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Implementation of Risk Management in Property Projects

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ABSTRACT

The ability company's organization to manage risk is very dependent on the characteristics of the project and must take into account vulnerabilities during risk identification and assessment. In the property development process, vulnerability is a system characteristic that will create the possibility of damage, danger, and failure. Vulnerability is a system that functions like control and manageability. Risk is a function of threat values, consequences, and vulnerability. Risk is a function of threat values, consequences, and vulnerability. The purpose of risk management is to create a level of protection that alleviates vulnerability to threats and potential consequences, thereby reducing risk to an acceptable level. The implementation of risk management must be an integral part of the implementation of the company's management system. The risk management process is one step that can be taken to create continuous improvement.

The stages carried out in this study include identification of the source of risk, the stage of identification of risk factors, the stage of identification of the level of hazard, the stage of identification of the level of vulnerability, the stage of identification of the level of capacity, the stage of risk analysis, and the determination of priority risks. Conceptually, the method proposed in this study refers to the key steps of risk management which include identification, and qualitative risk analysis in the property development process. Data collection was carried out through interviews and filling out questionnaires by resource persons involved in property development in the tourism area of Nusa Dua Resort ITDC Bali Province. Risk factors that are given priority for ongoing mitigation and monitoring are interest rate risk and inflation, risk of development cost analysis, risk of the final design, risk of land maturation, and risk of development financing targets. It can be concluded that overall the level of risk in developing the Nusa Dua resort area is acceptable (IPR <0.24) and the development of the Nusa Dua Resort area is indeed feasible to be developed or built.

Keywords : Risk Analysis, Property Development

INTRODUCTION

Property development is one of the most dynamic, risky, and challenging businesses. But property development has a bad reputation in managing risk. Businesses in the property sector, as with businesses in all other economic fields, need to manage every risk it faces so that a balanced relationship between rentability (rate of return) and business liquidity is not disturbed by events, both economic and non-economic, that happened outside his business. The more successful an entrepreneur is to mitigate risk, the more interested he will be to invest his capital, and vice versa. The ability to manage this risk also depends on the level of risk, both in the economic and non-economic sectors that it faces in the environment concerned.

Estimating investment risks in the property sector faced in various countries. Asset management division (asset management) Deutsche Bank AG which manages the management of the property investment business (real estate) with headquarters in Frankfurt Germany and branches in various countries in the world has done a lot of studies, one of which is the company's risk estimation. This estimation method takes into account, among others; Macroeconomic conditions, political stability, level of transparency, legislation, quality of tenants, and the liquidity of the company concerned. Using a scale between 0 to 5. According to the Asia New Real Estate Investment Trust (2007) this gives an average figure of 3.0 global and 3.7 for Asia. The risk levels of several cities in Asia in the context of global and Asian averages are shown in Table 1-1. Table 1-1 shows that there are no cities with risk levels below the global average, while those below the Asian average but above the global average are Hong Kong, Singapore, and Tokyo.

Table 1-1 Risk Level of Property Business in Several Cities in Asia (*Asia's New Real Estate Investment Trust, 2007*)

Country	Risk Level
Global average	3.0
Asian average	3,7
Hong Kong	3.1
Singapore	3,4
Bangkok	4,1
Kuala Lumpur	3.8
New Delhi	4.2
Seoul	3,7
Tokyo	3,3

AbilityCompany organizations to manage risk are very dependent on company factors and project characteristics and must take into account vulnerabilities during risk identification and assessment. In the process of property development, it is necessary to refer to the opinions of Ezell (2000) and Sarewitz et al. (2003) which state that vulnerability (vulnerability) is a characteristic of the system that will create the possibility of the influence of damage, danger, and failure. Dikmen et al. (2006) state that vulnerability is a system that functions as controllability/manageability. While Zhang (2007) mentions that vulnerability is a project vulnerability which is the level or capacity of the system to respond to or overcome risk events. Risk is a function of threat values, consequences, and vulnerability. The purpose of risk management is to create a level of protection that alleviates vulnerability to threats and potential consequences, thereby reducing risk to an acceptable level. The implementation of risk management must be an integral part of the implementation of the company's management system. The risk management process is one step that can be done to create continuous improvement. The risk management process is also often associated with the decision-making process in a company. This process can be applied to all activities, positions, projects, products, or assets. The purpose of risk management is to create a level of protection that alleviates vulnerability to threats and potential consequences, thereby reducing risk to an acceptable level. The implementation of risk management must be an integral part of the implementation of the company's management system. The risk management process is one step that can be done to create continuous improvement.

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Observing the travel cycle of the property industry business in Indonesia from year to year, it has experienced ups and downs (Indonesian Property Study Center, 2005). In the 1980s, the property business had peaked, then in 1983 it dropped to its lowest point, and in 1986 was affected by the oil crisis. Then in 1989, the property sector returned to its golden age. Unfortunately, that condition did not last long because in 1993 it dropped again. The property business returned to its peak position in 1997 before the economic crisis hit Asia. Once the crisis hit, the property sector plunged to the lowest level. Slowly, the property business began to rise in 2000 until reaching its peak in 2007.

Based on the description above it can be concluded that the property business in Indonesia is still experiencing many obstacles and problems, so it is necessary to integrate the risk management process into property development. In this research, the risk management process will be applied to property development in the Nusa Dua Tourism Area in Bali. It is expected that the results of this study can overcome solutions to the lack of understanding and application of risk management, especially in property development in Indonesia.

LITERATURE REVIEW

Property is defined as "land and all improvements made both on and to land" which means land with all its improvements, or land and all objects that are fused on it (buildings) and which are united against it (Simanungkalit, 1996) in Armaini (2006). Property is something that is owned, that is something that can be owned, or anything that can be used as an object of ownership. Meanwhile, the understanding of Real Property is the interest, benefits, and inherent rights in the ownership of the real estate, which means the interests, benefits, and rights concerning ownership of land and buildings along with improvements that are integrated with it (Rafitas, 2005).

The property development model (Peiser and Frej, 2003) consists of 5 (five) stages. Figure 1-1 shows the process of developing Peiser and Frej (2003) properties.

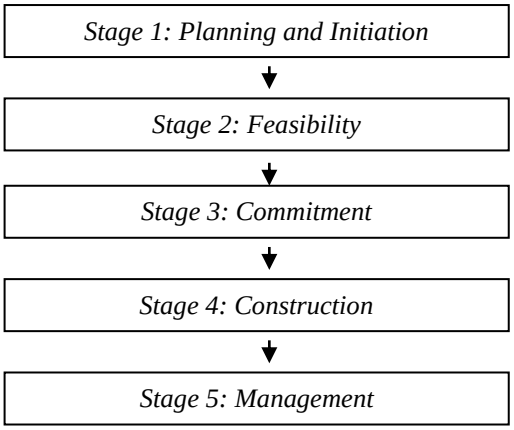

Figure 1-1. Peiser and Frej's Property Development Model
(Peiser and Frej, 2003)

1. The first stage: Planning and Initiation (Planning and Initiation).
   At this stage, it starts with project administration preparations such as preliminary design, site selection, and looking at market opportunities.
2. Second step: Feasibility.
   Conducting market opportunity studies, project financing feasibility, and planning adjusted to local government regulations.
3. The third stage: Commitment.
   Applying for building permits, buying land, marketing
4. Stage four: Construction (construction).
   At this stage, it starts with tendering of construction work with partners or contractors, starting construction work, cost control, quality, and time.
5. The fifth stage: Management (management).
   At this stage, the activities of property marketing, sales, and asset maintenance are carried out.

Aspect property development is some of the things that will be evaluated in a reciprocal relationship every time an investment decision. Each aspect of development consists of transaction preparation activities in the market, transactions, and activities to control transaction consequences. The development aspects can be divided into (Gehner, 2008):

1. Development Land (Land Development): all activities involving the preparation and control of the land acquisition and land ready to develop, including site selection, land ownership investigations, land purchase, and site preparation for construction.
2. Design: all activities concerning the preparation and control of design realization, including initial ideas, first spatial concepts, physical feasibility studies, architect selection, consultants (engineers, landscape architects), and design management processes.
3. Permit (Entitlement): all activities concerning the management of all permits.
4. Financing: all activities involving investment funding.
5. Construction: all activities involve the physical realization of projects, tenders and contracts, construction supervision, and controlling planning and costs.

6. Leasing: all activities related to marketing of property projects, including market analysis, feasibility studies, promotional activities, and rental agreements.
7. Sales: all activities related to the sale of property projects, including market analysis, valuation, promotional activities, closing sales contracts, and property management.

Activities related to each aspect of development are not carried out simultaneously for each phase, activities interact in some cases depending on time. Interaction means that a single activity can be carried out simultaneously in several stages in the development process and several different for each stage or phase. Second, this process is interactive in the sense that the values of certain variables in this process are conditioned by the values of certain other variables (Gehner, 2008), in other words, the results of activity affect other activities. Time dependency implies that one activity must be completed before another can begin.

Table 1-2. Activity Aspects in the Property Development Process
(Gehner, 2008)

Phase Activity	***Initiation***	***Feasibility***	***Commitment***	***Construction***	***Management***
Land Development	*Site selection, investigation of land ownership*	*Soil Investigation*	*Land Purchase*	*Site preparation*	
Design	*Development of ideas, spatial concepts*	*Development of PoR and preliminary design, selection of architects*	*Development of final design and engineering*		
Entitlement	*Investigation of zoning plans and necessary permits*	*Investigation of environmental effects*	*Application of building permit, communication with interest group*	*Secure necessary (building) permits, application usage permit*	
Financing	*Analysis of bay back of envelope pro forma*	*Analysis of economic feasibility, arranging project financing*	*Controlling budget*	*Controlling budget*	*Closing loans generating profit*
Construction		*Cost engineering*	*Selection contractor*	*Execute building contracts, supervise construction*	*After-care facility / technical management*
Leasing	*Watching market trends, determining, target market*	*Market analysis, market feasibility study*	*Marketing plan, closing pre-rental agreement*	*Marketing and promotion, closing pre-rental agreement*	*Closing rental agreements*
Sale	*Watching economic trends*				*Property anagement, sale ntract sale of the project*

Cooper and Chapman (1987) provide an understanding risk that is a condition where there is the possibility of economic or financial gains or losses, physical damage or injury, or delays, as a consequence of uncertainty during an activity. Djojosoedarso

(2003) states that the risk arises because of the uncertainty that results in a person's doubts about his ability to predict the likelihood of future results. In the context of the project, PMBOK (2004) defines risk as an uncertain condition or event which if it occurs will have a positive effect and a negative effect on the project objectives. Kerzner (1998) defines risk as activities or factors that if they occur will increase the likelihood of not achieving the project's objectives of time, cost, and performance. To the project, the risk can be interpreted as a cumulative impact of the occurrence of uncertainty that harms project objectives.

Kerzner (1998) also explains that in the context of the project, risk management means systematically identifying the type, magnitude, and source of the occurrence of risks during the project cycle, then preparing appropriate responses to deal with these risks. In connection with managing property projects, risk management is a very useful tool for project management in supporting project control to avoid conditions that can lead to cost overruns, delays in achieving schedules, or unable to meet specified performance. Project risk management can provide better control for the future and significantly provide opportunities for achieving goals.

RISK ANALYSIS

Development of the concept of risk according to ISDR (2002) which defines that risk follows Equation 1 below:

$$Risk = \text{Hazard} \times \text{Vulnerability} \quad (1)$$

Thus, the risk is the interaction of threats with vulnerabilities. The hazard component in Equation 1 is defined as the probability of a threat occurring over a certain period and vulnerability is the relationship of exposure which depends on capacity as the potential to reduce the impact of the threat. Vulnerability reflects the capacity of individuals, groups, and socioeconomic to withstand the effects of hazards. If the capacity is low and even a small threat can cause system failure (Zhang, 2007). Risk is a function of probability multiplied by impact (R = f [Probability x Impact]) can be transformed into that risk is affected by hazard multiplied by vulnerability (Risk = Hazard x Vulnerability), while Vulnerability is influenced by Capacity, so Risk = Hazard x Vulnerability / Capacity.

Risks in property development must be considered and managed in every activity. The property development process generally consists of 5 (five) stages, namely: the idea stage (initiation), the feasibility stage, the commitment phase, the construction phase, and the management stage. Each stage has different activities and is sensitive to risk. There needs to be a risk assessment at each stage of property development to determine the level of risk of each stage so that it can assist in the decision-making process whether or not feasible activities are carried out by taking into account the amount of risk acceptance indicators which in this study are called risk priority index (IPR). Property development is a promising and challenging business, so there are elements of threats, vulnerabilities, and capacities in their management. Based on the description above it can be assumed that the risk of property development can be influenced by the level of threats, the level of vulnerability, and the level of capacity. Thus, in this study, it is assumed that the threat is a function of the probability (probability) of the event while vulnerability and capacity are a function of the impact of the event. This study to measure the risk of property development analyzed by Equation 2 as follows: Thus, in this study, it is assumed that the threat is a function of the probability (probability) of

the event while vulnerability and capacity are a function of the impact of the event. This study to measure the risk of property development analyzed by Equation 2 as follows: Thus, in this study, it is assumed that the threat is a function of the probability (probability) of the event while vulnerability and capacity are a function of the impact of the event. This study to measure the risk of property development analyzed by Equation 2 as follows:

$$RPi = HPi \times \frac{VPi}{CPI} \quad (2)$$

Where :

Rpi = Risk in Property Development
HPI = Threat in property development
Vpi = Vulnerability in property development
CPI = Capacity or capability in property development

In the context of this research it is assumed that the level of threat, vulnerability, and capacity can be explained as follows :

1. Hazard (hazard) is a condition that has the potential for causing losses to companies caused by activities in the property development process such as land development, design, financing, licensing, construction, marketing, and sales activities. According to Thomas (2008) concerning the development of property the level of threats such as high market growth, shifting people's buying behavior to buy the property, and opening of more diversified products in property management.
2. Vulnerability (vulnerability) is a vulnerable condition for companies and a weakness in carrying out the activities of the property development process which can be in the form of economic, environmental, physical, and social relations vulnerabilities. By the definition of vulnerability, concerning property development, according to Thomas (2008) vulnerabilities such as information on property product introduction is not optimal, company management is unprofessional, and a limited number of human resources who have capabilities in property management services and marketing services are not standard.
3. Capacity (capacity) is the strength or ability of the company to achieve goals by reducing the possibility of risks that will arise by using existing resources. According to Thomas (2008) factors include capacity in the property development such as: having adequate capital, affordable prices, having a network of cooperation with good partners.

Risk Priority Ranking

Determination of priority risk levels is carried out in the following stages: assessment of threat level, assessment of vulnerability level, assessment of capability level, assessment of the importance of criteria for the objectives of the parties, and calculation of IPR (risk priority index).

1. Assessment of Importance of Criteria
   Based on existing problems, the structure of criteria and alternatives can be arranged in a hierarchical system. Related to this thinking, the Analytical Hierarchy Process method was chosen as the right method to determine the level of importance.
2. Risk Priority Index Assessment (IPR)

The assessment of the risk priority index (IPR) can be carried out after the weighting of the importance of the criteria of the parties' objectives is obtained. The calculation of the priority risk index (IPR) is the result of weight level analysis of the importance of each level and the magnitude of the risk value based on the level of threat, level of vulnerability, and level of capacity. The assessment of priority risk levels begins with an assessment of the level of threat, level of vulnerability, and level of capacity and considers the relative importance of importance of the specified criteria. IPR is calculated using the formula (Brojonegoro, 2004) by Equation 3 as follows:

IPR = A (A1 x risk value a1 + … + A6 x risk value a6 + … + D (D1 x weight d1 + ... + D5 x risk value d5) (3)

Where :

IPR = Risk Priority Index;

A to D = Weight of Alternative level 2 (based on the analysis of respondents); A1, A2, ... D5 = Weight of Alternative level 3 (based on respondents' analysis); Risk value a1, Risk value a2, ... Risk value d5 = Risk value

Research Result

Risk analysis starts with identifying the source of risk, identifying the level of threat, identifying the level of vulnerability, identifying the level of capacity and determining the priority of risks. For example: assessment of source # 1 at the idea stage for the risk of site selection and land ownership (A1) as follows:

H1.1 = 5, V1.1 = 5, C1.1 = 5, R1 = 5 x (5/5) = 5; normalized 5/25 = 0,200
H1.2 = 4, V1.2 = 5, C1.2 = 5, R2 = 4 x (5/5) = 4; normalized 4/25 = 0.160

The average risk value A1 = (R1 + R2) / 2 = (0.200 + 0.160) / 2 = 0.180. The Nusa Dua Resort risk value is shown in Table 1-3.

Table 1-3. Nusa Dua Risk Value Resort

No.	Stages (Phase)	Risk Factors (Risk Factor)	Value of Risk Per Resource					Score Risk
			N1	N2	N3	N4	N5	
I	Idea *(initiation)*	A1. Risk of site selection and land ownership	0.180	0.180	0.072	.205	0.160	0.159
		A2. Design risk introduction	0.180	.300	0.050	0.213	0.180	0.185
		A3. Risk of zoning investigations and licensing processes	0.112	.333	0.057	.293	.187	0.196
		A4 Interest rate and inflation risk	.164	0.267	0.090	.400	0.233	0.231
		A5. Market segment risks and market opportunities	.164	.273	0.040	0.267	0.213	0.191
		A6 Economic policy risks	0.180	.273	0.050	0.320	0.267	0.218
								0.197
II	Appropriateness *(feasibility)*	B1. Risk analysis of land investigations	.205	.187	0.090	0.180	0.070	0.146
		B2. Design analysis risk	0.180	.193	0.140	0.220	0.110	0.169
		B3. Risk analysis of law and politics	0.120	0.160	.105	0.170	0.080	0.127
		B4. Risk analysis of economic feasibility	.250	0.213	0.140	0.240	.107	0.190
		B5. Risk analysis of development costs	.200	0.160	0.090	.200	0.060	0.142
		B6. Risk analysis of marketing and sales	.250	0.213	.105	0.240	0.120	0.186
								0.160
III	Commitment *(commitment)*	C1. Land purchase risk	.108	0.112	0.120	0.093	.155	0.118
		C2 Final design risk	0.088	0.160	0.160	.153	.133	0.139
		C3 Licensing risk management	0.140	0.225	.187	0.217	.207	0.195
		C4 Project financing risks	0.120	0.225	0.140	.250	0.160	0.179
		C5 Construction contract risk	0.120	0.160	0.140	.153	.147	0.144
		C6 Risk of marketing agreement	0.088	0.160	.167	.250	0.160	0.165
								0.157
IV	Construction *(construction)*	D1 Risk of land maturation	.167	0.360	0.210	0.213	0.140	0.218
		D2 Development licensing risk	.167	0.417	0.240	.200	0.120	0.229
		D3. Risk of oversight of the project cost budget	.203	0.307	0.180	.187	.105	0.196
		D4 Risk of supervision of construction work	.167	.293	0.180	.200	0.120	0.192
		D5 Market competition risk	.153	.333	0.170	0.140	.105	0.180
								0.203
V	Management *(management)*	E1. Risk of development financing targets	.200	.143	0.080	0.090	.250	0.153
		E2 Risk of maintenance and submission of work	.153	0.120	.150	0.083	.247	0.151
		E3 Targeted marketing risk	.153	0.120	.100	0.070	0.267	0.142
		E4 Target sales risk	.153	0.140	.113	0.060	.292	0.152
								0.149

Based on Table 1-3 for the Nusa Dua Resort area, the highest risk value is the construction stage 0.203; the next stage of ideas is 0.197; feasibility stage 0.160; commitment stage 0.157; and the management stage 0.149.

Determination of Risk Priority Index for Each Level

The Risk Priority Index (IPR) in the Nusa Dua Resort Area can be calculated as follows.

IPR = IPR_A + IPRB + IPRC + IPRD + IPRE

IPRA = A [(A1 x a1) + (A2 x a2) + (A3 x a3) + (A4 x a4) + (A5 x a5) + (A6 x a6)]

= 0.207 [(0.066 x 0.159) + (0.184 x 0.185) + (0.142 x 0.196) + (0.466 x 0.231) + (0.034 x 0.191) + (0.107 x 0.218)] = 0.207 (0.010 + 0.034 + 0.028 + 0.107 +) 0.0065 + 0.023)

= 0.041

IPRB = B [(B1 x b1) + (B2 x b2) + (B3 x b3) + (B4 x b4) + (B5 x b5) + (B6 x b6)]

= 0.216 [(0.248 x 0.146) + (0.077 x 0.169) + (0.192 x 0.127) + (0.097 x 0.190) + (0.330 x 0.142) + (0.055 x 0.186)] = 0.216 (0.036 +0.013 + 0.024 + 0.018 + 0.018 + 0.046 + 0.010)

= 0.031

IPRC = C [(C1 x c1) + (C2 x c2) + (C3 x c3) + (C4 x c4) + (C5 x c5) + (C6 x c6)]

= 0.086 [(0.141 x 0.188) + (0.356 x 0.139) + (0.093 x 0.195) + (0.149 x 0.179) + (0.047 x 0.144) + (0.214 x 0.165)] = 0.086 (0.027 + 0.049 + 0.018 + 0.027 + 0.008 + 0.035)

= 0.014

IPRD = D [(D1 x d1) + (D2 x d2) + (D3 x c3) + (D4 x c4) + (D5 x d5)]

= 0.410 [(0.254 x 0.218) + (0.079 x 0.229) + (0.138 x 0.196) + (0.317 x 0.192) + (0.214 x 0.180)] = 0.410 (0.055 + 0.018 + 0.027 + 0.061 + 0.039)

= 0.082

IPRE = E [(E1 x e1) + (E2 x e2) + (E3 x d3) + (E4 x e4)]

= 0.081 [(0.465 x 0.153) + (0.163 x 0.151) + (0.285 x 0.142) + (0.088 x 0.152)] = 0.081 (0.071 + 0.025 + 0.040 + 0.013)

= 0.012

IPR = 0.041 + 0.031 + 0.014 + 0.082 + 0.012

= 0.180

The complete Risk Priority Index (IPR) in the Nusa Dua Resort area of each level can be illustrated according to Figures 1-2:

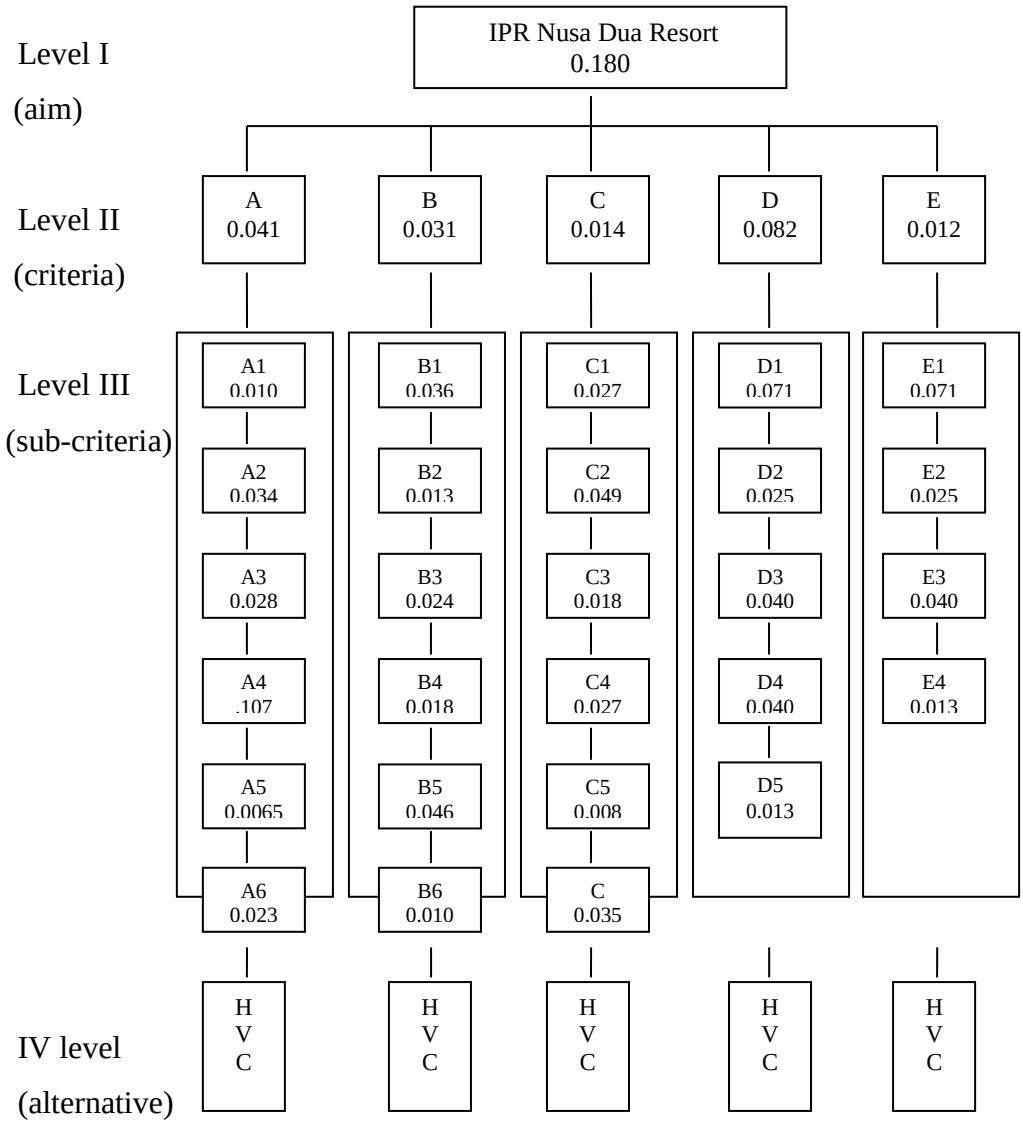

Figure 1-2. Nusa Dua Resort Priority Risk Index

Response Policy and Risk Mitigation

The risk response policy is carried out after risk factors have been identified and ranked (risk level). Risks that are responded to are only dominant risks or risks that have the highest IPR at each stage of property development. As explained in Chapter 2 about risk management strategies, the alternative responses in this study are used according to PMBOK (2000) are as follows:

1. Accept the risk (R1)
   This alternative risk response is chosen by bearing or accepting risk because it is part of the company's management decision.
2. Reducing or mitigating risk (R2)
   Risk can be reduced by reducing the likelihood that a risky event will occur and reducing the impact of events owned by the company.
3. Avoid risk (R3)

Avoiding the risk is taken when the results of the analysis the possibility of losses incurred high

4. Transfer or transfer risk (R4)
   Transferring risks can be done using conventional methods such as; insurance or paying third parties to take risks.

While the measure of determining the type of response is used to develop the normalization of Godfrey (1996) risk acceptance scale. The risk response and mitigation policies in this study are presented in Tables 1-4.

Table 1-4. Nusa Dua Resort Response and Risk Allocation

Step	Risk Factors	IPR	Risk Response
1. Ideas *(initiation*)	Interest rate and inflation risk	.107	Accepted / ignored
2. Feasibility (feasibility)	. Risk analysis of development costs	0.046	Accepted / ignored
3. Commitments (commitment)	Final design risk	0.049	Accepted / ignored
4. Construction (construction)	Risks of land tenure	0.071	Accepted / ignored
5. Management (management)	. Risk of development financing targets	0.071	Accepted / ignored

Discussion of Risk Assessment Results

Risk assessment in case study projects namely in the Nusa Dua Resort and Mandalika Resort areas can be explained as follows :

1. Nusa Dua Tourism Area Resort is one of the integrated tourism areas in Indonesia. The Nusa Dua tourism area began in Gagas in 1971. Nusa Dua Resort manages an area of approximately 350 hectares, which was originally barren land and was not productive, becoming an attractive tourist area in Bali. This area is even well known in the Five Countries as one of the 6 (six) best tourist areas in the world. Infrastructure development in the Nusa Dua area is carried out by BTDC (now ITDC) with funding sources borrowed from the World Bank under the appraisal made in May 1974. The stages of the development of the Nusa Dua Tourism Region from 1976 to 2014 have built several 5-star hotels (five) and other supporting facilities. Nusa Dua Resort area is managed by PT. Indonesian Tourism Development (ITDC) is a state-owned company. Although as a state-owned company, the management of PT. The development of Indonesia's Tourism risk management is the company's main focus which is carried out continuously and continuously. By the 2015 BTDC Annual Report, the types of risks that are effectively monitored are; operational risk, human resource risk, market risk, legal risk, reputation risk, compliance risk, and strategic risk. Based on the results of interviews with the head of the Internal Audit Unit responsible for managing the company's risk, it was reported that at PT.
2. Based on the risk value of the Nusa Dua Resort area (Table 1-3) can be explained as follows :
   1. The highest risk value at the idea stage (initiation) is the risk of interest rates and inflation with a score of 0.231.
   2. The highest risk value at the feasibility stage is the risk of economic feasibility analysis with a score of 0.190.

3. The highest risk value at the commitment stage is the risk of licensing management with a score of 0.195.
4. The highest risk value at the construction stage is the risk of building permits with a score of 0.229.
5. The highest risk value at the management stage is the risk of development financing targets with a score of 0.153.

Based on the results of the risk assessment analysis above, it can be concluded that the risk value in the development of the Nusa Dua Resort category is very low from the highest score of 1.00. This shows the level of threats, vulnerabilities, and capacities that affect risk factors at each stage of property development has varying values. For example, the assessment of Resource # 1 Nusa Dua Resort for risk factors for site selection and land ownership with risk value = 0.20 (threat = 5, vulnerability = 5, capacity = 5), can be interpreted as that site selection and land ownership have a level of threat and vulnerability is very high but the company PT. Indonesian Tourism Development (ITDC) has the ability, strength, and great capacity to reduce threats and reduce the level of vulnerability. Likewise for other risk factors at each stage of development. To get a more valid risk value and determine priority risk, it is necessary to include the level of interest of the parties in the form of the weighting of each level's criteria (Figure 1-2) in the risk assessment. The combination of risk value and criteria weights for each level in the priority risk index (IPR) which shows the risk ranking at each stage of development can be used to determine the priority of risks that must be mitigated and can be used to make decisions for the next step of the activity. This is shown by the results of this study found the overall Nusa Dua Resort risk assessment (Level I) with an IPR of 0.18. IPR idea stage of 0.04; IPR feasibility stage of 0.031; IPR commitment stage of 0.014; The construction stage IPR is 0.082 and the management stage IPR is 0.012. Risk factors that are given priority for ongoing mitigation and monitoring are interest rate risk and inflation, risk of development cost analysis, risk of the final design, risk of land maturation, and risk of development financing targets. It can be concluded that overall the level of risk in developing the Nusa Dua resort area is acceptable (IPR <0.24) and the development of the Nusa Dua Resort area is indeed feasible to be developed or built.

CONCLUSION

Based on the research results with a certain calculation, several conclusions can be outlined and presented as follows.

1. Based on the research results the level of hazard, the level of vulnerability, and the level of capacity identified at each stage of property development are as follows :
    1. The Initiation Phase consists of 12 levels of hazard, 12 variables of vulnerability, and 12 variables of capacity.
    2. The feasibility study phase consists of the level of threat of as many as 12 variables, the level of vulnerability of as many as 12 variables, the level of capacity of as many as 12 variables
    3. The Commitment Stage consists of 12 levels of hazard, 12 variables of vulnerability, 12 variables of capacity
    4. The Construction Phase consists of: consisting of 10 hazard levels, 10 vulnerability levels, and 10 capacity capacities.

5. The Management Stage consists of: consisting of 8 variables of hazard, 8 variables of vulnerability, and 8 variables of capacity.

2. The Nusa Dua Resort property development concludes that the most risk development stages are the construction phase (IPR = 0.082), followed by the idea stage (IPR = 0.041), then the feasibility study stage (IPR = 0.031), the commitment stage (IPR = 0.014), and the stage management (IPR = 0.012). Based on the value of the Risk Priority Index (IPR), the construction phase is the recommended property development stage for priority handling or priority response.

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