

## **INFRASTRUCTURE PROJECT HANDLING STRATEGY IN THE PANDEMIC TIME OF COVID-19**

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### **ABSTRACT**

Large infrastructure projects, whether private, public private partnerships (PPP) and government ownership, often require a large and very important workforce from various regions, especially during construction. The project's human resource requirements and management practices can affect the health and safety of workers and communities living outside the project environment where work interactions are made. As a result, the actions taken by infrastructure projects play an important role in reducing the spread of Covid-19 among the workforce, which in turn can help prevent the spread of covid-19 in the communities where the project is located. The method of writing scientific articles is a literature study method that is based on the results of studies and research that have proven validity, relevant to the study of writing and supports the description or analysis of the discussion. The results of the analysis are in the form of a framework for implementing infrastructure projects during the Covid-19 pandemic in Indonesia. This framework consists of three steps to protect the workforce in developing special risk treatments for infrastructure projects namely; assess the project management capacity for the COVID-19 response, assess the project risk context, determine the project risk profile and make recommendations. This information is then used to identify and implement systems and processes to protect the health of workers and the public as well as to reduce the risk of Covid-19 transmission as much as possible, and to control the project. The decision-making process must take into account the applicable laws and regulations as stated in the work contract.

**Keywords: Infrastructure Projects, Covid-19**

## 1. Introduction

Infrastructure is a system of public facilities, which is fundamentally aimed at serving and facilitating the community (Hudson, et al: 1997). In general, infrastructure refers to public needs, such as water, electricity, gas, water disposal, and telephone services and other public facilities. Infrastructure refers to a physical system that provides transportation, water, buildings, and other public facilities needed to meet basic human needs economically and socially (Socrates: 2001: 20). Infrastructure development can improve the economy of a country, especially Indonesia. The development of a country depends entirely on the availability of its infrastructure facilities. Infrastructure plays an important role in improving the country's standard of living. It also plays an important role in contributing to higher rates of economic growth. Infrastructure refers to the facilities, activities and services that support the operation and development of other sectors of the economy. These facilities, activities and services help increase the productivity of the economy as a whole. Infrastructure also plays an important role in facilitating the smooth running of all economic sectors. Infrastructure is an organ that is important for the survival of an area. In a process of infrastructure development in Indonesia, various resources are needed to do it. Whether it's natural resources that become raw materials or factors supporting development, as well as human resources. Infrastructure also plays an important role in contributing to higher rates of economic growth.

The Indonesian economy is plagued by various problems with the lack of adequate infrastructure availability. Many places have substandard or nonexistent physical and digital infrastructure due to a lack of investment. For example, many hospitals and puskesmas in underdeveloped areas still do not have clean water and electricity 24 hours a day. The rapid growth, industrialization and urbanization of Indonesia over the past 20 years has resulted in an increasing need for these infrastructures. The government in Indonesia has had several periods of difficulty building infrastructure at this pace. This has resulted in domestic economic growth and trade integration with the Indo-Pacific region that has not been optimal. Estimating the investment required to close the gap is not easy. One estimate that is quite acceptable is the estimate from the World Bank which states Indonesia requires an investment of US \$ 500 billion for basic facilities over the next five years to support its continued growth.

The coronavirus (COVID-19) pandemic is unprecedented and its effects continue to threaten the global economy. The pandemic affects a variety of industries and other sectors. The impact on infrastructure projects can be assessed during one of the following phases: development, construction and operation. Some contractor service providers in this condition stated that the situation was uncontrollable and unthinkable / force majeure. These conditions create liquidity challenges for the company and create project funding gaps. Indonesia is one of many countries that has experienced major changes in its social and economic structure due to the COVID-19 pandemic. People are being forced to aggressively minimize social interactions in an attempt to prevent the spread of the virus. Inevitably, these steps will have a major impact on various business sectors. One sector in Indonesia that has been forced to adapt to this unique situation is the infrastructure development sector.

The Indonesian government's plan to build a new capital city in East Kalimantan adds approx US \$ 33 billion into that estimate. Finding the budget to reduce the infrastructure gap has become increasingly difficult as the economic and financial pressures are being felt due to the COVID-19 pandemic. This will clearly have an impact on infrastructure development. This year's spending budget for infrastructure is around US \$ 29 billion. As much as 40% of the total budget, or around US \$ 164.8 billion of the total investment US \$ 412 billion for infrastructure projects between 2020 and 2024 will be funded directly by the government. The remaining funding will come from BUMN (25%) and the private sector (35%). This pandemic will cause the government to divert these funds, while other sources of funding will lose money due to a shrinking recession. Country Currently, Indonesia also has to deal with an economic slowdown and decreased state revenue due to the COVID-19 pandemic. The government's fiscal response consists of the US \$ 2 billion package in the first phase was followed by the US \$ 26 billion stimulus package. This can be achieved because of its reallocation of funds from projects that should be done at this time. However, these funds will become increasingly scarce as state revenues shrink due to the economic slowdown.

As the economic crisis becomes increasingly fierce as the pandemic strikes, Indonesia is likely to need a lot of money to carry out its stimulus packages. This will have an impact on Indonesia's ability to finance its infrastructure projects. However, Indonesia should see infrastructure development as part of its recovery, as these projects create jobs, open up new market shares and increase efficiency. As important as infrastructure development is for improving the welfare of human life, a measurable strategy is needed in dealing with infrastructure project development in Indonesia, especially during the Covid-19 Pandemic.

Conceptually, infrastructure is the key to driving economic activity. During a recession, infrastructure development becomes the motor for short-term economic growth in terms of demand through job creation and increased consumption. Meanwhile, in the long term, infrastructure will boost the supply side by increasing production capacity and improving the flow of goods and services, thereby creating economic efficiency. During a pandemic, infrastructure is also needed to encourage health management. Health service infrastructure is the key to providing response services during a pandemic. Online-based health services are helping to deal with the pandemic in terms of access and literacy through the presentation of information. On the other hand, the limited availability of infrastructure will become an obstacle to the resolution of this pandemic.

## 2. Literature Review

### 2.1 Infrastructure Development in Indonesia

Indonesian infrastructure is regulated in Presidential Regulation number 38 of 2015. In it, infrastructure is physical facilities, technical facilities, systems, and hardware or software needed as services to the community. As well as supporting the structural network so that the economic and social development of the community can take place well. The definition of infrastructure in construction is also supported by the provision of infrastructure which includes; construction work activities to build or improve infrastructure capabilities in order to develop the benefits of the built infrastructure. Physical infrastructure is a facility built to help meet community needs. In this type of infrastructure, namely tangible physical facilities that a construction project needs to work on. Examples include roads or toll roads, ports, airports, tall buildings, and irrigation development. Physical construction usually also uses precast concrete products, prestressed concrete, and reinforced concrete. Derivative products can be box girder bridge, sheet pile, pile etc. Non-physical technical infrastructure includes something that has a utility or utility function for the community. It can be said that this infrastructure provides its own services for everyday life. Among them are the provision of electricity supply, clean water, transportation and communication networks. Soft infrastructure refers to physical and non-physical facilities built to meet the needs of the people in a country. However, there is soft infrastructure which is an element in society as well as the government as a support for the tangible infrastructure that has been built. Some examples of soft infrastructure are values and norms, work ethics, public services, traffic laws, and laws.

Based on the types of infrastructure above, infrastructure in the world of construction refers more to physical infrastructure.

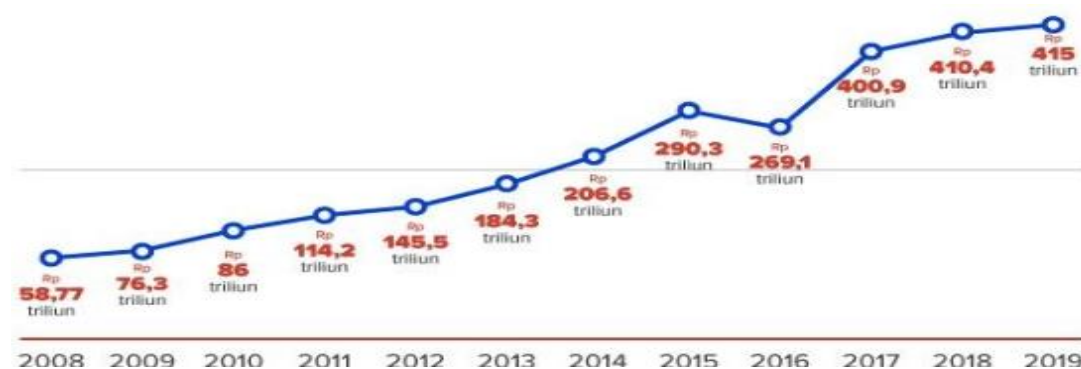


**Image 1.** Construction of Physical Infrastructure Flyovers

The benefit provided by infrastructure is that it provides convenience for the community, especially in the world of construction where the elements built are components that are used by the community in their activities either individually, in groups, or when they use a vehicle. Another benefit of infrastructure is that it functions to support the economic, social, cultural and educational development of a country. For example, in a city, good infrastructure will certainly develop the potential in the city so that it will attract investors to invest. One of the vital benefits of infrastructure is equitable distribution of the welfare and economy of the people of a country through built access. Imagine if there is a remote area that is difficult to reach due to limited access, while the area has the potential for natural resources and qualified human resources. Through

infrastructure development such as road access and transportation, it will certainly make it easier for the area to develop and services to the community there can be fulfilled.

Indonesia is catching up with development infrastructure in the last few years. Massive infrastructure projects in various parts of the country have been built, ranging from toll roads, bridges, dams to power plants. Based on data from the Ministry of Public Works and Public Housing (PUPR), in the four years of President Joko Widodo's administration or until October 2018, the government has built 3,432 km of national roads and 941 km of toll roads. Then there are 65 new dams and a new irrigation network covering 860,015 hectares. Although many have received praise, this infrastructure development is not free from criticism. One of them was conveyed by the World Bank in a report entitled Infrastructure Sector Assessment Program (InfraSAP). According to the World Bank report, the quality of Indonesia's development is low, not well planned. The World Bank also said that infrastructure development in Indonesia is too dependent on SOEs, causing confusion for state companies to seek funds. Other than that, The World Bank also said that electricity and water rates are too cheap so that they are not attractive for investors to invest in these projects. Even though the economy started to recover after the 1998 crisis, infrastructure development in the country after the crisis was quite choked up. In 2014, the World Bank in its report highlighted the low investment in infrastructure which has caused Indonesia's economy to lag behind. The lack of infrastructure development is also reflected in the low budget allocated by the government for this sector before 2015.



Source: Ministry of PUPR RI

**Figure 2.** Indonesia's Infrastructure Budget

## 2.2 The Impact of the Covid-19 Pandemic on Infrastructure Development

The development of the health crisis which has an impact on the world economy has practically forced all countries in the world to retreat with predetermined strategic plans which are then replaced by emergency response policies by mobilizing all resources to overcome the Covid-19 outbreak. World institutions and strategic planners corrected their projections, especially in 2020, which is likely to see an economic slowdown, recession and even depression. Development in every country is certain to be disrupted. Each country revises its state budget and provides a large allocation of funds to deal with this corona outbreak. Given that the disease that comes through the corona virus is quite deadly (on average about 3-5% of deaths from victims who have been exposed to the virus), then patent drugs have not been found,

As a result of the Covid-19 pandemic, it has an impact on the construction of infrastructure projects, as reported by the Ministry of Public Works and Public Housing (PUPR), which revealed that the Covid-19 pandemic has had an impact on the sustainability of infrastructure projects with a government-business partnership (PPP) scheme. First, the fulfillment of the financial close has encountered obstacles for new toll road construction projects which are still in the construction preparation stage. Second, the slowdown in the ongoing toll road construction projects considering that the project experienced a slowdown during the Covid-19 pandemic period. Third, all activities are carried out via teleconference, thus limiting decision-making, especially for matters that need face-to-face contact. Fourth, Fifth, PPP projects that are in the process of a transaction follow the provisions in the PUPR Minister's Instruction No.3 / 2020 concerning the Protocol to Prevent the Spread of Covid-19 in the Implementation of PPP BUP Procurement in Provision of Public Works and Housing Infrastructure. Sixth, for PPP projects that are under construction, work will be temporarily suspended if construction services are identified as having a high risk or found workers who are positive and / or have PDP status, whose implementation still follows the provisions in the PUPR Minister's Instruction No.2 / 2020 concerning the Protocol for Prevention of Spread. Covid-19 in the Implementation of Construction Services. Seventh, toll road project operations have decreased by an average of 50 percent compared to normal conditions.

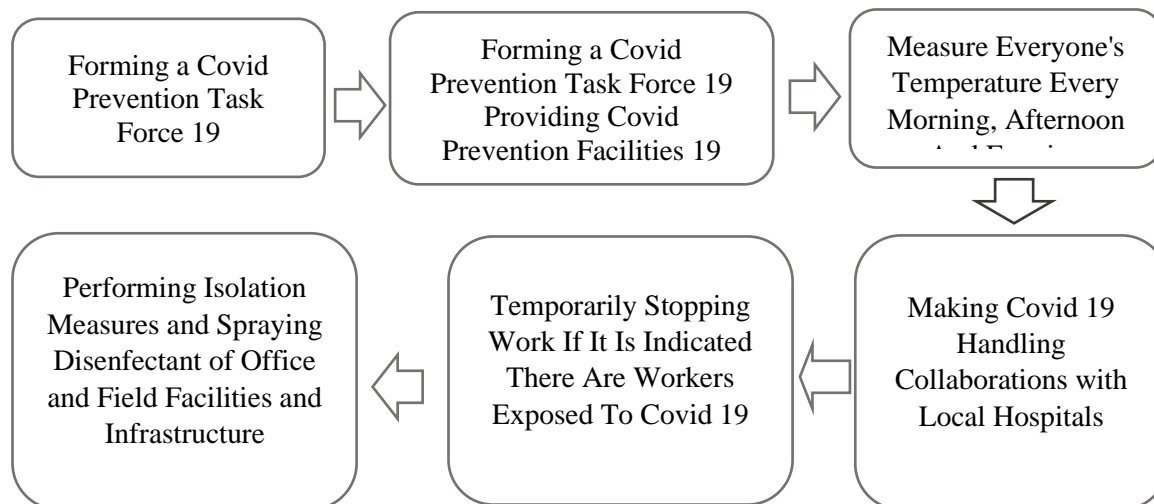
The challenges in infrastructure development during the Covid-19 pandemic are on the funding side and priority scale. With the sluggish global economy, investors will evaluate investment decisions that will be made. On the government side, the existence of a budget reallocation policy for national economic recovery also affects the infrastructure project development schedule, which should start this year. With limited funding, it is necessary to reprioritize the types of projects to be built so that the development burden is not too large and does not become a fiscal burden in the future. Regarding the budget cuts for the implementation of the Ministry of PUPR's projects for handling COVID-19, amounting to IDR 44.5 trillion from a total of IDR 120 trillion. So, the remaining DIPA of the Ministry of PUPR is currently around IDR 75 trillion. Another impact of COVID-19 on the implementation of construction services is delays in project completion. The slowdown in project work due to COVID-19 is constrained by the mobilization process and the availability of labor or materials or equipment. To overcome the slowdown in project completion, we ended up temporarily stopping work if the project was located in the red zone. In addition, another impact is an increase in implementation costs. The increase in implementation costs due to PSBB status and physical distancing affects construction work such as material mobilization, equipment, labor and real cost increases. Another impact of the Covid-19 pandemic on infrastructure development is the occurrence of construction disputes due to non-performance of work contracts.

According to Basuki (2020), infrastructure projects that are delayed due to the covid-19 pandemic in 2021 are projects that were supposed to be worked on in 2020 but had to be postponed. The projects that are postponed will become priority programs in 2021, should they still be needed. Total contractual projects pending this year as a source of reallocation, refocusing, and program adjustments and the Ministry of PUPR's 2020 budget reached IDR 7.83 trillion. Meanwhile, most of the infrastructure projects that experienced delays came from the Directorate General of Human Settlements amounting to Rp 3.59 trillion, then the Directorate General of Water Resources amounting to Rp. And infrastructure projects include rehabilitation of the irrigation network at Baro Ray Pidie, replacement of the Sp. Tohpati - Tjokroaminoto Denpasar Bali, structuring the waterfront area of Kota Pariaman, West Sumatra and so on. There are some projects that have undergone a package change from a single year contract (SYC) in 2020 to a multiyears contract (MYC), including contractual projects smaller than IDR 100 billion, such as the irrigation network project in Ciujung, Banten; the development of PLBN Long Bawan Kaltara and others. Meanwhile, for the Way Sekapung Dam construction project, Lampung; Jragung Central Java Dam; Temef Dam, NTT; construction of the Ring Road East Kuningan, West Java; and the construction of the Brebes-Tegal Ring Road will carry out a recomposition of the 2020 budget allocation according to the MYC package, so that work can be further extended. Not only that,

### **2.3 Covid Prevention Protocol for Infrastructure Projects in Indonesia**

Covid 19 prevention in the implementation of infrastructure construction projects in Indonesia in accordance with the Instruction of the Minister of Public Works and Public Housing No. 02 / IN / M / 2020 regarding the protocol for preventing the spread of Covid 19 in the provision of construction services. This Ministerial Instruction is part of the overall policy to realize construction safety, occupational health, public safety and environmental safety at every stage of construction implementation. The Ministerial Instruction contains a mechanism regarding the Covid-19 prevention protocol in the implementation of construction services, namely:

- 1) Forming a task force (task force) to prevent Covid-19 carried out by service users and service providers;
- 2) Providing Covid-19 prevention facilities carried out by construction work service providers; Third, educating everyone to protect themselves from Covid-19 by the task force;
- 3) Take everyone's temperature every morning, afternoon, and evening conducted by construction service providers.
- 4) Creating cooperation in handling suspect Covid-19 with local hospitals and health centers carried out by construction work service providers;
- 5) Temporarily stop work if it is indicated that there are workers exposed to Covid-19 carried out by users and / or job service providers;
- 6) Perform isolation measures and spraying disinfectants of office and field facilities and infrastructure carried out by service providers and construction works.



Source: Ministry of PUPR RI

**Figure 3.** Covid Prevention Protocol 19 Implementation of construction services

Instruction of the Minister of Public Works and Public Housing No. 02 / IN / M / 2020 also states that construction services can be temporarily suspended due to force majeure if identified:

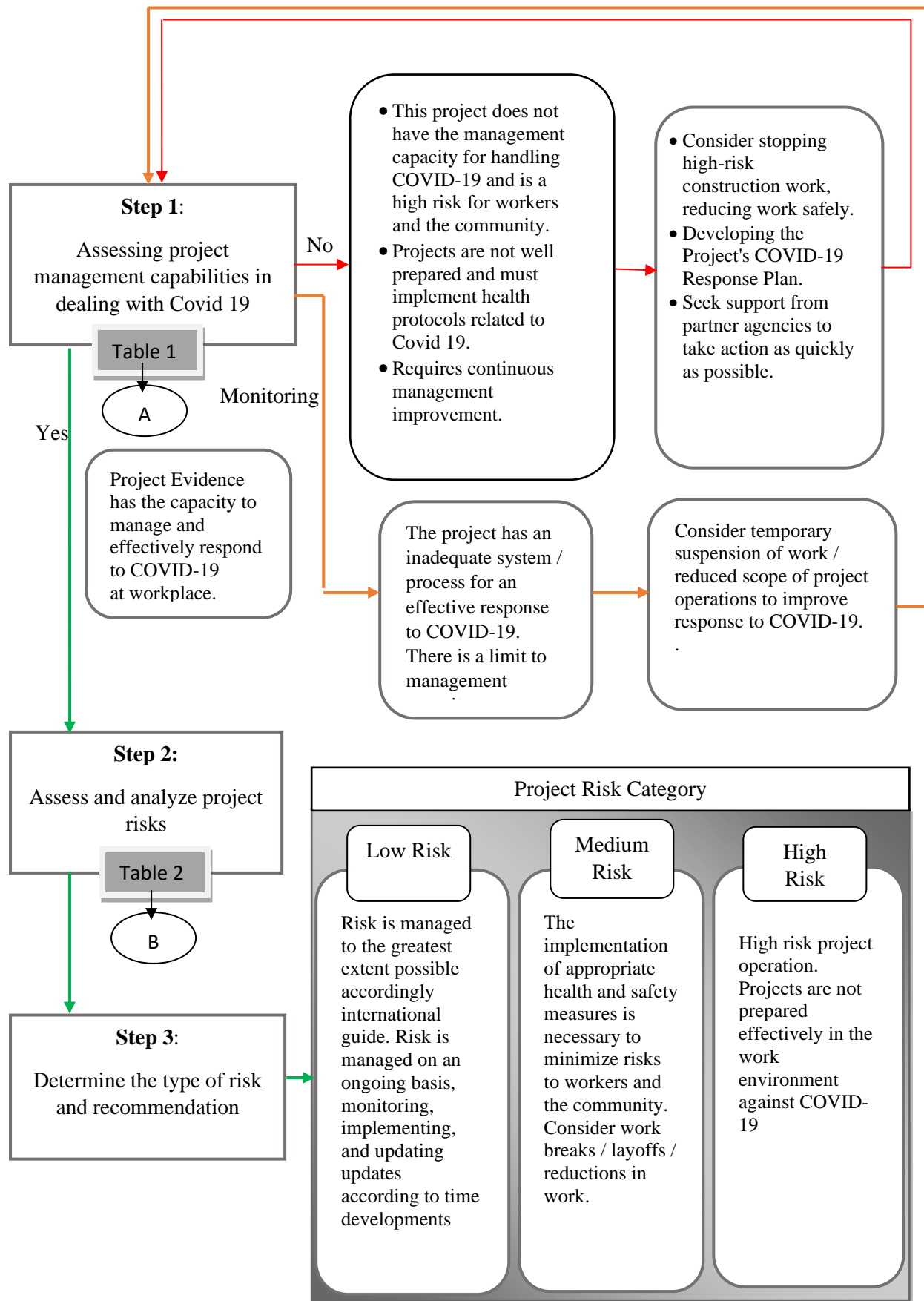
- 1) Has a high risk due to the project location being in the center of the distribution;
- 2) It has been found that workers who are positive and / or have the status of Patients Under Supervision (PDP); or
- 3) Heads of Ministries / Institutions / Agencies / Regional Heads have issued regulations to suspend activities temporarily due to force majeure.

#### 2.4 Risk Management Framework Covid 19 Infrastructure Projects

This framework consists of three steps to assist service providers in developing a project risk profile. This information is then used to identify and implement systems and processes to protect workers and public health and reduce the risk of contracting COVID-19 to the greatest possible extent. The decision-making process must consider applicable laws, regulations, and contractual obligations in accordance with the project environment. The steps in making decisions in handling infrastructure projects in the Covid 19 situation are as follows:

1. **Step 1.** The framework begins by profiling current project management capacity and performance related to infectious diseases with a focus on COVID-19. This is done using Table 1. If Partial or No responses are obtained as per Table 1, this reflects that the minimum actions to manage COVID-19 are not available and the project must develop or scale up actions to close the gaps, following a continuous improvement process. A project can proceed to Step 2 when minimum risk management measures in relation to the COVID-19 pandemic are in place - this means getting a Yes response to all minimum actions (numbers 1-7 of Table 1).
2. **Step 2.** Continue to identify project-related risks associated with the project environment, and its workforce. These assessments are listed in Table 2 (numbers 8-19). This step will provide relevant information regarding the health and safety risks of the project.
3. **Step 3.** The project risk profile is determined by the rating in Table 2. That is, if the project has a statement marked No, it can proceed to the Unmanaged Risk category and follow the next steps recommended in Figure 2. Similarly, if a project has other statements that do not obviously proceed to the Needing Attention category. Category to determine the next step only if all statements are marked Yes, the project can proceed to the Managed Risk category box. If there are criteria in the project risk context section of Table 2 that are marked partially or Not, this will encourage management to analyze these risks specifically, and to determine whether or how the risks can be managed to the extent possible. The project risk profile can change rapidly,





**Figure 4.** Covid 19 Risk Management Model in Infrastructure Projects

**Table 1. Management Ability**

No.	Minimal Action for Response to Covid 19	S	PP	TS
1	<p><b>COVID-19 Preparedness Plan and Response Plan)</b></p> <p>There is an infectious disease preparedness and response plan that provides specific actions for COVID-19 based on the risks faced by the project and its workforce. Plans may stand alone or be integrated as part of other plans.</p> <ul style="list-style-type: none"> <li>• The plan has been discussed and approved by the board or senior management</li> <li>• The plan is in line with international guidelines (IFC PS 1,2,4, OSHA 3990, WHO)</li> </ul>			
2	<p><b>Resources - COVID-19 Response Plan, assigned to be responsible for the implementation plan and budget allocation.</b></p> <ul style="list-style-type: none"> <li>• Resources are allocated according to the number of workers, and according to dealing with project and contextual risks.</li> <li>• Responsible person has appropriate training on infectious diseases and the necessary human resource capacity.</li> <li>• The project has people dedicated to emergency preparedness and response (EPR) who have relevant training and coordinate with the person responsible for the COVID-19 Response Plan.</li> </ul>			
3	<p><b>Resources - The COVID-19 Response Plan is activated, with people responsible for implementing plans and budget allocations.</b></p> <ul style="list-style-type: none"> <li>• Resources are allocated according to the number of workers, and according to the project risks and contextual risks.</li> <li>• The person in charge has appropriate training in infectious diseases and the necessary human resource capacity.</li> <li>• The project has people dedicated to emergency preparedness and response (EPR) who have relevant training and coordinate with the person responsible for the COVID-19 Response Plan.</li> </ul>			
4	<p><b>Communication and Training on COVID-19 for Workers</b></p> <p>The project applies appropriate communication and training on COVID-19 to its workforce (including contractors and subcontractors), based on the unique risks of different work functions.</p> <ul style="list-style-type: none"> <li>• Relevant information is provided in a systematic, timely, culturally appropriate and sustainable manner</li> </ul>			
5	<p><b>Public relations</b></p> <p>The project has dedicated community outreach / community relations staff who have established communication channels with local communities. These channels are used to communicate the Project's response to COVID-19, and to provide COVID-19 prevention information to the community in a culturally appropriate manner.</p>			
6	<p><b>Collaboration with Local / Regional Health Institutions - The project has established channels of communication and collaboration with local / regional health institutions in their jurisdictions.</b></p> <ul style="list-style-type: none"> <li>• These channels are used to communicate and coordinate on the COVID-19 response, for reporting cases and contact tracing.</li> <li>• The project follows health protocols from local health authorities regarding case and death management.</li> </ul>			
7	<p><b>Complaint Process for COVID-19</b></p> <p>The project has a complaint procedure that has been adapted for complaints about COVID-19.</p> <ul style="list-style-type: none"> <li>• Both workers and community members have direct ways to contact the Project (eg by telephone) regarding potential complaints related to COVID-19.</li> <li>• There is evidence that complaints received related to COVID-19 are being prioritized and resolved promptly.</li> </ul>			

Information:

S = Corresponds; PP = Need Attention; TS = Unsuitable



**Table 2. Project Risk**

No.	Minimum action in response to Covid 19	S	PP	TS
8	<b>Pandemic timeline in local jurisdictions.</b> Trending data show a decrease in the incidence and death rate of COVID-19. Since COVID-19 may come in waves, it needs to be reassessed frequently to reflect any awakening.			
9	<b>Public Prevention Campaign</b> The project operates in jurisdictions where the risk of COVID-19 transmission, recommended precautions and communication are implemented successfully and regularly updated <ul style="list-style-type: none"> <li>• For example, local authorities provide regular updates; ensure symptom and prevention information is widely distributed; implement relevant safety protocols and provide accessible testing and maintenance</li> </ul>			
10	<b>Testing</b> COVID-19 testing is available and contact tracing is taking place in project jurisdictions			
11	<b>Health Care System Resilience</b> The local / regional health care system has additional resources to increase its overall capacity to respond to the local / regional impacts of the COVID-19 pandemic.			
12	<b>Local / Regional Population Resilience -</b> There are strong indicators of health and wellbeing among the general population in the project area, including low poverty rates, good access to basic services (water, sanitation, electricity) and infrastructure, including access to health services. <ul style="list-style-type: none"> <li>• If the local population is far away from the location and / or consists of vulnerable or Indigenous groups, put a “No” mark.</li> </ul>			
13	<b>Nature of Labor</b> Workforce management complexity: <ul style="list-style-type: none"> <li>• Workforce is easy to manage (50 workers or less) and localized - select "Yes".</li> <li>• A fairly challenging workforce to manage (50 -100 workers) and localized, with few subcontractors - choose “Partial”</li> <li>• A complex workforce to manage (100+), located across geographic areas requiring multiple strategies for managing, hosting and providing health services; and involves multiple contractors and subcontractors - select "No"</li> </ul>			
14	<b>Work Practices</b> Recommended and required physical distance is possible. Where this is not possible, workers are restricted in terms of their movement and potential pathways of exposure. <ul style="list-style-type: none"> <li>• Work shifts have been amended as necessary to meet recent recommendations on social distancing to reduce disease transmission</li> <li>• Workers on the same shift can stay together to reduce the potential for transmission to all workers from different shifts.</li> </ul>			
15	<b>Worker Mobility</b> Workers are localized and immobile. <ul style="list-style-type: none"> <li>• The workforce is not a fly-in / fly-out operation or requires rotating shifts (eg 2 weeks, 1 week off) that brings people from various geographic locations regionally, nationally and / or globally.</li> <li>• The nature of the project site and the workforce allows for minimum interaction between workers on site and the general population (for example, workers tend to be not from the local community; tend to be located on site and there is no easy access to outside project-line fencing).</li> </ul>			
16	<b>Worker Housing</b> The majority of workers are placed behind closed doors or controlled, localized. <ul style="list-style-type: none"> <li>• Single housing arrangements (eg, closed workers camps) are used (ie, some types of accommodation such as private houses, hotels, etc. are not used).</li> <li>• Projects have control over where and how workers spend their free time outside of working hours and can implement control measures to promote social distancing during workers' free time</li> </ul>			

Information:

S = Corresponds; PP = Need Attention; TS = Unsuitable

**Table 2.** Project Risk (continued)

No.	Minimal Action for Response to Covid 19	S	PP	TS
17	<p><b>Health Care for Workers</b></p> <p>The project provides internal health services appropriate to workforce size, geographic location and current health risks with trusted medical service providers (eg, ISOS) available to the entire workforce (contractors and subcontractors).</p> <ul style="list-style-type: none"> <li>• The project has adequate infrastructure, equipment and resources (eg, ambulance, doctor, PPE, their own ventilator) at the project site to support their workforce and not overload the local system.</li> <li>• The project has planned potential cases in the workforce which includes protocols for isolation / evacuation under the guidance of an appropriate health authority / provider (eg ISOS)</li> </ul>			
18	<p><b>Code of Ethics and Communication</b></p> <p>The project has measures to effectively manage contractors and subcontractors, and temporary workers.</p> <ul style="list-style-type: none"> <li>• A code of conduct is available for workers (including contractors and sub-contractors) on and off the job, including expectations for behavior and interactions with local communities.</li> <li>• A communication line is established between the project and the contractor / subcontractor, so that changes to the work plan can be easily communicated and implemented.</li> </ul>			
19	<p><b>Security risk</b></p> <p>The security risk in the project area is considered negligible or low</p> <ul style="list-style-type: none"> <li>• Projects located in a country identified as a warning or warning level based on the Fragile States Index can be considered a higher risk security area, mark "No"</li> <li>• The high-risk security context will cover areas that have experienced or have experienced armed conflict, have demonstrated cases of human rights violations, and / or are unable to provide for the basic needs of the population.</li> <li>• A conflict risk assessment or conflict scenario planning related to COVID-19 has been carried out (for example, the project has evaluated their potential role in triggering conflict scenarios or their potential impact if a conflict arises).</li> </ul>			

Information:

S = Corresponds; PP = Need Attention; TS = Unsuitable

### 3. Research Methods

In this study, a descriptive method is used to describe or describe systematically and in detail a fact in solving a problem. This study aims to solve problems by taking real action or actions in order to immediately get the best solution. This action research puts forward real action. A literature review was carried out to obtain relevant theories related to infrastructure projects, Covid 19 prevention health protocols and risk management. Data collection for the case study was carried out in the Phase I project for the construction of the Hindu Indonesia University Building Building.

Data analysis using guidelines for handling the risk of Covid 19 on the Infrastructure Project. Analysis. The analysis includes the application of the Covid 19 preventive health protocol and an assessment of the risk profile of the implementation of the Hindu Indonesia University Phase I lecture building project. The results of the analysis are an illustration of the extent to which the COVID-19 prevention health protocol is implemented and the decisions that can be taken by the person in charge of the project related to the risk assessment results.

### 4. Analysis and Discussion

#### 4.1 Implementation of the Covid Prevention Health Protocol 19 Implementation of Phase I of the Hindu Indonesia University Lecture Building Project

Construction of Hindu Indonesia University (UNHI) Lecture Building Number DIPA Directorate General of Hindu Community Guidance DIPA: SP.DP 025-07.01 / 308098/2020 T.date 12 November 2019 Budget Object 025.07.5104.013.001.051.B.526122 is an effort of the Hindu University of Indonesia (UNHI) in order to: Improve facilities and infrastructure in the form of Hindu Indonesia University (UNHI) Lecture Building facilities; Secure, control the use and utilize government assets. Technically, this work covers the entire development process from preparation to cleaning / cleaning the yard, and continues with the maintenance period as specified, including: Preparation Work, Earthwork, Foundation Work, Structural Work, Architectural Work, Mechanical, Electrical, Plumbing , Roofing Work, Other work which is clearly related to the completion of the work mentioned above. In implementing the renovation of the building, it must be done

properly and in accordance with what has been planned and in accordance with technical provisions so that the process can take place in the right direction. At the stage of implementing physical rehabilitation in the field, it is handed over to a third party, namely the contractor implementing the work. The Managing Contractor will carry out physical works involving several aspects of quality, volume, time and cost. Besides that, he is also responsible for all activities during the implementation. Contractually, the Managing Contractor is responsible to the Commitment Making Officer of the Hindu University of Indonesia (UNHI). However, in operational activities, The Implementing Contractor will receive guidance assistance to determine the direction of the Physical Implementation work from the Technical Work Officer and the Supervisory Consultant. Based on data in the field, the construction of the 1st stage of the Hindu Indonesia University Lecture Building is budgeted with a total cost of Rp. 2,000,000,000.00 (two billion rupiah) assistance from the Director General of Hindu Community Guidance at the Ministry of Religion of the Republic of Indonesia. The total number of construction workers is 15 workers, 5 head masons, 2 foremen and 3 field implementers.

Regulation of the Minister of Public Works Number 05 / PRT / M / 2014 concerning Guidelines for Occupational Safety and Health Management Systems (SMK3) has regulated the SMK3 Construction in the Public Works Sector, duties, responsibilities and authorities as well as the costs of implementing SMK3 Construction in the Public Works Sector. In accordance with these regulations in the implementation of the Work for the Construction of the Hindu Indonesia University Building Construction has been prepared:

1. Worker Protective Equipment (work helmets, work vests, seat belts, work shoes)
2. Insurance and permits (Jamsostek, worker's residence permit)
3. Health workers (nurses and doctors)
4. Health facilities (health clinics and P3K)
5. Work environment signs

Supervision related to the implementation of the Covid 19 preventive health protocol in the construction of the Hindu Indonesia University Lecture Building was carried out by the Covid 19 Unhi Task Force Team which was formed in accordance with UNHI Chancellor's Decree No: 025 / SKP / UNHI / IV / 2020. In accordance with the instruction of the minister of public works and Public Housing No: 02 / IN / M / 2020 regarding the protocol for preventing the spread of Covid 19 in the implementation of construction, the implementation of the building project of the Hindu University of Indonesia lecture building has complied with the Covid 19 preventive health protocol by requiring every worker, foremen, supervisors carry out the following health instructions:

1. It is obligatory to check body temperature when entering the environment of the Unhi Lecture building construction project carried out by the UNHI Covid 19 Task Force. If construction workers have a body temperature above 37 degrees Celsius, they are not allowed to enter the project area.
2. Must use masks according to health standards
3. Must maintain a minimum distance when workers carry out work in the project environment of 1 (one) meter
4. Not allowed to crowd while in the project environment
5. It is obligatory to prepare a place for washing hands and hand sanitizers in the project environment



**Figure 5.** Casual workers use masks and keep their distance



**Figure 6.** The Workers uses a mask and keeps his distance

Based on field observations in Figure 5 and Figure 6, it can be concluded that workers, chief craftsmen and foremen have implemented the Covid 19 prevention health protocol by using masks, maintaining distance from colleagues and always checking body temperature every day. The number of medical equipment and facilities to support the COVID-19 prevention health protocol in the construction project of the Hindu Indonesia University lecture building. Based on the data in Table 3, it can also be concluded that the lecture building construction project has prepared health equipment and facilities according to the minimum requirements.

**Table 3.** List of Project Health Facilities

No.	Health Supplies	Unit	amount
1	Face mask	pcs	300
2	Body temperature measuring device	fruit	4
3	Portable Washbasin	set	1
4	Hand Sanitezer	bottle	10
5	Tissu	pcs	2
6	Gloves	pcs	100



#### 4.2 Assessment of Project Management Handling in the Implementation of Phase I of the Hindu Indonesia University Lecture Building Project

**Table 4.** Assessment of the Capability of Project Management in UNHI Lecture Buildings

No.	Minimal Action for Response to Covid 19	S	PP	TS
1	<p><b>COVID-19 Preparedness Plan and Response Plan)</b>            There is an infectious disease preparedness and response plan that provides specific actions for COVID-19 based on the risks faced by the project and its workforce. Plans may stand alone or be integrated as part of other plans.</p> <ul style="list-style-type: none"> <li>• The plan has been discussed and approved by the board or senior management</li> <li>• The plan is in line with international guidelines (IFC PS 1,2,4, OSHA 3990, WHO)</li> </ul>		×	
2	<p><b>Resource</b>            For the COVID-19 Response Plan, someone is assigned responsibility for the implementation plan and budget allocation.</p> <ul style="list-style-type: none"> <li>• Resources are allocated according to the number of workers, and according to dealing with project and contextual risks.</li> <li>• Responsible person has appropriate training on infectious diseases and the necessary human resource capacity.</li> <li>• The project has people dedicated to emergency preparedness and response (EPR) who have relevant training and coordinate with the person responsible for the COVID-19 Response Plan.</li> </ul>		×	
3	<p><b>Plan Implementation</b>            The Project's COVID-19 Response Plan is actively being implemented, monitored and improved on an ongoing basis.</p> <ul style="list-style-type: none"> <li>• There is evidence that the project implements basic infection prevention measures; flexible work policies and procedures; workplace control and other measures as recommended in OSHA 3990-03 2020 Guide to Preparing the Workplace for COVID-19.</li> </ul> <p>The implementation of the COVID-19 Response Plan is monitored and progress is regularly reported to Senior Management (and the Board) for review and improvement</p>	×		
4	<p><b>Communication and Training on COVID-19 for Workers</b>            The project applies appropriate communication and training on COVID-19 to its workforce (including contractors and subcontractors), based on the unique risks of different work functions.</p> <ul style="list-style-type: none"> <li>• Relevant information is provided in a systematic, timely, culturally appropriate and sustainable manner</li> </ul>			×
5	<p><b>Public relations</b>            The project has dedicated community outreach / community relations staff who have established communication channels with local communities. These channels are used to communicate the Project's response to COVID-19, and to provide COVID-19 prevention information to the community in a culturally appropriate manner.</p>		×	
6	<p><b>Collaboration with Local / Regional Health Institutions</b>            The project has established channels of communication and cooperation with local / regional health institutions</p> <ul style="list-style-type: none"> <li>• These channels are used to communicate and coordinate on the COVID-19 response, for reporting cases and contact tracing.</li> <li>• The project follows health protocols from local health authorities regarding case and death management.</li> </ul>	×		
7	<p><b>COVID-19 Complaint Process</b>            The project has a complaint procedure that has been adapted for complaints about COVID-19.</p> <ul style="list-style-type: none"> <li>• Both workers and community members have direct ways to contact the Project (eg by telephone) regarding potential complaints related to COVID-19.</li> <li>• There is evidence that complaints received related to COVID-19 are being prioritized and resolved promptly.</li> </ul>	×		

**Table 5.** Assessment of Risk Management of the UNHI Lecture Building Project

No.	Minimum action in response to Covid 19	S	PP	TS
8	<b>Local monitoring pandemic timeline</b> Trending data show a decrease in the incidence and death rate of COVID-19. Since COVID-19 may come in waves, it needs to be reassessed frequently to reflect an awakening.		×	
9	<b>Prevention Campaign to the Public</b> The project operates local monitoring where the risk of COVID-19 transmission, preventive measures and recommended communication are successfully implemented and regularly updated • For example, local authorities provide regular updates; ensure symptom and prevention information is widely distributed; implement relevant safety protocols and provide accessible testing and maintenance	×		
10	<b>Testing</b> COVID-19 testing available and contact tracing		×	
11	<b>Health Care System Resilience</b> The local / regional health care system has additional resources to increase its overall capacity to respond to the local / regional impacts of the COVID-19 pandemic.		×	
12	<b>Resilience of Local / Regional Populations</b> There are strong indicators of health and wellbeing among the general population in the project area, including low poverty rates, good access to basic services (water, sanitation, electricity) and infrastructure, including access to health services.			×
13	<b>Nature of Labor</b> Workforce management complexity: • Workforce is easy to manage (50 workers or less) and localized - select "Yes". • A fairly challenging workforce to manage (50 -100 workers) and localized, with few subcontractors - choose "Partial" • A complex workforce to manage (100+), located across geographic areas requiring multiple strategies for managing, hosting and providing health services; and involves multiple contractors and subcontractors - select "No"	×		
14	<b>Work Practices</b> Required physical distance. Where this is not possible, workers are restricted in terms of movement and have potential pathways of exposure. • Work shifts have been amended as necessary to meet recent recommendations on social distancing to reduce disease transmission • Workers on the same shift can stay together to reduce the potential for transmission to all workers from different shifts.	×		
15	<b>Worker Mobility</b> Workers are localized and immobile. • The workforce is not required to go in / out alternately or require shift rotation (eg 2 weeks, 1 week off) of people from various geographic locations regionally, nationally and / or globally. • The nature of the project site and workforce allows for minimum interaction between workers on site and the general population (for example, workers tend not to be from the local community; tend to be located on site and there is no easy access outside of the project environment.	×		
16	<b>Workers' Residence</b> The majority of workers are placed behind closed doors or controlled, localized. • Single living arrangements (eg, closed workers' camps) are used (ie, some types of accommodation such as private houses, hotels, etc. are not used). • Projects have control over where and how workers spend their free time outside of working hours and can implement control measures to promote social distancing during workers' free time		×	



**Table 5.** Risk Assessment of the UNHI Lecture Building Project (continued)

No.	Minimal Action for Response to Covid 19	S	PP	TS
17	<p><b>Health Care for Workers</b></p> <p>The project provides internal health services appropriate to workforce size, geographic location and current health risks with trusted medical service providers (eg, ISOS) available to the entire workforce (contractors and subcontractors).</p> <ul style="list-style-type: none"> <li>• The project has adequate infrastructure, equipment and resources (eg, ambulance, doctor, PPE, their own ventilator) at the project site to support their workforce and not overload the local system.</li> <li>• The project has planned potential cases in the workforce which includes protocols for isolation / evacuation under the guidance of an appropriate health authority / provider (eg ISOS)</li> </ul>			×
18	<p><b>Code of Ethics and Communication</b></p> <p>The project has measures to effectively manage contractors and subcontractors, and temporary workers.</p> <ul style="list-style-type: none"> <li>• A code of conduct is available for workers (including contractors and sub-contractors) on and off the job, including expectations for behavior and interactions with local communities.</li> <li>• A communication line is established between the project and the contractor / subcontractor, so that changes to the work plan can be easily communicated and implemented.</li> </ul>	×		
19	<p><b>Security risk</b></p> <p>The security risk in the project area is considered negligible or low</p> <ul style="list-style-type: none"> <li>• The high-risk security context will include areas that have experienced or have experienced armed conflict, have demonstrated cases of human rights violations • A conflict risk assessment or conflict scenario planning related to COVID-19 has been carried out (for example, the project has evaluated the potential role in triggering the scenario conflict or its potential impact if conflict arises).</li> </ul>			×

Based on Table 4, it is found that the ability of project management in handling Covid 19 needs to get Needed Attention (PP) in the statement; Covid-19 preparedness plans and response plans, resources and public relations. Match Category (S) on the statement; implementation of plans, collaboration with local / regional Health Institutions and the COVID-19 Complaint Process. Meanwhile, the category does not match (TS) in the statement; Communication and Training on COVID-19 for Workers. Based on Table 5, it is obtained that the risk management assessment of the Hindu Indonesia University Lecture Building construction project in response to Covid 19 Needs Attention (PP) in the statement; testing, the resilience of health care systems and workers' residences

## 5. Conclusion

1. The decision-making process must take into account the prevailing laws and regulations as stated in the work contract. The recommended framework is intended to offer practical guidance in managing projects that take into account the occupational health and safety risks associated with the Covid-19 pandemic and the governance and management measures needed to operate projects protecting worker and public health.
2. The Covid 19 prevention health protocol in the construction project of the Hindu Indonesia University Lecture Building has been implemented by labor, chief craftsmen, foremen and field implementers.
3. Assessment of management capability in the construction project of the Hindu University of Indonesia Lecture Building in response to Covid 19 Needs Attention (PP) on statements; Covid-19 response plan preparedness plan, resources and public relations
4. Assessment of risk management of the construction project of the Hindu University of Indonesia Lecture Building in response to Covid 19 Needs Attention (PP) on statements; testing, the resilience of health care systems and workers' residences.

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