Study on building permit awareness in West Sumatra, Indonesia

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Abstract. This study aims to understand the level of awareness and competency of building officers in Indonesia regards to the implementation of building permit systems. The study area is West Sumatra, Indonesia. Understanding the situation experienced by building officers is significant, considering their important role in guaranteeing the quality of building, especially in an earthquake-prone area. The method used in this study is interviewing building officers in 6 sub-districts in the target district. Interview conducted using question and answer sheet, as well as collecting related building permit documents to support the results and improve the understanding of building construction process. The results show that 70% of the building official is lack of understanding and capacity to conduct their job. Indicators of the level of education in which more than 30% only graduated from high school and not more than 10% got the opportunity to strengthen their technical knowledge about building construction. 80% of staff never read building law no.28 the year 2002, and 70% never read the technical guidance of building construction PP no.36 the year 2005. This study provides essential information for the Indonesia government as a basis to improve the quality of building officers.

1. Introduction

To ensure the quality of constructed buildings, most of the countries in the world control the compliance of building code in the construction field by dispatched the building’s staff of local government [1]. In Australia, the building code of Australia (BCA) is enacted by implementing a new system that removed municipal building surveyors’ monopoly on issuing building permit and opened the market to private building surveyors, who have to be registered and insured to protect the public’s interest [2]. The aforementioned building permit system a.k.a BCA has been audited and the auditor has assessed the effectiveness of this system in assuring that approved works meet requisite building and safety standards. As result, this system cannot demonstrate that the building permit system effectively. The building surveyors are effectively discharging their role to enforce minimum standards. The commission also has failed to monitor the effectiveness of the building permit system.
These shortcomings are significantly showing the essence of the role of building officers or surveyors that in charge of the building permit systems. Australian case also identifies that a developed country is still continuously improving its building permit system to maintain public safety.

In Indonesia, the established local government institution especially the municipal building agency who issues building permits is regulated by building local regulation based on Indonesian Building Law UU no 28/2002. These building agencies also function as quality controllers during the planning phase, construction phase, and completion phase. The regulation stated that the construction can only be started as the building permit decree is issued.

Conceptually, the building permits should guarantee that the constructed building meets the minimum requirement of the building code. However, the building quality in practice shown different situations, where there are many defects found in the construction field, such as poor quality of concrete and improper reinforcement detailing as can be seen in figure 1[3]–[5]. The poor quality in Figure 1 with porous concrete can happen if the quality control of the construction method is bad. The improper compaction of fresh concrete is one of the causes that can increase the porosity of hardened concrete[5]

The poor quality of construction shows that the building regulation yet been fulfilled in the construction site. As the key person of quality control, the awareness and the actual condition of building staff need to be assessed as one of the efforts to understand the problem related to the building quality compliance, especially in local government.

![Image](porous_concrete.jpg)

**Figure 1.** Poor Construction Practice [4]

### 2. Research objective and methodology

The previous paragraphs show that the poor quality of buildings increases the risk of the earthquake disaster, as data shown due to Big Earthquake 2009 in West Sumatra Indonesia. The surveys on after earthquake event and reconstruction phase also indicated that building quality seems yet to fulfill the minimum standard of construction quality.

#### 2.1. Research objective
This study aims to understand the level of awareness and competency of building construction officers in Indonesia regarding building resistance to seismic load and implementation of building permit system as part of this duty. The study area is Padang-Pariaman district, West Sumatra province in Indonesia.

2.2. Research methodology

The method used in this study is an interview by using open questions to 10 building officers in 6 sub-districts in the target district in Padang Pariaman regency, West Sumatra, Indonesia. Interview conducted using question and answer sheet, as well as collecting related building permit documents to support the results and improve the understanding of building construction process.

Three main parameters were measured and included in the interview which are:

1) general data of the building officer to understand their background which can be related to the answer
2) awareness and understanding level about earthquake disaster and technical knowledge about building resistance to earthquake
3) awareness about their primary responsibility as building officer. The last one is to collect information about building construction in the area.

The list of open questions was used in this study is presented in Table 1.

| No | Questions                          | Sub Questions                       |
|----|------------------------------------|-------------------------------------|
| 1  | Respondent Profile                 | 1. Education background             |
|    |                                    | 2. Sex                               |
|    |                                    | 3. Age                               |
| 2  | Supervision and administration skill | The building staff training experiences |
| 3  | Competencies and knowledge level    | 1. Reading UU no.28 the Year 2020    |
|    |                                    | 2. Reading Technical Guidance PP36 Year 2005 |
| 4  | The awareness of earthquake, building quality, and building permit | |

This study also collected local regulation book (offline and online). The aim is to review the acted regulation and compare it with the previous one. Hence, the will be a sight of the current situation of building control parameters.

3. Result dan discussion
3.1. Respondent profile

![Education](image1)

**Figure 2.** Education of Officials

![Sex](image2)

**Figure 3.** Sex Profile of Officials

Figure 3 shows that building officials who were interviewed are 90% male and 10% female, with 80% of them are 31-50 years old, which indicates that the officers are of their productive age (see Figure 4). The rest, 20% are above 50 years old. The highest education is a bachelor's degree for 70%, while 30% only reached Senior High School. However, officials that graduated with bachelor degree generally did not expertise in civil engineering course (see Figure 2).

![Age](image3)

**Figure 4.** Age of Officials

3.2. Awareness level of building officers toward the building permit system dan building quality

Based on the interview, generally, the officers were already trained as administrators and claimed that they can supervise structure and inspect construction based on Building Permits documents. However, only 10% of building officers trained in a technical workshop for building construction (see Figure 5).
This finding needs to follow up by conducting training for building officers on the sub-district and village level as the leading player in building supervision.

As the basis of building regulation in Indonesia, the building officials must understand Building Law no 28/2002 about building and Technical Guidance, Government Regulation about Building (PP 36/2005) as the basis for building permit issues [5,6].

Unfortunately, the results found that 80% of the officials never read the book of Law since they never get/have the book. The rest read once time only. The same fact was also found for PP 36/2005. 60% of officials never read, but 40% had read the book at least once time. The reason also same, that they do not have the book (see Figure 6 and 7).

Figure 5. Supervision and Administration Skill of Officials

Figure 6. Knowledge about Building Law

Figure 7. Knowledge about Technical Guidance for Building Permit
This study also seeks information about the perception of building officials about the implementation of local regulation of building permit system and its effectiveness. In Figure 9, almost 100% agree that the regulation is effective in building permit system implementation. While the officials think so, they admit that many people were less aware of register their building construction and get building permits.

Figure 8. Number of Registered Building Permits

Figure 7 shows that 64% of the building in the study area do not have a building permit. While we confirm the possible reason, building officials think that it is due to a lack of awareness of people for applying for the building permits (70%), and the retribution for building permit application is not affordable for people (20%). The rest of the officials think that it is due to a lack of knowledge of the building permit system, which means that intensive socialization for people is needed (see Figure 10).

Figure 9. Perception of Official about the effectiveness of Building Permit System
The interview also finds that the problem of land acquisition also triggers the unclear status of land ownership that put people and building owners about their situation on applying for building permit. The situation of interview activity can be seen in Figure 11.

![Figure 11. Interview Situation at Officials Office](image1.png)

### 3.3. Building permit system

A new building Permit System has been issued since May 14th, 2015, which is listed as Local Regulation (PERDA) no.7 about Building Construction of Padang City, Indonesia. 5 aspects regulated in general regarding building construction system, as follows:

1. **Locality Aspect**
   - This aspect accommodates specific local aspect for every province and local area following the physical characteristic of the region and disaster, as well as traditionalism and local wisdom on the region
2. **Technical Aspect**
This aspect aims to guarantee the reliability of buildings in every province and local area regards to safety, healthy, comfort, and easiness.

3. Administration Aspect
To guarantee the building construction process orderly, has been set implementation of the building permit system or Izin Mendirikan Bangunan (IMB) in Bahasa and Certificate of Functionality or Sertifikat Layak Fungsi (SLF) in Bahasa.

4. Protection and Controlling Aspect
This Local regulation about Building Construction System has been issued as the legal protection for building construction process in Local area or province.

5. Judicial Aspect
To guarantee the implementation of Laws no.28 the year 2002 about Building, Laws no.26 about spatial planning and government regulation no.36 the year 2007

3.4. The comparison of building permit system for low rise and midrise building

In general, the building construction process in Indonesia can be divided into 5 steps

1. Step 1: Pre-application
   During this pre-application, there are three leading players involved in this step, which are the building owner as an applicant, TRTB officer, and building designer. The primary purpose of this step is to complete the necessary document of the owners and the building.

2. Step 2: Design
   After clarification of personal information of the owner, land ownership document, and other supporting documents, the owner can submit a building-related document and get a review from the building official. The review process will be repeated a couple of times until all of the aspects of reliability and safety are fulfilled.

3. Step 3: Construction
   After verification of building and spatial requirements, the Spatial and Building Planning Office will issue a building permit document that is officially signed as a statement that the government agrees and approve the owner's data, including land certificate and reliability of building's design and construction planning.

4. Step 4: Utilization
   As the construction process is finished, TRTB will inspect the building serviceability level and decide whether the building can be operated or not by giving SLF certificate.

5. Step 5: Demolition
   In case of building needs to be demolished partly or all of the buildings, due to some particular reason, the owner needs to ask recommendation from TABG which will investigate and study building condition from structural aspect and importance level of the building regarding safety and preservation issue.
### Table 2. Building Permit Process and its complementation.

| No | Process | Documents | Building Up to 2\textsuperscript{nd} Stories (Housing) | Building > 2\textsuperscript{nd} Stories |
|----|---------|-----------|-----------------------------------------------------|----------------------------------------|
| 1  | a       | Document Administration | Land Owner/User Certificate | O Apply to village municipality or regional government (mayor level). The designer is an uncertified engineer | O Apply to Public Work Dept. at Mayor Level. The designer is certificated, engineer |
|    |         | Architectural | O | O |
|    |         | Technical | X | O |
|    | b       | Building Permit Issued | Land status and architectural doc | O | O |
| 2  | a       | Design State | O | Public Work Dept. |
|    | b       | Technical doc | X | O |
| 4  | a       | The construction process with supervision | X | O Constructed by a certified construction company. Supervised by TABG and regional Public Work Dept. |
|    | b       | Post Supervision | O Inspected by regional municipalities or construction association | O Serviceability supervision, doing by professional technical building inspector from company/individual/owner |
| 5  | a       | Utilization with periodic review | Inspection documents | X | O After getting the SLF certificate The building owner must have an insurance certificate for structural failure possibility |
4. Conclusion

This study provided information about the profile of building officials of building permit division on the sub-district level of local administration in Indonesia, especially in the West Sumatra region. It seems that the government needs to evaluate the recruitment system that can improve the input of official's quality in terms of their competency on carrying on their duty. The lack of understanding of Building Law also indicated that their knowledge about how to implement the regulation is low. The government on a higher-level should pay attention to the understanding of the Law itself as the basis of building permit system implementation. This study can be valuable information for the Indonesia government as a basis to improve the quality of building officer.

References

[1] Sedlenieks. K 2003. Corruption in The Process of Issuing Building Permits. Latvia. ISBN 9984-751-38-4

[2] Atkinson. B and Smith K 2011. Compliance with Building Permits. Victoria.

[3] E. Juliafad, K. Meguro, and H. Gokon, “Study on The Characteristic of Concrete and Brick as Construction Material for Reinforced Concrete Buildings in Indonesia,” p. 4.

[4] E. Juliafad, K. Meguro, and H. Gokon, “Study on The Environmental System towards The Development of Assessment Tools for Disaster Reduction of Reinforced Concrete Building due to Future Mega-Earthquake in Padang City, Indonesia,” p. 5.

[5] E. Juliafad, I. G. Rani, F. Rifwan, and Y. F. P, “Concreting Workmanship in Indonesia Study Case: Padang City, West Sumatra, Indonesia,” Int. J. Adv. Sci. Eng. Inf. Technol., 9, no. 1, p. 300, Feb. 2019, doi: 10.18517/ijaseit.9.1.7201.

[6] E. Juliafad and A. P. Melinda, “Assessment of Reinforced Concrete Building for Disaster Reduction Strategy in Padang City, West Sumatra, Indonesia,” MATEC Web Conf., 258, p. 03007, 2019, doi: 10.1051/matecconf/201925803007.

[7] Indonesian Government 2002, Building Law no.28, Jakarta. (In Bahasa)

[8] Public Work Department of Republic of Indonesia 2007, PP no.36/2007, Jakarta

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