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Private involvement in sustainable management of Indonesian port: Need and strategy with PPP scheme

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Abstract

The gap between rural/fringe area and urban, performance services of sea transportation (including inland waterways and ferry transport), and financial limitations are facing the port development project in Indonesia. The management (in this case: purely the goverment) should conceive the sustainable management of port facilities. Partnership management could advancing the aspects of port circumstances by involving of private sector with public private partnership (PPP) scheme. This paper focuses on suggestion of PPP project practices for port development such as: identifying policy related to port sector of PPP arrangement, PPP framework on port sector, parties involved in PPP implementation project, and also the financing process of PPP project implementation in Indonesia. Other related issues on PPP project port sector are advantage and disadvantage of PPP arrangement project in Indonesia, risks associated to the project sponsor during implementation of PPP project especially in port sector, concessionaire selection methods to get best concessionaire, and critical success factor of PPP project.

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Keywords: Public private partnership, infrastructure, port, Indonesia

1. Introduction

As an archipelago country, Indonesia has a plan of transportation system that could be integrated among various modes of transportation. The system should reach the center of economics which takes about seven big islands.

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Interaction of inter-space and relation of inter-island and also economic conditions and growths of each regional and local area are notable consideration in developing supporting facilities (i.e. infrastructure). It is obvious that there are several of rural regions, hinterland areas, frontier regions and also remote islands which is needed to reach by escalating the affordability of that's area with transportation modes provided. A reasonable one to serve the entire nation network is utilizing of sea transportation (including inland waterways and ferry transport).

Avalaibility of sea transportation (including inland waterways and ferry transport) on the other hand could be as a solution for minimizing the gap between rural/fringe area and urban. As for endorsement to that function, a distinctness of inefficiency and ineffectivity of infrastructure supports and also financial limitations are founded. Other noteworthy patency is the performance services of sea transportation. Regarding the ability to moving the economics activities in large scale (comparing with land and air transportation), the management (in this case: purely the goverment) should conceive the sustainable management of port facilities. Private involvement is a must. The joining management could advancing the aspects of port circumstances, i.e. services, infrastructures, networks, supporting centers of economics activities specially in settlement and rural activities, in order to guarantee a survivability of community and nation movement.

Pursuant to above mentioned, in realizing development of port management, this paper discusses on identifying policy of related to port management, identifying operational performance of port management (including local/regional service), investment source for the maintenance/rehabilitate, development of port infrastructure; and formulating an alternative or infrastructure development strategy, investment and funding by involving of private sector with public private partnership (PPP) scheme.

Considering broadness of port management coverage and public private partnership form, then focus of this paper is study on policy of port management which is suitable for Indonesian port condition and growth as far. This research is expected in giving input substance in order to support the sustainable of rural/fringe area economics activities through port infrastructure development.

2. The Current Condition of Indonesian Port

Sea transportation has a significant function in supporting production and distribution of economic growth in mainly part of Indonesia. With around 17.000 islands, the role of sea transportation is also important in development of others sector. On that occasion, availability of inland waterways and ferry transport infrastructure facility (quays) and ports in the manner of excellent services and performances is a requisite to serve prominence of goods distribution and human movement activities.

The numbers of quays and ports with management responsibility is divided into two divisions and three categories, as can be seen in figure 1 below.

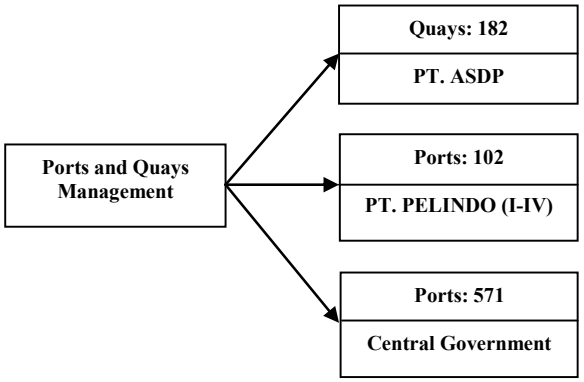

Fig. 1 The numbers of quays and ports in Indonesia [1].

As illustrated in figure 1 above, there are only three parties in charge of quays and ports management. The main executants is central government (in this case ministry of transportation), and the rests is State Owned Enterprise

(SOE) by PT. PELINDO (I-IV) for port management and PT. ASDP for quays management. Observing to the fact, these conditions will certainly incriminating the government in managing the overall quays and ports without collaborations or partnerships with the third parties.

Selected information related to the performance of quays and ports which is focusing on passenger production is shown in figure 2. The data are compiling in the range of 2007-2012 based on transportation statistics data [1].

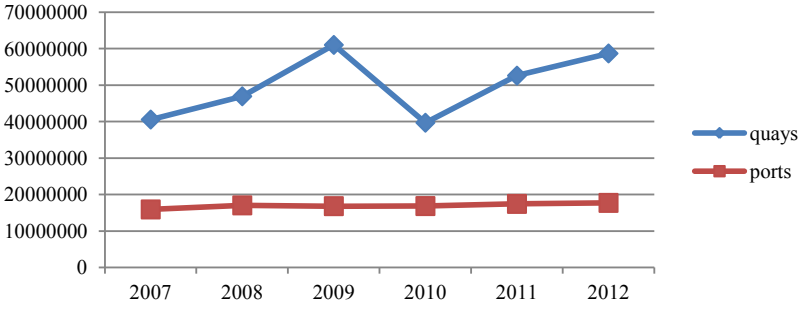

Fig. 2 Passenger productions of quays and ports in Indonesia [1].

The data above shows that the quays and ports can only serve 32.75 % from the total population in Indonesia. Furthermore, as a comparison, the airports may reach out 55.45% of the total population. Others fact that should be pay attention in sustaining the quays and ports services is there is not a significant increasing of passenger volume within the six years data. These circumstances need an apparent effort from the government by strong commitment and openness in partnership with private sector.

Government has recognized the substantial role of the private sector to meet this need and therefore has provided a means for the private in order to participate in infrastructure development through PPP scheme. The government programs in PPP include a wide range of infrastructure partnership, such as the transportation infrastructure.

3. The Future Challenges of Indonesian Port

Table 1. Problem challenges and solution proposal.

Problems and challenges	Solution proposal
Port infrastructures and facilities, and also marine aids to navigation especially the port which services pioneer transport is still limited, thereby reducing effectiveness of port services	Need a new development of port facilities mainly for the port which is the central of economic activities in national and local area.
In general, there are still many old vessels operated (mainly on pioneer transport). This fact affects to regularity of services	Need rejuvenation and vessel age restrictions (limitation of eligibility with stringent regulation for safety)
The number of ports and route which served the passenger and freight tend to increase. This condition his not supported by the data of economic potential of the region and the suitability of vessel to trajectory, it is ineffective and do not reflect the actual needs.	Need comprehensive study on regional economic potency including hinterland area. Also it is important to reschedule the trajectory which is overlapping and unfeasible
Limited economic development capability in rural areas inflict the small economic activities growth	Need a facility from the government with various type of loans
Development of regional areas mostly due to local community aspiration, not based on regional potency	Need a concept of development through investment allocation build upon a possibility commerce in outside of the region by port facilities
Benefit of development of port facilities in region areas is still on single aspects, thus the benefit just only for selected people on that region	Need an integrated, transparency, accountable design and management of port and the facilities so that will give a maximum benefit for all stakeholders
A new development of ports or maintenance facilities of the ports within limited budget	Need private involvement in development an maintenance with mutual-benefit scheme

Sea transportation in Indonesia is exceptionally prominent to support economic integration. The economic integration allows all the transportation modes to work complementary rather than competitive to serve the entire

region, with the length of Indonesian territory is about 5.150 kms and the width is 1.700 kms.

Port (including quays) with excellent facilities is expected to promote domestic and foreign trade. Distributing goods through the ports using inter-island shipping, international trade activity via international main liner service port, feeder port to support the movement of goods and humans, and also specialized port with special commodities are routine tasks which requires plenary services by considering of busies traffic.

For functioning of the port as gateway of economic production and distribution with take into consideration of coverage areas, of course, considerably problems and challenges are coming forth. Problems and challenges of Indonesian ports are identified in table 1 above which is completed by solution proposal.

4. PPP Arrangement Suggestion for Indonesian Port Development

4.1. PPP framework on port sector

Indonesia has started PPP implementation since 1980. Some regulations are issued to support PPP arrangement. Mostly regulations at this period are directed to toll road and independent power producers/IPP (proposal) sector. Within 1990-1997, the regulation is evolved to many sectors (toll road, water, electricity and port), whilst as not as fast progress development in toll road sector. The next period of PPP implementation encounter a hard times due to the impact of economic crisis 1998. Thus, the period of 1998-2004 is just a consolidation period with some changes on Indonesian political systems. After the crisis period, since 2005 to 2009, this period is laying foundation for PPP project implementation through policy and regulatory reform to adopt international best practices [2].

In port sector, especially in operation of the terminal and other facilities, there are three laws and government regulations to facilitate PPP arrangement. The first is Law No. 17 of 2008 on Water Transportation which regulates open for business entities, also state that each port has different authority in its operational and for PPP arrangement. PT. PELINDO (the state-owned port operator) monopolizes the sector as single operator before the law. In other ways, the Government will establish a Port Authority as the regulatory body for port activities. A Port Authority can be established for one or several ports, and shall be responsible for issuing the concession and subsequently regulating the service provided by the Business Entity [3]. The second is Government Regulation No. 61 of 2009 on Port Affairs and the last is Government Regulation No. 20 of 2010 Water transportation.

The details of PPP framework on port sectors can be seen in table 3 as below [3].

Table 2. Problem challenges and solution proposal.

Infrastructure	GCA	Basis for concession	Basis for project Revenue	Business Entity Selection	Regulatory Body
Terminals and Other Facilities	According to Law 17/2008, Article 82 (4), a Port Authority shall serve as the GCA.	Agreement	Government Regulation 61/2009, Article 147 (2), the tariff shall be determined by Business Entity based on types, structures and groups of tariff that have been set by the Minister of Transportation.	According to Government Regulation 61/2009, Article 74 (2), a concession will be awarded to a Business Entity through a tender process in accordance with prevailing regulations. Article 78 provides that the procedure for granting concessions will be regulated in Ministerial, Regulations.	According to Law 17/2008, Article 82 (1), the Minister of Transportation will establish Port Authorities to carry out regulation of commercial ports, among other things.

4.2. Parties involved in PPP project implementation

In regard to a PPP infrastructure projects in Indonesia, there are four main parties; they are government-policymakers-regulator-counterparties, service off-taker, third party service providers, and providers of capital and guarantees. The third-first will be discussed in this section, while the providers of capital and guarantees will be in financing section (4.3). A comprehensive of the parties may participate in PPP project is as seen in figure 3 below.

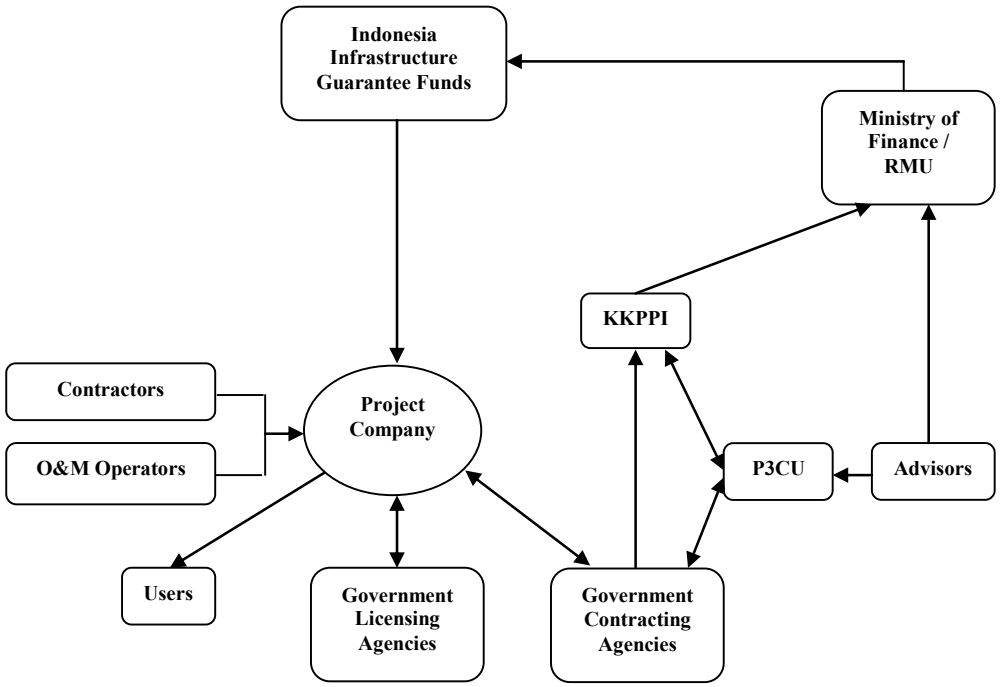

Fig. 3 Parties involved in PPP project in Indonesia [3].

a. Government-policymakers-regulator-counterparties

As a policy maker, government of Indonesia assigns the four government bodies to accelerate the PPP projects implementation. The four bodies are National Planning Agency, Ministry of Finance, Coordinating Ministry of Economic Affairs and Policy Committee for Accelerating the Provision of Infrastructure.

National Planning agency has duties on running of Public Private Partnership Central Unit (P3CU) with mainly tasks on formulation of policy of contingent government supports, provide project listing, supporting Government Contracting Agencies (GCA) for preparation projects, and developing capacity of the government. Ministry of Finance (MOF) is responsible as Risk Management Unit (RMU) in approving tax incentives or any government guarantees. Coordinating Ministry of Economic Affairs is lead of Policy Committee for Accelerating the Provision of Infrastructure (KKPPI). This committee shall prepare a policy coordination related to private provision. KKPPI has to supports MOF in consideration and approval of guarantees.

Government Contracting Agencies (GCA) is the representative of the government, which tenders the project and be counterparties of project. This GCA will connect with Project Company (PC) via Cooperation Agreement (CA). Government Licensing Agencies (GLA) is established from various licensing agencies to support PC to obtain various permits and approvals in setting up PPP project operations. Advisors officiates the P3CU and MOF in directing PPP implementation both on framework and legal, financial, and technical advice. Indonesia Infrastructure Guarantee Funds knows as PT. Penjaminan Infrastruktur Indonesia (PII), established to provide guarantees for government obligations under PPP contracts.

b. Service off-taker

The service off-taker is the user of PPP project. Users in the case of infrastructure project in Indonesia relates to GCA. GCA may in two positions, as a single buyer or administrator of the facility after concession period ends.

c. Third party service providers

A third party service provider is engaged with PC in separate contracts to provide engineering, procurement, and construction (EPC) or operations and maintenance (OM) services.

4.3. Financing process of Indonesian PPP project

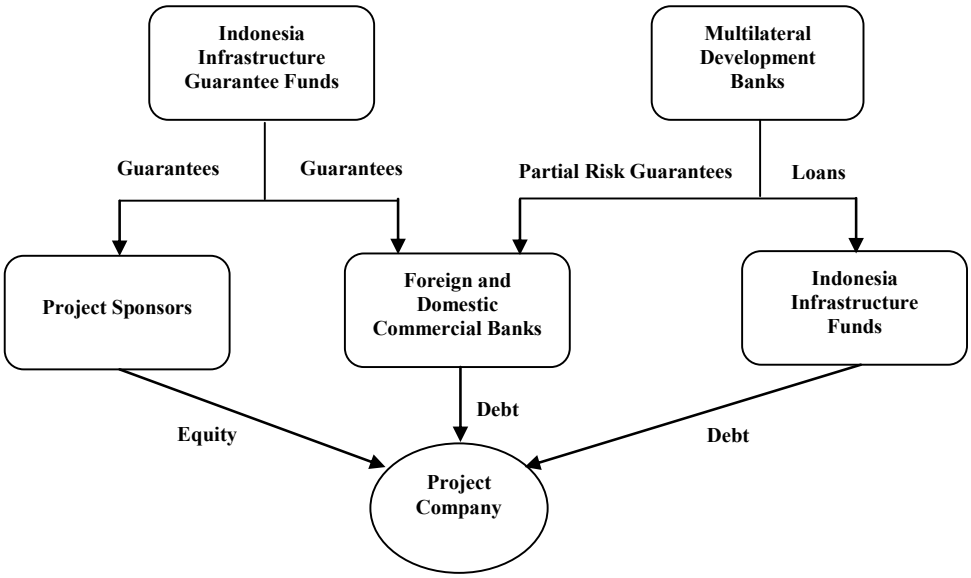

Fig. 4 The project financing process [3].

As mention in previous section, the provider of capital and guarantees is related to financing of PPP projects. Project financing process relates to the financial resource which is categorized into guarantees, equities, loans and debts. In the project financing process of PPP projects in Indonesia, there are 5 bodies involved as actors to utilize the financial resources. The project financing process is presented in the figure 7 below.

Project Company (PC) is an Indonesian enterprise which is mainly actors on running PPP project. The project company may come from private entities or state/local owned enterprise and or collaboration both of them. The project company gets approval of supply services and having a Cooperation Agreement (CA) with Government Contracting Agency (GCA). As an entity with the project company, Project Sponsors (PS) may come from local and foreign investor which is usually as shareholders of Project Company and has responsible for project development through equities investment.

Foreign and Domestic Commercial Banks (FDCB) as one of financiers form will supply the debt financing to Project Company. On other forms, State Infrastructure Fund, formally known as the Indonesia Infrastructure Fund (IIF), has just established in 2010, will support the availability of equity and long term debt. This IIF is funded by the Government of Indonesia through PT. Sarana Multi Infrastruktur (PT. SMI), Multilateral Development Banks (MDB), the International Finance Corporation (IFC) and the Government of Germany (DEG).

Indonesia Infrastructure Guarantee Funds, formed as PT. Penjaminan Infrastruktur Indonesia (PII) can provide guarantees to either of Project Sponsors and FDCB. While the Multilateral Development Banks (MDB) may include the World Bank, the Asian Development Bank (ADB), and affiliates such as the Multilateral Investment Guarantee Association (MIGA) will serve the FDCB with partial risk guarantees and supply loans to IIF.

4.4. Advantage and Disadvantage of Indonesian PPP project

In general, infrastructure project has always success or failure possibilities. Similarly, PPP project has a large amount of risk which will directly affect to final performance of the project. The project sponsor, of course, has a consideration to involve their funds in form of advantage and disadvantage. These two forms are attractive due to long term period in risks and capital turnover.

Regard to the fact, the Government of Indonesia provides government support and government guarantees as advantage of implementing PPP project successfully. The support mechanism will refer to the findings of feasibility

study and associated risk allocation and selected from cooperation [3]. The detail of support mechanism is provided in table 3.

Behind the support mechanism provide by the government as advantage of PPP project, it always exists problem encountered. As a country with still in learning progress on PPP arrangement, the problem mostly on interconnection and awareness of bureaucracy and also additional cost in each bureaucracy involved in PPP implementation. The itemized of problem encountered also shown in table 3.

Table 3. Problem challenges and solution proposal.

Types	Details
Government support	Direct support: certain physical facilities to the project, cover selected capital costs or provide operating subsidies to the project Land acquisition: noted in contract document Contingent support: specified risk materializes Tax incentives: certain types of project Special economic zones (SEZ): incentives and license for SEZ Others: economic stability, demand of infrastructure projects, human resources
Problem encountered	Inadequacy experiences in PPP project: financing schemes, contractors and owners Management and controlling awareness Incomplete legal and regulatory framework Interconnection and independence of authority bodies Additional cost: fee, local expenditure

4.5. Risk associated during implementation of PPP project

The infrastructure project is always enticing the financiers or project sponsor to invest their fund. On the other side, the government should increase theirs budgeted spending for servicing basic infrastructure facilities. Despite this opportunity, get involved in infrastructure business should be prepared with risks and obstacles.

Table 4. Risk and the specific associated to PPP project.

Infrastructure	Specific risks
General	Force majeure risks Political risks: expropriation of assets, revoke, currency devaluation, foreign exchange control problems (convertibility and availability), a change of government , change in law and regulation Financial risks: fluctuations in currency exchange rates, inflation, and cost of capital (interest rates) and convertibility Construction risks: delays in completion, cost overruns, technical difficulties, poor management, quality, facility condition Operation risks: cost of operating the completed facility, actual operation costs, maintenance costs, operator inability, output quantity and quality, production regularly Market risks: demand risk, a price risk Competition risk Environmental risk: increasing consciousness in society, facility Land acquisition and compensation risks Supply risk: shortage, quality Off-take risk: quantity, pay in time Documentation/contractual risk: conflict and arbitration, applied law Licenses, permits and approval risks Corruption risks
Port	Regional and international trade prosperity Tourism business prosperity Political stability and spending pattern Integration with other connecting facilities Inadequate adjoining land for expansion Throughput capacity affected by breakdown of equipment, labour disputes, Economic and trade conditions Changes in tariff regulations and quotas Local politic risks

Learning from the fact that many countries is still in adequacy of PPP experience and expertise and just starting to develop their PPP protocol and also PPP framework, therefore, it is a valuable to understand the possible risks

may occur during implementation of PPP scheme on infrastructure projects. In the case of Indonesian port, the risks associated with PPP projects that should be anticipated by project sponsors could be divided into two groups as in table 4. The list of risks is suitable with Indonesia's current condition which is developed based on the paper of Wang et al. [4], and Schaufelberger and Wipadapisut [5].

4.6. Concessionaire selection methods on PPP project

Recent trends of PPP projects both in developing and developed countries attract many governments and private sector to collaborate utilizing private funds, transfer of managerial skills and effectiveness operational and management of private sector to government. Concession agreement is binding for such cooperation, of course has been through some process to select the best concessionaire as an owner of concession (private sector).

Compared to design-bid-build project or commonly known as traditional procurement, PPP project procurement has a risky responsibilities, long-time commitments and proactive concessionaire. Despite the PPP projects is not always success, there is a value experience in learning from the successful implementation of PPP arrangement of various infrastructure. Benchmarking of the case practice can be as a best strategy in running of PPP project to the countries which has low experience and expertise in PPP scheme.

Selection of the concessionaire is a crucial process to get the right private sector partner of PPP development. Some of types of tendering have been tried in concessionaire selection practices. The most suitable tender evaluation method is competitive tender evaluation methods. Lessons from the practices, and in order to benchmark the best case studies, a suitable competitive tender evaluation methods that can be applied in Indonesian port case based on comprehensive research of Zhang et al. [6], and Zhang [7] as presented in below.

a. Simple Scoring System

This system proposes an evaluation criteria with maximum score points for each evaluation criteria. The score for each criterion may range from 0 to predetermined maximum score for that criterion. The winning is who has the highest total score.

b. NPV Method

The NPV (net present value) can be used to assess the commercial and financial packages. The tender with the lowest NPV of toll/tariff over the concession period is selected as the winning. The equation for calculating of the NPV can be expressed as

$$NPV_k = \sum_{j=1}^{n} R_{kj}(1+i)^{-j} \quad (1)$$

Where NPV_k = total net present value of the toll/tariff revenues of tender k over the concession period; R_{kj} = toll/tariff revenues of tender k in the j operation year; n = concession period; and i = discount rate

c. Multi-attribute Analysis

This system uses various criteria with several criterion packages. Each of these packages may include many sub-criterion packages. Each tender proposal is evaluated against every criterion and awarded score for that criterion (to fairly, varying weights are allocated to each main and/or sub-packages). The winning tender is the proposal which get the highest total weighted score. The equation for multi-attribute analysis can be expressed as

$$TWS_k = \sum_{i=1}^{m} w_i \sum_{j=1}^{n_i} AS_{ij} \quad (2)$$

TWS_k = total weighted score for tender k over the concession period; W_i = weighting index to main criterion packages; AS_{ij} = awarded score to sub-criterion j, which is within main criterion package i; m = number of main criterion packages; and n_i = number of sub-criterion within main criterion package i.

d. Kepner-Tregoe Decision Analysis Technique

This technique classifies criteria into "MUST" criteria and "WANTS" criteria. The technique involves some stages: formulating a decision statement, weighting decision objectives, generating alternatives, evaluating alternatives against the MUST and WANT criteria, and selecting the most suitable alternatives.

e. Others

Some method also can be used to evaluate tender such as: two envelope model, NPV + scoring method, and NPV + binary method. The two envelope method using price and non-price criteria which submitted in separated envelope. The non-price criteria is assessed for the first, then the price envelope of the highest score on non-price criteria is evaluated, while the price is within the government's budget, then the contract awarded to the highest score. The combination of NPV and scoring method can use for qualitative evaluation (scoring). While the binary method used to first evaluated of MUST criteria and the remaining are evaluated by NPV method.

4.7. Critical success factors in PPP Project

Partnering in infrastructure project is important in winning a very competitive procurement method. A new procurement approach is needed to solve many kinds of problem in this high-risk business. In recent years, utilizing partnering concept is diffused in all infrastructure projects. Identifying partnership benefits and problems of project partnering may facilitate a facile start of successful project implementation. Similarly condition will occur on PPP arrangements.

To winning PPP projects, figure out of critical success factor (CSF) is noteworthy for project sponsor. Incorporated critical factors lead to success of PPP project will help the both of parties. CSF of each PPP project may different in the view of country practices and the types of project. But, similar nature can be used to anticipate and prepare the future project. The best practice of successful PPP project also can be utilized as a benchmarking and then suggested to others next PPP project.

A considerable of partnering models and CSF that can be applied to port development project in Indonesia is presented in table 5. These factors are developed from a literature review of Chan et.al [8], Cheng and Li [9] for general case. Meanwhile, there are based on case studies of PPP implementation project of Tiong [10], Gupta and Narasingham [11], Zhang [12].

Table 5. Critical success factor in PPP project.

Partnering	CSF
General case	Top management support, mutual trust, efficient coordination, effective communication, long-term commitment, continuous improvement, learning climate productive conflict resolution, adequate resources and partnering experience
PPP case	Entrepreneurship and leadership with community supportive, right project identification with favourable investment environment, strength the consortium with reasonable concessionaire, technical solution advantage, financial package differentiation, appropriate risk with guarantees, a suitable transfer package, economic viability and built in flexibility for future growth and changes

5. Conclusions

Avalaibility of sea transportation (including inland waterways ad ferry transport) could be as a solution for minimizing the gap between rural/fringe area and urban. To reach the great objectives, performance services of sea transport and financial limitations are founded. The management (in this case: purely the goverment) should conceive the sustainable management of port facilities. Partnership management could advancing the aspects of port circumstances, i.e. services, infrastructure, network, supporting centers of economics activities. In realizing development of port management, formulating an alternative or infrastructure development strategy, investment and funding is demanded by involving of private sector with public-private partnership scheme.

A suggestion consideration to involve in implementing PPP project is noteworthy either to government or to project sponsor. The suggestions are appertained to basis of PPP project practices such as: identifying policy of related to port sector of PPP arrangement, PPP framework on port sector, parties involved in PPP implementation project, and also the financing process of PPP project implementation in Indonesia. Other related issues in PPP project port sector are advantage and disadvantage of PPP arrangement project in Indonesia, risks associated to the project sponsor during implementation of PPP project especially in port sector, concessionaire selection methods to get best concessionaire, and critical success factor of PPP project.

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