


Implementation policy for the fiber optic Infrastructure development in Indonesia

Lessy Sutiyono Aji

Ministry of Communications and Informatics/Kementerian Komunikasi dan Informatika, Jakarta, Indonesia

Article Info	ABSTRACT
Keywords: policy, fiber optic, infrastructure, government	Equal distribution is essential to deploying fiber optics in various sub-districts to achieve internet speeds of up to 100 Mbps by the government's target. However, the distribution of fiber optic infrastructure is not evenly distributed; it is only concentrated in big cities. This policy paper aims to find alternative fiber optic development methods from a legal and institutional perspective. So, it can be a recommendation for the Ministry of Communication and Information, especially for the Director General of Post and Information Technology, to make future policies for developing fiber optic networks where no network is available. The method used is a normative law study of the current legal bases and institutional forms to provide fiber optic infrastructure. The results show that the Central Government and Local Government can assist in implementing telecommunications by providing passive infrastructure, in this case, optical fiber, poles, and towers. In this case, the relevant stakeholders are the Ministry of Communication and Information, Local Government, Telecommunication Operators, and State-Owned Enterprises. Based on the assessment of study alternatives, the policy options that can be selected to implement the sub-district fiber optic development program are assigned to state-owned enterprises to build fiber optic infrastructure in the district where the infrastructure is unavailable.
This is an open-access article under the CC BY-NC license. 	Corresponding Author: Lessy Sutiyono Aji Ministry of Communications and Informatics/ Kementerian Komunikasi dan Informatika, Jakarta, Indonesia less001@kominfo.go.id

INTRODUCTION

Presidential Regulation Number 96 of 2014 concerning the 2014-2019 Indonesian Broadband Plan ("Perpres 96/2014"), broadband is internet access with guaranteed connectivity that is always connected, guaranteed durability, and information security. It has triple play capability with a minimum speed of 2 Mbps for fixed access and 1 Mbps for mobile access (Secretariat of State 2014). However, fixed broadband access services in Indonesia are not evenly distributed, which means fiber optic-based fixed broadband access services can only reach some sub-districts.

Based on data from the Ministry of Communications and Informatics stated that fiber optic network coverage to every sub-district with optical distribution point ("ODP") parameters by 2021 has reached 60.84% or 4,399 sub-districts from a total of 7,230 sub-

districts in Indonesia. However, the fiber optic network coverage distribution is not evenly distributed.

For this reason, the distribution and deployment of fiber optics still needs to be done. However, deploying a broadband fixed-access telecommunications network in Indonesia takes work. Several infrastructure facilities must be available first to deploy telecommunications networks, such as road infrastructure, electricity, poles for overhead cables, ducting or excavation lines for ground cables, and so on.

Fiber optic distribution has only reached 60.84% or 4,399 sub-districts out of a total of 7,230 sub-districts in Indonesia (Kementerian Komunikasi dan Informatika 2023a). So, there are still around 40% of sub-districts where fiber optics is unavailable. This problem mainly occurs because of the high investment costs for providing networks in locations that are not commercially viable, so the industry is not interested in building infrastructure in these areas (Aji 2022). On the other hand, the government has set a target for an average internet speed in 2029 of 100 Mbps, and 98 cities have internet speeds of up to 1 Gbps (Kementerian Komunikasi dan Informatika 2023b).

This will not be possible if fiber optics are not evenly distributed throughout all sub-districts in Indonesia. For this reason, government intervention is needed so that fiber optic development can be evenly distributed. However, a solution needs to be found for a development method that is appropriate, effective, and by applicable regulations. For this reason, a study will be carried out in this policy paper to find alternative network development methods from a legal and institutional perspective. So, it can be a recommendation for the Ministry of Communication and Information, especially for the Director General of Post and Information Technology, to make future policies for developing fiber optic.

METHODS

The method used in this research is a normative legal analysis of the current legal bases and institutional forms in terms of providing fiber optic infrastructure. Using this normative legal study method, an analysis of currently applicable laws relating to the provision of telecommunications infrastructure will be obtained so that the proposed policy recommendations do not conflict with applicable laws and regulations.

An institutional study, which plays a role in developing telecommunications infrastructure in Indonesia, will also be carried out. So that all related institutions are mapped along with the roles and functions of each institution. In the end, the study above can provide policy recommendations to the Director General of Post and Information Technology regarding alternative policy options that can be taken to develop fiber optic networks in Indonesia.

RESULTS AND DISCUSSION

Analysis Of Legal And Institutional Studies

Legal Analysis

Telecommunication implementation matters in collaboration with the central and regional governments, as intended in Article 21 of Presidential Decree 46/2021, assistance in joint telecommunications implementation can be in the form of (Republik Indonesia 2021):

- a. Land;
- b. Building; and
- c. Passive telecommunications infrastructure.

In its implementation, the central and regional governments can provide facilitation and convenience to telecommunications operators and must coordinate with the minister. As in Article 2 paragraph (3), telecommunications matters are government affairs shared between levels and government structures. Referring to Article 2 paragraph (2) of Law 23/2014, the Unitary State of the Republic of Indonesia is divided into provinces, and provinces are divided into districts and cities. Regency/city areas are divided into sub-districts, and sub-districts are divided into villages. So, sub-districts are part of regional government administration, including implementing passive telecommunications infrastructure. (Republik Indonesia 2007) (Republik Indonesia 2014)

Facilities and convenience for carrying out telecommunications infrastructure development are carried out transparently, accountably, and efficiently by the provisions of statutory regulations. In providing facilities, the central government and regional governments can use the State Revenue and Expenditure Budget ("APBN"), Regional Revenue and Expenditure Budget ("APBD"), and other sources of financing by statutory provisions. Further facilities and conveniences provided include but are not limited to:

- a. Granting the right of passage;
- b. Access to buildings and areas;
- c. Retribution that is based on reasonable costs and guarantees business certainty;
- d. Rental rates and use of assets belonging to the central government or regional government;
- e. Technical standardization and telecommunications technology.

Regional governments and authorized agencies must coordinate with the Minister of Communication and Information to provide these facilities and conveniences.

Institutional Study

- 1) Ministry of Communication and Information Technology ("Kemenkominfo")

Based on Article 2 of Permenkominfo 12/2021, the Ministry of Communication and Information has the task of carrying out government affairs in the field of communication and informatics to assist the President in organizing the state government. Then, based on Article 4 of Permenkominfo 12/2021, the Ministry of Communication and Information consists of many organs, one of which is the Directorate General of Post and Information Administration ("Director General of PPI").

One of the tasks of the Directorate General of Post and Information Administration is to carry out the formulation and implementation of policies, the preparation of norms, standards, procedures and criteria, and the provision of technical guidance and supervision, as well as monitoring, evaluation, and reporting in the field of accessibility development, connectivity, and infrastructure development, governance, and the telecommunications and broadcasting ecosystem. Thus, the implementation plan for the development of fiber optics up to sub-districts is the task and function of the Directorate General of Post and Information Operations.

2) Local Government

Based on Article 1 point 2 of Law 23/2014, it is explained that regional government is the implementation of government affairs by regional governments and regional people's representative councils according to the principle of autonomy and assistance duties with the principle of the widest autonomy in the system and principles of the Unitary State of the Republic of Indonesia as referred to in the Constitution of the Republic of Indonesia Year 1945. Then, based on Article 34A of Law 36/1999, it is stipulated that the Central Government and Regional Governments provide facilitation and/or convenience to telecommunications operators to carry out telecommunications infrastructure development in a transparent, accountable, and efficient manner. In the implementation of telecommunications, the Central Government and Regional Governments can participate in providing facilities along with passive telecommunications infrastructure to be used by telecommunications providers together at affordable costs. (Ministry of Agriculture Inland 2024)

3) Telecommunication Operator

Based on Article 1 point 8 of Law 36/1999, telecommunications operators are individuals, cooperatives, Regional-Owned Enterprises, State-Owned Enterprises, private business entities, government agencies, and state security defense agencies.

Then, the implementation of telecommunications based on Article 10 PP 46/2021 consists of: (Ministry Kominfo 2021)

1. Telecommunication network operation

It consists of the maintenance of a fixed network and the implementation of a mobile network.

2. Provision of telecommunication services

Consists of providing basic telephony services, providing telephony value-added services, and providing multimedia services.

3. Dedicated telecommunications operations

Consists of specialized telecommunications maintenance for own needs or specific telecommunications maintenance for national defense and security needs.

4) State-Owned Enterprises

State-Owned Enterprises are defined in Law 19/2003 as business entities whose entire or majority of capital is owned by the state through direct participation derived from segregated state assets. Based on Law 36/1999, telecommunications operators

are individuals, cooperatives, Regional-Owned Enterprises (ROE), State-Owned Enterprises (SOE), private enterprises, government agencies, and state security defense agencies. Then, based on Article 8 of Law 36/1999, it is stipulated that the operation of telecommunication networks and/or the implementation of telecommunication services can be carried out by legal entities established for this purpose based on applicable laws and regulations, namely:(Ministry Kominfo 2021)

1. State-Owned Enterprises;
2. Regionally Owned Enterprises;
3. Private venture bodies; Or
4. Koperasi.

Based on the provisions above, State-Owned Enterprises are included as business entities that can provide telecommunication networks and/or telecommunication service providers.

Policy Choices For The Provision Of Fiber Optic Infrastructure Public-Private Partnership (PPP)

Article 1 point 6 of Presidential Decree 38/2015 emphasizes that the meaning of PPP is cooperation between the government and business entities in providing infrastructure for the public interest by referring to specifications previously determined by the Minister/Head of Institution/Head of Region/State-Owned Enterprise (SOE)/Region-Owned Enterprise (ROE), which partially or fully use business entity resources by paying attention to the distribution of risks between the parties. Infrastructure that can be collaborated based on Article 5 of Presidential Decree 38/2015 is economic infrastructure and social infrastructure, which includes (Ministry of Bappenas 2015):

- a. Transport infrastructure;
- b. Road infrastructure;
- c. Water resources and irrigation infrastructure;
- d. Drinking water infrastructure;
- e. Centralized wastewater management system infrastructure;
- f. Local wastewater management system infrastructure;
- g. Waste management system infrastructure;
- h. Telecommunications and informatics infrastructure;
- i. Electricity infrastructure;
- j. Oil and gas infrastructure and renewable energy;
- k. Energy conservation infrastructure;
- l. Urban facility infrastructure;
- m. Educational facility infrastructure;
- n. Infrastructure for sports and arts facilities;
- o. Regional infrastructure;
- p. Tourism infrastructure;
- q. Health infrastructure;
- r. Correctional institution infrastructure; And
- s. Public housing infrastructure.

More specifically, infrastructure in telecommunications and informatics, which are regulated in Article 3 letter h (Kementerian Bappenas 2015), are:

- a. Telecommunication networks;
- b. e-government infrastructure; and
- c. Passive infrastructure such as cable transmission media pipes (ducting).

PPP implementation can be the provision of infrastructure, a combination of 2 (two) or more types of infrastructure, and can include activities for providing commercial facilities. Then, based on Article 6 of Presidential Decree 38/2015, it is regulated that in implementing the PPP, the Person in Charge of the Cooperation Project ("PJPK") is the Minister/Head of Institution/Head of Region whose determination takes into account the laws and regulations in the sector. Suppose a PPP is a combination of 2 (two) or more types of infrastructure. In that case, the Minister/Head of Institution/Head of Region who has authority over the infrastructure sector being collaborated based on statutory regulations acts together as PJPK by signing a memorandum of understanding regarding PJPK. Regarding the PJPK, Article 8 of Presidential Decree 38/2015 regulates that SOE and ROE can act as PJPK, as long as it is regulated in sector legislation, which will later be implemented by PPP through an agreement with Special Project Vehicle ("BUP"). In implementing the PPP, the PJPK determines the form of investment return, which includes covering capital costs, operational costs, and BUP profits sourced from:

- a. Payment by users in the form of tariffs;
- b. Payment for service availability (availability payment); and
- c. Other forms as long as they do not conflict with statutory regulations.

Suppose the return on BUP investment comes from user payments in the form of tariffs, based on Article 12 of Presidential Decree 38/2015. In that case, it is regulated that the PJPK sets initial tariffs for infrastructure provision to ensure return on investment, which includes covering capital costs, operational costs, and profits within a certain period. Then, based on Article 13 paragraph (2) of Presidential Decree 38/2015, BUP investment returns are determined to be sourced from payments for service availability. Take into account:

- a. Capital costs;
- b. Operating costs; and
- c. Profit bup.

The conditions that the PJPK must fulfil in making payments for service availability to BUP based on Article 13, paragraph (4) of Presidential Decree 38/2015 include:

- a. The collaborative infrastructure has been built and declared ready to operate; And
- b. The Minister/Head of Institution/Head of Region states that the infrastructure has met the infrastructure service indicators regulated in the Cooperation Agreement.

Furthermore, based on VAT Ministerial Regulation 4/2015, PPP is implemented in the following stages:

- a. Planning
- b. Setup
- c. Transaction

The following is an explanation regarding the PPP stages regulated in (Kementerian Bappenas 2015), which are as follows:

a. Planning

Regulated in more detail starting from Article 11 (Kementerian Bappenas 2015), the PPP planning stage consists of activities:

- 1) preparation of PPP budget plans
- 2) PPP budget plans can be sourced from:
 - a) APBN or APBD
 - b) Loans/grants; and
 - c) Other sources by statutory provisions.
- 3) identification and determination of PPP
Ministers/heads of institutions/regional heads prepare preliminary studies and conduct public consultations. The public consultation aims to obtain considerations regarding the benefits and impact of the PPP on the interests of society.
- 4) statutory regulations carry out budgeting of funds for the PPP planning stage
- 5) decision making to continue/not continue the PPP plan
ministers/heads of institutions/regional heads decide whether to continue/not continue with plans to provide infrastructure through the PPP mechanism. If a combination of 2 or more types of infrastructure involves more than 1 PJK, the minister/institution head/regional head with the authority will sign a memorandum of understanding. From the memorandum of understanding, the PJK coordinator submitted a proposal for a combination of 2 or more types of infrastructure to the planning minister
- 6) preparation of a list of PPP plans
the planning minister ("Bappenas") prepares a list of PPP plans based on proposals from ministers/institution heads/regional heads/SOE directors/ROE directors who are indicated to require government support and guarantees, and the results of the planning minister's identification based on national development priorities.
- 7) The proposal is accompanied by supporting documents in the form of PPP preparation documents and a summary sheet of the PPP preparation documents, which are the basis for the planning minister to carry out selection identification and assessment.
- 8) PPP categorization
Next, the planning minister determines a list of PPP plans consisting of PPPs that are ready to be offered and PPPs that are being prepared. The list of plans was created by considering the level of PPP readiness and the benefits to society by the national development plan. The list of PPP plans is also considered in preparing government work plans and other planning documents per statutory regulations.
The list of PPP plans is also updated periodically to be disseminated to the public.

b. Setup

Starting from Article 20 of the PPN Ministerial Decree 4/2015 (Kementerian Bappenas 2015), it regulates the preparation of KBPU where the Minister/head of

institution/regional head/SOE director/ROE director acts as PJKP in the PPP preparation stage and can be assisted by the preparation body. PJKP consists of the following activities:

- 1) Setup pre-feasibility study, including a study of the return on investment of the implementing business entity
- 2) Application for government support and government guarantee
- 3) Submission of PPP location determination

At the PPP preparation stage, the PJKP prepares an environmental assessment document based on statutory provisions. From the final pre-feasibility study results above, the PJKP identified the need for land for the PPP. If the identification results indicate a need for land acquisition, the PJKP plans and prepares land acquisition documents to obtain location determination. Furthermore, suppose the land acquisition is state/regional property. In that case, the PJKP submits a proposal for using state/regional property to implement the PPP by statutory regulations.

The PJKP can also carry out market interest assessment (market sounding) at the preparation stage to obtain input and responses to the PPP from stakeholders from national or international business entities/institutions/organizations.

- 1) Government support plans and government guarantees

It is regulated in Article 28 (Kementerian Bappenas 2015) that government support can be provided by ministers/heads of institutions/regional heads and the minister of finance in the form of support for PPP eligibility, tax incentives, and other forms by statutory regulations. Government support is included in the business entity's procurement documents.

- 2) Apart from government support, according to Article 29 (Kementerian Bappenas 2015), PPPs can also obtain government guarantees. The PJKP submits the government guarantee proposal to the finance minister through BUPI before completing the final pre-feasibility study to guarantee infrastructure provision. This government guarantee must be included in the business entity's procurement documents
- 3) Determination of procedures for returning investment from the implementing business entity
- 4) Land procurement for PPP

From the results of identifying a feasibility study that shows the need for land acquisition, the PJKP carries out planning and preparation of land acquisition documents to obtain location determination. Furthermore, suppose the land acquisition is state/regional property. In that case, the PJKP submits a proposal for using state/regional property to implement the PPP by statutory regulations.

c. Transaction

The regulation of the PPP transaction stages is regulated starting from Article 30 (Kementerian Bappenas 2015), where the PJKP implements the PPP after the terms and conditions for utilizing state/regional property to implement the PPP are fulfilled by statutory regulations. The stages in the transaction consist of the following activities:

- 1) Market interest assessment (market sounding)

- 2) Determination of PPP location
- 3) Procurement of implementing business entities, which includes preparation and implementation of procurement for implementing business entities. In procuring for implementing business entities, the PJK forms a procurement committee by the procedures regulated by government goods/services procurement laws and regulations.
- 4) Signing of the PPP agreement by the PJK and the implementing business entity
- 5) Fulfillment of financing (financial close)

The implementing business entity must obtain financing for the PPP by 12 months after signing the PPP agreement. However, this period can be extended if the failure to obtain financing is not due to negligence of the implementing business entity, based on the criteria caused by the PJK and agreed in the PPP agreement. The extension is granted for a maximum of 6 months by the PJK. If the implementing business entity does not fulfil the payment, then the PPP agreement ends, and the PJK has the right to disburse the implementation guarantee.

In the case of financing originating from loans, the financing is declared to have been implemented if:

- 1) A loan agreement has been signed to finance the entire PPP
- 2) Some loans have been disbursed to start construction work

Using the PPP scheme to provide sub-districts with fiber optic infrastructure is indeed possible. However, ensuring the investment return scheme is necessary if the PPP option is chosen (Amalia and to the. 2021; BARAT n.d.; Fachrurrozi 2019; Kurniawan 2020; Susanti and Juwono 2019). The following are details of the PPP risk allocation as elaborated by PT Penjaminan Infrastruktur Indonesia (Persero):

- a) Location Risk
The risk of delays and increases in land acquisition costs can occur due to the prolonged land acquisition process at the pre-construction and construction stages. The government needs to ensure the availability of land acquisition funds and carry out a process of monitoring and evaluating land acquisition, especially for critical or priority lands.
- b) Design, Construction, and Test Operations Risks
The vagueness of output specifications at the pre-construction stage can lead to delays and cost increases. A reliable design consultant and clear auction documents are required to avoid design errors that trigger revisions during the pre-construction and construction stages.
- c) Risiko Sponsor
Default risk from both the Business Entity ("BU") and the project sponsor must be taken into account, by ensuring that the consortium is supported by a credible and solid sponsor. In addition, the default risk of project lenders also needs to be considered by choosing credible lenders and ensuring the performance of the BU meets the contract.
- d) Financial Risk

Failure to achieve financial close at the pre-construction stage may occur due to uncertainty in market conditions or suboptimal project capital structure. Good coordination with credible and potential lenders is necessary to mitigate this risk.

e) Operational Risks

Risk of availability of facilities and services can occur at the construction and operation stages. Choosing reliable contractors and operators and putting together a sound operations management plan can help overcome these risks.

f) Income Risk

Revenue risk can arise from a variety of factors, including changes in project output demand volumes, failure to timely AP payments, delays in periodic rate adjustments, lower-than-projected rate adjustments, and miscalculation of rate estimates. To manage revenue risk at the operating stage, it is important to understand the technological capabilities of services by BUs, ensure good contractual understanding, ensure timely availability of funding, and implement escrow account mechanisms, as well as pay attention to the performance of public sector operations and tariff adjustment regulations.

g) Network Connectivity Risks

Network connectivity risks can arise from network development that does not go according to plan. To manage this risk, it is important to have a good understanding of contracts by the public sector.

h) Risiko Interface

Interface risk involves the disparity in time and quality of work between government support and the work performed by BUs, as well as the risk of differences in service standards/methods that may result in substantive rework. To overcome interface risks at the construction stage, it is important to coordinate project implementation schedules, establish standards/methods early, and plan effective communication systems to prevent miscommunication and lack of experience in PPP projects.

i) Risk Policy

Infrastructure projects need to consider political risks such as regulatory changes, expropriations, or delays in obtaining planning approvals. Mediation, negotiation, and political risk insurance can help manage this risk.

j) Risiko Force Majeure

Natural disasters, political force majeure, and extreme weather are some examples of force majeure risks that need to be considered. Having adequate disaster management systems SOPs and insurance can help reduce the impact of these risks.

k) Risk of Asset Ownership

The risk of falling asset values, asset transfers after PPP contracts expire, and others need to be considered in infrastructure projects. Independent valuation and the creation of clear contracts regarding asset transfers can help manage asset ownership risk.

In strategizing infrastructure projects, it is important to consider all possible risks and implement appropriate mitigation measures for each.

Government Funding Assistance

Article 1 point 1 (Kementerian Keuangan 2015b) states that government assistance is assistance that does not meet the criteria for social assistance provided by the Government to individuals, community groups, or government/non-government institutions. Government assistance, as referred to above based on Article 3 (Kementerian Keuangan 2015b), includes:

- a. Awards;
- b. Scholarship;
- c. Teacher professional allowances and other allowances;
- d. Operational assistance;
- e. Facilities/infrastructure assistance;
- f. Assistance for rehabilitation/construction of buildings/structures; And

Government assistance in the form of other assistance, which has the characteristics of government assistance determined by the Budget User ("PA") based on Article 4 paragraph (5) (Kementerian Keuangan 2015b), is allocated to the Other Goods Expenditure Account Group to be Handed over to the Community/Local Government. In distributing government aid, based on Article 6 (Kementerian Keuangan 2015b), the PA prepares general guidelines, and then, based on these, the Budget User Authority ("KPA") prepares technical instructions for distributing government aid. The technical instructions for distributing government assistance should at least include:

- a. Legal basis for providing Government Assistance;
- b. Purpose of use of Government Assistance;
- c. Government Assistance Providers;
- d. Requirements for receiving Government Assistance;
- e. Forms of Government Assistance;
- f. Budget allocation and details of the amount of Government Assistance;
- g. Governance of disbursement of Government Assistance funds;
- h. Distribution of Government Assistance funds;
- i. Accountability for Government Assistance;
- j. Tax provisions; And
- k. Penalty.

Based on Article 37 (Kementerian Keuangan 2015b), other assistance with the characteristics of government assistance determined by the PA is assistance in the form of money or goods and services, which does not include other forms of government assistance. Other aid recipients who have the characteristics of government assistance determined by the PA are as follows:

- a. Individual;
- b. Community groups
- c. Government institutions or non-government institutions

Government Lease Spending

Based on Article 6 (Kementerian Keuangan 2018), one type of government spent is spent for goods and services. Referring to the Appendix (Kementerian Keuangan 2018), one of the service expenditures is lease spending. Lease spending is used to pay services such as office/building/room rent or other rent to carry out the ministry's duties and functions. As a Budget User, the Minister can propose functions/sub-functions/Programs/Activities to the Ministry of Financial Planning and the Ministry of National Development/National Development Planning Agency.

Article 2 Presidential Decree 16/2018 stated that one of the regulation scopes is procuring goods/services within Ministries/Institutions/Regional apparatuses using budgets from the APBN/APBD (Republik Indonesia 2018). It is further regulated in Article 38 regarding the method for selecting goods providers, consisting of (Lembaga Kebijakan Pengadaan Barang/Jasa Pemerintah 2018):

1. E-purchasing, which is carried out for goods that are listed in the electronic catalog
2. Direct procurement for goods with a maximum value of IDR 200,000,000.00
3. Direct appointment, which can be done under certain circumstances, including:
 - a. Organizing sudden preparation of activities to follow up on international commitments attended by the president/vice president;
 - b. Secret goods/services for state interests include intelligence, witness protection, security for the president and vice president, former president and former vice president and their families, as well as state guests at the level of head of state/head of government, or other goods/services of a secret nature by regulatory provisions legislation;
 - c. Building construction work which constitutes a single construction system and a unified responsibility for the risk of building failure, which as a whole cannot be planned/calculated in advance;
 - d. Goods/construction work/other services that can only be provided by 1 capable business actor;
 - e. Procurement and distribution of superior seeds, which include rice, corn, and soybean seeds, as well as fertilizers, which include urea, NPK, and ZA, to farmers to ensure the correct and fast availability of seeds and fertilizers for the implementation of increasing food security;
 - f. Work on public infrastructure, facilities, and utilities in residential areas for low-income communities carried out by the developer concerned;
 - g. Goods/construction work/other services that are specific and only carried out by the patent right holder, the party who has received permission from the patent right holder, or the party who is the winner of the tender to obtain permission from the government;
 - h. Goods/construction work/other services that fail after being re-tendered; or
 - i. Election provider For continued procurement of goods/work construction/other services in the event of contract termination

4. Fast tender, which is carried out if the business actor has been qualified in the provider's performance information system for procurement, which:
 - a. The specifications and volume of work can be determined in detail
 - b. It is possible to mention the brand
5. The tender, which is carried out if the 4 provider selection methods above cannot be used.

Assignment to state-owned enterprise (SOE)

Based on Law 19/2003 (Kementerian Badan Usaha Milik Negara 2003), State-Owned Enterprises, from now on referred to as ("BUMN"), are business entities whose capital is wholly or largely owned by the state through direct participation originating from separated state assets. The aims and objectives of establishing an SOE based on Article 2 of Law 19/2003 are (Kementerian Badan Usaha Milik Negara 2003):

Contribute to the development of the national economy in general and state revenues in particular;

- a. Pursuit of profit;
- b. Organizing public benefits in the form of providing goods and services of high quality and adequate to fulfill the livelihood needs of many people;
- c. Become a pioneer in business activities that the private sector and cooperatives cannot yet implement;
- d. Actively provides guidance and assistance to entrepreneurs from economically weak groups, cooperatives, and the community.

Referring to the Elucidation of Article 2 paragraph (1) letter d of Law 19/2003 (Kementerian Badan Usaha Milik Negara 2003), pioneering activities are business activities to provide goods and services the community needs, but the private sector and cooperatives cannot carry out these activities because they are not commercially profitable. Therefore, this task can be carried out through assignments to SOE. Suppose there is an urgent need for the wider community. In that case, the government can also assign an SOE, which has a public benefit service function, to implement a partnership program with entrepreneurs from economically weak groups.

Assessment of Policy Alternatives

Policy Formulation

Determining appropriate policy standards will enable the creation of appropriate policy alternatives to resolve existing problems. Defines policy criteria as including information evaluated thoroughly and in depth relating to the problem. Policy parameters must be identified during the public policy analysis process. This is done to test potential actions for policy proposals. Formulating alternative policies to address digital behavior in Indonesia must first determine the relevant policy criteria. There are four considerations used to determine policy criteria: "Technical Feasibility, Economic and Financial Possibility, Political Possibility, and Administrative Operational Possibility."(Khairi 2008)(Bardach and Patashnik 2023)

Then, based on the policy determination theory, policy criteria can be developed to select the appropriate business model for deploying fiber optics, as seen in Table 1.

Table 1 The appropriate business model for deploying fiber optics

No	Criteria Aspect	Business Model Criteria for Fiber Optic Development
1	Technical feasibility	<ul style="list-style-type: none"> • By applicable technology standards • Using fiber optic media • Up to ODP level
2	Economic and Financial Possibilities	Using efficient costs/budgets
3	Political Possibilities	<ul style="list-style-type: none"> • In the interests of relevant stakeholders • Do not get rejected by relevant stakeholders
4	Administrative Operational Possibilities	<ul style="list-style-type: none"> • Good accountability for each stakeholder • Implementation can be well-organized

Assessment of Policy Alternatives

The final stage in the process of making policy recommendations is the assessment of policy alternatives. According to, the following policy criteria are used to assess policy alternatives for the development of fiber optic infrastructure in Indonesia: technical feasibility, economic and financial feasibility, political viability, and administrative operability. The following results are the results of an assessment of policy alternatives in the context of deploying fiber optic infrastructure in Indonesia (Bardach and Patashnik 2023):

1. Public Private Partnership (PPP)

This alternative was created to accommodate the need for cooperation between the Government and Business Entities. In this research, the investment cost payment method was chosen using an availability payment (AP) mechanism where payments are made based on the services provided (Shi, Li, and He 2020). This alternative aims to ensure that not only fiber optics are available but also internet services can be enjoyed by the public through the role of telecommunications operators. However, the drawback is that preparing a PPP project takes quite a long time because it is a long process. So, it is not suitable if applied to overcome a problem that requires fast time to resolve.

2. Government Lease Spending

This alternative was created to accommodate solutions that can be implemented quickly and accurately. Rent here is the rental of telecommunications services, namely internet access. The government pays a certain internet rental fee for a certain capacity to attract private interest to build in an area. However, the advantage is that it has a lower risk because there is no capex procurement, reducing the potential for findings from financial audit officials. This alternative is suitable for solving problems in the short term because, with assets not owned by the government, future management will have problems.

3. Government Assistance

Government assistance needs to meet the requirements for social assistance provided by the government to individuals, community groups, or government or non-government institutions (Kementerian Keuangan 2015a). Procurement of fiber optic infrastructure can

use government assistance mechanisms, which are handed over to Regional Governments, MSMEs, or community groups. This alternative was created to accommodate the distribution of the APBN in providing fiber optic infrastructure through government assistance mechanisms. This alternative is suitable for solving problems in the short term rather than for massive procurement.

4. Assignment to State-owned enterprise (SOE)

Based on Article 66 of Law 19/2003, the Central Government can give special assignments to SOE to carry out public benefit functions and national research and innovation (Kementerian Badan Usaha Milik Negara 2003). This special assignment is carried out while taking into account the aims and objectives of SOE's business activities, as well as considering SOE's capabilities. The SOE for the telecommunications sector is PT. Telkom, so the government can appoint PT to develop fiber optic networks in all regions. Assessed through the technical feasibility aspect, this alternative meets the existing technical criteria. Because PT Telkom operates in the telecommunications sector, it understands the required technical criteria. After obtaining the Minister's approval, a regulation at the level of a Presidential Regulation needs to be issued. This alternative is suitable for massive implementation and long-term needs such as sub-district fiber optic development programs.

CONCLUSION

Based on the analysis in this policy paper, it was found that the Central Government and Regional Governments can assist in the implementation of telecommunications by providing passive infrastructure, in this case, fiber optics, poles, and towers. The relevant stakeholders are the Ministry of Communications and Informatics, Regional Government, Telecommunications Operators, and State-Owned Enterprises. The policy options for implementing the District Fiber Optic Development Program are public-private partnership (PPP), government assistance, government lease spending, and assignments to state-owned enterprises. The government lease spending and government assistance option could be an option for the short term because it has a simple scheme. For the long term, the Assignment scheme to State-Owned Enterprises and PPPs can be chosen. PPP has the advantage of using funds from business entities if funds from the Government need to be increased. Of course, this will be very helpful for developing underdeveloped areas requiring high investment costs. However, the PPP implementation process takes work. Many stages need to be carried out, including preparing a feasibility study for the PPP project. Another alternative, assignment to an SOE, is a suitable choice, such as PT KAI, PLN, PDAM, and others. Many of these programs are successful and sustainable.

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