
















## ABDIMAS TALENTA Jurnal Pengabdian Kepada Masyarakat

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# Improvement of Population Data for Kuta Mbelin Village, STM Hulu District, Deliserdang Regency to Open SID Based Population Data

Syahril Efendi<sup>\*1</sup>, Fauzan Nurahmadi<sup>1</sup>, Fuzy Yustika Manik<sup>1</sup>, Seniman<sup>1</sup>, T. Henny Febriana Harumy<sup>1</sup>, Ivan Jaya<sup>1</sup>, Yeni Absah<sup>2</sup>, Muhammad Romi Syahputra<sup>3</sup>, Liana Dwi Sri Hastuti<sup>3</sup>, Pauzi Ibrahim Nainggolan<sup>1</sup>, Tulus Joseph Herianto<sup>4</sup>, Dewi Sartika Br Ginting<sup>1</sup>, Yudhistira<sup>4</sup>

<sup>1</sup>Faculty of Computer Science and Information Technology, Universitas Sumatera Utara, Medan, Indonesia

<sup>2</sup>Faculty of Economics and Business, Universitas Sumatera Utara, Medan, Indonesia

<sup>3</sup>Faculty of Mathematics and Natural Sciences, Universitas Sumatera Utara, Medan, Indonesia

<sup>4</sup>Faculty of Vocational, Universitas Sumatera Utara, Medan, Indonesia

\*Corresponding Author: [syahril1@usu.ac.id](mailto:syahril1@usu.ac.id)

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### ABSTRACT

The community service program conducted in the fostered village of LPPM USU, namely Kuta Mbelin Village, STM Hulu District, Deliserdang Regency, which already has a village information system (<https://s.id/kutambelin>) as a manifestation of a digital village, should convert the population data processed conventionally into population data that can be integrated with the village's needs. This includes the ability to monitor population growth, facilitate correspondence and archiving, obtain village population statistics, and more. To improve this data, the fostered village team is implementing an open-source Village Information System, commonly known as Open SID. The data processed by the village using MS Excel covers two hamlets out of the three in Kuta Mbelin village. Hamlet I has 261 residents and Hamlet II has 532 residents, while Hamlet III is still being processed by the village operator. This existing population data needs to be refined and integrated into the Open SID-based population data platform by first performing data cleaning to ensure it can be incorporated into the village information system. The data entry process is continuously carried out by the LPPM USU community service team and village operators, involving USU MBKM KKN students in the village.

**Keyword:** Population Data, Open SID, Village Information System



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## 1 Introduction

Kuta Mbelin Village, located in STM Hulu District, Deliserdang Regency, North Sumatra, is one of the many villages in Indonesia that is still grappling with challenges in population data management. The manual recording system that has been used by the village government often causes various problems, ranging from data inaccuracy, duplicate data, to difficulties in accessing important information needed for planning and decision-making. In a broader context, this problem not only affects the efficiency of village administration, but also has an impact on the quality of public services and village development as a whole. In general, the population data is used for various purposes, including:

1. Public services including the issuance of driving licenses, business permits, taxpayer services, banking services, land certificate issuance services, insurance, public health insurance, and social security for workers.

2. Development planning, namely for national development planning, education planning, health planning, workforce planning, and poverty alleviation.
3. Budget allocation includes determining the General Allocation Fund (DAU) and calculating potential taxation.
4. Democracy development, namely the preparation of Population Aggregate Data per sub-district (DAK2) and the preparation of Potential Voter Population Data for the Election (DP4).
5. Law enforcement and crime prevention, among others, to facilitate the tracking of criminals, prevent human trafficking and prevent the sending of illegal workers. [1], [2]

Specifically, UU No. 24 of 2013, article 1 point 9 states that population data is individual data and/or structured aggregate data as a result of population registration and civil registration activities. In UU No. 24 of 2013 concerning Population Administration, data is grouped into:

1. Personal Data is certain individual data that is stored, maintained, and maintained as true and its confidentiality is protected (article 1 point 22).
2. Database is a collection of various types of population data that are stored systematically, structured and interconnected using software, hardware and data communication networks (article 1 point 29 of PP No. 37 of 2007).
3. Population Data is individual data or aggregate data that is structured as a result of population registration and civil registration activities. [3],[4]

There are 3 types of population data utilization, namely:

- a. aggregate data, including individual data sets in the form of quantitative data and qualitative data,
- b. data matching/matching,
- c. population data access by name by address by NIK. [5]

OpenSID (Open Source Village Information System) is an information system developed as an open source, which is specifically designed to help villages manage population data and village administration more efficiently and in an integrated manner [6].

The concept of this free application/OpenSID was initially initiated in 2006 by the Lumbung Komunitas Combine Resource Institution, a civil society organization dedicated to developing alternative community-based information and communication technology; which is openly developed together by the SID care community. Technically, the application flow of this software includes the following stages:

1. Forming a working team with the village government
2. Discussing what databases are needed for residents
3. Collecting population data from residents from Family Cards (KK)
4. Registering the SID project and its software application
5. Installing the SID software application on the village server computer
6. Entering population data into SID
7. Modifying settings according to village needs
8. Sharing information about the village so that it can be accessed by residents [5]

The issue of inaccurate population data is a critical problem that can hinder various development programs at the village level. Invalid data can lead to misallocated funds, unequal distribution of aid, and development planning that does not align with the community's needs. Therefore, efforts to improve the population data management system in Kuta Mbelin Village are urgent and essential. One solution to address this problem is to implement a technology-based village information system. OpenSID is one platform that can be used for this purpose. By leveraging information technology, OpenSID can provide various conveniences in recording, managing, and updating population data, thereby enhancing the accuracy and accessibility of the data.

## 2 Method

In implementing this community service program, a participatory approach will be used to ensure active involvement from various parties, including the village government, the community, and other stakeholders. Through surveys, interviews, and group discussions, the needs and challenges faced in population data management will be identified. Based on the results of this needs analysis, training and workshops will be conducted to provide understanding and skills to village officials and the community regarding the use of OpenSID. The system implementation will be carried out in stages, with periodic monitoring and evaluation

to ensure the system operates as expected and delivers maximum benefits. The implementation of the community service activities involves several stages:

1. Socialization and coordination of the community service program for the fostered village by LPPM USU with the Head of Kuta Mbelin Village and the Head of STM Hulu District, Deliserdang Regency as partners.
2. Preparation of activity proposals to be carried out in Kuta Mbelin Village, STM Hulu District, Deliserdang Regency, and preparation of partner community service letters.
3. Preparation of the population data server.
4. Creation of a domain for OpenSID Kuta Mbelin Village and setting up web hosting for Kuta Mbelin Village.
5. Structuring the database based on tables used in OpenSID through data export and import.

### 3 Result and Discussion

Population data management using MS Excel by village operators allows for easy collection, processing, and analysis of population data according to the village's needs. With the advancement of information technology, a new idea has emerged about an integrated and precise population database based on Open SID. The village head must immediately update this population data, but assistance from academicians who understand how to operate the Open SID-based population data system is needed. The LPPM USU Foster Village Team placed in Kuta Mbelin initiated assistance in using the Open SID-based population data system for village officials, ensuring they understand and can operate the system. The existing structure of the population data features in Kuta Mbelin Village is as follows:

Nama Lengkap	:
No Kartu Keluarga	:
NIK	:
Hub. Keluarga	:
Jenis Kelamin	:
Tempat Lahir	:
Umur	:
Agama	:
Pendidikan Terakhir	:
Pekerjaan	:
Status Perkawinan	:
Orang Tua (Ayah)	:
Orang Tua (Ibu)	:
Dusun	:
Suku	:
Keterangan	:

Figure 1. Existing features in Kuta Mbelin Village's population data.

DATA PENDUDUK DESA KUTABELIN DSN I																		
No	Nama Lengkap	No Kartu Keluarga	NIK	Hub. Keluarga	Jenis Kelamin	Tempat Lahir	Tanggal Lahir	Usia	Agama	Pendidikan Terakhir	Pekerjaan	Status Perkawinan	Orang Tua (Ayah)	Orang Tua (Ibu)	Dusun	Suku	Keterangan	
13	Anilias Anwarsoetri	1207201499091027	1207204607170001	Anak Kandung	P	Deli Tua	06-Jul-2017	6	Islam	Tidak Sekolah	Belum / Tidak Bekerja	Belum Kawin	Aptael	Dahlana	DUSUN I	Koro	Beik	
14	Arwan	1207200601210002	1207051609690005	Kepala Keluarga	L	Bekala	16-Sep-1968	55	Kristen	SLTP	TNI	Kawin Tercatat	Nalamsen Surbakel	Balur Br Ginting	DUSUN I	Koro	Beik	
15	Litza Br Peranatin-Anatin	1207200601210002	1207054382830004	Istri	P	Tua Lubar	01-Mai-1983	39	Kristen	SLTA	Mengurus Rumah Tangga	Belum Kawin	Belina Peranatin-Anatin	Risa Br Ginting	DUSUN I	Koro	Beik	
16	Srimawati Br surbakel	1207200601210002	1207054312060003	Anak Kandung	P	Medan	05-Dec-2006	16	Kristen	Belum Tamat SD	Pelajar	Belum Kawin	Arwan	Litza Br Peranatin-Anatin	DUSUN I	Koro	Beik	
17	Wahyu Tush Bastenta Surbakel	1207200601210002	1207051509900001	Anak Kandung	L	Medan	5-Sep-2008	15	Kristen	Belum Tamat SD	Pelajar	Belum Kawin	Arwan	Litza Br Peranatin-Anatin	DUSUN I	Koro	Beik	
18	Andri Anus Ginting	1207200709150002	1207200204030001	Kepala Keluarga	L	Talun Kemus	2-Apr-1993	31	Islam	SLTP	Petani / Pekebun	Kawin	Ipan malem Ginting	Norma Br Tarigan	DUSUN I	Koro	Beik	
19	Elisa Br Borus	1207200709150002	1207066810970001	Istri	P	Namo Mbelin	18-Oct-1997	25	Islam	Tamat SD	Mengurus Rumah Tangga	Kawin	Ipan Borus	Sumardi	DUSUN I	Koro	Beik	
20	Vernanda Ginting	1207200709150002	1207202805160001	Anak Kandung	L	Namo Ramba	28-Jun-2015	7	Islam	Tidak Sekolah	Belum / Tidak Bekerja	Belum Kawin	Andri Anus Ginting	Elisa Br Borus	DUSUN I	Koro	Beik	
21	Aqis Wahradiv	120720021170001	1207200608960002	Kepala Keluarga	L	Ujung Suka	06-Agust-1996	26	Islam	SLTP	Petani / Pekebun	Kawin	Romlan	Suarri	DUSUN I	Koro	Beik	
22	Elina Fitriah	120720021170001	1207098503970001	Istri	P	Greenan	25-Mar-1997	27	Islam	SLTP	Mengurus Rumah Tangga	Kawin	Wagitrin	Rohani	DUSUN I	Koro	Beik	
23	MHD Riski Prasetya	120720021170001	1207200104180001	Anak Kandung	L	Ranggit-Git	1-Apr-2018	6	Islam	Tidak Sekolah	Belum / Tidak Bekerja	Belum Kawin	Aqis Wahradiv	Elina Fitriah	DUSUN I	Koro	Beik	
24	Arishendra	1207200107220002	1207203001000001	Kepala Keluarga	L	Ujung Suka	31-Jan-2000	24	Islam	SLTP	Petani/Pekebun	Kawin Tercatat	Romlan	Suarri	DUSUN I	Koro	Beik	
25	Dellia Uzeri	1207200107220002	1218024388020003	Istri	P	Tanah Merah	03-Agust-2002	21	Islam	SLTP	Mengurus Rumah Tangga	Kawin Tercatat	Salman	Dian	DUSUN I	Koro	Beik	
26	Aneli Hormasjo	120720107220001	1207201464970001	Kepala Keluarga	L	Aceh	14-Apr-1997	27	Islam	SLTP	Petani/Pekebun	Kawin Tercatat	Zaharuddin	Harli Awati	DUSUN I	Koro	Beik	
27	Rina	120720107220001	1207206706990001	Istri	P	Ranggit-Git	27-Jun-1999	25	Islam	Tamat SD	Mengurus Rumah Tangga	Kawin Tercatat	Penno	Idawati	DUSUN I	Koro	Beik	
28	Aqis Darmawan Ginting	1207200305210002	1207200707970001	Kepala Keluarga	L	Simpang Delera	07-Agust-1997	25	Islam	SLTA	Karyawan Swasta	Kawin Tercatat	Muhomet Iwul Ginting	Ruheti	DUSUN I	Koro	Beik	
29	Emma Amanda Yani Purba	1207200305210002	1207078911990001	Istri	P	Biru-Biru	28-Nov-1997	26	Islam	SLTA	Mengurus Rumah Tangga	Kawin Tercatat	Andan Purba	Harlinarby, S.Pd.M.Si	DUSUN I	Simelungur	Beik	
30	Muhammad Alzam Muzakki Gint	1207200305210002	1207202412110001	Anak Kandung	L	Deli Tua	24-Dec-2021	2	Islam	Tidak Sekolah	Belum / Tidak Bekerja	Belum Kawin	Aqis Darmawan Ginting	Emma Amanda Yani Purba	DUSUN I	Koro	Beik	
31	Karlinal Sembiring	120720107220002	1207200511969001	Kepala Keluarga	L	Kuta Mbelin	5-Jun-1995	28	Kristen	SLTA	Petani / Pekebun	Kawin Tercatat	Krisna Sembiring	Melani Paul Re Tarigan	DUSUN I	Koro	Beik	

Figure 2. Current population data table in Kuta Mbelin Village.

With the available population data, village officials face difficulties in processing and analyzing data for educational, health, planning, and village development requests, among other needs. Thus, migrating to the integrated and precise Open SID-based population data system is necessary. This can be done by accessing the official website of Kuta Mbelin Village at <https://s.id/kutambelin> with the following display:

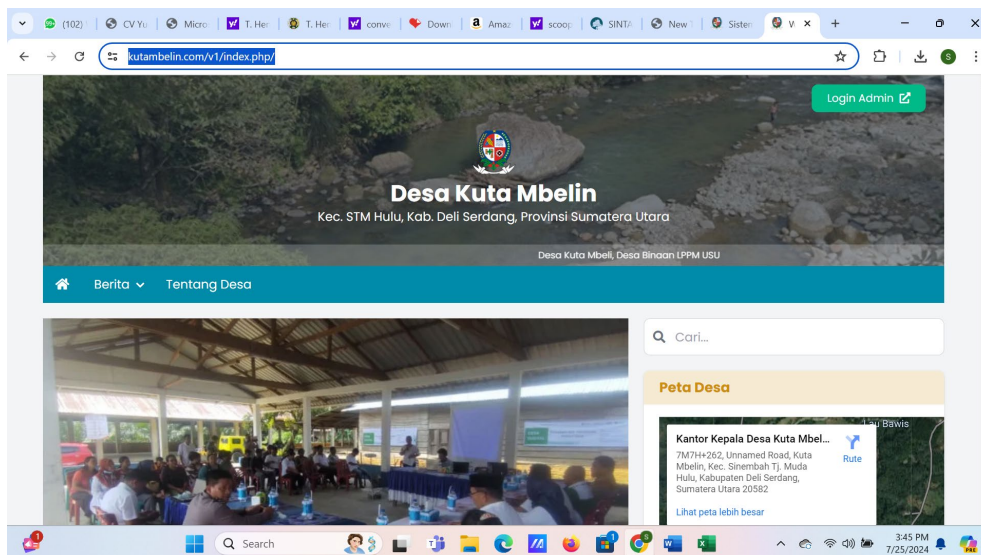


Figure 3. Kuta Mbelin Village website display.

Click "admin login" to go to the village administration web page with the following display:

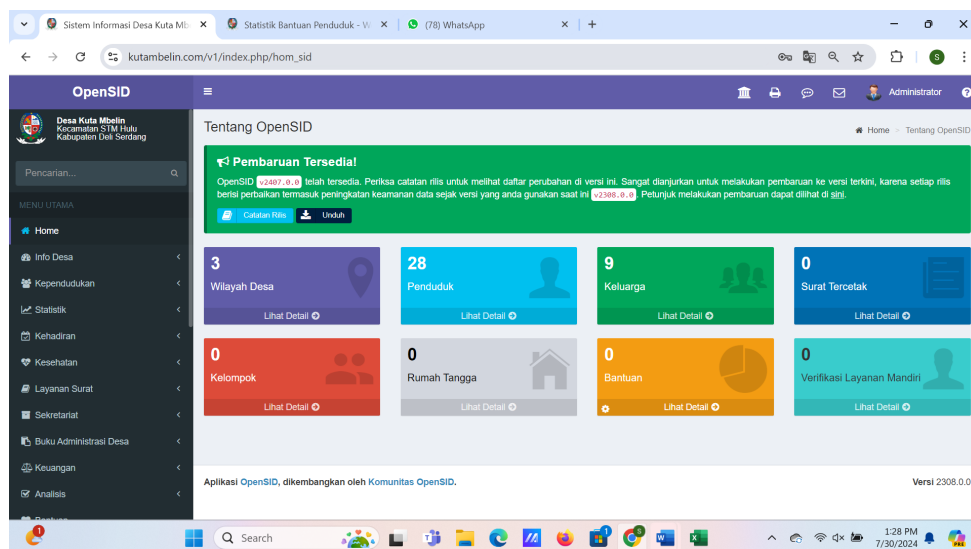


Figure 4. Kuta Mbelin Village administrator web display.

Click "population" to go to the population data section with the following display:

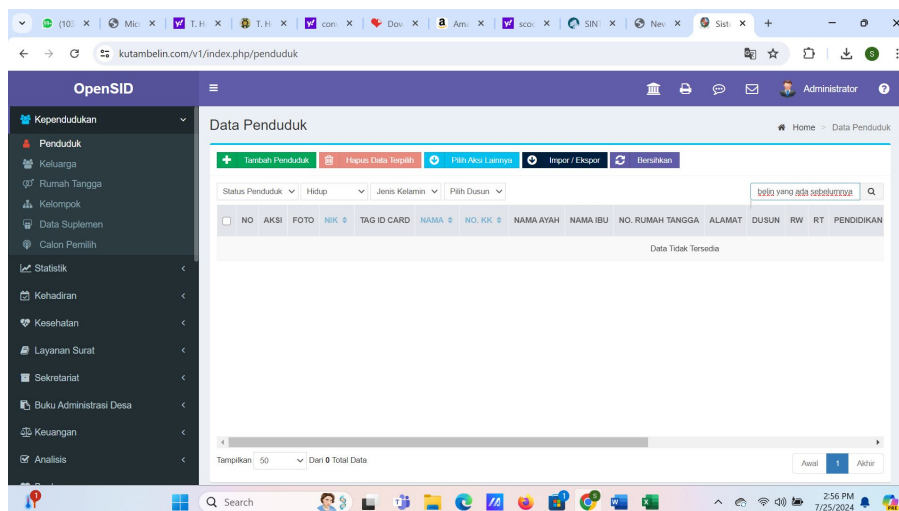


Figure 5. Population Data display using Open SID.

Since no population data entries have been made in the Open SID-based population data system, the MS Excel format from Open SID must be used. Click the import/export button, and Open SID will provide the data entry format in MS Excel. Then, copy the data from the previous population data and paste it into the Open SID-based population data, adjusting the features accordingly. The display for data adjustment is as follows:

nama	jenis_kelamin	tanggal_lahir	alamat	agama	pendidikan	status_kawin	pekerjaan	pendidikan_akhir	pendidikan_akhir_id	pendidikan_akhir_nama	pendidikan_akhir_tingkat	pendidikan_akhir_tahun	pendidikan_akhir_lokasi	pendidikan_akhir_lokasi_nama	pendidikan_akhir_lokasi_tingkat	pendidikan_akhir_lokasi_tahun	pendidikan_akhir_lokasi_lokasi_nama	pendidikan_akhir_lokasi_lokasi_tingkat	pendidikan_akhir_lokasi_lokasi_tahun
Ali Usman Bintang	LAKI-LAKI	5-Jan-1989	Kuta Mbelin	ISLAM	SLTA / Sederajat	Tidak Sedang Sekolah	KAWIN	WIRASWASTA	KEPALA KELUARGA	WNI									
Sela Indriyani	PEREMPUAN	1-Sep-2004	Kuta Mbelin	ISLAM	Belum Tamat SD	Tidak Sedang Sekolah		MENURUS RI KAWIN	ISTRI	WNI									
Kosong	LAKI-LAKI	2-Jun-2019	Kuta Mbelin	ISLAM	Belum Tamat SD	Tidak Sedang Sekolah		Belum Tamat SD	ANAK	WNI									
Bilois Anastasya Bintang	PEREMPUAN	22-Nov-2022	Kuta Mbelin	ISLAM	Tidak / Belum / Sebelum Masuk TK	Tidak Sedang Sekolah		Belum Tamat SD	ANAK	WNI									
Amat	LAKI-LAKI	17-Mar-1972	Kuta Mbelin	ISLAM	Tamat SD / Sederajat	Tidak Sedang Sekolah		PETANI/PEKERJA KAWIN	KEPALA KELUARGA	WNI									
Supartik	PEREMPUAN	21-Feb-1975	Kuta Mbelin	ISLAM	SLTP/Sederajat	Tidak Sedang Sekolah		PETANI/PEKERJA KAWIN	ISTRI	WNI									
Dedy Shaputra	LAKI-LAKI	19-Mei-1997	Kuta Mbelin	ISLAM	Tamat SD / Sederajat	Tidak Sedang Sekolah		Belum Tamat SD	ANAK	WNI									
Egga Putri	PEREMPUAN	23-Mar-2002	Kuta Mbelin	ISLAM	Belum Tamat SD	Tidak Sedang Sekolah		Belum Tamat SD	ANAK	WNI									
Aprizal	LAKI-LAKI	17-Apr-1982	Kuta Mbelin	ISLAM	Tamat SD / Sederajat	Tidak Sedang Sekolah		BURUH HARIA KAWIN	KEPALA KELUARGA	WNI									
Dahlana	PEREMPUAN	26-Apr-1991	Kuta Mbelin	ISLAM	Tamat SD / Sederajat	Tidak Sedang Sekolah		MENURUS RI KAWIN	ISTRI	WNI									
Dodi Aidiansyah	LAKI-LAKI	5-Jan-2005	Kuta Mbelin	ISLAM	Belum Tamat SD	Tidak Sedang Sekolah		Belum Tamat SD	ANAK	WNI									

Figure 6. Population data table in Open SID format (MS Excel export data format).

Once the population data is correctly filled out, it can be imported into the population data system by clicking import/export and selecting import data, with the import process displayed as follows:

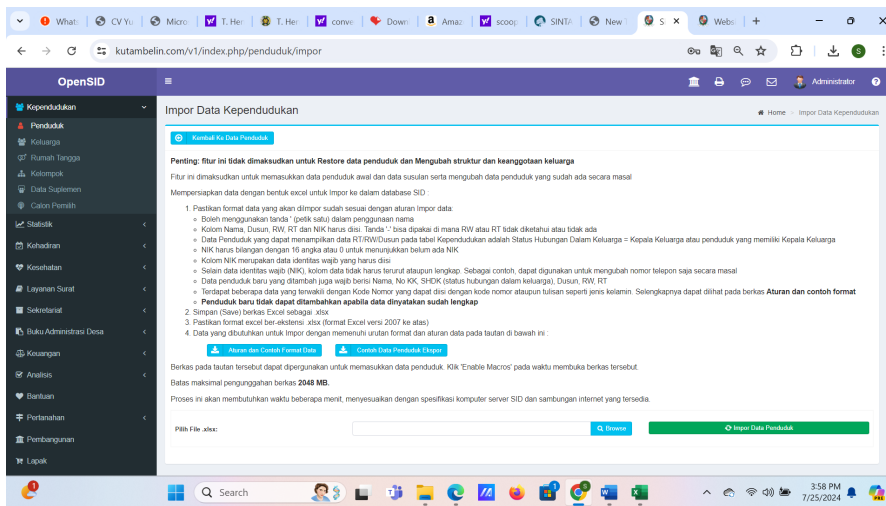


Figure 7. Import file display for population data in MS Excel format.

Then, import the population data by browsing to select the file datapendudukcoba.xlsx in the folder where the file is stored. With a trial of 28 cleaned data entries matching the datasheet export from Open SID, the Data Penduduk display on the Kuta Mbelin Village web administrator appears as follows, which can be updated by the Kuta Mbelin web administrator:

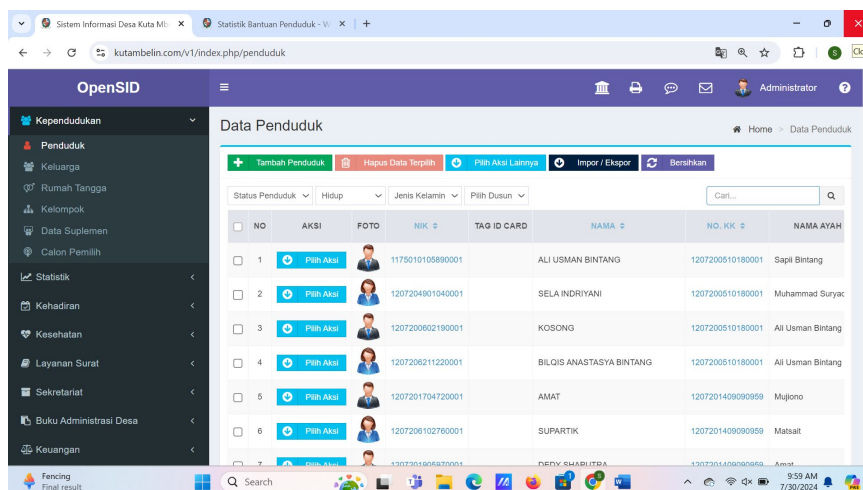


Figure 8. Population Data display on Kuta Mbelin Village web administrator.



The Kuta Mbelin Village website's population menu will display statistics on the population, such as Resident Status, Social Class, Population Assistance Recipients, and Family Assistance Recipients. An example display of the Population menu with resident status statistics appears as follows. More statistics can be displayed according to the population data in the Open SID system database:

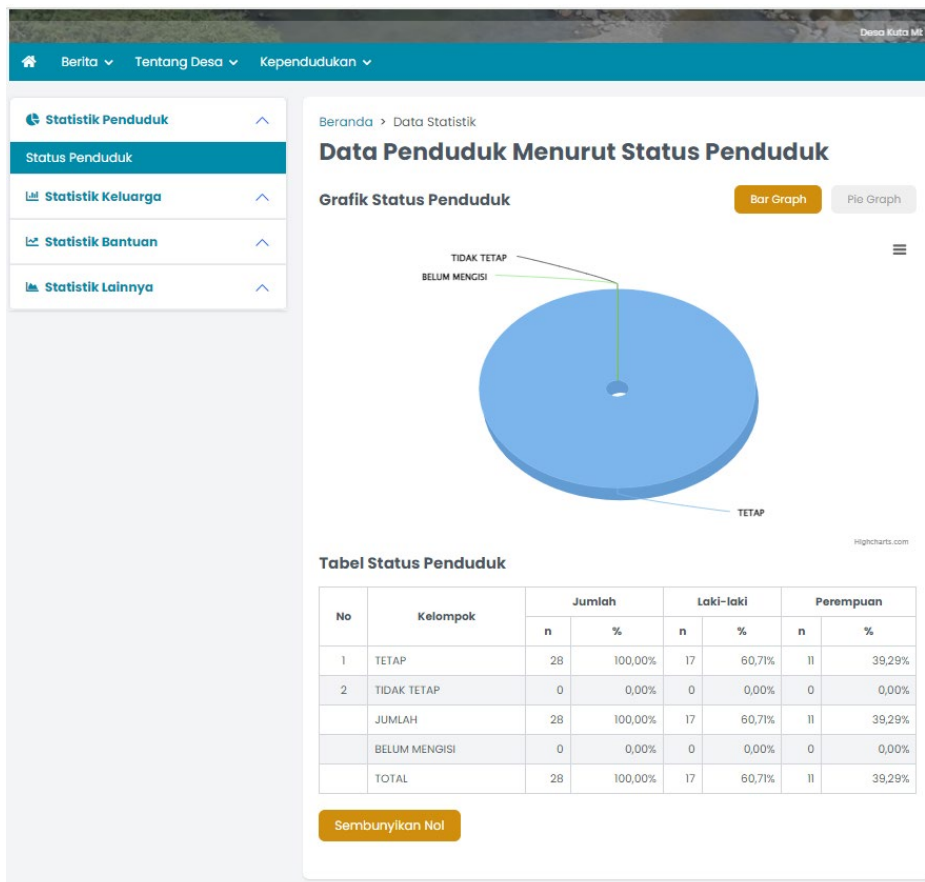


Figure 9. Display of processed population data statistics through the Open SID system.

#### 4 Conclusion

The OpenSID system can help improve the accuracy of population data. With more systematic and digital recording, errors that commonly occur in manual systems can be minimized. OpenSID enables easier and faster data access for village officials and the community. Information needed can be obtained quickly without going through convoluted processes. Additionally, transparency in data management will also increase. With an open and integrated system, the community can more easily monitor and access population information, thereby increasing trust in the village government.

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