

Original Article

Design of Educational Facility Service Standards in Indonesia (Case: Junior High School in Lampung Province)

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ABSTRACT

The educational facility standards in Indonesia do not meet regional needs. A strategic design aligned with regional demographics is necessary. This research aims to create verified standardized designs for educational facility services. The research uses quantitative methods with formal schools at junior high school level in Lampung Province as the research object. The research uses documentation data with secondary data analysis techniques and descriptive statistics. The research results denote (1) educational services condition facilitated by the government in Lampung Province for junior high school level according to Ministry of Education criteria is 16.20%, while according to BSN criteria is 38.87%. The amount of junior high school level standard, both according to Permendiknas and BSN criteria, is stated undersupply. (2) The standard design used is Utami version (2023), modified according to Ministry of Education and BSN criteria, using threshold changes and number of school-age population. The design is equipped with school type criteria: type A, B, and C. (3) Implementation results indicate that if the government maximizes the junior high school facilities with type A relatively then it can be declared as capable of meeting the standard needs for the number of schools, even without the involvement of private schools.

KEYWORDS

Educational facility;
Service standards;
Design
Junior high school
Lampung province

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INTRODUCTION

Government, as a state administrator, is obliged to provide access to quality education by prioritizing the principle of equity (Hardiyansyah, 2018). The provision of educational facilities as a basic service uses a social

approach where the planning and implementation are aimed at equitable development and maximizing the social welfare of the community (Amtu, 2013; DeVerteuil, 2000). Equal access to education means that all school-

age residents receive the same educational opportunities, regardless of gender, social status, religion, or geographical location (Hakim, 2016; Mujahidun, 2016). The condition of education in Indonesia in general has improved from year to year but is still not able to reach the entire population (BPS, 2019). The main problem of formal education in Indonesia is the equitable distribution and expansion of access to education (Desriani & Purnianti, 2013; Hakim, 2016). The reach of educational services in Indonesia is still limited and uneven in all regions (Pravitasari, 2014; Sitorus, 2009).

One of the obstacles to access to education services is the capacity of schools that do not match the needs of the population. The school capacity quota is greatly influenced by the number of schools in an area. In general, the number of schools in Indonesia refers to Permendiknas Number 24 of 2007 concerning Standards of Facilities and Infrastructure for SD/MI, SMP/MTS, and SMA/MA, see table 1.

Table 1.
Standard Criteria for the Number of Schools in Indonesia

No	Educational level	Threshold Population (people)
1	Elementary School	2.000
2	Junior School	2.000
3	High School	6.000

Source: Permendiknas No. 24 Tahun 2007

Lampung Province has a population of 9,176,546 people. The standard criteria for educational facility services in this region are as follows:

Table 2.
Standard Number of School in Lampung Province in 2023

No	Educational level	Standard Number of Schools	Number of existing Schools
1	Elementary School	4.588	5.513
2	Junior School	4.588	2.124
3	High School	1.529	1.332

Source: Hasil penelitian, 2024

The number of elementary schools is classified as *oversupply*, with an excess of 925 schools. Meanwhile, the junior high school level is the most *undersupplied* level, lacking 2,464 schools. The high school level is also

classified as *undersupply*, lacking 197 schools. The gap between the number of existing schools and the standard number of schools is high. Further study is needed on the application of government policies regarding the standards of educational facilities in Indonesia.

Utami (2023) explained that the standard criteria for educational facilities implemented by the government are a form of adoption of the threshold principle in Christaller's (1933) location Theory. The *threshold* criterion in question is the criterion for the number of people needed for the establishment of a service facility. This concept has weaknesses when applied to public facilities (schools). It is because schools have different characteristics from other public facilities such as hospitals, fire departments, and others. Those are provided to serve the needs of all residents without exception, regardless of age criteria. Meanwhile, (formal) schools in Indonesia can only be accessed by residents with certain age criteria i.e. 7-12 years for elementary school, 13-15 years for junior high school, and 16-18 years for senior high school.

A strategic design regarding guidelines for educational service standards (schools) that are in accordance with regional (demographic) characteristics in an effort to distribute education equitably is very necessary. A theoretical framework that is often used in relation to the system of facility service provisions can be found in *the Central Place Theory* (CPT) developed by Christaller (Parr, 1982). Walter Christaller is best known for his book *Die Zentralen Orte in Süddeutschland* published in 1933, translated by Baskin (1966).

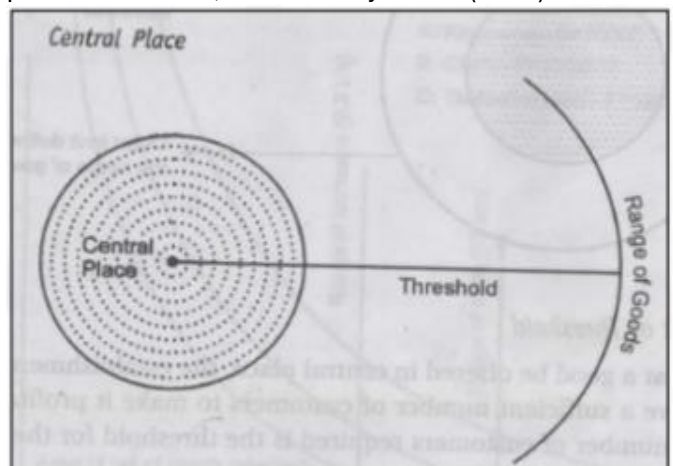


Figure 1. Central Place Theory Concept

Christaller (1933) tried to construct a concept of the number, size, and distribution of cities (Adisasmita, 2008; Getis & Getis, 1966; Setiyanto & Irawan, 2015). CPT Christaller (1933) has two basic concepts:

1. *Range of goods or services*, which is the maximum average distance traveled by residents to get certain goods/services.
2. *Threshold*, which is the minimum population needed to form the provisions of a particular product or service.

Both concepts are closely related to the demand function where the size of *total demand* will increase as the zone is served by the city center (Berry & Garrison,

1958). Rushton (1979) distinguishes the criteria for public service facilities into two types: (1) *ordinary public facilities*, the measurement of overall performance is used as a guideline, for example: health and education facilities and (2) *emergency public facilities*, minimum standards are usually set and guaranteed for everyone, for example: medical services, ambulances, or fire brigades. The conception of the provision of public facilities is generally related to standard limitations, see table 3.

Table 3. Development of the *Neighborhood Unit* (NU) Concept for Educational Facilities

	Educational Facilities Criteria		
	Elementary Schools	Junior Schools	High Schools
Perry (1929)	NU center ½ mile atau 800 meter	-	-
Clarence Stein (1934)	elementary school as the unit center ½ mile (0,8 km) radius from residence.	At 3-4 NU	At 6- 8 NU
Jose Sert (1959)	Every NU center radius ¼ mile or 400m	At 2 NU mileage < 1 mile (1600m)	At 4 NU mileage < 1 ½ mile (2400m)
DeChiara-Koppelman (1982)	¼ - ½ mile or 400-800m	½ - ¾ mile or 800-1.200m	¾ - 1 mile or 1.200-1.600m

Source: De Chiara & Koppelman (1982); Meenakshi (2011); Byun et al (2014); Putri et al (2016).

Teitz (1968) explained that we need to distinguish the location theory of public facilities from the conventional location theory. First, public facilities are not influenced by the market or the competitive price system, determined by welfare criteria from the government. Second, the government is the main provider of public facilities. The consequence is that the location of the facility must be determined within the limits of the ability to allocate and distribute resources in the government-owned system that is functionally and hierarchically generally limited by the region (administrative). Third, decisions on the public facility system are not subject to a competitive price structure.

The government has several institutions that make rules on the standard of availability of educational facilities (schools), including the Ministry of National Education (Kemdikbud) and the National Standards Agency (BSN). Regulations regarding the availability of schools in Indonesia are included in the Regulation of the Minister of National Education of the Republic of Indonesia Number 24 of 2007 concerning Standards of Facilities and Infrastructure for Elementary Schools/Madrasah Ibtidaiyah (ES/MI), Junior High Schools/Madrasah Tsanawiyah (JHS/MTs), and Senior High Schools/Madrasah Aliyah (SHS/MA).

Table 4. Education Unit Standards

	Elementary School (ES)	Junior School (JS)	High School (HS)
Study Group (SG)	minimum 6 SG maximum 24 SG	minimum 3 SG maximum 24 SG	minimum 3 SG maximum 27 SG.
Study Group Criteria	One ES with 6 SG serve maximum of 2000 people	One JS with 3 SG serve maximum of 2000 people.	One HS with 3 SG serve maximum of 6000 people

	Elementary School (ES)	Junior School (JS)	High School (HS)
Addition	To serve community more than 2000 people, SG is added to existing schools, and if the SG is more than 24 then built a new ES.	To serve community more than 2000 people, SG is added to existing schools, and if the SG is more than 24 then built a new JS.	To serve community more than 6000 jiwa 2000 people, SG is added to existing schools or built a new HS.
Administrative criteria	one village is served by a minimum of one ES one group of permanent and remote settlements with population of more than 1000 people is served by one ES within a maximum walking distance of 3km by a non-hazardous route.	one sub-district is served by a minimum of one JS which can accommodate all ES graduates in the sub-district. one group of permanent and remote settlements with population of more than 1000 people is served by one JS within a distance who for students who walk a maximum of 6km along a non-hazardous route.	- -

Source: Permendiknas No. 24 of year 2007

Meanwhile, BSN issued the Indonesian National Standard (SNI) regulation 03-1733-2004 concerning Procedures for Planning Housing Environments in Urban Areas, see table 5. BSN also implements standard school type criteria for each level of education (elementary, junior high, and high school), see table 6.

Table 6. Criteria for Educational Facilities

Criteria	Elementary School	Junior School	High school
Threshold population	1.600 people	4.800 people	4.800 people
Radius range	1.000 meter	1.000 meter	3.000 meter

Source: SNI 03-1733-2004

Table 7. Standard Type of Educational Facility

Educational level	School Type	Number of Study Groups	Number of Students
Elementary School	Type A	12	480
	Type B	9	360
	Type C	6	240
Junior School	Type A	27	1.080
	Type B	18	720
	Type C	9	360
High School	Type A	27	1.080
	Type B	18	720
	Type C	9	360

SNI 03-1733-2004

Utami (2023) has developed a standard design for public facility services specifically for the education sector (schools). The design scheme is produced through the synthesis of real conditions (case study in Yogyakarta City), theoretical analysis, and review of applicable government policies. The design results of Utami (2023) are as follows:

Utami (2023) developed a new version of the criteria where the results of the revision of the number of supporting population (JPP) are determined based on the maximum limit of the number of students per class according to the maximum number of study groups (SG) at each level of education, see table 7.

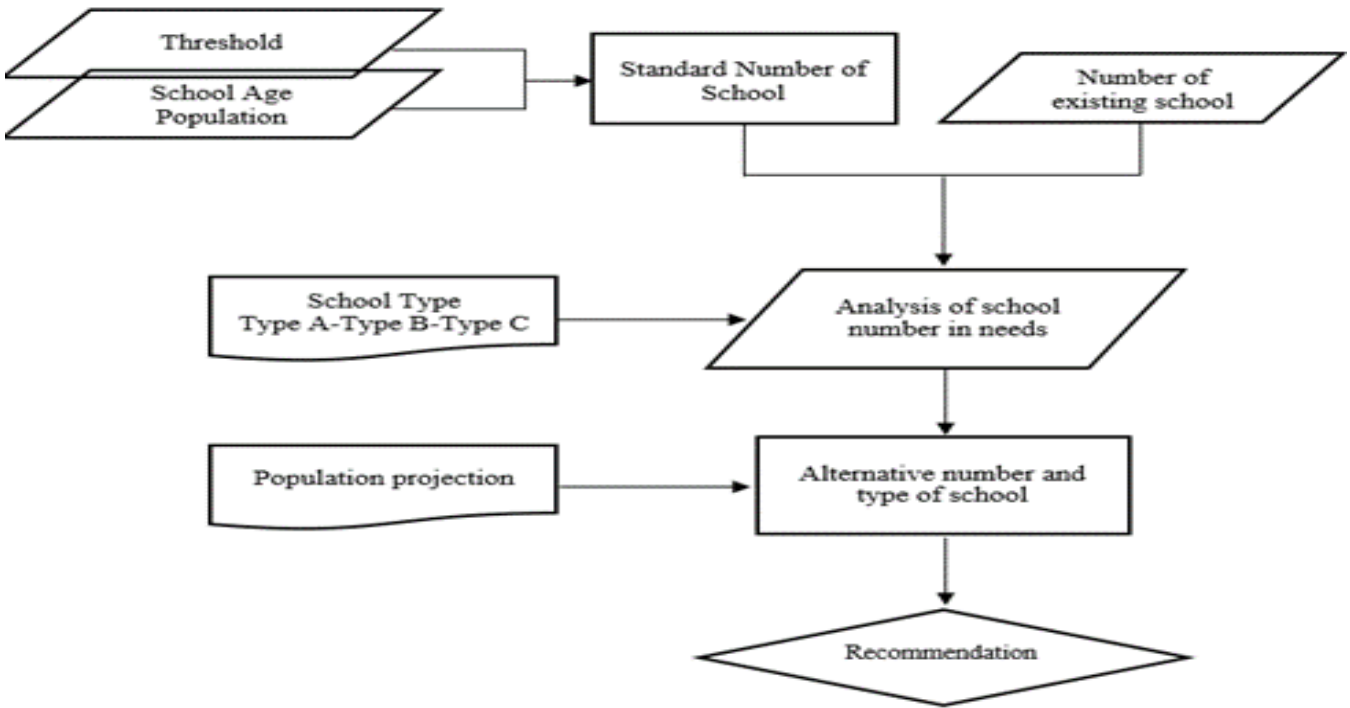


Figure 2. Threshold Modelling for Educational Services Optimization (Utami, 2023)

Table 7. Modification Criteria for the Number of Threshold Population in Indonesia

No	Educational Level	Study Group Number	Standard Number of Students per Class	Number of Students	Threshold Population
1	Elementary School	6–24	20-28	120 - 672	672
2	Junior School	3–33	20-32	60 - 1.056	1.056
3	High School	3–36	20-36	60 - 1.296	1.296
4	Vocational School	3 - 72	15-36	45 - 2.592	2.592

Source: Utami (2023)

Implementation result of standard educational facility design by Utami (2023) in Yogyakarta City proven to provide results that are closer to reality (realistic) when compared to the standard scheme of Permendiknas Number 24 of 2007. The design scheme of the Utami (2023) product needs to be re-verified to get more valid results in different locations, a wider coverage area on different islands, such as in Lampung Province. This is necessary in order to provide justification that the design can be applied in all regions in Indonesia. The main

purpose of this study is to validate the design scheme of educational facility service standards that have been modified by Utami (2023). The specific objectives of the research are to (1) identify the condition of educational facilities (schools) in Lampung Province; (2) analyze the design of the appropriate educational facility service standards to be implemented; (3) implementation of product results of standard design of educational facilities in Lampung Province.

METHOD

Research proceeds from pragmatic philosophical ideas, which are ideas based on solutions to existing problems (Creswell, 2014). The research emphasizes on problem solving. This study uses a quantitative approach. The research process starting from data collection, data processing, and data analysis is carried out gradually and sequentially in accordance with the research objectives.

The research object is formal education facilities. i.e. public schools. Law Number 20 of 2003 concerning the National Education System states that one the level of formal (general) education in Indonesia is junior high school level. This research also includes public schools (junior high schools level) under the authority of the Ministry of Religion, i.e. MTs. The research was carried out in Lampung Province, see figure 3.



Figure 3. Map of the Research Location

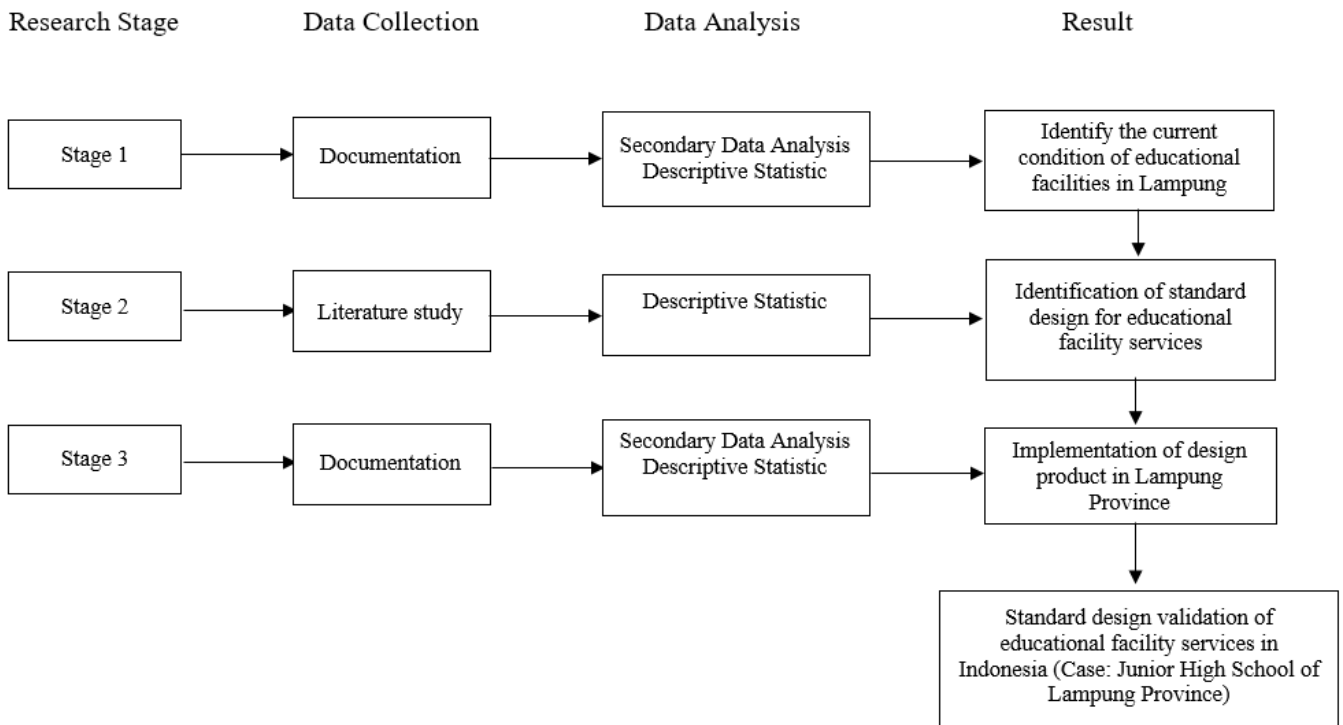


Figure 4. Research Stage

The data needed in the research are secondary data obtained from government agencies or institutions, i.e. Departement of Population and Civil Registry (Dinas kependudukan dan Catatan Sipil) and Departement of Education (Dinas Pendidikan) in Lampung Province. The main variable of the study is the service standard of educational facilities, number of schools in an area. The data required are (1) number of population; (2) number of school-age population, and (3) number of existing schools.

The data collection technique in this study is a documentation technique. The data and information needed in the research are obtained from various documents owned by government agencies or institutions, including documentation from applicable government regulations. The data analysis techniques used in this study are secondary data analysis and descriptive statistics. The data is processed quantitatively and summarized and presented in tables. The results of the calculation are explained descriptively to provide an overview of the research results. The research explains the distribution of data, relationships, and relationships between research variables/indicators in a descriptive manner. Analysis is carried out on existing documentation and literature data.

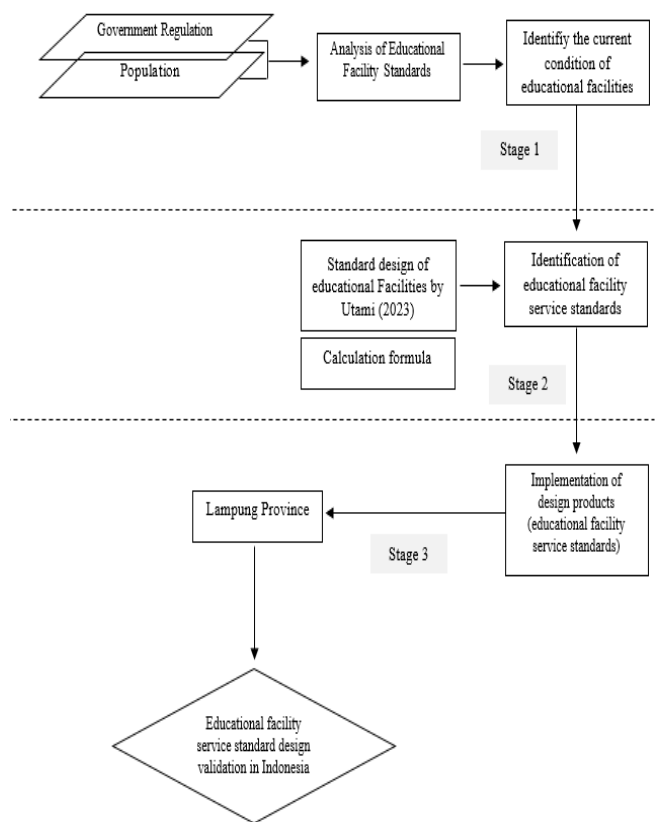


Figure 5. Research Flow Diagram

RESULTS AND DISCUSSION

Identification of Junior High School Level Conditions in Lampung Province

The educational facilities referred to as the object of this study are formal schools i.e. public schools under the authority of the Ministry of Education and Culture (Kementerian Pendidikan dan Kebudayaan, Kemdikbud) and Public Madrasah Schools under the Ministry of Religious Affairs (Kementerian Agama, Kemenag). The reason for the research on the selection of public schools is to find out the extent to which the Government is able to provide equitable educational facilities for the community. In addition, most people in Indonesia still have a tendency to choose public schools as the main choice in accessing education because of free tuition fees and good quality and facilities (Prasetya et.al., 2016).

The condition of educational facilities in Lampung Province is analyzed using a *threshold* scheme, which is a standard criterion for the number of schools using the number of supporting populations (Utami, 2023). The criteria for the service standards used are according to

Permendiknas Number 24 of 2007, see table 4, as well as the criteria for the Indonesian National Standard (SNI) 03-1733-2004 issued by BSN, see table 5. The standard number of schools will be calculated by comparing the population in an area with the threshold population according to the criteria. Calculation formula:

$$JS = JP/JPP$$

Information:

- JS = number of school standards
 JP = population in an area
 JPP = threshold population

The standard calculation results of the number of schools will be classified as follows:

- if the number of existing schools is less than the number of school standards, it is called an *undersupply* condition;
- if the number of existing schools is more than the number of school standards, it is called an *oversupply* condition;
- If the number of existing schools is equal to the number of school standards, it is called an ideal condition.

Table 8. Standard Number of Junior High Schools in Lampung Province Year 2024

No.	Regency/City	Number of		Standard Number of Schools		
		Existing Junior High Schools	Permen diknas	Criterion	BSN	Criterion
1	Lampung Selatan	66	551	undersupply	229	undersupply
2	Lampung Tengah	83	689	undersupply	287	undersupply
3	Lampung Utara	72	333	undersupply	139	undersupply
4	Lampung Barat	49	155	undersupply	65	undersupply
5	Tulang Bawang	54	217	undersupply	90	undersupply
6	Tanggamus	54	317	undersupply	132	undersupply
7	Lampung Timur	63	557	undersupply	232	undersupply
8	Way Kanan	65	245	undersupply	102	undersupply
9	Pesawaran	44	245	undersupply	102	undersupply
10	Pringsewu	29	219	undersupply	91	undersupply
11	Mesuji	35	118	undersupply	49	undersupply
12	Tulang Bawang Barat	33	154	undersupply	64	undersupply
13	Pesisir Barat	29	87	undersupply	36	undersupply
14	Bandar Lampung	47	550	undersupply	229	undersupply
15	Metro	10	89	undersupply	37	undersupply
	Lampung	733	4.526	undersupply	1.886	undersupply

Source: Research result, 2024

The standard number of schools according to the Permendiknas and BSN gives different results, there is 2,640 schools gap. This certainly raises questions about the criteria for the number of threshold populations implemented by the government, whether the number criteria are able to provide a realistic analysis according to the demographic conditions of an area. There needs to be a special study on this matter as has been done by Utami (2023).

If referring to the standard number of schools according to the Minister of National Education criteria, the educational services that can be facilitated by the government in Lampung Province for the junior high school level only able to reach 16.20 percent. However, when referring to the BSN criteria, the government's ability to serve education at the junior high school level it is 38.87 percent.

The results of the standard identification calculation of the number of schools indicate that the Government is still not able to provide educational facilities evenly throughout Lampung Province. The facilities provided by the Government are still not one hundred percent able to reach the entire population. However, in reality, the Government is also assisted by the private sector who participate in providing educational facilities to support the equity education in Indonesia. Lampung Province is known to have 1,413 private schools at the junior high school level. The number of private schools at the junior high school levels is known to be more than public schools. The lack number of junior high schools in Lampung Province is greatly helped by the existence of private schools. However, this study limits the research object of public schools in order to find out the extent of the Government's ability to provide educational service facilities.

Design of Educational Facility Service Standards

The educational facility service standards design is very necessary in order to provide a much more precise, effective, and efficient context for service planning. The difference in the standard number of schools according to the Minister of National Education and BSN requires a certain amount of attention. The criteria that use the population in general as a standard determinant of the number of schools need to be reviewed. This is considering that formal schools have certain criteria to access these facilities. These restrictions are age criteria, that is 13-15 years for junior

high school level. Thus, the population criteria for the standard calculation of the number of schools should be changed, from the general population to the number of school-age population. This is certainly not difficult considering that the data on the number of people by age is very accessible, the data is available at the Population and Civil Registration Office in each region in Indonesia. So, in this research, the population criteria (JP) used is all children with age of 13 to 15 years.

In addition to changing the population criteria, the standard calculation of the number of school also requires a change in the criteria for the number of threshold populations, see table 7. Utami (2023) has developed changes to the criteria standards referring to the Permendiknas and BSN schemes. The design of the service standards of educational facilities that will be used in this study is as follows:

Table 9. Modification of Standard Calculation Criteria for the Number of Schools

No	Education Unit	Number of Threshold Population By School Type		
		Type A	Type B	Type C
1	SD	672	504	336
2	SMP	1.056	736	416
3	SMA	1.296	900	504

Source: Utami (2023)

The criteria mentioned above are the result of modifications from the Permendiknas and BSN. The school type is a modification of BSN that is indispensable because it contains more detailed criteria. The existence of school types allows for more sustainable and comprehensive planning of educational service facilities. The criteria for the type of school use the standard limit on the number of SG and the number of students adjusted to the standards of the Minister of Education. This criterion has been piloted in the city of Yogyakarta by Utami (2023) which has been proven to show that the design scheme provides results that are closer to reality (realistic) when compared to the standard scheme of Permendiknas Number 24 of 2007.

The standard calculation formula for the number of schools in the new version of Utami (2023) is still the same, only the population uses the number of school-age populations. The following is the standard calculation formula for the number of new schools:

$$JS_x = JP_x / JPP_x$$

Information:

JS = number of school standards

JP = the number of school-age population in an area

JPP = number of threshold population (new criteria)

X = junior high schools

The calculation and standard criteria for the number of schools in the new Utami version (2023) require further validation in different regions, other than Yogyakarta City. Thus, the study will use the design of Utami (2023) to analyze the condition of educational facilities (junior high school level) in Lampung Province in order to find out the extent to which the Government is able to reach educational services for the entire community.

Implementation of Educational Facility Service Standard Design in Lampung Province

The results of the standard calculation of the number of schools using the Utami (2023) criteria are as table 10. If all schools in Lampung Province have the type A school (maximum 1,056 students) and type B school

(maximum 736 students) criteria, then the number of existing schools (733 schools) is declared to have been able to meet the standards. However, if it viewed partially per district/city, when referring to type A school, Bandar Lampung City is the only area that is undersupplied. If referring to type B school, there are two areas that are undersupplied, i.e. Bandar Lampung and Metro City. Meanwhile, if all junior high school in Lampung Province have type C (maximum 416 students), then in general it can be declared as undersupply. There will be only 3 regions that are able to meet the standards (oversupply), i.e. Lampung Barat, Mesuji, and Pesisir Barat Regency.

The results of this research data certainly require follow-up to study the characteristics of schools seen through type. Each school will have certain types of criteria that are not the same, so further study is needed to get a more comprehensive figure. However, such a study will require a narrower scope of the research area considering the breadth of the area and the number of schools that are too many to analyze. The scope of detailed analysis of educational facility standards for an area can be limited to each district/city or sub-district.

Table 10. Standard Number of Junior High School in Lampung Province in 2024

No.	Regency/City	Population of Junior High School Age	Standard Number of Schools			Number of Existing Junior High School
			Type A	Type B	Type C	
1	Lampung Selatan	62.475	59	85	150	66
2	Lampung Tengah	74.735	71	102	180	83
3	Lampung Utara	37.997	36	52	91	72
4	Lampung Barat	17.123	16	23	41	49
5	Tulang Bawang	24.930	24	34	60	54
6	Tanggamus	35.257	33	48	85	54
7	Lampung Timur	59.942	57	81	144	63
8	Way Kanan	27.562	26	37	66	65
9	Pesawaran	27.429	26	37	66	44
10	Pringsewu	23.392	22	32	56	29
11	Mesuji	13.116	12	18	32	35
12	Tulang Bawang Barat	17.059	16	23	41	33
13	Pesisir Barat	10.049	10	14	24	29
14	Bandar Lampung	59.220	56	80	142	47
15	Metro	9.310	9	13	22	10
Lampung		499.596	473	679	1.201	733

Source: Research result, 2024

The results of the general study on the condition of the number of educational facilities (schools) in Lampung Province show that "if the government maximizes school facilities to type A school as a whole, then it can basically be stated that it has met the standard needs of the number of schools, both at the elementary, junior high, and high school levels". However, it is known that in reality each school in each region has different type criteria. Thus, there needs to be further studies that discuss these conditions in more depth in order to get a more detailed and comprehensive point of view. A more in-depth study of the availability of educational facilities (schools) to meet the needs of educational services in the context of equitable distribution in an area is needed. Education is a basic human need and is a task of the Government that has been mandated in the Law.

This study have several weaknesses that need to be followed up in subsequent research studies, including:

1. only considering the object of research in the form of public schools, not considering the existence of private schools which are no less numerous than public schools;
2. doesn't consider the spatial aspect, the school distribution in a region, whereas distribution is a very important context in the analysis of educational equity;
3. not considering the detailed aspect of school conditions, both in the context of the number of classes (study group), the number of teachers and students, and the quality of the school.

CONCLUSION

Educational services condition for junior high school level in Lampung Province facilitated by the Government according to the Minister of National Education criteria is 16.20%. Meanwhile, according to BSN criteria, the government's ability to provide educational services at the junior high school level is 38.87%. The number of junior high school standards in Lampung Province, both according to the criteria of the Minister of National Education and BSN, is generally declared *undersupply*. The criteria for calculating the standard number of schools need to be changed. This research uses the Utami (2023) version of the educational facility service standard which is modified according to the Minister of National Education and BSN criteria. It uses a change in

the amount of supporting populations (threshold) and changes from the general population to the number of school-age populations. The design is equipped with school type criteria, i.e. type A, type B, and type C. The results of the design implementation indicates that if the Lampung Provincial government maximizes the school facilities with all schools as type A, it can basically be stated that it has met the standard needs of the number of junior high schools levels.

In addition, the students' preparedness levels are categorized as ready to very ready, reflecting their overall readiness to confront potential flood disasters. This indicates that the students have adequately equipped themselves with the knowledge and skills necessary for disaster response, demonstrating a commendable level of awareness and readiness to handle such emergencies.

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REFERENCES

- Adisasmita, R. (2008). *Pengembangan Wilayah, Konsep, dan Teori* (Ed. 1). Yogyakarta: Graha Ilmu.
- Amtu, O. (2013). *Manajemen Pendidikan di Era Otonomi Daerah. Konsep, Strategi, dan Implementasi*. Bandung: Alfabeta.
- Badan Pusat Statistik (BPS). (2019). *Potret Pendidikan Indonesia, Statistik Pendidikan 2019*. Jakarta: Badan Pusat Statistik.
- Badan Pusat Statistik (BPS). (2024). *Provinsi Lampung dalam Angka 2024*. Lampung: Badan Pusat Statistik.
- Badan Standardisasi Nasional. (2004). *Standar Nasional Indonesia (SNI) 03-1733-2004 tentang Tata Cara Perencanaan Lingkungan Perumahan di Perkotaan*. Badan Standardisasi Nasional (BSN).

- Berry, B. J. L., & Garrison, W. L. (1958). Recent Developments of Central Place Theory. *Papers and Proceedings of the Regional Science Association*, 4(1), 107–120.
- Byun, N., Choi, Y., & Choi, J. (2014). Neighborhood Unit: Effective or Obsolete? *Journal of Asian Architecture and Building Engineering*, 13(3), 617–624.
- Christaller, W. (1933). *Central Places in Southern Germany*. Translated by C. W. Baskin, 1966. Englewood Cliffs: Prentice Hall Inc.
- Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (4th ed.). Thousand Oaks: SAGE.
- De Chiara, J., & Koppelman, L. (1982). *Urban Planning and Design Criteria* (3rd ed.). Van Nostrand: Reinhold Company Inc.
- Desriani, R. W., & Purnianti, S. (2013). Pola Ruang Area Pelayanan Sekolah Dasar di Kota Cimahi. *Jurnal Permukiman*, 8(2), 69–77.
- DeVerteuil, G. (2000). Reconsidering the Legacy of Urban Public Facility Location Theory in Human Geography. *Progress in Human Geography*, 24(1), 47–69.
- Getis, A., & Getis, J. (1966). Christaller's Central Place Theory. *Journal of Geography*, 65(5), 220–226.
- Hakim, L. (2016). Pemerataan Akses Pendidikan Bagi Rakyat Sesuai Dengan Amanat Undang-Undang Nomor 20 Tahun 2003 tentang Sistem Pendidikan Nasional. *Jurnal EduTech*, 2(1), 53–64.
- Hardiyansyah. (2018). *Kualitas Pelayanan Publik (Konsep, Dimensi, Indikator dan Implementasinya)*. Yogyakarta: Gava Media.
- Kementerian Pendidikan Nasional. (2003). *Undang-Undang Nomor 20 Tahun 2003 tentang Sistem Pendidikan Nasional*. Kementerian Pendidikan Nasional.
- Kementerian Pendidikan Nasional. (2007). *Peraturan Menteri Pendidikan Nasional Republik Indonesia Nomor 24 Tahun 2007 tentang Standar Sarana dan Prasarana untuk Sekolah Dasar/Madrasah Ibtidaiyah (SD/MI), Sekolah Menengah Pertama/Madrasah Tsanawiyah (SMP/MTS), dan Sekolah Menengah Atas/Madrasah Aliyah (SMA/MA)*. Kementerian Pendidikan Nasional.
- Meenakshi. (2011). Neighborhood Unit and its Conceptualization in the Contemporary Urban Context. *Institute of Town Planners, India Journal*, 8(3), 81–87.
- Mujahidun. (2016). Pemerataan Pendidikan Anak Bangsa: Pendidikan Gratis Versus Kapitalisme Pendidikan. *Tarbiyatuna*, 7(1), 38–52.
- Pravitasari, R. (2014). *Sistem Informasi Geografis Pemetaan Sebaran Sekolah dan Pemerataan Pendidikan di Kabupaten Jember dengan Metode TOPSIS AHP*. Skripsi. Universitas Jember.
- Prasetyo, D. H., Mohamad, J., & Fauzi, R. (2016). Discovering Public Preferences for School Location in Surabaya. *Procedia-Social and Behavioral Sciences*, 227, 160–167.
- Putri, R. A., Subulussalam, M. D., Rahayu, M. J., & Ramadhani, A. K. (2016). A Spatial Analysis for Assessing the Suitability of Elementary School as Social Infrastructure at the Neighbourhood Unit Scale in Supporting Child-Friendly Surakarta. *Geoplanning: Journal of Geomatics and Planning*, 3(1), 33–52.
- Rushton, G. (1979). *Optimal Location of Facilities*. Wentworth: COMPRESS, Inc.
- Setiyanto, A., & Irawan, B. (2015). Pembangunan Berbasis Wilayah: Dasar Teori, Konsep Operasional dan Implementasinya di Sektor Pertanian. In E. Pasandaran, D. Nursyamsi, K. Suradisastra, S. Mardianto, & Haryono (Eds.), *Pembangunan Pertanian Berbasis Ekoregion* (pp. 62–82). Indonesian Agency for Agricultural Research and Development (IAARD) Press.
- Sitorus, L. F. I. S. (2009). *Analisis Sebaran Sekolah Menengah dalam Upaya Peningkatan Aksesibilitas*. Tesis. Universitas Sumatera Utara.
- Teitz, M. B. (1968). Toward A Theory of Urban Public Facility Location. *Papers of The Regional Science Association*, 21, 35–51.
- Utami, R. K. S. (2023). *Pemodelan Optimalisasi Pelayanan Pendidikan Berbasis Zonasi Sekolah (Kasus: Kota Yogyakarta, Provinsi DIY)*. Disertasi. Fakultas Geografi, Universitas Gadjah Mada.