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Analysis of the Basic Service Infrastructure Index in Serang Regency

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ABSTRAK

Penelitian ini bertujuan untuk memberikan gambaran dan mengetahui indeks infrastruktur pelayanan dasar di Kabupaten Serang. Indikator yang digunakan adalah Akses terhadap tempat tinggal dan permukiman, air tanah dan air baku, akses terhadap air minum dan sanitasi yang aman dan terjamin, keselamatan dan kesehatan, Perlindungan infrastruktur dari bencana alam dan keamanan. Waktu Pelaksanaan penelitian selama dua bulan. Data yang digunakan adalah data sekunder yang berasala dari laporan kinerja kementerian, perangkat daerah, dan BPS. Teknik analisis yang digunakan adalah Perhitungan indeks infrastruktur pelayanan dasar. Hasil penelitian menunjukkan bahwa masih terdapat 30% penduduk Kabupaten Serang yang belum memiliki akses terhadap perumahan yang layak; terdapat 30,31% memiliki akses terhadap air minum bersih; Sebanyak 80,34% memiliki akses terhadap sanitasi yang layak,; Terdapat 71,47% memiliki akses terhadap fasilitas cuci tangan pakai sabun. , Terdapat 97,17% memiliki kondisi jalan nasional yang stabil, dan 24,54% dari seluruh desa memiliki masyarakat tahan bencana. Kedua, hasil Indeks Infrastruktur Pelayanan Dasar dari tahun 2019 ke tahun 2021 mengalami peningkatan (2019: 55,09; 2020: 56,08; dan 2021: 58,92). Hal ini menunjukkan kondisi infrastruktur pelayanan dasar yang dikelola Pemerintah Kabupaten Serang semakin membaik.

ABSTRACT

This research aims to provide an overview and determine the basic service infrastructure index in Serang Regency. The indicators used are access to housing and settlements, ground water and raw water, access to safe and secure drinking water and sanitation, safety and health, infrastructure protection from natural disasters and security. The research implementation time was two months. The data used is secondary data originating from performance reports of ministries, regional apparatus and BPS. The analysis technique used is basic service infrastructure index calculation. The research results show that there are still 30% of Serang Regency residents who do not have access to adequate housing; there are 30.31% who have access to clean drinking water; As many as 80.34% have access to proper sanitation; There are 71.47% who have access to hand washing facilities with soap. , 97.17% have stable national road conditions, and 24.54% of all villages have disaster-resistant communities. Second, the results of the Basic Services Infrastructure Index from 2019 to 2021 have increased (2019: 55.09; 2020: 56.08; and 2021: 58.92). This shows that the condition of basic service infrastructure managed by the Serang Regency Government is getting better.

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INTRODUCTION

The development of infrastructure, particularly that which provides fundamental services, is a project that gives hope to the whole community. Because the government, the corporate sector, and other stakeholders all have a shared obligation to fulfill in this regard. It is necessary to realize a number of infrastructures, beginning with the economic, urban, and basic service infrastructures. This has been determined through the 2020-2024 National Medium Term Development Plan (RPJMN) in the three main frameworks for Indonesia's

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infrastructure development.

Based on Attachment II of Presidential Regulation No. 18 of 2020 concerning the National Medium-Term Development Plan 2020-2024, the Government in 2022 will still focus national development on the basic service infrastructure sector. It is because of the still low level of well-being and quality of life of the people due to the unfulfilled basic services and facilities of the settlement and isolation of the region (Mutmainnah & Afdal, 2022). The infrastructure budget is one of the largest in the 2022 APBN budget, amounting to Rs.365.778.1 billion. With the support of the above-mentioned infrastructural budget, the objectives for infrastructure development in the 2022 APBN according to Law No. 6 of 2021 on State Revenue and Epxenditure Budget for Fiscal Year 2022 include, among others:

1. The field of basic services includes building 5,141 apartments and 1,823 special dwellings, as well as giving 111,543 families access to garbage and sanitation;
2. In the connectivity sector, which includes the building of 295 kilometers of roads, 6,253 meters of bridges, and 6,624 kilometers of railroad lines;
3. The energy and electricity sector, namely in the form of providing a natural gas network for 40,000 SR households and the construction of Rooftop PLTS with a total capacity of 2.3 MW; and
4. Information technology field, i.e. in the form of construction of 2,344 new BTS and provision of Internet access 9.463 points (no) mainly in the 3T area (Disadvantaged, Frontier and Outermost Regions)

Budgets for APBD must also be set aside by regional governments for the development of infrastructure, particularly that which is directly tied to the wellbeing of the populace—that is, basic service infrastructure. A number of basic services infrastructure must be in place, including adequate housing and communities, access to sanitary facilities and clean water, safe and secure transportation, disaster preparedness measures, and raw water supplies. The creation of a basic service infrastructure will guarantee more equitable distribution of wealth and development. In addition to developing infrastructure, regional governments, acting as regional development authorities, must also put policies into place that can foster an environment that is favorable to the profitable operations of economic actors in order to facilitate the attainment of high economic growth.

Serang Regency is one of the most densely populated regencies in Banten Province, and has significant economic growth because it has many industrial areas. Therefore, to ensure the achievement of people's welfare, it is imperative to execute an analysis regarding the achievements of basic service infrastructure in Serang Regency that have been felt by the community. Measurement of the achievement of basic service infrastructure is generally presented in a study regarding the Basic Service Infrastructure Index.

Given the problem’s backgrounds, the following research questions may be derived:

a. What is the condition of the basic service infrastructure expected to provide adequate services for the Serang Regency, Banten Province community?
b. How significant is the value of the basic service infrastructure index of Serang Regency if referring to the indicators set based on Presidential Regulation No. 18 of 2020 concerning the National Medium-Term Development Plan 2020-2024?

As for the purposes of the research, it is as follows:

a. Provide an overview of the conditions and describe the achievements of basic service infrastructure in Serang Regency, Banten Province.

b. Explain the value of the basic service infrastructure satisfaction index in Serang Regency and the priority achievements of infrastructure services that need to be achieved by the Serang Regency Government in accordance with Presidential Regulation No. 18 of 2020 concerning the National Medium-Term Development Plan 2020-2024.

Literature Review

Concept and Development of Public Services

The issue of public services has become a hot issue, especially after the birth of the regional autonomy regime. It is a necessity for the government/regional government to raise the standard of the community's numerous services. The impact of modifications to the administrative science paradigm, such as those that occur globally and in other spheres of life, also raises to the question of public service quality. The newest paradigm in state and public administration, known as New Public Service (NPS), views state and regional administrators' primary duty as doing public service. The way public administrators communicate and uphold people's interest – or shared interests – is fundamental to the NPS concept (Denhardt & Denhardt, 2007).

The orientation of state administration in practice at that time tended more towards the "state" as something to be followed, feared and served. Paradigm changes occurred in line with the democratization process that developed in the modern era. According to Keban (2008:4-5) public administration has a variety of meanings. Public administration is sometimes translated as 'administration of the public or "public administration". There are several types of public administration, including administration by the public, administration for the public and administration by the people, according to some. This variation in translation is intriguing because it can demonstrate a spectrum of advancements in public administration, ranging from the least democratic to the most democratic paradigms, or from a system that pays little attention to community empowerment to one that truly does.

Democratic theory serves as the theoretical underpinning and epistemological cornerstone of NPS. It asserts that individual liberty and equality are acceptable, that diverse values are engaged in the process of defining the public interest, and that public bureaucracy's responsiveness is directed toward citizens rather than clients. and constituent or customer; the function of government as a servant; accountability is comprised of several elements: political norms, legal accountability, community values, professional standards, organizational structure that is collaborative and shares internal and external ownership; and presumptions regarding the motivation of employees and administrators as public servants who wish to serve the community. Laws and regulations have established this paradigm shift for the Indonesian model. Starting with modifications to the 1945 Constitution, the rules governing governors, regents, and mayors were changed. In actuality, the Law number 25 of 2009 on Public Services has been released.

The ultimate goal of government-implemented bureaucratic reform is raising the caliber of public services and the degree to which the public is satisfied with them. This accomplishment represents a long- and medium-term aim. As a result, every year, all Ministries/Institutions (K/L) and regional governments have specific goals to attain. Herdiansyah (2018) Regardless of level, the government is supposed to do at least three

primary duties: providing public services, developing the country, and protecting its citizens.

Viewed from an economic perspective, services are a means of satisfying human needs, as are goods. However, services have their own characteristics that are different from goods. According to Gasperz (1994: 241), one feature that sets it apart from things is that its output is non-standard, intangible, and able to be consumed right away at the point of production rather than being kept in inventory. It is said that in the context of public services, public services prioritize public interests, make public affairs simpler, expedite the completion of public affairs, and satisfy the public (public=general). Similarly, public service is defined by Moenir (2006:26–27) as an action taken by an individual or group of individuals based on material circumstances using certain systems, procedures, and methods in an attempt to uphold the rights and interests of others. Public service activities provided by the government to the community cover many things that relate to all of the community's needs. According to Pamudji (1994:21-22), government services are various activities aimed at meeting people's needs for goods and services. Types of public services in the sense of services, namely health services, family services, educational services, Hajj services, justice seeking services, and so on.

Basic Service Infrastructure

From a supply standpoint, infrastructure facilities are regarded as public infrastructural inputs. Nonetheless, infrastructure can be roughly categorized into physical, social, and financial categories based on the services that are offered. Transportation (roads, trains, planes, and canals), energy, irrigation, telecommunications, water supply, and other related services are all included in the physical category. This feature helps draw in private investment, both domestic and international, despite having a direct impact on output through the external economy. By lowering transaction costs and generating a lot of investment, jobs, production, income, and side growth, physical infrastructure promotes economic growth (Rokhmat et al 2020).

By improving human resources in the areas of housing, recreation, health care, education, and other areas, social infrastructure makes a positive impact. In other words, social infrastructure is aimed at improving the quality of life. This infrastructure has an impact on human resources in terms of quality and helps increase worker productivity. Furthermore, financial infrastructure which includes banking, postal and tax cooperation from citizens represents the country's financial performance. These three aspects represent the ability to create income from a region within a country or a country within a region.Ghosh (2005) examined the economic impact of public infrastructure in Japan by expanding Hansen's definition to add communication systems. He stated that the absence of these facilities in one area would result in a reduction in the "productive efficiency" of a society. This infrastructure is a number of very substantial characteristics that differentiate countries today (Rokhmat et al 2020).

The existence of Public Service Infrastructure has a positive impact on the State/region's economy. Research from Easterly and Rebelo (1993) found a positive influence of investment in transportation on economic growth. Jayme Jr. et al, (2009) stated in their research that spending on infrastructure has a positive effect on a country's macroeconomic performance. Increased spending costs in the infrastructure sector reduce companies' production costs and, as a consequence, stimulate investment, productivity and economic growth. The argument is that the government does not create jobs directly, but helps create an atmosphere conducive to private investment

and production at a competitive level. In other words, public investment has the potential to stimulate private investment. In conclusion, an increase in public spending, namely in the infrastructure sector for strategic sectors, especially transportation, is something important and productive.

Policies and Regulations regarding Basic Service Infrastructure

In order to carry out Law Number 25 of 2004, establishing the National Development Planning System's mission to implement the 2020–2024 medium-term development plan (UU SPPN). The National Medium Term Development Plan (RPJMN) is decided no later than 3 (three) months after the President is inaugurated, according to Article 19 paragraph (1) of the SPPN Law. Based on this justification, the President outlined Presidential Regulation Number 18 of 2020 about the National Medium-Term Development Plan for 2020–2024. Presidential Regulation Number 18 of 2020 comprises the regulation itself and four attachments:

- The RPJMN Regional Development Direction is contained in Appendix 4.
- The Development Matrix is in Appendix 3.
- The Strategic Priority Projects (Major Projects) are in Appendix 2.
- The Narrative of the 2020–2024 RPJMN is in Appendix 3.

National development planning and budgeting are carried out in accordance with the following guidelines, which are outlined in Government Regulation of the Republic of Indonesia Number 17 of 2017 concerning Synchronization of National Development Planning and Budgeting Processes Chapter II concerning Principles for National Development Planning and Budgeting Article 3, as follows:

a. Through performance-based budgeting, a program-based budgeting strategy (money follow program) is used to prepare the national development plans and budget.
b. National Development Planning and Budgeting are synchronized in order to enhance.

The government has released Presidential Regulation Number 18 of 2020 regarding the National Medium-Term Development Plan for 2020–2024 in an attempt to coordinate this planning. In addition, four mainstreaming processes have been formed in the 2020–2024 RPJMN as a type of creative and adaptable development, in order for them to act as a development catalyst for a successful and just society. First, development; Second, gender mainstreaming; Third, social and cultural capital; and digital transformation is the fourth mainstreaming's. These four will influence and integrate into sector and regional growth, all the while guaranteeing equitable implementation and maintaining a focus on environmental sustainability. These mainstreaming attempts to increase governance efficiency and flexibility to external environmental conditions, in addition to expediting the accomplishment of development focus targets and ensuring equitable and fair access to development.

In Appendix I of Presidential Regulation Number 18 of 2020 concerning RPJMN 2020-2024, especially Bab IV concerning Strengthening Infrastructure to Support Economic Development and Basic Services, it is explained that infrastructure development is one of the strategic options in order to accelerate the growth and equality of the Indonesian economy as well as public services for the community. Regarding basic service infrastructure, there are at least several aspects that are the main reference for

development targets, namely:

1. Providing Access to Reasonably Priced, Secure, and Appropriate Housing and Settlements;
2. Providing Access to Sanitation as well as Sufficient and Safe Drinking Water;
3. Sustainable Groundwater and Raw Water Management;
4. Transportation Safety and Security;
5. Infrastructure Disaster Resilience;
6. Multipurpose Reservoirs and Irrigation Modernization;

Meanwhile, the Ministry of National Development Planning/Bappenas is focusing the 2020-2024 basic service infrastructure development framework on five areas, namely:

1. Granting people access to decent and reasonably priced houses and communities, including access to adequate housing for households.
2. Management of Ground Water, Raw Water, Drinking Water (Household and Industrial), including (i) securing ground water and sustainable raw water (household and industrial); and (ii) access to adequate, safe, affordable and sustainable drinking water services.
3. Access to Decent and Safe Sanitation, including (i) access to sanitation (waste water and domestic waste); (ii) sustainable sanitation services in Priority Districts/Cities; and (iii) eradication of Open Defecation (BABS) behavior
4. Transportation Security and Safety, including the implementation of the five pillars of road safety; and (ii) shipping safety.

Infrastructure Disaster Resilience, including (i) building standards and construction production chains; (ii) protection against water damage; and (iii) resilience of coastal areas in strategic areas, especially on the north coast of Java Island.

Access to Reasonably Priced, Secure and Appropriate Housing and Settlements

In order to establish an inclusive and livable city, the policy direction in housing and settlement development is to progressively enhance community access to decent, safe, and cheap housing as well as settlements. Three areas are the emphasis of the strategy: the supply side, the demand side, and the enabling environment. From the demand side, strategy as follows:

1. Bolstering the primary and secondary housing finance systems, with a focus on maximizing the utilization of long-term funding sources such BPJS Employment and Pension Savings and Insurance (TASPEN);
2. A more targeted and efficient reform of housing subsidies;
3. An increase in housing financing options, particularly for those with variable incomes and independent home builders;
4. The creation of services offered by the Public Housing Savings Agency (BP Tapera) to increase access to housing finance.

From the supply side through strategy:

1. Expanding the supply of housing that complies with urban planning principles and is connected with basic residential infrastructure services, such as public transportation networks;
2. Creation of an urban public housing system based on flats;
3. Comprehensive urban renewal and land consolidation to build a metropolis

devoid of slums;
4. Making use of land owned by the state or BUMN to facilitate the construction of dwellings for communities with low to intermediate incomes;
5. The expansion of the corporate community's involvement in housing provision, including that of BUMN/BUMD, especially Bank Tabungan Negara (BTN), PT. Sarana Multigriya Finansial (PT. SMF), and the National Housing Development Public Company (Perumnas).

Meanwhile, strategies from the element of establishing supportive environment are carried out through:

1. Strengthening the implementation of building reliability and orderly standards, facilitating licensing and land administration, together with the advancement of affordable building materials and technology;
2. Improving the ability of local and regional governments, businesses, and communities to provide housing;
3. Greater cooperation in housing provision between local, state, federal, and private sectors;
4. Development of incentive and disincentive systems in housing provision;
5. Development of national and regional public housing service agencies.

These strategies can certainly work well if there is collaboration between between the national and local levels of government. Central Government support for regional governments at both provincial and district/city levels continues. Among these efforts are formation and coaching Working Group on Housing and Settlement Areas (Pokja PKP) at the provincial and district/city levels, guidance on planning for housing and residential areas carried out by the regional government, assistance in implementing the policy on ease of licensing for housing construction, guidance and empowerment of community groups carrying out housing construction, guidance to the regional government which carries out housing construction from Special Allocation Fund (DAK) sources, as well as encouraging the implementation of balanced housing policies.

In the 2015-2019 period, there were 34 provincial governments and 322 district/city governments that had formed/issued SK Pokja PKP, 19 provincial governments and 136 district/city governments that had prepared RP3KP documents which were regional references in implementing PKP development , and the construction of 229,156 units has been carried out by the regional government through the Special Allocation Fund (DAK) scheme which consists of the construction of 654 units of Special Housing and support for the handling of 228,502 units of Independent Housing. Of the five strategic targets of the PUPR Ministry in 2020-2024, one of them is increasing the provision of access to decent, safe and affordable housing and settlement infrastructure, with performance indicators:

1. Percentage increase in adequate and safe residential infrastructure services through a smart living approach;
2. Percentage of fulfilling the need for livable housing;

Meanwhile, at a practical level, the PUPR Ministry is also targeting 70 percent of households to have livable houses by 2024, this target has increased from the previous 56.51 percent. This target can be achieved with support from the government and local government of 20%, developers and community self-sufficiency of 50%, and developer support with assistance from subsidies from the government of 30%. This means that

the role of the Regional Government in providing access to decent, safe and affordable housing and settlements is very significant to achieve this target.

Access to adequate and safe drinking water and sanitation

The following are the policy and strategy guidelines for providing access to adequate and safe drinking water as outlined in the Program for Providing Access to Adequate and Safe Drinking Water and Sanitation:

1. Enhancing institutional governance to ensure that sufficient and safe drinking water is provided by:
   a. Policy directives and development goals for access to sufficient and clean drinking water should be incorporated into regional planning documents;
   b. Increasing commitment through proper APBD allocation;
   c. Using tiers of control and direction to bolster the role of province and regency/city governments;
   d. Enhancing the standard of planning, backed by data and information systems, for the provision of integrated access to drinking water (Jakstrada, RISPAM, RPP Drinking Water, and PDAM Business Plan);
   e. Fortifying the institutional role of regulators of drinking water; moreover
   f. Government and corporate entity collaboration (PPP) as well as performance-based grants are examples of optimizing funding and creating alternative funding.

2. Expanding the capacity of drinking water providers by:
   a. Improving PDAM performance through non-technical and technical assistance to improve service quality, such as lowering water loss levels, production efficiency, financial and human resource management, applying appropriate tariffs, and
   b. Supporting other SPAM organizers (UPTD, BUMDes, KPSPAM, etc.) become more capable and empowered.

3. SPAM development and management, through:
   a. Optimization and utilization of SPAM capacity which can be achieved by broadening service coverage;
   b. Improvement and development of SPAM;
   c. Asset management, which includes upkeep, repairs, maintenance, and inventory of networks;
   d. Giving islands and other places vulnerable to flooding access to drinking water;
   e. Enabling the community or the federal and local governments in certain areas to independently provide access to drinking water without a protected pipe network; and
   f. The advancement of safety and drinking water processing technologies.

4. Increasing public knowledge of the need to adopt water-saving practices, use piped drinking water services or independently access drinking water sources that are not protected pipe networks, and establish safe drinking water management in homes;

Groundwater and Sustainable Raw Water

Accelerating the provision of raw water from protected water sources, increasing integration in the drinking water supply, and utilizing technology in raw water management are the policy directions for the provision and management of ground water and sustainable raw water. The following are some methods to quicken the flow of raw water from sources of protected water:

1. Maintaining water quality is necessary to enable the development of raw water capacity from dams and other water sources;
2. Improving the infrastructure for raw water delivery and making it more efficient;
3. Putting into practice groundwater conservation that is bolstered by the enforcement of groundwater extraction rules and integrated with the raw water delivery system. In order to improve the efficiency of clean water distribution systems and water treatment plants (IPA), this technique must be developed concurrently. Business entities must be involved in the acceleration of the raw water supply system. Increasing public understanding of water-saving practices is also necessary to support sustainable water supply; and
4. Preparation of Water Security Index.

Transportation Safety and Security

Currently, Indonesia has a number of laws and regulations that regulate safety and security in the transportation sector. However, in practice, many accidents still occur. A number of transportation problems in the aspect of transportation safety and security, among others, are:

1. The institutional function has not been optimal in improving transportation safety in an integrated manner;
2. Lack of awareness and community participation regarding transportation safety and security;
3. Inadequate supervision and law enforcement in fulfilling transportation safety and security standards;
4. The fulfillment of transportation safety and security standards is not yet optimal, including the adequacy and reliability of transportation safety and security infrastructure in accordance with technological developments;
5. The lack of quality and quantity of transportation human resources according to competency standards for transportation safety and security;
6. High fatality rate of road traffic accident victims;
7. There is no integration of accident data that can be used to improve road safety;
8. The handling of railroad and road crossings is not yet optimal in accordance with statutory regulations.

Infrastructure Disaster Resilience

Infrastructure Disaster Resilience Targets are carried out through policy directions in the development of disaster resilience infrastructure, including the construction of important infrastructure and its reinforcement, integrated management of areas vulnerable to disasters, and the preservation and restoration of river basins. Strategies for developing disaster resilient infrastructure and bolstering crucial infrastructure against the possibility of landslides, floods, earthquakes, tsunamis, mudslides, and sedimentation include:

1. Development and improvement of infrastructure in high-risk locations that is resilient to disasters;
2. Assessment and improvement of essential infrastructure protection against calamities;
3. Determination of guidelines for developing disaster-resistant structures; and
4. Green infrastructure development. This strategy is supported by improving the quality of the construction industry as well as quality supervision and supply chain management in the construction industry. Collaboration between research institutions and industry players in mastering technology also needs to be improved and supported by improving the quality of human resources in the construction sector

Multifunctional Reservoirs and the Modernization of Irrigation

The policy direction in the context of optimizing multipurpose reservoirs and irrigation modernization is increasing water storage capacity, increasing and utilizing water storage functions, increasing dam performance and reducing dam risk index, increasing efficiency and performance of irrigation systems, and providing water for high-value agricultural commodities. These development targets take the form of multipurpose reservoirs and irrigation modernization. Among the methods for boosting water storage capacity are:

1. Planning for multipurpose dams using sustainable protocols;
2. Making arrangements to utilize natural reservoirs;
3. Rehabilitation of crucial dams; and
4. Building multipurpose dams with the help of commercial organizations. The execution of new dam investment schemes including commercial entities and the establishment of integrated economic zones based on multipurpose dams assist this plan.

RESEARCH METHODS

This study is focused on compiling a basic service infrastructure index with several variables that will be studied, including access to housing and settlements, ground water and safe, sustainable raw water, access to drinking water and adequate and safe sanitation, transportation safety and security and infrastructure disaster resilience. Each of these variables has an indicator that will be used as a reference in calculating the required index. This research was conducted for two months, starting from October 1 to November 22 2022. The data used is secondary data sources. which comes from the Central Statistics Agency, (Regional Apparatus), Ministry Performance Reports.

The stages in data analysis in preparing the basic infrastructure service index study are carried out in the following steps:

Figure 1.
Data Analysis Stages

Source: Data Processed by Researchers, 2022

a. The indicators used in this study according to the explanation in the previous chapter are as follows:

Table 1.
Variables and Indicators of Basic Infrastructure Services

No	Variabel	Indicator
1	Housing and Settlements	• The proportion of households with access to reasonably priced and suitable housing.
2	Groundwater and Raw Water Management	• Percentage of Households (RT) with the main water source being a drilled well/pump for toilets • Percentage of Households with the main water source being tap water for MCK • Percentage of Households with the main water source being a protected well/spring for MCK • Coverage of PDAM Technical Services for the Community
3	Providing Access to Decent and Safe Drinking Water	• Percentage of households using safely managed drinking water services (Decent Drinking Water)
4	Providing Access to Sanitation	• Percentage of Households that Have Hand Washing Facilities with Water and Soap • Percentage of Households that Have Access to Adequate Sanitation • Percentage of Households by Characteristics and Use of Defecation Facilities
5	Transportation Safety and Security	• Percentage of Public Transport that has eligibility standards (KIR)
6	Infrastructure Disaster Resilience	• Percentage of Disaster Resilient Villages

Source: Source: Data Processed by Researchers, 2022

b. Indicator Normalization Using the *Min – Max Method*

Before calculating the index, the first step that must be taken is to normalize the indicators, which is a process of scaling indicator values so that all indicators have the same range and direction.

$$SX_i = \frac{X_i - X_{min}}{X_{max} - X_{min}} \times 100 \rightarrow for\ indicators\ of\ a\ positive\ nature$$

atau

$$SX_i = 100 - \left(\frac{X_i - X_{min}}{X_{max} - X_{min}} \times 100\right) \rightarrow for\ indicators\ of\ a\ negative\ nature$$

Description:

SX_i = is the value of the normalized indicator
X_i = is an empirical indicator value
X_{min} = is the minimum value of the indicator (set)
X_{max} = is the maximum value of the indicator (set)

c. Determination of Weighing

1) When calculating the index, the weight of each variable can have the same or different magnitude.
2) Equal weighting indicates that each variable is considered to have the same level of importance, while different weighting indicates that one variable is more important than other variables.
3) Determining different weights for each variable can be done using factor analysis.
4) If we use weights with different amounts based on data distribution, there is a risk of changes in weights for subsequent years due to differences in data distribution patterns.

Based on the agreement of the review team, it was agreed that this study would use the same weight (equal weight) for each variable in the preparation of the basic infrastructure service index.

d. The basic service infrastructure index calculation is carried out using the Basic Service Infrastructure Index (IIPD) calculation. By calculating the index using the following formula:

$$Rerata\ Aritmatika \rightarrow Indeks\ Variabel_i = \left(\frac{SX_{1i} + \cdots + SX_{ni}}{n}\right) \times 10$$

Description :

$SX_{1i} = normalized\ indicator\ value\ (j = 1,2, \ldots, n)$
$n \quad = number\ of\ indicators\ on\ each\ variable$
$i \quad : number\ of\ variables\ (i = 1,2, \ldots, m)$

RESULTS AND DISCUSSIONS

The development of basic service infrastructure is very much needed by the entire community. Through a multiplier effect, its existence also affects how economic activity develops and leads to economic expansion. The necessity for economic growth necessitates the development of current infrastructure in order to accommodate the substantial flow of goods and services that are generated and consumed across the economy. In an effort to support optimal services and increase high economic growth, the Regional Government of Serang Regency strives to continue to improve basic service infrastructure so that basic needs services are more optimal and can create a conducive climate for productive activities of economic actors. One of the policies is to build basic service infrastructure in various areas in Serang Regency.

The Regional Government of Serang Regency is focused on improving service infrastructure related to access to housing and settlements by increasing access to decent and affordable housing. This is proven by the increase in access in 2019, originally 65.16 percent, increasing in 2021 by 70.02 percent. Regarding aspects of groundwater and raw water management, the Regional Government has carried out activities to provide access to main water sources, protected wells/springs, from 17.29 percent in 2019, increasing to 29.93 percent. The Serang Regency Government is also increasing access to the provision of adequate and safe drinking water. This is indicated by an increase in the percentage of households using safely managed drinking water services (Decent Drinking Water) in 2019, amounting to 27.91 percent, increasing in 2021 to 30.31 percent. Another program carried out by the Serang Regency Government is related to providing access to sanitation. Some of the programs carried out are Hand Washing Facilities with Water and Soap, originally in 2019 it was 60.49 percent,

increasing in 2021 to 71.47 percent. Households that have access to adequate sanitation also experienced an increase from 76.83 percent to 80.34 percent in 2019. Households according to Characteristics and Use of Defecation Facilities also experienced an increase from 80.87 percent in 2019 to 84.38 percent in 2021. The Serang Regency Government has also provided great support in efforts to improve transportation safety and security through testing activities the feasibility of public transportation (KIR) and stable road conditions (concrete work) have increased. This can be seen from the level of stable road conditions (concrete work) in 2021 which was 79.21 percent, increasing to 97.17 percent. The Serang Regency Government is also focused on disaster resilience infrastructure programs. This is indicated by the increase in Disaster Resilient Villages in 2019 by 17.18 percent, increasing to 24.54 percent.

With the improvement of various Serang Regency Government programs in basic service infrastructure, it is encouraging the optimization of services to the community. This can be seen from the basic service infrastructure index which increased in 2019 by: 55.09; 2020: 56.08; while in 2021: 58.92. This shows that the Serang Regency Regional Government's condition of basic service infrastructure is improving. This condition is in accordance with the data in the Basic Service Infrastructure Index Table as follows.

Tabel 2.
Serang Regency Basic Services Infrastructure Servant Index

No	Variables/ Indicators	Realization			Determination of IIPD Indicator Limits		Source	Index		
		2019	2020	2021	Batas Mini-mal	Batas Maksi-mal		2019	2020	2021
1	**Housing and Settlements**							**72,40**	**71,11**	**77,80**
	Percentage of households that have access to adequate and affordable housing	65,16	64,00	70,02	0	90	Expert Agreement	72,40	71,11	77,80
2	**Groundwater and Raw Water Management**							**33,86**	**34,25**	**37,29**
	Percentage of RTs with the main water source being a drilled well/pump for toilets	64,94	67,88	54,53	0	90	Expert Agreement	72,16	75,42	60,59
	Percentage of RTs with main water source Tap water for	7,06	4,66	6,77	0	40	Expert Agreement	17,65	11, 65	16,93

No	Variables/ Indicators	Realization			Determination of IIPD Indicator Limits		Source	Index		
		2019	2020	2021	Batas Mini-mal	Batas Maksi-mal		2019	2020	2021
	toilets									
	Percentage of RTs with the main water source being protected wells/springs for MCK	17,29	16,89	29,93	0	70	Expert Agreement	24,70	24,13	42,76
	Coverage of PDAM Technical Services for the Community	10,47	12,90	14,45	0	50	Expert Agreement	20,94	25,80	28,90
3	**Providing Access to Decent and Safe Drinking Water**							**34,89**	**35,80**	**37,89**
	Percentage of households using safely managed drinking water services (Decent Drinking Water)	27,91	28,64	30,31	0	80	Draft Presidential Decree and expert agreement	34,89	35,80	37,89
4	**Providing Access to Sanitation**							**80,81**	**84,71**	**87,48**
	Percentage of Households that Have Hand Washing Facilities with Water and Soap	60,49	70,70	71,47	0	90	Expert Agreement	67,21	78,56	79,41
	Percentage of Households that Have Access to Adequate Sanitationv	76,83	77,57	80,34	0	90	Expert Agreement	85,37	86,19	89,26

No	Variables/ Indicators	Realization			Determination of IIPD Indicator Limits		Source	Index		
		2019	2020	2021	Batas Mini-mal	Batas Maksi-mal		2019	2020	2021
	Percentage of Households by Characteristics and Use of Defecation Facilities	80,87	80,44	84,38	0	90	Expert Agreement	89,86	89,38	93,76
5	**Transportation Safety and Security**							**89,51**	**83,35**	**85,83**
	Percentage of public transportation that has appropriateness standards	89,83	74,24	67,04	0	90	Expert Agreement	99,81	82,49	74,49
	Percentage Level of steady road conditions (concrete work)	79,21	84,21	97,17	0	100	Expert Agreement	79,21	84,21	97,17
6	**Infrastructure Disaster Resilience**							**19,09**	**27,27**	**27,27**
	Percentage of disaster resilient villages	17,18	24,54	24,54	0	90	Expert Agreement	19,09	27,27	27,27
IIPD INDEX								**55,09**	**56,08**	**58,92**

Source: Secondary Data, processed 2022

CONCLUSIONS

The following conclusion can be drawn from the study and discussion's findings:

1. There are still 30% of the population of Serang Regency who do not have access to adequate housing, the achievement of adequate drinking water is 30.31%, the achievement of adequate sanitation has reached 80.34%, and the achievement of hand washing facilities with soap is 71.47%, the condition National road stability has reached 97.17%, the presence of disaster resilient villages has reached 24.54% of the total villages. In accordance with Regional Regulation No. 7 of 2021 concerning the 2021-2026 Serang Regency RPJMD, the Serang Regency Government in 2022-2024 is prioritizing the development of Serang Regency infrastructure under the direction of the RPJM.

2. The results of the Basic Services Infrastructure Index from 2019-2021 continue to increase (in 2019 it was: 55.09; in 2020: 56.08; while in 2021: 58.92). This shows that the condition of basic service infrastructure managed by the Serang Regency Government is improving

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