

Human Resources for Local Goat Breeders in Post-Mining Land Areas in Pomalaa District, Indonesia

La Haruddin*, Farra Sasmita, Hajar, Rustan Ari

*Department of Animal Science, Faculty of Agriculture, Sulawesi Tenggara University, Jl. Captain Piere Tendean No. 109, Baruga, Kendari City, Southeast Sulawesi, Indonesia

ARTICLE INFO

Article History:

Accepted: 01 March 2023

Published: 13 March 2023

Publication Issue

Volume 10, Issue 2

March-April-2023

Page Number

20-26

ABSTRACT

The ruminant livestock population in Southeast Sulawesi in 2021 for goats is spread evenly in 17 urban districts with a total of 195,575 heads. Goat farming in general in Southeast Sulawesi does not yet have a clear direction and purpose because breeders who raise goats are still extensive or semi-intensive. Local goats such as the Kacang goat and the Ettawa breed are the types of goats that are kept by many breeders in this area. Southeast Sulawesi has 69 mining business units with the largest area in North Konawe Regency at 2.400.6 hectares, Kolaka Regency at 1.215.28 hectares, and South Konawe Regency with 3.686.27 hectares owned by PT Antam Tbk and PT Vale Indonesia Tbk. This study explicitly examines the resources of local goat breeders in the post-mining land area in Polamalaa District, Kolaka Regency with a purposive sampling technique. The findings are then analyzed descriptively to reveal the actual phenomena and events that occurred during the research. The findings showed that the average age of the respondents as local goat breeders ranged from 46-60 years, which was dominated by men with the lowest level of education who had not graduated from elementary school. In addition to having a job as a breeder, the majority of breeders work in the food crop agriculture sector with more than 15-20 years of farming experience.

Keywords: Breeders, Local Goats, Post-Mining, Pomalaa

I. INTRODUCTION

The need for protein sources in Indonesia has increased every year due to the high public demand for meat, milk, and eggs. Consumption and demand for meat continue to increase every year without being matched by the production produced, so almost every year there is a gap between the production and

consumption of meat, so the government imports calves to reduce the decline in the livestock population [1]. The ruminant livestock population in Southeast Sulawesi in 2021 includes 43 dairy cattle, 357.555 beef cattle, 2.374 buffaloes, 755 horses, and 195.575 goats. Goats in general can meet people's needs for meat and milk and goats are one type of livestock that is quite easy to cultivate [2]. Goat farming in general in

Southeast Sulawesi does not yet have clear directions and objectives because breeders who raise goats are still extensive or semi-intensive and have high adaptability to various environmental conditions and have good productivity [3],[4].

The productivity of local goats will increase if three main things can be considered, namely seeds, feed, and management [5],[6]. The goat farming business hurts some people because it produces waste which can be a source of environmental pollution and becomes a pest for people's crops [7],[8].

Increasing the economic development and sustainability of the local goat livestock business can be realized by utilizing the post-mining area as a location for developing goat livestock. Utilizing post-mining land for raising livestock is more difficult than raising livestock in natural grazing or designated grazing areas because the soil ecosystem has not fully recovered for the development of goats on post-mining land [9],[10]. Post-mining land is generally characterized by low soil fertility due to the mixing of topsoil with subsoil, resulting in low soil organic matter content [11],[12]. Overcoming these problems, the development and sustainability of goat farming and mining areas is the first step by utilizing post-mining land as a location for the development of goat farming.

The potential of Southeast Sulawesi for the development and sustainability of the goat farming business is quite potential because there are 69 mining business units with the largest area in North Konawe Regency 2.400,6 hectares, Kolaka Regency 1.215,28 hectares and South Konawe Regency 3.686,27 hectares owned by PT. Antam Tbk and PT Vale Indonesia Tbk. The mining area can be planted with any type of grass or creeping Leguminosae as a ground cover plant, even though the quality of the forage may be lower than the forage plants that are deliberately cultivated for animal feed.

Until now, it is not known with certainty what animal feed is planted on post-nickel mining lands because the land conditions are low in organic matter and poor in nutrients which are suitable for planting forage

legumes as cover crops. Mapping the land, economy, and social community in post-mining areas is the first step in overcoming the obstacles faced by breeders and mining entrepreneurs in revitalizing post-mining land. However, in this study to inventory feed requirements in the form of forage in post-mining land areas, the researchers first examined the characteristics of the respondents.

II. METHODS AND MATERIAL

The research was carried out in the mining area of PT. Antam Tbk Pomalaa Kolaka Regency, Southeast Sulawesi. The research was conducted from April 2022 to July 2022.

The population is all objects that are the target of research or observation and have the same characteristics, while the sample is part of the population taken to be used as the object of direct observation and used as the basis for concluding. The population of this study was all local goat farmers living in the mining area of PT Antam Tbk Pomalaa, Kolaka, Southeast Sulawesi. Whereas the research sample is local goat breeders who raise their livestock in the post-mining area in Pomalaa District, Kolaka Regency, Southeast Sulawesi.

The sampling technique is carried out by determining specific criteria or considering certain characteristics of the sample or research subject to be studied. The determination of the Pomalaa Subdistrict as the research location was determined by purposive sampling based on the consideration that the subdistrict contains a nickel mining company, PT. Antam Tbk which is quite extensive and has the largest population of local goats among other sub-districts in Kolaka Regency.

Data collection techniques were carried out using the survey method, namely research that systematically and factually describes existing phenomena and explains the relationships between phenomena that occur, and makes interpretations to get the meaning of the phenomena being researched using the help of a

questionnaire. The research variables include the characteristics of breeders including age, formal and non-formal education, and farming experience which is then analyzed descriptively.

III. RESULTS AND DISCUSSION

The livestock business to produce domestic calves (cow-calf operations) is 99% carried out by smallholder breeders [13]. This business survives because livestock is kept in an integrated system with other farming businesses [14]. The crop and livestock integration system that has been carried out by farmers in rural areas will be able to increase efficiency and competitiveness as well as increase farmers' income [15],[16].



Figure 1. Condition of Cages for Breeders

Agricultural human resources needed for the future are human resources who master agricultural science and technology, have an entrepreneurial spirit, and are ready to face business competition, at the local, national, regional, and global levels. On the other hand, what is needed now and in the future is the figure of a modern cultured farmer, with the characteristics of having modern management skills, being able to work together, being specialized, and being able to work productively and efficiently. In other words, the figure of a farmer who has an industrial culture is needed for the present and the future.

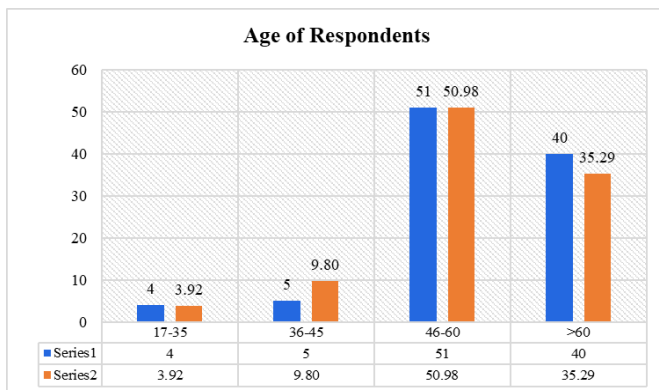


Figure 1. Age of Respondents

The issue of human resources is a serious problem for the livestock sector. The facts show that the capacity of human resources in farming is very low, causing a clear unfavorable impact on sectors that have a weak position, including the livestock sector. The use of a professional workforce means that it is directly related to education, skills, and entrepreneurial motivation for the development of livestock businesses [17]. This occurs as a consequence of competition with the industry and others. In this regard, it is necessary to allocate appropriate resources for development so that it is necessary to prepare an area that has the potential to be used as a livestock business development area.

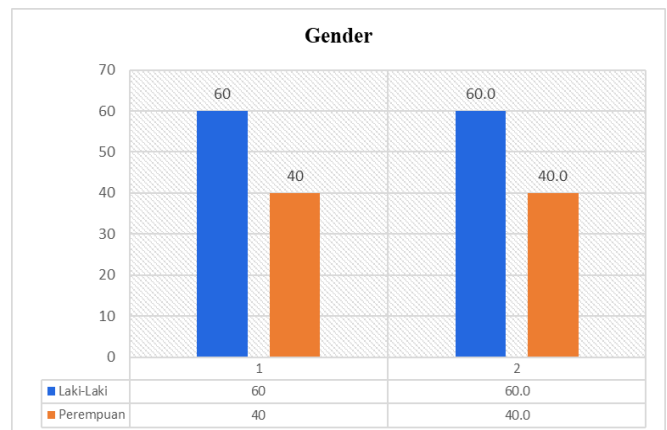


Figure 3. Gender of Respondents

Goat livestock business, gender has a share that can affect the performance of the business. Because physically it takes more ability to be able to carry out all the activities needed. Generally, work like this is done by men considering their greater physical strength compared to women. Activities such as looking for grass, transporting feed, cleaning stables,

and caring for cows require extra strength to achieve maximum results. But that doesn't mean women aren't allowed to do the same thing.

Based on figure 3, there are 60 male farmers and 40 female farmers. The percentage of male farmers is 60% and 40% of female farmers. The dominance of the male species is inseparable from the view that the livestock business is considered heavy. Besides that, the menial tasks that are carried out to meet the needs of the goats also require a lot of manpower. The role of men as bearers of the family burden to earn a living is one of the reasons.

Women who become breeders help in several activities or there is a division of labor. Heavy work will usually be delegated to male family members such as husbands. But the work will be divided again based on mutual agreement. It could be that one family doing the same work continuously or rotating jobs every time. All returned to the terms and conditions along with the agreement.

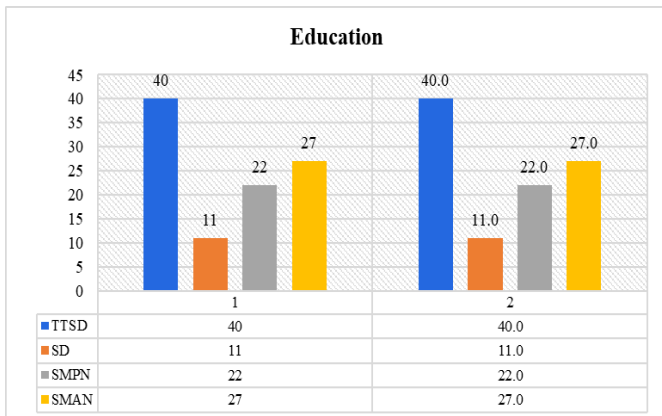


Figure 4. Respondents Education

The level of education can affect a person's decision-making process. One example is being a decision-maker in determining work. Education level can also influence skill level. The skills of a person will be visible and systematic if they have more knowledge. In addition, the level of education also has a share in the scope of work available. The higher the education, the more jobs are available to choose from. Farmers who are members of the Sarono Makmur cooperative have different levels of education.

Figure 4. It can be seen that the average education level of farmers is dominated by breeders who do not go to school with a total of 40 farmers. This amount is almost half of the total research sample or a percentage of 40%. This shows that the level of education of breeders is quite low. This is of course inseparable from the economic level of the farmer. Low economic levels make breeders have to drop out of school and choose to work to help support their families.

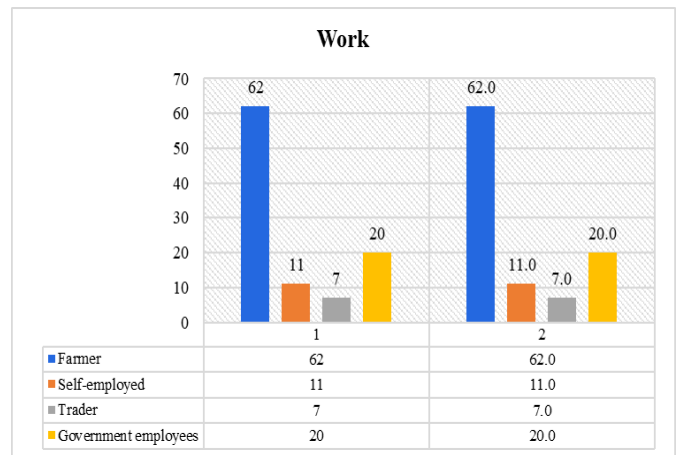


Figure 5. Work of Respondents

Figure 5. If there is more than one job, the main job is the one that takes the most time. If the time used is the same, then the job that gives the most income is considered the main job. The main occupation of breeders at the research location is farmers with a percentage value of 62%.

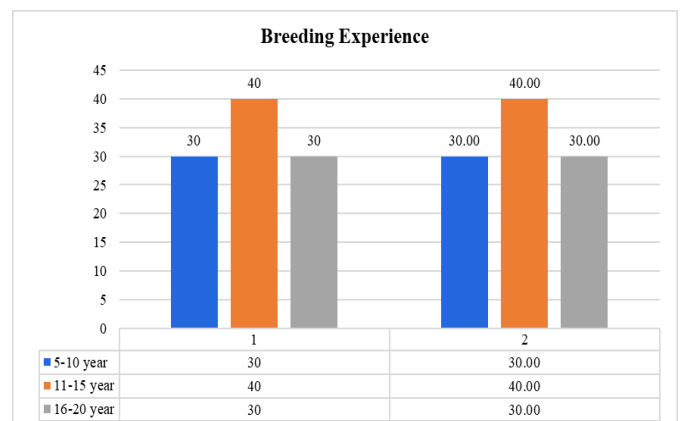


Figure 6. Livestock Experience

Breeding experience is needed to be able to understand how to handle livestock properly. In addition, the experience will also be very helpful in maximizing

livestock business [18]. Until now, there are still many people who make livestock as a means of subsistence [19]. Some breeders have been around for a long time, but some have just started a few years back. The youngest experience is at 5 to 10 years while the oldest experience is at 16 to 20 years.

Efforts to meet protein needs and increase food security, development, and development in the agricultural sector are urgently needed, especially in the livestock sub-sector [20]. Cultivation and business in the livestock sector can meet the adequacy of animal protein, improve economic welfare, and most importantly can stimulate regional development and progress [21].



Figure 7. Interview Process

Goats are one type of livestock that has great potential to be developed [22]. However, this is a challenge, especially for breeders who want to expand their business, because the land for businesses is narrowing due to rapid development [23]. Development in the livestock sector will ignite the passion for the development of livestock areas.

Utilization of regional potential that is less than optimal is one of the obstacles that is felt to be very influential on the development of livestock [24]. This is accompanied by a lack of attention from the local government in supporting the great potential of a region.

IV. CONCLUSION

The results of the study found that in general the breeders in the post-mining land area in Pomalaa

District had quite a long experience in developing local goats. This is evidenced by the results of a survey that most breeders have had 16-20 years of experience. However, on the other hand, some obstacles can hinder the development of local goats in post-mining land areas, namely the education level of the breeders.

V. REFERENCES

- [1]. L. O. Nafiu, M. A. Pagala, and S. L. Mogiye, "Karakteristik Produksi Kambing Peranakan Etawa Dan Kambing Kacang Pada Sistem Pemeliharaan Berbeda Di Kecamatan Toari, Kabupaten Kolaka," *Jurnal Ilmu Produksi dan Teknologi Hasil Peternakan*, vol. 8, no. 2, Art. no. 2, Jun. 2020, doi: 10.29244/jipthp.8.2.91-96.
- [2]. M. Abadi, L. O. Nafiu, L. O. A. Sani, and L. O. M. Munadi, "Korelasi Harga Jual Terhadap Ukuran Tubuh Ternak Kambing Kacang di Kecamatan Uluwoi Kabupaten Kolaka Timur," *Jurnal Peternakan Lokal*, vol. 3, no. 1, Art. no. 1, Mar. 2021, doi: 10.46918/peternakan.v3i1.842.
- [3]. N. Sandiah, M. A. Pagala, D. Zulkarnain, and L. O. M. Munadi, "Potensi Pengembangan Ternak Sapi Potong Dan Kambing Kacang Di Kabupaten Konawe Kepulauan," *Jurnal Peternakan (Jurnal of Animal Science)*, vol. 5, no. 2, Art. no. 2, Jul. 2021, doi: 10.31604/jac.v5i2.4237.
- [4]. A. S. Aku, H. Hafid, M. Rusdin, Y. Yaddi, and L. O. M. Munadi, "Sistem Pemeliharaan Dan Pertambahan Populasi Ternak Kambing di Kabupaten Muna, Indonesia," *Jurnal Agribest*, vol. 6, no. 1, Art. no. 1, Mar. 2022, doi: 10.32528/agribest.v6i1.5828.
- [5]. R. Badaruddin, A. Indi, H. A. Hadini, R. Aka, and L. O. M. Munadi, "Morphometric Differences in Body Dimensions of Local Goats Ladongi District, East Kolaka Regency," *Jurnal Pembelajaran Dan Biologi Nukleus*, vol. 8, no. 2, Art. no. 2, Jul. 2022, doi: 10.36987/jpbn.v8i2.2560.

- [6]. A. Aku, S. Takdir, Y. Yaddi, M. Abadi, and Muh. Munadi, "Survey of Disease Incidence In Goats In Muna Regency, Indonesia," *International Journal of Scientific Research in Science, Engineering and Technology*, vol. 8, no. 4, pp. 425–430, Aug. 2021, doi: 10.32628/IJSRSET218468.
- [7]. M. A. Pagala, L. O. M. Munadi, N. Sandiah, and D. Zulkarnain, "Potensi Integrasi Ternak Ruminansia Dan Tanaman Pangan Di Kabupaten Kolaka Timur," *Jurnal Peternakan (Jurnal of Animal Science)*, vol. 5, no. 2, Art. no. 2, Jul. 2021, doi: 10.31604/jac.v5i2.2567.
- [8]. M. Abadi, F. Nasiu, S. Surahmanto, A. Rizal, and F. Fatmawati, "The Carrying Capacity of Crop as Cow and Goat Feed in Muna Barat Regency," *Buletin Peternakan*, vol. 43, no. 3, Art. no. 3, Aug. 2019, doi: 10.21059/buletinpeternak.v43i3.34630.
- [9]. J. Ariansyah, "Potensi Pengembangan Usaha Peternakan Terpadu Di Atas Lahan Bekas Tambang Pada Pt Kpc Kutai Timur," *Ziraa'ah Majalah Ilmiah Pertanian*, vol. 41, no. 2, Art. no. 2, Jun. 2016, doi: 10.31602/zmip.v41i2.421.
- [10]. M. F. Pires-Lira, E. M. de Castro, J. M. S. Lira, C. de Oliveira, F. J. Pereira, and M. P. Pereira, "Potential of *Panicum aquaticum* Poir. (Poaceae) for the phytoremediation of aquatic environments contaminated by lead," *Ecotoxicology and Environmental Safety*, vol. 193, p. 110336, Apr. 2020, doi: 10.1016/j.ecoenv.2020.110336.
- [11]. L. C. Bell, "Establishment of native ecosystems after mining — Australian experience across diverse biogeographic zones," *Ecological Engineering*, vol. 17, no. 2, pp. 179–186, Jul. 2001, doi: 10.1016/S0925-8574(00)00157-9.
- [12]. S. L. Bruce et al., "A field study conducted at Kidston Gold Mine, to evaluate the impact of arsenic and zinc from mine tailing to grazing cattle," *Toxicology Letters*, vol. 137, no. 1, pp. 23–34, Jan. 2003, doi: 10.1016/S0378-4274(02)00378-8.
- [13]. J. P. Dubeuf, "The social and environmental challenges faced by goat and small livestock local activities: Present contribution of research–development and stakes for the future," *Small Ruminant Research*, vol. 98, no. 1, pp. 3–8, Jun. 2011, doi: 10.1016/j.smallrumres.2011.03.008.
- [14]. M. A. Pagala, D. Zulkarnain, and L. O. M. Munadi, "Kapasitas Daya Tampung Hijauan Pakan Ternak dan Hasil Ikutan Perkebunan Kelapa Sawit di Kecamatan Tanggetada Kabupaten Kolaka," *Jurnal Sosio Agribisnis*, vol. 5, no. 2, Art. no. 2, Oct. 2020, doi: 10.33772/jsa.v5i2.9918.
- [15]. L. O. M. Munadi, H. Hidayat, L. O. Sahaba, and I. Inal, "Pola dan Sistem Pemeliharaan Ternak Sapi Bali di Kabupaten Muna," *JIPPM*, vol. 1, no. 3, p. 131, Sep. 2021, doi: 10.56189/jippm.v1i2.19968.
- [16]. M. A. Pagala, L. O. Munadi, and D. Zulkarnain, "Diversity And Green Types Carrying Capacity Bali Beef In Oil Palm Plantation In Kolaka District," *Indonesian Journal Of Animal Agricultural Science (IJAAS)*, vol. 1, no. 1, Art. no. 1, May 2020, doi: 10.33772/ijaas.v1i1.11984.
- [17]. M. Cheng, J. Quan, J. Yin, X. Liu, Z. Yuan, and L. Ma, "High-resolution maps of intensive and extensive livestock production in China," *Resources, Environment and Sustainability*, vol. 12, p. 100104, Jun. 2023, doi: 10.1016/j.resenv.2022.100104.
- [18]. M. MacKinnon, "Morphometric and husbandry changes among livestock in ancient North Africa from c. 1000 BCE to c. 700 CE," *Quaternary International*, Dec. 2022, doi: 10.1016/j.quaint.2022.11.010.
- [19]. C. Nyakwawa, A. Mulagha-Maganga, and J. H. Mangisoni, "Profit inefficiency of goat farming in Malawi: A Bayesian approach," *Heliyon*, vol. 8, no. 11, p. e11318, Nov. 2022, doi: 10.1016/j.heliyon.2022.e11318.

- [20]. T. Te-Chaniyom, A. F. Geater, W. Kongkaew, U. Chethanond, and V. Chongsuvivatwong, "Goat farm management and Brucella serological test among goat keepers and livestock officers, 2011–2012, Nakhon Si Thammarat Province, southern Thailand," *One Health*, vol. 2, pp. 126–130, Dec. 2016, doi: 10.1016/j.onehlt.2016.08.001.
- [21]. D. Thirunavukkarasu, M. Jothilakshmi, M. V. Silpa, and V. Sejian, "Factors driving adoption of climatic risk mitigating technologies with special reference to goat farming in India: Evidence from meta-analysis," *Small Ruminant Research*, vol. 216, p. 106804, Nov. 2022, doi: 10.1016/j.smallrumres.2022.106804.
- [22]. L. Atassi et al., "Environment suitability mapping of livestock: A case study of Ethiopian indigenous sheep and goats," *Small Ruminant Research*, vol. 216, p. 106775, Nov. 2022, doi: 10.1016/j.smallrumres.2022.106775.
- [23]. L. O. M. Munadi, D. Zulkarnain, and M. A. Pagala, "Green Support Capacity for Livestock Feed and Yield of Oil Palm Plantation in Watubangga Sub District Kolaka District," *Buletin Penelitian Sosial Ekonomi Pertanian Fakultas Pertanian Universitas Haluoleo*, vol. 23, no. 1, Art. no. 1, Apr. 2021, doi: 10.37149/bpsosek.v23i1.16940.
- [24]. W. Ayalew, J. M. King, E. Bruns, and B. Rischkowsky, "Economic evaluation of smallholder subsistence livestock production: lessons from an Ethiopian goat development program.," *Ecological Economics*, vol. 45, no. 3, pp. 473–485, Jul. 2003, doi: 10.1016/S0921-8009(03)00098-3.

Cite this article as :

La Haruddin, Farra Sasmita, Hajar, Rustan Ari, "Human Resources for Local Goat Breeders in Post-Mining Land Areas in Pomalaa District, Indonesia ", *International Journal of Scientific Research in Science, Engineering and Technology (IJSRSET)*, Online ISSN : 2394-4099, Print ISSN : 2395-1990, Volume 10 Issue 2, pp. 20-26, March-April 2023. Available at doi : <https://doi.org/10.32628/IJSRSET231024>
Journal URL : <https://ijsrset.com/IJSRSET231024>