the benefits of the local population (Olivier, 2009). One expert stated: “although land lease regulations is very general, transparency in regulations is very important, particularly in toll road land leases”. Therefore, it is essential for the government to stipulate land lease regulations to protect the tenants.

Agreements negotiated to protect private investors and the state:

This factor (F1) is the fourth most important CSF of land leases for toll road development. States with available land to lease have the opportunity to push innovation while protecting their public interest. One expert claimed: “factors of legality between investors and the government in toll road land leases are very important for investors.”

CONCLUSION

The ever-increasing need for new toll road development has forced many solutions to be devised to overcome the financial gap. One solution made is the land lease model. As a comparison with existing model, land leases are for advertising, the installation of utilities, building leases and profit sharing of rest stops and services which belong to the partner in utilizing the space owned toll road area or ruang milik jalan tol (Rumijatol). Meanwhile, the concept of land lease model is used to finance land acquisition where firstly the Government of Indonesia (GoI) funds land acquisition wider than toll road standard, e.g., standard wide of toll road is 33.5 m for 2 lanes, the GoI should execute and fund >33.5 m, says 100-120 m. Then, the remaining is leased by land lease institution under GoI for box utility multi functions, extra high voltage air duct and railway. The revenue of land lease will be used to finance other toll road land acquisition.

This study provides a review of the toll road development financial model in Indonesia and identifies a list of successful factors in land leasing for toll road development. From the survey data, the top 5 CSFs are quality of land lease data, transformation of land lease

rights involving government control, design plan and integrated location, transparent negotiation of investment agreement and agreements negotiated to protect private investors and the state. Although, the top 5 of land lease CSFs are new CSFs for toll road financial model and they should be validated using Forum Group Discussion (FGD) and determine what kind of land lease institution at the next step of this research. The identified CSFs provide a useful reference for the government to create regulations and institutions. The revealed CSFs are beneficial for toll road investors and tenants to prepare them before investing. However, the survey was conducted in Indonesia; the findings may not be applied in other developing economies. But the experiences of the Indonesian market provide lessons for them and comparison studies can be done in further research.

ACKNOWLEDGEMENTS

The researchers would like to express gratitude to Universitas Indonesia for granting a support through PITTA scheme in order to assist the researchers in completing this research.

REFERENCES

- Bedelian, C., 2012. Conservation and ecotourism on privatised land in the Mara. Land Deal Politics Initiative, South Africa.
- Bezabih, M., 2007. Essays on land lease markets, productivity, biodiversity and environmental variability. Department of Economics, Lahore, Pakistan.
- Bierlen, R. and L.D. Parsch, 1996. Tenant satisfaction with land leases. *Rev. Agric. Econ.*, 18: 505-513.
- Chen, X., 2012. Managing transportation financing in an innovative way. *Manage. Res. Practice*, 4: 5-17.
- Conway, A.G., 1986. Land leasing: Findings of a study in the west region of the republic of Ireland. *Irish J. Agric. Econ. Rural Soc.*, 11: 1-18.
- Jagerskog, A. and K. Kim, 2016. Land acquisition: A means to mitigate water scarcity and reduce conflict?. *Hydrol. Sci. J.*, 61: 1338-1345.
- Lee, M.H., 2011. Land ownership and productivity in early twentieth-century China: The role of incentives. *Int. J. Dev.*, 10: 141-153.
- Naidu, V. and M. Reddy, 2002. ALTA and expiring land leases: Fijian farmers perceptions of their future. Ph.D Thesis, University of the South Pacific. Suva, Fiji.
- Olivier, D.S., 2009. Large-scale land acquisitions and leases: A set of core principles and measures to address the human rights challenge. United Nations Office at Geneva, Geneva, Switzerland.

- Park, S.H., 2009. Whole life performance assessment: Critical success factors. *J. Constr. Eng. Manage.*, 135: 1146-1161.
- Rockart, F. and N. Forster, 1989. Critical success factors: An annotated bibliography. Center for Information Systems Research, Massachusetts Institute of Technology, Cambridge, Massachusetts.
- Rockart, J.F., 1979. Chief executives define their own data needs. *Harv. Bus. Rev.*, 57: 81-93.
- Slangen, L.H. and N.B. Polman, 2008. Land lease contracts: Properties and the value of bundles of property rights. *NJAS. Wageningen J. Life Sci.*, 55: 397-412.
- Westen, V.A.G., 2001. Land in China: Struggle and reform. *Dev.*, 54: 55-58.
- Yao, Y., 2000. The development of the land lease market in rural China. *Land Econ.*, 76: 252-266.
- Zhang, D., A. Hussain and J.B. Armstrong, 2006. Supply of hunting leases from non-industrial private forest lands in Alabama. *Hum. Dimensions Wildl.*, 11: 1-14.
- Zulkifli, N.A., A.A. Rahman, V. P. Oosterom, L.C. Tan and H. Jamil et al., 2015. The importance of Malaysian Land administration domain model country profile in land policy. *Land Use Policy*, 49: 649-659.