



## Problems in Determining and Affirming Village Administrative Boundaries

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**Abstract.** Research related to the problems of village boundaries still needs to be conducted because there are still many disputes over village boundaries. This research focuses on the problematic determination and affirmation of village boundaries in the Governance and Cooperation Section of the Regional Secretariat of Ponorogo Regency. This research aims to determine the juridical basis for determining and affirming village administrative boundaries and the problems of determining and affirming village administrative boundaries in the Governance and Cooperation Section of the Regional Secretariat of Ponorogo Regency. The research method used in this research is the normative juridical research method using descriptive data analysis and library and interview data collection methods. From this research, results were obtained, including: a) Laying boundary pillars; b) Measurement equipment must use tools, but they are not owned by the Governance and Cooperation Section of the Regional Secretariat of Ponorogo Regency; c) Personnel, there are no application processors, and boundary analysts so it is difficult to carry out the determination and affirmation of village boundaries; d) Insufficient budget hampers the process of determining and affirming village boundaries; e) Human Resources, and f) Related to the determination and affirmation process problems are starting from delineation to technical verification.

**Keywords:** Village Administration; Village Boundary; Ponorogo Regency.

## Introduction

In a country that adheres to the principle of decentralization, each region has the authority to run local government based on the principle of autonomy. Each autonomous region has its boundaries and administration. Regional boundaries are crucial to optimize a region's authority. Therefore, regional expansion is one of the exciting things in regional autonomy. The regional expansion aims to make the expansion area more advanced and prosperous for the community. Regional expansion causes the existence of boundaries between regions to be necessary to determine so as not to become a dispute between regions. Therefore, the determination of boundaries has become one of the problems in Indonesia to date because boundaries are related to several factors, such as politics and the wealth of natural resources in the region.<sup>1</sup>

Regional autonomy gives each region the authority to organize local government. The implementation of regional autonomy pays special attention to the administrative boundaries between regions. Regional autonomy has an impact on the development of a region with expansion. Regional expansion has the aim of improving the welfare of the community. However, regional expansion also impacts the boundaries between regions, so it can cause disputes between regions that lead to conflicts in border areas.<sup>2</sup>

In organizing a government, of course, some boundaries have been determined to separate or limit the administrative area of an area. Village boundaries are the boundaries of government administrative areas between villages, which are a series of coordinate points on the earth's surface in the form of natural signs such as igir/mountain ridges/mountains (watershed), river medians, and/or artificial elements in the field as outlined in the form of a map.<sup>3</sup> In determining the boundaries between villages, a determination using the cartometric method and

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<sup>1</sup> Nurhadi Bashit, et al, "Cartometric Village Boundary Determination Using Quickbird Imagery," *Pasopati Journal*, Vol. 1, No. 1 (2019): 9.

<sup>2</sup> Nurhadi Bashit, et al, "Cartometric Mapping of Village Administration Boundaries in Sriwulan Village, Limbangan Subdistrict, Kendal Regency," *Proceedings of UNIMUS National Seminar*, Vol. 5 (2022): 1546.

<sup>3</sup> Article 1 Point 9 of Permendagri No. 45/2016 on Guidelines for Determining and Affirming Village Boundaries.

confirmation of village boundaries is carried out using the cartometric method and field surveys. The results will be outlined in the form of a boundary map.

Following Article 1 Paragraph 1 of Law No. 6/2014, a village is a legal community unit that has territorial boundaries that are authorized to regulate and manage government affairs, the interests of the local community based on community initiatives, origin rights, and/or traditional rights that are recognized and respected within the government system of the Unitary State of the Republic of Indonesia. Based on this article, a village can be interpreted as a place for the village community to organize governance, empowerment, community, and development within the boundaries of a recognized village area.<sup>4</sup> According to Permendagri No. 45/2016 on guidelines for determining and affirming village boundaries, the process consists of three stages of activity. *First*, research on boundary documents can be in the form of research on the origin of the formation of the area concerned, both written and unwritten. *Secondly*, determining the base map, after all documents have been collected, the team and representatives of the region concerned determine which base map will be used as a reference to carry out the next stage. *Third*, creating a cartometric village boundary map. After determining which base map will be used as a reference, the next stage is to create a cartometric village boundary map, namely tracing the boundary lines by determining the position of the coordinate points and identifying the area coverage on the map, which includes two stages: line tracing—boundaries on the map and surveys conducted in the field.<sup>5</sup>

Area boundaries are imaginary lines between sub-districts/villages, villages, districts/cities, provinces, and countries. Following Law No. 4/2011 on Geospatial Information, boundaries are one of the elements that must be depicted on the base map. Meanwhile, Law No. 6/2014 has implications for the importance of village boundary mapping. Chapter III Article 8 Paragraph 3 states that the formation of a village must fulfill the requirements of village boundaries as outlined in the form of a village map stipulated in a regent/mayor regulation. Determining and affirming village/kelurahan boundaries is essential with village

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<sup>4</sup> Muhammad Arfan Latanza, et al, "Determination of Village Boundaries Through a Community Participation Approach in Senamat Ulu Hamlet, Bathin III Ulu District, Bungo Regency, Jambi Province," *Buana Journal*, Vol. 3, No. 5 (2019): 1081.

<sup>5</sup> Eko Mulyanto, "Technical Study of Village Boundary Determination and Affirmation," *Journal of Civil Engineering and Planning*, No. 2 (2016): 2.

asset funds because village allocation funds are calculated based on population, poverty level, area, and geographical difficulty.<sup>6</sup>

Village boundary conflicts still occur frequently, so it is vital to raise this issue because the conflicts are still ongoing. Several examples of village boundary disputes or conflicts have occurred in Indonesia—*first* the village boundary conflict in Bali. Precisely between Penatih Puri Pakraman Village and Peguyangan Pakraman Village, there was a conflict over a customary dispute regarding village boundaries. The conflict arose because of population growth and rising land prices and was not accompanied by the development of *awig-awig* relating to the Pakraman Village.<sup>7</sup> *Second* is the village boundary conflict in Kutai Regency, East Kalimantan Province. There is a problem of overlapping village boundaries between Bukit Makmur Village and Kaliorang Village in Kaliorang District. Both villages recognize the same area, namely the area of Jl. Ir. Soekarno, Jl. Projasan, which is the axis of Sangatta-Kaliorang and the Kem Pasir area. This area is recognized by Bukit Makmur village as RT. 10, while Kaliorang village recognizes the area as RT. 04. This has caused problems, especially in community data collection and the structuring and management of the area.<sup>8</sup> *Third*, a conflict in Kampar Regency, Riau Province, between Sawah Village and Sungai Jalau Village began in 2003. This occurred because the community did not comply with the administration, causing conflict between village governments.<sup>9</sup> One way to avoid conflicts related to village boundaries is through the availability of a basic map or

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<sup>6</sup> Bambang Riadi and Agus Makmuriyanto, "Study on the Acceleration of Determination and Affirmation of Boundaries of Subdistricts/Districts, Villages/Kelurahan Cartometrically," *Globe Scientific Magazine*, Vol. 16, No. 2 December (2014): 110.

<sup>7</sup> A.A. Mas Adi Trinaya Dewi, "Settlement of Customary Disputes Regarding Boundaries between Penatih Puri Pakraman Village and Peguyangan Pakraman Village," *Journal of Legal Communication*, Vol. 7, No. 1, February (2021): 194.

<sup>8</sup> Yufani Battista Rossi, "Settlement of Village Boundaries Between Bukit Makmur Village and Kaliorang Village, Kaliorang District, East Kutai Regency," *e-Journal of Government Science*, Vol. 9, No. 2, (2021): 114.

<sup>9</sup> Birman Simamora, et al, "Settlement Of The Conflict On The Borderline Of The Rice Fields Village With The Village Of Sungai Jalau North Kampar District, Kampar Regency," *Journal of Scientific Cakrawala*, Vol. 2, No. 10 June (2023): 3861.

large-scale earthquake map as the primary material for making village maps. However, the obstacle is that large-scale earth maps are not yet available.<sup>10</sup>

Several researchers have conducted research related to disputes or problems of village boundaries, including the *First* research by I Gede Kresna Udayana, I Gusti Bagus Suryawan and I Wayan Arthanaya entitled “Settlement of Village Boundary Cases (Case Study of Decision Number: 12/G/2011/Ptun.Dps.)”. The research discusses the settlement of state administrative disputes through PTUN efforts against the settlement of Village Boundaries in the Bali Region, especially in Tabanan Regency. The research results show that the settlement of the State Administrative Dispute through the PTUN effort against the Settlement of the Village Boundary Case has not fulfilled the legal certainty and sense of justice. This can be seen from the rejection by the Supreme Court. The things that the judge considers in making decisions related to the Village Boundary Dispute are historical facts, namely the existence of a cemetery (setra) located in the Belong area, the existence of a pond located in the Belong area and the existence of customary rights to Belong land. Regarding security, there is security and order in the Belong area. Administrative facts: there is land administration, namely land acquisition by investors.<sup>11</sup>

*Second*, Rahmawati’s research entitled “Village Boundary Conflict between Farmers Village and Simpang Padang Village, Bengkalis Regency.” The results of this study show that several factors cause village boundary conflicts between Farmers Village and Simpang Padang Village, namely historical factors and interest factors. Historical factors are factors that are included in structural problems. Historical factors are colored by changes in village boundaries that used to use nature or only use plants such as trees. Meanwhile, interest factors are divided into interests to manage the social potential of the area owned in the village boundary area and the interests of political elites to obtain or maintain power, status, or public office. The efforts that have been made to resolve the

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<sup>10</sup> Asadi, “Village Administration Boundary Arrangement, Obstacles and Alternative Solutions with a Geospatial Approach,” *Journal of Borneo Administrator*, Vol. 12, No. 2 (2016): 132.

<sup>11</sup> I Gede Kresna Udayana, et al, “Settlement of Village Boundary Cases (Case Study of Decision Number: 12/G/2011/Ptun.Dps.)” *Journal of Legal Analogy*, Vol. 1, No. 2 (2019): 180.

village boundary conflict between Petani Village and Simpang Padang Village are negotiations and mediation.<sup>12</sup>

*Third*, Moh Fauzi Rahman, Zainal Asikin, and Sahnun's research entitled "Patterns of Inter-Village Boundary Conflict Resolution after the 2019 Complete Systematic Land Registration (PTSL) Program in East Lombok Regency". This research resolves village boundary conflicts at the East Lombok Regency Land Office. Among them is using a persuasive approach, which prioritizes negotiations and deliberations. Efforts made by the Sikur District Government in resolving boundary conflicts between Semaya Village and Darmasari Village, with deliberations and efforts from the East Lombok Regency Land Office, by educating community members about the importance of a safe and orderly atmosphere in society, empowering teenagers at religious events, to make them more aware of their existence and feel valued because they are needed. The second approach is repressive by the Village Head, Village Apparatus, and community leaders involved in village boundary conflicts to assist conflict resolution efforts through kinship, deliberation and mediation.<sup>13</sup>

*Fourth*, Djoko Sulistyono, Deden Nuryadin, and Anung S. Hadi's research entitled "Evaluation of the Regional Boundary Assertion Team (Case Study of Permendagri Regulation Number: 76/2012 concerning Guidelines for Regional Boundary Assertion)". The research discusses the settlement of disputes over funding to implement regional boundary affirmation activities sourced from the State Budget towards the Settlement of Village Boundaries that occurred in Lampung and East Kalimantan. The results of the study are the general problems faced in these two provinces, among others: limited professional human resources (boundary segment experts), lack of coordination between bordering local governments, facilities and infrastructure that have not reached remote

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<sup>12</sup> Rahmawati, "Village Boundary Conflict Between Farmers Village and Simpang Padang Village Bengkalis," *JOM FISIP*, Vol. 8 July-December (2021): 12-13.

<sup>13</sup> Moh Fauzi Rahman, "Patterns of Inter-Village Boundary Conflict Resolution after the 2019 Complete Systematic Land Registration (PTSL) Program in East Lombok Regency," *Journal of Education and Development*, Vol. 8, No. 2, May (2020): 354.

areas, and lack of leadership support in Regional Boundary Enforcement in work programs that are considered not a priority.<sup>14</sup>

*Fifth*, research by Rasyid Ridha, Agus Kurniawan, Febrita Susanti, and Sri Apriani Puji Lestari entitled "Methods of Settlement of Village Boundary Disputes UPT Tambak Sari Poto Tano District, West Sumbawa Regency." The result of the research is the method of resolving village boundary disputes agreed upon by the disputing villages. The disputing villages can complain through reporting, which becomes material in identifying dispute issues then proceed to the negotiation and mediation process with the mediator. To overcome the occurrence of the same village boundary disputes due to weak regulations, it is hoped that the Regent Regulation of West Sumbawa Regency on Village Boundary Maps can be followed up as a basis for revising the PERDA for the formation of UPT Tambak Sari, Poto Tano Village, and Senayan Village.<sup>15</sup>

*Sixth*, Yuli Utomo's research entitled "Settlement of the Dinas Village Boundary Dispute Case Study of the Boundary Dispute Between Dinas Tulikup Village and Dinas Sidan Village in Gianyar Regency." The result of the research is that social change actors in the development of the two village communities influence the process of resolving disputes over their respective village boundaries. The pattern taken in the settlement of Dinas village boundaries in Gianyar Regency follows the implementation of applicable laws and uses consensus to reach the best solution. The effort taken to prevent disputes in the area is to conduct a process of introducing in-depth socialization about the importance of official village boundaries for the future interests of the village community, and this movement is a breakthrough that is quite successful in suppressing the occurrence of village boundary dispute problems in the future.<sup>16</sup>

*Seventh*, Saru Arifin's research entitled "Settlement of Regional Boundary Disputes Using a Regulatory Approach." The result of this research is that

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<sup>14</sup> Sulistyono Djoko, et al, "Evaluation of the Regional Boundary Assertion Team," *Bina Praja Journal*, Vol. 6, No. 1 (2014): 63.

<sup>15</sup> Rasyid Ridha, et al, "Methods of Settlement of Village Boundary Disputes UPT Tambak Sari Poto Tano Sub-district West Sumbawa Regency," *Planoeearth Journal*, Vol. 4, No. 1, February (2019): 51.

<sup>16</sup> Yuli Utomo, "Settlement of the Dinas Village Boundary Dispute Case Study of the Boundary Dispute Between Tulikup Dinas Village and Sidan Dinas Village in Gianyar Regency," *Journal of Udayana Law Masters*, Vol. 4, No. 1 May (2015): 158-159.

regional boundary disputes can originate from economic aspects related to the struggle for economic resources. The cultural aspect of the dispute relates to the separation of ethnic or sub-ethnic groups due to expansion. In the political aspect, disputes are related to the number of voters and the acquisition of votes for legislative members and regional head elections. There are also social and governmental aspects.

Regarding cases of boundary disputes, the dispute resolution mechanism is through two channels: non-legal settlement of boundary disputes and legal settlement. Non-legal settlement is also called dispute resolution through government administration. Meanwhile, legal dispute resolution is carried out through judicial reviews and lawsuits filed by the parties to the Supreme Court or Constitutional Court.<sup>17</sup>

In contrast to the previous studies above, this research focus of the study related to how the juridical basis for determining and confirming the boundaries of the Village Administration area and how the problems of determining and confirming the boundaries of the village administration area in the Governance and Cooperation section of the Regional Secretariat of Ponorogo Regency. This research must be carried out to become a consideration for future studies and local government policies. There will be no problems in determining and confirming village boundaries. As happened in Ponorogo Regency related to village boundary issues in Ponorogo occurred in the determination and affirmation. Among others: a) Laying of boundary pillars; b) Measurement equipment must use tools, but they are not owned by the Governance and Cooperation section of the Regional Secretariat of Ponorogo Regency; c) Personnel, there are no application processors, and boundary analysts so it is difficult to carry out the determination and affirmation of village boundaries; d) Insufficient budget hampers the process of determining and affirming village boundaries; e) Human Resources; and f) Related to the determination and affirmation process problems are starting from delineation to technical verification.<sup>18</sup>

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<sup>17</sup> Saru Arifin, "Settlement of Regional Boundary Disputes Using a Regulatory Approach," 457.

<sup>18</sup> Angga Chrisdana, Planning and Cooperation Analyst, *Interview*, August 14, 2023.



## Research methods

This is legal research using statutory and conceptual approaches related to the issue of determining and affirming village boundaries. Sources of data are obtained from library materials, legislation, articles, journals, books, data owned by the governance and cooperation section of the regional secretariat of Ponorogo Regency, as well as interviews with parties in the governance and cooperation section of the regional secretariat of Ponorogo Regency.

## Discussion

### *Juridical Basis Determination and Affirmation of Village Administration Boundaries*

The juridical basis for determining and affirming the boundaries of the village administration includes: First, "Constitution of The Republic of Indonesia 1945. The 1945 Constitution of the Republic of Indonesia in Article 25A mandates that The Unitary State of the Republic of Indonesia is an archipelago with the characteristics of the archipelago. The Republic of Indonesia is an archipelago characterized by an archipelago with territory whose boundaries and rights are determined by law."<sup>19</sup> Secondly, Law No. 43/2008 on State Territory, in Article 5, reads, "The boundaries of the State Territory on land, waters, seabed and the land beneath it as well as the airspace above it are determined based on bilateral and trilateral agreements regarding land boundaries, sea boundaries, and air boundaries as well as regulations. Boundaries, sea boundaries, air boundaries, regulations legislation, and international law."<sup>20</sup>

Third, Law No. 4/2011 on Geospatial Information. This law regulates technical aspects of spatial and geospatial information related to boundary demarcation. Spatial is an object or event's spatial aspect, including location and position.<sup>21</sup> Meanwhile, geospatial or earth space is a spatial aspect that shows an object's location, location, and position below or above the earth's surface expressed in a particular coordinate system.<sup>22</sup> Fourth, Law No. 23/2014 on Regional Government as amended by Law No. 9/2015 on the Second Amendment to Law

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<sup>19</sup> Article 25A of the 1945 Indonesian Constitution.

<sup>20</sup> Article 5 of Law No. 43/2008 on State Territory.

<sup>21</sup> Article 1 Point 1 of Law No. 4/2011 on Geospatial Information.

<sup>22</sup> Article 1 Point 2 of Law No. 4/2011 on Geospatial Information.

No. 23/2014. This law provides a legal framework for local government regulation, including determining and affirming village administrative boundaries.

Fifth, Permendagri No. 45/2016 on Guidelines for Determining and Affirming Village Boundaries. The Minister of Home Affairs Regulation regulates determining and affirming village boundaries. Following Article 2, determining and affirming village boundaries aims to create administrative order to provide clarity and legal certainty of village boundaries that can fulfill technical and juridical aspects.<sup>23</sup> Sixth, Permendagri No. 141/2017 on Regional Boundary Assertion. The Minister of Home Affairs Regulation regulates the affirmation of regional boundaries. This regional boundary affirmation aims to create order in government administration. It can provide clarity and legal certainty of the boundaries of an area that meets the technical and juridical aspects. With this, the affirmation of regional boundaries does not erase land rights or asset ownership, customary rights, and customary rights to the community.<sup>24</sup>

Other juridical bases related to the determination and affirmation of village administrative boundaries include:

- a. BIG Regulation No. 3 Year 2016 on Technical Specifications for Village Map Presentation;
- b. Cartometric Results Without Agreement, BIG 2017, which will be used as the basis for tracking and affirming Kelurahan boundaries in the Selected Sub-districts T.A 2022;
- c. Ponorogo Regent Regulation No. 104 of 2020 on the Determination and Affirmation of Village/Kelurahan Boundaries in Ponorogo Regency; and
- d. Decree of the Regent of Ponorogo No.188.45/630/405.01.1/2021 on the Formation of the Village/Kelurahan Boundary Determination and Affirmation Team of Ponorogo Regency.<sup>25</sup>

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<sup>23</sup> Article 2 Permendagri No. 45/2016 on Guidelines for Determining and Affirming Village Boundaries.

<sup>24</sup> Article 2 Permendagri No. 141/2017 on Regional Boundary Assertion.

<sup>25</sup> Data from the Governance and Cooperation Section of the Regional Secretariat of Ponorogo Regency.

***Problems in Determining and Affirming Village Administrative Boundaries in the Governance and Cooperation Section of the Regional Secretariat of Ponorogo Regency***

The problems of determining and affirming village administrative boundaries in the Governance and Cooperation Section of the Regional Secretariat of Ponorogo Regency are more technical, including the stages and processes. Among others:

**1. Boundary Pillar Laying**

The laying of boundary pillars begins with the installation and measurement of pillars following the guidelines for installing and measuring boundary pillars, which refer to the provisions of the boundary pillar installation and measurement specifications. The steps for installing boundary pillars are: *First*, the pillar frame is made based on the boundary pillar provisions, then brought to the installation location based on the previously planned installation points. *Second*, make a hole measuring 60 cm x 60 cm and 75 cm deep. *Third*, construct the pillar according to the boundary pillar provisions.<sup>26</sup>

Meanwhile, the provisions for installing pillars as a limitation in the pillar installation stage are as follows: a) Pillar installation points are based on the planned pillar installation points; b) Boundary pillars installed directly on temporary poles are then measured to obtain coordinate values; c) If the planned pillar installation points are coordinate extractions from cartometric boundary monitoring results, then field monitoring must be carried out with Navigation Type GNSS to determine the planned pillar installation points in the field; and d) Boundary pillars are installed after finding the place where the pillar will be installed in the field.<sup>27</sup>

Based on the results of the installation and measurement of boundary pillars in the field, official minutes of the results of the installation and measurement of boundary pillars are drawn up, signed by the Heads of the bordering Villages and the District/City Village Boundary Determination and Affirmation Team as witnesses.<sup>28</sup> Problems related to the placement of boundary pillars are the

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<sup>26</sup> Permendagri No. 45/2016 on Guidelines for Determining and Affirming Village Boundaries.

<sup>27</sup> Permendagri No. 45/2016 on Guidelines for Determining and Affirming Village Boundaries.

<sup>28</sup> Permendagri No. 45/2016 on Guidelines for Determining and Affirming Village Boundaries.

difficulty in determining the boundaries where the boundary pillars should be placed.

## **2. Measurement Equipment**

Measurements were taken to obtain the horizontal coordinates of the village boundary pillars. The coordinates of the village boundary pillars must be integrated into the Indonesian Geospatial Reference System 2013 (SRGI 2013). SRGI is a spatial information system used nationally and permanently throughout the territory of the Republic of Indonesia and is compatible with the Global Geospatial Reference System.<sup>29</sup>

The geodetic datum used in SRGI 2013 is the World Geodetic System 1984 (WGS 84). Village landmarks were measured using the Global Navigation Satellite System (GNSS). Some GNSS technologies that can be used in measuring village boundary pillars are Global Positioning System (GPS), Global Navigation Satellite System (GLONNAS), GALILEO, Beidou, IRNSS, QZSS, and so on. The horizontal accuracy of pillar measurement is  $\leq 5$  cm. To obtain horizontal coordinates integrated with SRGI 2013, village boundary pillar measurements must be tied to the National Horizontal Control Net (JKHN) managed by the Geospatial Information Agency (BIG). JKHN consists of fixed/continuous geodetic observation stations (CORS), periodic geodetic points, and other control points.<sup>30</sup>

Village boundary pillars are measured using geodetic control points of order-0, order-1, order-2, and order-3. If the distance of the geodetic control point is far enough from the location of the village boundary pillars, additional reference points can be created. Village boundary pillar measurements were carried out in several ways, including:<sup>31</sup>

### **a. Real-Time Measurement of Village Boundary Pillars**

*They were first* using CORS (Continuously Operating Reference Stations). CORS is a GNSS-based technology that comes in the form of a geodetic frame installed at each receiver point capable of receiving signals from GNSS satellites that

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<sup>29</sup> Permendagri No. 45/2016 on Guidelines for Determining and Affirming Village Boundaries.

<sup>30</sup> Permendagri No. 45/2016 on Guidelines for Determining and Affirming Village Boundaries.

<sup>31</sup> Permendagri No. 45/2016 on Guidelines for Determining and Affirming Village Boundaries.

operate fully and continuously for 24 hours per day, 7 days per week by collecting, storing, transmitting data, and allowing users to use the data for positioning, in real-time or post-processing.<sup>32</sup> Measuring boundary pillars with CORS can be achieved in real-time if the instrument has the right technology for real-time positioning. When the instrument does not have real-time positioning technology, the determination After data post-processing, elements are finalized using the CORS process. Measure village boundary markers in real time, eat determination using CORS devices must be connected to at least 2 CORS stations. Measurements using CORS require at least one good GNSS receiver functioning as a rover and placed on top of the village boundary pillar to be measured. The method of accessing CORS data follows the provisions of the ministry/agency that manages CORS.<sup>33</sup>

*Second*, the Real Time Kinematic (RTK) Method. RTK is a real-time differential positioning system using phase data. The measured coordinates can be obtained directly from the field without post-processing. The RTK method is used when there is no CORS station. Boundary pillar measurements are performed using at least 1 GNSS receiver as a base station. The GNSS receiver is a base station positioned above a horizontal control or additional reference point. In contrast, the GNSS receiver operates as a rover placed above the village boundary pillar to be measured. Data from the receiver acting as a base station can be sent to any receiver operating like a rover using radio waves.

#### b. Post Processing of Village Boundary Pillar Measurement

*First*, CORS (Continuously Operating Reference Stations). Village boundary pillars can be measured using CORS in a post-processing manner. The measurement procedure is the same as using CORS to determine real-time coordinates. The difference lies in the data processing done post using commercial and scientific GNSS data processing software. The procedure for obtaining access to CORS data follows the provisions set by the ministry/agency that manages CORS.<sup>34</sup>

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<sup>32</sup> Regulation of the minister of home affairs (Permendagri) No. 45/2016 on Guidelines for Determining and Affirming Village Boundaries.

<sup>33</sup> Permendagri No. 45/2016 on Guidelines for Determining and Affirming Village Boundaries.

<sup>34</sup> Permendagri No. 45/2016 on Guidelines for Determining and Affirming Village Boundaries.

*Second*, the static survey. The village boundary pillars were measured using a minimum of 2 GNSS receivers acting as base stations and 1 GNSS receiver acting as a rover. GNSS receivers acting as base stations are placed on top of horizontal control points or additional reference points. GNSS receivers acting as rovers are placed atop the village boundary pillars to be measured.

*Third*, the village boundary pillars can be measured radially or by netting. The length of observation is adjusted to field conditions by taking into account various factors such as measurement location, network configuration, and baseline characteristics that represent the geometry of the observer, as well as the number of satellites and the location and distribution of satellites that represent satellite geometry. Data processing can be done using commercial or scientific GNSS data processing software.<sup>35</sup>

#### c. Additional Reference Pillar Measurements

*First*, the additional reference points are fabricated according to predefined physical specifications. *Second*, the additional reference points are measured differentially bound with at least 2 horizontal control points (order-0, order-1, order-2, or order-3). *Third*, additional reference points are measured using GNSS with static measurement method (dual frequency). *Fourth*, the measurement results of the additional reference points can be implemented with commercial software or scientific software. *Fifth*, the additional reference points have a horizontal precision of <5 cm. *Sixth*, the additional reference point pillars' physical specifications use Type D boundary pillars equipped with plaques and brass tablets as identifiers.<sup>36</sup>

Problems related to measurement equipment experienced by the Governance and Cooperation Section of the Regional Secretariat of Ponorogo Regency are that the Governance and Cooperation Section does not have measurement tools as described above, making it challenging to measure village boundaries precisely and accurately.<sup>37</sup>

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<sup>35</sup> Permendagri No. 45/2016 on Guidelines for Determining and Affirming Village Boundaries.

<sup>36</sup> Permendagri No. 45/2016 on Guidelines for Determining and Affirming Village Boundaries.

<sup>37</sup> Angga Chrisdana, Planning and Cooperation Analyst, *Interview*, August 14, 2023.

### 3. Budget

Based on Permendagri No. 45/2016 article 22, the implementation of village boundary determination and affirmation activities is sourced from:

- a. State Revenue and Expenditure Budget;
- b. Provincial Revenue and Expenditure Budget;
- c. Regency/City Regional Revenue and Expenditure Budget;
- d. Village Revenue and Expenditure Budget; and
- e. Other legal and non-binding sources.<sup>38</sup>

Problems related to the budget are that the budget derived from the things mentioned above is insufficient, which hampers the process of determining and affirming village boundaries, making it difficult to determine and affirm village boundaries due to the unavailability of the budget.<sup>39</sup> For example, the budget for village boundary demarcation in Wates Village, Jenangan Subdistrict, Ponorogo Regency is Rp. 138,346,200.00,<sup>40</sup> while in Babadan Lor village, Balerejo sub-district, Madiun district, it is Rp. 847,316,000.00.<sup>41</sup>

### 4. Personnel

The next problem relates to personnel in the Governance and Cooperation Section of the Regional Secretariat of Ponorogo Regency, especially the Sub-Coordinator for Territorial Administration and Cooperation. Where the Sub-Coordinator deals with issues regarding village boundaries, there are only two personnel, namely the Policy Analyst for Territorial Administration and Cooperation and the Planning and Cooperation Analyst. There are no application processors and boundary analysts. The absence of application processors and boundary analysts has made it difficult for the Governance and Cooperation

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<sup>38</sup> Article 22 of Permendagri No.45/2016 on Guidelines for Determining and Affirming Village Boundaries.

<sup>39</sup> Article 22 of Permendagri No.45/2016 on Guidelines for Determining and Affirming Village Boundaries.

<sup>40</sup> Budget Requirements for the Creation of a Cartometric Village Boundary Map in Wates Village, Jenangan Subdistrict, Ponorogo Regency, POS Code: 63492, [https://www.researchgate.net/profile/Luhur\\_Prayogo2/publication/349160833\\_Rancangan\\_Anggaran\\_Biaya\\_RAB\\_Pembuatan\\_Peta\\_Batas\\_Desa\\_Secara\\_Kartometrik\\_Penetapan\\_dan\\_Penegasan\\_Batas\\_Darat/links/602379274585158939932423/Rancangan-Anggaran-Biaya-RAB-Pembuatan-Peta-Batas-Desa-Secara-Kartometrik-Penetapan-dan-Penegasan-Batas-Darat.pdf](https://www.researchgate.net/profile/Luhur_Prayogo2/publication/349160833_Rancangan_Anggaran_Biaya_RAB_Pembuatan_Peta_Batas_Desa_Secara_Kartometrik_Penetapan_dan_Penegasan_Batas_Darat/links/602379274585158939932423/Rancangan-Anggaran-Biaya-RAB-Pembuatan-Peta-Batas-Desa-Secara-Kartometrik-Penetapan-dan-Penegasan-Batas-Darat.pdf)

<sup>41</sup> Madiun Regent Regulation No. 63 of 2021 concerning the Allocation, Distribution and Procedures for Allocation of Village Fund Allocation in Madiun Regency for the 2022 Fiscal Year.

Section of the Regional Secretariat of Ponorogo Regency to determine and affirm village administrative boundaries.<sup>42</sup>

## **5. Human Resources**

Human resources work in an organization, also called personnel, workforce, and employees. Without human resources, the organization's wheels will not move. Without individuals who have expertise or competence, the organization can't achieve its goals. Regarding human resources, the Governance and Cooperation Section does not have sufficient resources to deal with village boundary issues, because there are no experts in mapping and affirming village boundaries.<sup>43</sup> Human resources who take care of existing boundary issues do not have certification. So, certified experts in mapping and affirming village boundaries are urgently needed to facilitate and expedite the implementation of village boundary affirmation and determination activities.

## **6. Related to the Determination and Affirmation Process**

Problems related to the determination and affirmation process include the delineation process. In the delineation process, the problem is that the delineation process takes a long time or requires a long time and bordering elements. Some meetings are held many times. So there is an impression of verbiage. *Second*, the installation of boundary pillars, where there is a mismatch between the cartometric points and the installation points of boundary pillars in the field. In other words, the map image and the field do not match. *Thirdly*, due to the large number of villages and sub-districts in Ponorogo, harmonization cannot be carried out in samples or thoroughly, so it is not completed in one or two harmonization processes. Therefore, the harmonization process took a long time.<sup>44</sup>

*Fourth*, map printing, i.e. there must be synchronization of maps obtained from the field and maps sourced from BIG delineations. However, because the maps are not synchronized, there must be a separate approach according to the agreed conditions. *Fifth*, printing the document required a lot of human resources. Many

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<sup>42</sup> Angga Chrisdana, Planning and Cooperation Analyst, *Interview*, August 14, 2023.

<sup>43</sup> Angga Chrisdana, Planning and Cooperation Analyst, *Interview*, August 14, 2023.

<sup>44</sup> Angga Chrisdana, Planning and Cooperation Analyst, *Interview*, August 14, 2023.



personnel are following the main tasks and functions (*tupoksi*). The Governance and Cooperation Section of the Regional Secretariat of Ponorogo Regency lacks personnel, so it does not have a lot of personnel or no one to take care of it—sixth, technical verification. The technical verification was carried out by BIG, which made BIG, and we had to verify it repeatedly. It has been carried out twice, namely in 2017 and 2021. The seventh process is administrative verification by the Ministry of Home Affairs. However, this verification has not yet been carried out.<sup>45</sup>

### **Conclusion**

Based on the discussion of this research, it can be concluded that the juridical basis for determining and affirming village administrative boundaries includes the 1945 Indonesian Constitution, Laws and Regulations, Ministerial Regulations, and Regional Head Regulations. Second, the problems of determining and affirming village administrative boundaries in the Governance and Cooperation Section of the Regional Secretariat of Ponorogo Regency include: a) Laying boundary pillars; b) Measurement equipment; c) Budget; d) Personnel; e) Human Resources; and f) Related to the determination and affirmation process.

This research is limited to studying the determination and affirmation of village boundaries in Ponorogo Regency. Therefore, studies in various regions are needed to produce a more comprehensive study. The study of the determination and affirmation of village administrative boundaries is fascinating to discuss, so it needs to be studied more deeply by subsequent researchers so as not to cause problems of village boundary disputes.

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<sup>45</sup> Angga Chrisdana, Planning and Cooperation Analyst, *Interview*, August 14, 2023.

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