ANALYSIS OF INCOME AND FEASIBILITY OF CORN FARMING IN OEBOLA VILLAGE, FATULEU SUBDISTRICT, KUPANG REGENCY
(Analisis Pendapatan Dan Kelayakan Usahatani Jagung Di Desa Oebola Kecamatan Fatuleu Kabupaten Kupang)

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Received: 3rd July, 2025 Accepted: 11th July, 2025

ABSTRACT

Paddy field conversion is a critical issue in agricultural development because it directly reduces the availability of land for food production. Rote Ndao Regency, one of the regions with the largest paddy field areas in East Nusa Tenggara Province, has experienced a significant decline in paddy field area during the last five years. A considerable proportion of these fields has been converted into housing, small businesses, and public facilities. If the conversion of paddy fields to non-agricultural functions is not controlled, the area available for food production will continue to decrease. This study used a quantitative approach and was conducted in Rote Ndao Regency using primary and secondary data. The data were analyzed using multiple linear regression with SPSS to determine the influence of several independent variables on paddy field conversion. The results show that 3,442 hectares of paddy fields in Rote Ndao Regency have been converted. These lands are no longer used for rice farming but have been shifted to other uses, including private houses, kiosks, workshops, restaurants, and rental houses. The multiple linear regression results indicate that population growth, growth of household-scale industries, household income, paddy field location, and paddy field productivity significantly affect paddy field conversion. To support food security programs, the government should tighten the permit system for converting agricultural land into non-agricultural land, strengthen the designation of sustainable food agricultural land, and provide extension services that encourage farmers to use existing agricultural land more productively and sustainably.
Keywords: land conversion, paddy field, Rote Ndao, population growth, industry growth, income, productivity

ABSTRAK

Penelitian ini bertujuan untuk mengetahui pendapatan dan kelayakan usahatani jagung. Metode penelitian lokasi yang digunakan adalah purposive sampling. Lokasi penelitian adalah di Desa Oebola, Kecamatan Fatuleu Kabupaten Kupang. Metode penentuan sampel responden adalah metode acak sederhana (simpel random sampling) yang melibatkan 40 responden. Data yang digunakan dalam penelitian ini adalah data primer dan sekunder. Analisis data yang digunakan adalah (1) Analisis Pendapatan untuk mengetahui pendapatan usaha tani jagung di Desa Oebola, Kecamatan Fatuleu Kabupaten Kupang. (2) Analisis Kelayakan Usahatani Jagung untuk mengetahui kelayakan usahatani jagung di Desa Oebola, Kecamatan Fatuleu Kabupaten Kupang.

Hasil penelitian menunjukan bahwa rata-rata pendapatan usahatani jagung di Desa Oebola adalah sebesar Rp2.856.737,50 per petani atau per luas lahan 0,64 ha sebesar Rp4.552.569,7. Sedangkan penerimaan yang diperoleh sebesar Rp3.809.375,00. Pendapatan usahatani jagung yang diperoleh petani masih rendah bila dibandingkan dengan pendapatan potensialnya. Sedangkan berdasarakan analisis kelayakan usahatani jagung menunjukan bahwa nilai R/C rasio adalah 6,3; BEP produksi per petani sebesar 190,5 kg dan per hektar adalah 297,7 kg. Sedangkan BEP harga per petani sebesar Rp1.430,88 per kg dan per hektar adalah Rp2.280,3 per kg. Dari hasil analisis penelitian ini dapat disimpulkan bahwa usahatani jagung di Desa Oebola layak untuk dijalankan dan menguntungkan.
Kata Kunci: Pendapatan, Kelayakan, Pertanian, Jagung

INTRODUCTION

Land is a resource that has an essential role in development because almost all human activities require space, including agriculture, settlements, and infrastructure. However, limited land availability amid increasing human needs creates competition in land use (Ante et al., 2016). Agricultural land, particularly paddy fields, is the most vulnerable to land-use change because it is often considered to have a lower economic value than land used for non-agricultural purposes.

Paddy fields are converted because they are perceived to have lower economic returns than non-agricultural uses. This conversion has a direct impact on the reduction of food production areas and, if uncontrolled, may lead to the loss of ecological functions such as water regulation and environmental services. Dewi et al. (2013) emphasized that paddy fields serve not only as a source of food production but also as an ecological component that is important for maintaining environmental balance.

Rote Ndao Regency is one of the regencies with the largest paddy field areas in East Nusa Tenggara Province. In 2022, the total paddy field area in this region was recorded at 16,329 hectares, ranking fourth in the province. Nevertheless, during the last five years, the paddy field area has declined significantly. For example, Lobalain Subdistrict, which is the center of the regency capital, experienced a decrease in paddy field area from 4,192 hectares in 2017 to 3,017 hectares in 2022. Similar decreases also occurred in several other subdistricts, especially in areas with high accessibility, where agricultural land has often been converted for settlements, trade, and public facilities (Purwaningsih et al., 2010).

Based on these conditions, this study aims to identify the condition of converted paddy fields in Rote Ndao Regency and analyze the factors influencing the occurrence of such conversion. The results are expected to provide a comprehensive overview of local land-use dynamics and serve as a consideration for policy formulation to control paddy field conversion sustainably.

METHODS

This research was conducted in Rote Ndao Regency, East Nusa Tenggara Province. The study used a quantitative approach with an analytical descriptive method. The data consisted of primary and secondary data. Primary data were obtained by interviewing respondents and distributing questionnaires to farmers or landowners who had sold or converted their paddy fields. Secondary data were obtained from relevant institutions, including the Agriculture Office of Rote Ndao Regency, Statistics Indonesia (BPS) of Rote Ndao Regency, and other supporting documents.

The population in this study included all farmers or paddy field owners in Rote Ndao Regency whose land had been converted, totaling 109 people. The sample was determined using purposive sampling, with the criterion that respondents were farmers or landowners who had sold or converted their paddy fields. The sample size was calculated using the Slovin formula at a 10% error level, resulting in 52 respondents.

The variables used in this study consisted of one dependent variable and five independent variables. The dependent variable was paddy field conversion (Y), defined as the change in land use from paddy fields to non-agricultural purposes. The independent variables were population growth (X1), growth of industries (X2), household income (X3), paddy field location (X4), and paddy field productivity (X5). Population growth refers to the increasing number of residents that influences land demand. Industry growth refers to the increase in household-scale and larger-scale industries. Household income reflects the average income and welfare level of the community. Paddy field location refers to the distance of paddy fields from urban centers or crowded areas, while paddy field productivity refers to the ability of land to produce rice per hectare.

The research instrument was a questionnaire using a four-point Likert scale, namely 1 = disagree, 2 = less agree, 3 = agree, and 4 = strongly agree. Instrument validity was tested using Pearson product-moment correlation, and reliability was tested using Cronbach's alpha, with an instrument considered reliable when alpha was greater than 0.60. The data were analyzed using multiple linear regression with SPSS. The regression model used in this study was:

$$Y = alpha + beta1X1 + beta2X2 + beta3X3 + beta4X4 + beta5X5 + e$$

where Y = paddy field conversion; alpha = constant; beta1-beta5 = regression coefficients; X1 = population growth; X2 = industry growth; X3 = household income; X4 = paddy field location; X5 = paddy field productivity; and e = error term.

To ensure the validity of the regression model, classical assumption tests were conducted, including the normality test using Kolmogorov-Smirnov, the multicollinearity test using the criteria VIF < 10 and tolerance > 0.1, and the heteroscedasticity test using the Glejser method. Hypothesis testing included the t-test to assess the partial effect of each independent variable, the F-test to examine simultaneous effects, and the coefficient of determination (R2) to measure the ability of the independent variables to explain variation in the dependent variable.

RESULT AND DISCUSSION

General Description of the Research Area

Rote Ndao Regency is located in the southernmost part of Indonesia and is administratively part of East Nusa Tenggara Province. Astronomically, the area lies between 10°25'-11°00' South Latitude and 121°49'-123°26' East Longitude. Geographically, it is positioned between the Asian and Australian continents and is bordered by the Sawu Sea and the Indian Ocean. Administratively, Rote Ndao Regency is bordered by the Sawu Sea to the north, the Indian Ocean to the south, the Sawu Sea to the west, and the Pukuafu Strait or Timor Strait to the east.

The land area of the regency is approximately 1,280.10 km2, while its water area is approximately 2,376 km2. The topography of Rote Ndao is generally flat to undulating, with an average elevation below 500 meters above sea level. The regency consists of 10 subdistricts, 112 villages, and 7 urban villages. In general, the climate is dry tropical, with a relatively short rainy season of approximately four months, from December to April, and a longer dry season. Therefore, most of its land is dry land dominated by shrubs and lontar palm vegetation.

Respondent Characteristics

The respondents in this study were 52 farmers or paddy field owners. Their characteristics were observed based on age, education level, land area, and number of family dependents.

Based on age, respondents aged 21-30 years numbered 3 people (5.77%), those aged 31-40 years numbered 18 people (34.61%), those aged 41-50 years numbered 12 people (23.08%), those aged 51-60 years numbered 15 people (28.84%), those aged 61-70 years numbered 3 people (5.77%), and those aged 71-80 years numbered 1 person (1.92%). The average age of respondents was 45.5 years, with the youngest respondent aged 28 years and the oldest aged 72 years.

In terms of education, 21 respondents (40.4%) had completed elementary school, 18 respondents (34.6%) had completed junior high school, 11 respondents (21.1%) had completed senior high school, and 2 respondents (3.9%) had completed undergraduate education. Most landowners therefore had a relatively low level of education. Education level may influence the way individuals think and act in utilizing available paddy fields. The average education level of paddy field owners was elementary school.

The land area owned by respondents varied. Eleven respondents owned 0.1-0.5 ha of land, with a percentage of 21.15%, which can be categorized as small landholdings of less than 0.5 ha. Most farmers in this group owned relatively small paddy fields, with an average of 0.3 ha. Meanwhile, 40 respondents owned 0.6-1 ha of land, with a percentage of 51.92%, which falls into the medium landholding category of 0.5-1 ha. The majority of farmers had medium-sized paddy fields, with an average area of approximately 0.8 ha. Only one respondent owned 1.1-1.5 ha of land, with a percentage of 25% as stated in the original tabulation.

Regarding family dependents, 39 respondents had 1-3 dependents, accounting for 75%, while 13 respondents had 4-6 dependents, accounting for 25%. The highest number of dependents was 6 people, and the lowest was 1 person, with an average of 3 dependents.

Condition of Paddy Field Conversion in Rote Ndao Regency

Land use in Rote Ndao Regency is dominated by forests, plantations, paddy fields, and dry fields or gardens. Rainfed paddy fields dominate the paddy field area in the regency. Of all paddy fields in Rote Ndao Regency, 62% are rainfed paddy fields, while the remaining area consists of paddy fields with simple irrigation systems. Paddy fields in Rote Ndao Regency experienced significant changes in area from 2017 to 2022. Increasing land demand for infrastructure, settlements, industries, and other facilities has caused many agricultural lands to be converted. This finding is consistent with Ningsih and Tutik (2018), who concluded that the more a city develops, the greater the amount of land converted.

Lobalain Subdistrict, as the capital area of Rote Ndao Regency, tends to experience more land conversion. This is reflected in the change in paddy field area in Lobalain, which was more significant than in other subdistricts during the previous five years. In 2017, the paddy field area in Lobalain Subdistrict was 4,192 ha, while in 2022 it decreased to 3,017 ha (BPS Rote Ndao Regency, 2023). This means that during a five-year period, paddy fields in Lobalain, the urban center of Rote Ndao Regency, decreased by 1,175 ha. This decrease was relatively large compared with other subdistricts. Rote Tengah Subdistrict experienced a decrease of 374 ha during the same period, from 3,467 ha in 2017 to 3,093 ha in 2022 (BPS Rote Ndao Regency, 2023).

Rote Barat Daya Subdistrict also experienced a decrease, but not as large as that in Lobalain. The subdistrict experienced a difference in paddy field area of 466 ha during the previous five years (BPS Rote Ndao Regency, 2023). Other subdistricts also experienced changes, although not as large as those in Lobalain. These conditions support the view that land conversion tends to occur in strategic areas with good accessibility. Several paddy fields in Rote Ndao Regency were also converted into plantations or livestock areas because of limited water access, the distance of land from landowners' houses, and declining land productivity.

Based on interviews and primary data, all 52 respondents in this study had experienced paddy field conversion. Most respondents stated that the main reasons for converting paddy fields were family economic pressure, less strategic land location, and the prospect of more profitable non-agricultural land use. Approximately 61% of respondents stated that they converted their land into private houses or houses for their children, while the rest converted the land into business locations such as kiosks, workshops, and food stalls. Respondents explained that rice farming in recent years had not been able to meet household needs, especially amid increasing prices of basic necessities.

Unstable harvests due to uncertain climate, pest attacks, and limited irrigation were the main triggers of declining farmer income. In this context, paddy fields were viewed as assets that could be converted for other economic needs. Some respondents chose to sell their land to parties outside the village, while others converted it for productive economic activities such as small businesses and service activities. This finding is consistent with Kamilah (2013), who found that economic factors are among the causes of agricultural land conversion.

The regional spatial plan of Rote Ndao Regency, regulated by Regional Regulation Number 7 of 2013-2033, was normatively designed to regulate spatial use based on protected and cultivated functions. However, in its implementation, the spatial plan has contributed to the increase of paddy field conversion in Rote Ndao Regency. The plan prioritizes the development of settlement, trade, service, tourism, and infrastructure areas in locations that were previously paddy fields because there is no formal designation of paddy fields as sustainable food agricultural land (LP2B). Consequently, paddy fields lack strong legal protection. Several paddy fields are located in areas designated as growth centers, such as around Ba'a and subdistrict centers. These areas are included in settlement, business, and public facility development zones within the spatial plan. Road development, service areas, and small and medium industrial activities included in the spatial plan have opened new access and increased land values, thereby triggering direct and gradual conversion of paddy fields.

Factors Causing Paddy Field Conversion in Rote Ndao Regency

The factors causing paddy field conversion in Rote Ndao Regency were population growth (X1), industry growth (X2), household income (X3), paddy field location (X4), and paddy field productivity (X5). Table 1 presents the partial test results from the multiple linear regression model.

Table 1. Partial Test Results

Model	Unstandardized B	Std. Error	Standardized Beta	t	Sig.
Constant	2.134	.826	-	2.583	.013
Population growth (X1)	.135	.061	.145	2.207	.032
Industry growth (X2)	.230	.083	.228	2.772	.008
Household income (X3)	.190	.074	.214	2.574	.013
Paddy field location (X4)	.296	.066	.326	4.498	.000
Paddy field productivity (X5)	.190	.058	.204	3.291	.002

Dependent variable: paddy field conversion. Source: SPSS analysis results (2024).

The regression equation obtained from the analysis was:

$$Y = 2.134 + 0.135X1 + 0.230X2 + 0.190X3 + 0.296X4 + 0.190X5 + e$$

Population Growth

The t-test result shows that the significance value of population growth (X1) on paddy field conversion (Y) was 0.032 < 0.05, and the calculated t-value of 2.207 was greater than the t-table value of 2.011.

Therefore, H0 was rejected and H1 was accepted. This means that population growth has a positive and significant effect on paddy field conversion in Rote Ndao Regency.

The coefficient value of 0.135 for X1 is positive, indicating that the higher the population growth, the higher the level of paddy field conversion. If population growth increases by 1%, paddy field conversion will increase by 0.135 units or 13.5%. This result is consistent with field conditions, where the population of Rote Ndao Regency has continued to increase. In 2020, the population was 143,764 people, increasing to 147,385 in 2021 and 149,317 in 2022 (BPS Rote Ndao Regency, 2023). Population growth increases the demand for housing and public facilities, and the more densely populated an area is, the greater the pressure on agricultural land (Zara, 2015). Some respondents built houses for their children or divided paddy fields among children, with some parts being cultivated and others converted.

Based on interviews, 91.85% of respondents stated that an increase in the number of family members was the main reason for land conversion. Most respondents indicated that they used part of their paddy fields to build houses for married children or to meet the need for larger family housing. This shows that population growth at the household level directly pressures the existence of paddy fields, especially in areas with limited yard space.

Industry Growth

The t-test result shows that the significance value of industry growth (X2) on paddy field conversion (Y) was 0.008 < 0.05, and the calculated t-value of 2.772 was greater than the t-table value of 2.011. Therefore, H0 was rejected and H1 was accepted. This means that industry growth has a positive and significant effect on paddy field conversion in Rote Ndao Regency.

The coefficient of 0.230 for X2 is positive, indicating that the higher the industry growth, the higher the paddy field conversion. If industry growth increases by 1%, paddy field conversion will increase by 0.230 units or 23.0%. In the field, the development of small industries and household-scale industries continues to increase, particularly in areas close to main roads. In 2020, the number of industries in Rote Ndao Regency was 1,046 units, increasing to 1,411 units in 2021 and 1,548 units in 2022 (BPS Rote Ndao Regency, 2023). Seeing the potential for profit, several respondents converted land previously used for rice cultivation into business locations such as workshops, kiosks, and food stalls.

A total of 85.19% of respondents agreed that the growth of non-agricultural sectors such as household industries and small services encouraged land conversion. Some respondents stated that they were encouraged to convert land because of new business opportunities around their residences, including kiosks, workshops, food stalls, and small rental shops, which were considered more profitable than maintaining paddy fields. Respondents in subdistricts such as Lobalain and Pantai Baru, where household industries and small services have begun to grow, more frequently mentioned that land conversion was caused by the attractiveness of the non-agricultural sector. This is consistent with secondary data showing an increase in household industries from 2019 to 2022.

Household Income

The significance value of household income (X3) on paddy field conversion (Y) was 0.013 < 0.05, and the calculated t-value of 2.574 was greater than the t-table value of 2.011. Therefore, H0 was rejected and H1 was accepted. This indicates that household income has a positive and significant effect on paddy field conversion in Rote Ndao Regency.

The coefficient of 0.190 for X3 is positive, meaning that the higher the household income, the higher the paddy field conversion. This result is consistent with Kapantow et al. (2015), who concluded that the higher the income of the community, the more likely people are to improve their welfare by building proper houses on available land and shifting from agriculture to more profitable and easier commercial sectors. If household income increases by 1%, paddy field conversion increases by 0.190 units or 19.0%.

Increased income may cause people to sell their land to obtain economic benefits, especially when agricultural returns are considered less profitable (Badoa et al., 2018). The income of residents in Rote Ndao Regency, based on gross regional domestic product per capita at current prices, increased consistently from IDR 17.5 million in 2019 to IDR 22.1 million in 2022 (BPS Rote Ndao Regency, 2023). Most respondents stated that income from non-agricultural sectors was higher; therefore, they converted their land into business premises such as shops, workshops, food stalls, and other businesses. People were also more

interested in selling land with high market value to obtain large amounts of cash quickly rather than cultivating paddy fields and obtaining uncertain harvest profits over a long period.

As many as 71.11% of respondents stated that low income from farming was a strong reason for land conversion. Respondents explained that income from paddy farming was insufficient to meet household economic needs. High production costs, low harvest yields, and unstable grain prices made many farmers feel that farming was unprofitable. Therefore, some chose to sell their land for consumptive needs such as paying for children's education, repaying debts, or meeting emergency expenses. Some respondents even stated that their paddy fields had become a burden because they no longer produced sufficient income.

Paddy Field Location

The t-test result shows that the significance value of paddy field location (X4) on paddy field conversion (Y) was 0.000 < 0.05, and the calculated t-value of 4.498 was greater than the t-table value of 2.011. Therefore, H0 was rejected and H1 was accepted. This indicates that paddy field location has a positive and significant effect on paddy field conversion in Rote Ndao Regency.

The coefficient value of 0.296 for X4 is positive, indicating that the higher the strategic value of the paddy field location, the higher the paddy field conversion. If the location value of paddy fields increases by 1%, paddy field conversion will increase by 0.296 units or 29.6%. Observations showed that paddy fields located near main roads or urban centers were converted more quickly into housing, roads, and supporting infrastructure. Communities tended to be attracted by high land selling prices and therefore chose to convert their land.

A total of 65.19% of respondents stated that strategic location was a major consideration in land conversion. Land located along main roads or near settlement centers was converted more quickly because of its high selling value and its potential for business use (Pondaag et al., 2018). Respondents in villages close to markets and public facilities converted more paddy fields into business places than those in remote areas. Therefore, location plays a role in accelerating the transformation of paddy fields into non-agricultural economic assets.

Paddy Field Productivity

The significance value of paddy field productivity (X5) on paddy field conversion (Y) was 0.002 < 0.05, and the calculated t-value of 3.291 was greater than the t-table value of 2.011. Therefore, H0 was rejected and H1 was accepted. This means that paddy field productivity has a positive and significant effect on paddy field conversion.

The coefficient of 0.190 for X5 is positive, indicating that the higher the paddy field productivity, the higher the value of paddy field conversion. If paddy field productivity increases by 1%, paddy field conversion increases by 0.190 units or 19.0%. This appears contradictory because productive land is generally expected to be maintained. However, some respondents chose to sell or convert productive land for several reasons, including purchase offers that were higher than agricultural returns, greater benefits if the land was developed into a business place, and land location far from the owner's residence (Adoe, 2023).

A total of 66.30% of respondents agreed that declining land productivity caused them to convert their paddy fields. Rainfed land, pest attacks, and limited maintenance resulted in inadequate harvests, even for household consumption. Under these conditions, farmers preferred to convert the land to other sectors considered more stable or profitable.

Coefficient of Determination

The R value, or correlation coefficient, was 0.949, indicating a strong relationship between the independent variables and the dependent variable. The R-square value, or coefficient of determination, was 0.900, indicating that 90% of the variation in the dependent variable can be explained by the independent variables in the regression model, while the remaining 10% is influenced by other factors not included in the model.

Thus, paddy field conversion in Rote Ndao Regency is 90% influenced by population growth, industry growth, household income, paddy field location, and paddy field productivity. The remaining 10% is influenced by other factors. The adjusted R-square value of 0.889 indicates that after adjustment for the

number of independent variables and the sample size, the simultaneous contribution of population growth, industry growth, household income, location, and productivity to paddy field conversion in Rote Ndao Regency is 88.9%, while 11.1% is influenced by other variables not examined in this study.

CONCLUSION AND RECOMMENDATION

Conclusion

1. Paddy fields in Rote Ndao Regency decreased in area from 2017 to 2022. In 2017, the total paddy field area was 19,771 ha, while in 2022 it decreased to 16,329 ha. The total area converted reached 3,442 ha. These lands are no longer used for rice farming but have been converted into various other uses. Most of the converted land was used for private and family housing, accounting for 61% of respondents. The land was used to build houses for children, expand settlements, and distribute family inheritance. In addition, 27% of respondents converted their land into business locations such as kiosks, workshops, restaurants, and rental houses. The remaining 12% stated that their land had been sold to other parties, generally due to urgent economic needs such as education and health expenses.
2. The factors causing paddy field conversion, based on questionnaire data processing, show that population growth was the most dominant factor, with 91.85% of respondents agreeing or strongly agreeing that the increase in family members led to increased settlement needs. Growth of industries and small businesses ranked second, with 85.19% of respondents acknowledging that new business opportunities in non-agricultural sectors encouraged land conversion. Low income was another important factor, as stated by 71.11% of respondents, who considered farming income insufficient to meet their living needs. Declining land productivity, mainly due to limited irrigation, uncertain weather, and pest attacks, was agreed upon by 66.30% of respondents as a driver of land conversion. Finally, land location also influenced conversion, with 65.19% of respondents stating that strategic land positions, such as locations near main roads or public facilities, increased the tendency to convert paddy fields into buildings or business premises.
3.

Recommendations

To support food security programs, the government needs to tighten permits for converting agricultural land into non-agricultural land through the designation and updating of sustainable food agricultural land (LP2B) in the regional spatial plan and detailed spatial plan so that productive paddy fields have clearer legal protection. Local governments also need to ensure that every location permit and development activity complies with spatial zoning and to reject permits in agricultural cultivation areas. In addition to tightening land conversion permits, the government should consider providing extension services to farmers on how to utilize existing agricultural land more optimally to obtain maximum benefits.

REFERENCES

Adoe, R. F. (2023). Faktor-Faktor Yang Mempengaruhi Alih Fungsi Lahan Sawah Dalam Dimensi Spasial di Kota Kupang. Universitas Nusa Cendana.

Ante, E., Benu, & Moniaga. (2016). Dampak ekonomi dan sosial alih fungsi lahan pertanian hortikultura menjadi kawasan wisata Bukit Rurukan di Kecamatan Tomohon Timur, Kota Tomohon. Jurnal Agri-Sosial Ekonomi Unsrat, 12(3), 113-124.

Badoa, Kapantow, & Ruauw. (2018). Faktor-faktor penyebab alih fungsi lahan pertanian di Kecamatan Tomohon Selatan Kota Tomohon. Jurnal Agri-Sosial Ekonomi Unsrat, 14(2), 195-204.

BPS NTT. (2022). Rote Ndao Dalam Angka. Kerjasama BPS Kabupaten Rote Ndao dengan Bappeda Kabupaten Rote Ndao.

Dewi, N. K., & Iwan, R. (2013). Identifikasi alih fungsi lahan pertanian dan kondisi sosial ekonomi masyarakat daerah pinggiran di Kecamatan Gunungpati Kota Semarang. Jurnal Pembangunan Wilayah dan Kota.

Kamilah, A. (2013). Analisis ekonomi alih fungsi lahan pertanian di Kota Bekasi: Kasus Kecamatan Bekasi Utara dan Gerbang. Jurnal Agribisnis dan Pengembangan Wilayah, 5(1), 36-49.

Kapantow, Kumaat, & Sondak. (2015). Faktor-faktor yang mempengaruhi alih fungsi lahan pertanian di Kabupaten Minahasa Selatan.

Ningsih, T. R. (2018). Karakteristik alih fungsi lahan dan pengaruhnya terhadap urban heat island di Caturtunggal Kabupaten Sleman, Yogyakarta. Master's thesis, UAJY.

Pondaag, C., Kumaat, R. M., & Pakasi. (2018). Faktor-faktor yang mempengaruhi terjadinya alih fungsi lahan pertanian di Kabupaten Minahasa Tenggara. Jurnal Agri-Sosial Ekonomi Unsrat, 14(2), 151-158.

Purwaningsih, Sutomo, & Istiqomah, N. (2010). Analisis dampak alih fungsi lahan terhadap tingkat ketahanan pangan rumah tangga petani di Kecamatan Karanganyar Jawa Tengah. Jurnal Agribisnis dan Penelitian Pembangunan Pedesaan.

Zara, R. (2015). Analisis penyebab alih fungsi lahan pertanian ke lahan non pertanian kabupaten/kota di Provinsi Jawa Tengah 2003-2013. Jurnal Eko-Regional, 10(1).