The Livelihood Strategies of Dry Land Farmers in Karang Bayan Village, Indonesia

Iketut Budastra, Taslim Syah, IGL. Partatanaya, Suparmin, Halil*

***Agribusiness Department, Mataram University**

DOI: https://dx.doi.org/10.47772/IJRISS.2024.807057

Received: 14 June 2024; Revised: 24 June 2024; Accepted: 28 June 2024; Published: 01 August 2024

ABSTRACT

Provision of prosperous livelihood opportunities and effective supports for capacity building are necessary and strategic for effective poverty alleviation and equitable development in every country, including Indonesia. However, a mismatch between intervention and need of the target beneficiaries is widely reported in the literature. This problem is potentially reduced by better understanding the livelihood context of the target beneficiaries. This paper analyzed the livelihood assets and strategies of dry land farmers in relation to the opportunities available. The analyses were descriptive in nature and mainly based on primary data collected through in-depth interviews of 30 randomly selected households during November to December 2023. The analyses found that farmers attempted to sustainably improve their livelihoods by strategically utilize livelihood assets to realize the opportunities available for increasing income and reducing expenditure and vulnerability. The farmers' principal strategies were increasing income by additional income sources, reducing expenditure by thrifty spending and increasing income, and reducing vulnerability by balancing expenditure with incomes, farm diversification, credit access, savings, and group participation. Identified policy implications were appropriate intervention programs for developing the livelihood opportunities and building livelihood asset capacities. The programs should include trainings on sustainable farming practice, animal husbandry, agroindustry, wood-base handcrafts, and financial and digital literacy; and facilitation for access to: formal financial services, the government credit and insurance schemes, the agroforestry scheme, piped drinking water and electricity services, and housing and residential improvement schemes.

Keywords: livelihood strategy, livelihood assets, dry land farmer, Indonesia

INTRODUCTION

Poverty alleviation has become a major focus of socio-economic development programs and activities in every country worldwide, including Indonesia, since the introduction of the millennium development goals (MDGs). As a result, the proportion of population living in poverty declined substantially. In Indonesia, the proportion of population living in poverty declined about 2,3 percent during the last 10 years, from 11.66% in 2012 to 9.36% in 2023 (Badan Pusat Statistik, 2024). The poverty level was greatly different among regions, higher levels were found in eastern regions such as Nusa Tenggara Barat province with 3. 85% poverty rate in 2023.

The situation indicates the need of systematical searches for improved poverty alleviation programs and activities in Indonesia by addressing weaknesses of the ongoing social protection and economic empowerment programs. For the policy design intention, one of the strategic issues is concerning the mismatch between the interventions and the need of the target households. The mismatch is potentially reduced by better understanding the livelihood context of the target beneficiaries using a sustainable asset management approach (Natarajan et al., 2022; Tambe, 2022). The households strategically attempt to sustainably improve and maintain their livelihoods, by using their livelihood assets to realize the opportunities available and to address challenges in their living environments. Hence, the households are seen as managers of their own livelihood assets.

The objectives of this paper are to understand the livelihood assets and strategies of the poor by taking agroforestry farmers in Karang Bayan Village, Lombok Barat District, Nusa Tenggara Province, Indonesia, as the case study. The results contribute new scientific information about the livelihood assets and strategies of

smallholder farmers. The results also have practical implications for poverty alleviation program design to better match the needs of the target beneficiaries

RESEARCH METHOD

The research method is descriptive and using a sustainable livelihood system framework. The research objectives are attained by collecting primary data, processing, analyzing, explaining and drawing conclusions. The framework of sustainable livelihood system is widely adopted for poverty reduction policy formulations (Barati, A.A., Zhoolideh, M., Moradi, 2022; Fahad et al., 2023; Y. He & Ahmed, 2022; Hendratmi et al., 2022; Su et al., 2021; Wenjing Li, Chuanmin Shuai, Yu Shuai, Xin Cheng, Yue Liu, 2020). According to these authors, "a life is sustainable if it is able to face and recover from the various pressures of life's storms, maintain or increase its capacity and number of assets, provide sustainable living opportunities for future generations, and make a positive contribution to the lives of local and global communities in the short and long term."

This research was conducted in "Karang Bayan" village, West Lombok District, Nusa Tenggara Barat Province, Indonesia. This place was chosen purposively because it is a dry land agricultural village as the main activity. This criterion is in accordance with the issue that is of concern to this research, namely: life strategies of dry land farming households. A simple random sampling technique was applied for the selection of 30 farmers (as respondents) from about a hundred of dry land farmer households in the village.

Data collection was carried out by interviewing respondents based on questionnaires that had been prepared in accordance with the research objectives. The questionnaire consisted of open-ended questions about: demographic characteristics, livelihood contextual aspects, livelihood assets and livelihood strategies.

The operational definition of the research variables are as follows. Livelihood assets are differentiated into 5 types, namely: human capital, physical capital, financial capital, social capital, and political capital. Human capital refers to the knowledge, skills, work capacity and health condition, measured as length of formal education; fields of work experience; and health condition. Physical capital includes: houses, warehouses, agricultural land (natural capital), and vehicles. Financial capital is financial resources including cash and goods that can be easily converted into cash, such as: livestock, golds and output/input inventories. Social capital is defined as the social resources, including: membership of groups and cooperatives. Political capital is the ability to influence public/community decision making related to rights to services and access to natural resources. These capitals were measured as respondents' opinions on a scale of 1- lowest to 5-highest. Livelihood strategy is a combination of activity choices and allocation of livelihood resources adopted by a household to sustainably realize its livelihood goals (Natarajan et al., 2022; Tambe, 2022; Wang et al., 2021). Specifically, household livelihood strategies for the purposes of increasing income; reducing expenditure; and reduce vulnerability or increase resilience to various life risk pressures. This variable is approached by asking respondents directly.

The interviews were caried out from 7 November 2023 to 30 November 2023. Collected data were analyzed using descriptive statistics; and presented in table and graph formats.

RESULT AND DISCUSSION

3.1. The Village Livelihood General Situation

With an area of 70.24 square kilometers and mountainous topography, the village is located at an altitude between 700-800 meters above sea level, and near the forest. Almost the entire area is dry (unirrigated) land, such as: smallholder plantations, moors, rainfed rice fields, and forests. The dominant vegetation of woody trees include: durian, *aren* palm, candlenut and coffee trees. In 2022, the Village statistics reported that the village was inhabited by 533 residents or 120 households with a density of 12 people/km^2 and a sex ratio of 102 or slightly more men than women. The majority population were with low levels of education backgrounds, 9 years or less of formal education. The economy was an agrarian economy. In 2022, the majority (88%) of the households had main incomes from agricultural related activities. The farmers *were* organized themselves into 12 groups. The village housing infrastructure was poor in terms of access to piped clean water service (40 percent), and to electricity service (10 percent).

3.2. The Farmers' Livelihood Opportunity and Treat

Livelihood opportunity refers to the opportunity available to a household to increase income, reduce expenditure and reduce vulnerability. Identified opportunities by the respondents are given in Table I. The opportunities for increasing household income were increasing farm productivity and getting additional works such as casual laboring, technical workers, rising animals and entrepreneurs. The opportunities to reduce expenditures were applying thrift cash expenditure strategies and reducing/substituting uses of external inputs for production. The opportunities to reduce vulnerability frequently mentioned were cropping and income source diversification, savings and access to financial services, and social group participation. On the other hand, identified treats were moderate risks of pest and disease attacks, climate changes, and price instability. Risks of natural disasters and social conflicts were very low.

The identified opportunities were closely related to the circumstances of the environment and the capacity of the respondents' livelihood assets (Aazami & Shanazi, 2020; Asante et al., 2021; Bires & Raj, 2020; Deng et al., 2020; Nguyen & Leisz, 2021; Uddin et al., 2021; Wang et al., 2021). For example, technical service workers and entrepreneurship activities were not opportunities for farmers with limited skills and financial capacities. Similarly, access to financial services was not an opportunity for farmers with limited human and social capitals. Improving the variety of livelihood opportunities available in the environment was regarded as a potential policy for the poor such as smallholder farmers to lift up their livelihoods.

Table I Frequency Distribution of Opportunities Available According to the respondents

Income		**Expenditure Reduction**		**Resilience**	
Opportunity	**Frequency**	**Opportunity**	**Frequency**	**Opportunity**	**Frequency**
Increasing farm productivity	13 (25%)	Thrift consumption/ expenditure	14 (33%)	Cropping system and income source diversification:	26 (47%)
Getting additional works or employment	38 (75%)	Reducing/ substituting uses and purchases of external inputs for production	28 (67%)	Savings and access to financial services	28 (51%)
				Social group participation	1 (2%)
Total*)	51(100%)		42 (100%)		55 (100%)

Source: Primary data (2023)

Note: *) Several respondents reported more than 1 opportunities

3.3. The Farmers' Livelihood Assets

The farmers' livelihood Assets was differentiated into five, namely; human, physical, financial, social and political capitals, as explained in the methodology section. For simplicity reason, the assets are measured in 5 scale indices where 1 was the smallest and 5 was the largest. The frequency distribution of the respondents by asset capacity is provided in Table II. It shows that the majority of the farmers owned small and very small capacity in human, physical, financial, and political capitals, but relatively large capacity in social capital. This was as expected since they were smallholders living in a remote rural area with low population density and underdeveloped supporting infrastructure. Farmers with larger asset capacities have better livelihood opportunities (R. wei He et al., 2022; Y. He & Ahmed, 2022; Natarajan et al., 2022; Tambe, 2022; Wang et al., 2021). Therefore, appropriate capacity building programs are necessary to sustainably improve the farmers' human, physical, financial and political capitals. With respect to human capitals, training and facilitation programs that provide the right knowledge, skills, and attitudes for the farmers are necessary. Among the potential training and facilitation subjects are sustainable dry land farming practices, chicken and cattle

husbandry, wood-based handcrafts, and micro-business model. With respect to physical capitals, the potential programs are facilitation for access to forest land under the ongoing agroforestry scheme, facilitation for access to piped drinking water and electricity services, and facilitation to access house and residential improvement schemes. With respect to financial capitals, the potential programs include financial literacy and management training, and facilitation for access to formal financial services, and the government credit and insurance schemes. With respect to political capital, the potential program is facilitation for participation in the village or community planning processes.

Table II Frequency Distribution of Respondents by Livelihood Asset Capacity

Indices	**Human**		**Physical**		**Financial**		**Social**		**Political**	
	Person	**%**	**Person**	**%**	**Person**	**%**	**Person**	**%**	**Person**	**%**
1	14	47	12	40	23	77	1	3	18	60
2	1	3	11	37	4	13	6	20	0	0
3	7	23	5	17	0	0	0	0	4	13
4	1	3	1	3	0	0	5	17	1	3
5	7	23	1	3	3	10	18	60	7	23
Total	30	100*	30	100	30	100	30	100	30	100*

Source: Primary data (2023)

Notes: *it does not add up 100% due to rounding errors

3.4. The Farmers' Livelihood Strategy

In their attempts to increase income, the farmers took eight 8 different strategies (Table III). Each of these strategies included increasing farm productivity as farming was the main occupation of the farmers. Only one of the strategies did not include one or more income generating initiatives, such as: farm produce processing, trading, animal rising, technical worker and casual laborer. This confirmed the claim that smallholder farmers tend to have multiple income earning initiatives to sustain livelihoods (Abera et al., 2021; Araro et al., 2020; Ayana et al., 2022; Li & Zander, 2020).

Table III Frequency Distribution of the Respondents by Income Strategies

No	**Strategy**	**Frequency (person)**	**Percentage (%)**
1	Increasing farm productivity	7	23
2	Increasing farm productivity & processing	6	20
3	Increasing farm productivity & trading	6	20
4	Increasing farm productivity & animal rising	4	14
5	Increasing farm productivity & technical worker	3	10
6	Increasing farm productivity & casual laborer	2	7
7	Increasing farm productivity, processing & technical worker	1	3
8	Increasing farm productivity, processing & trading	1	3
Total		30	100

Source: Primary data (2023)

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS |Volume VIII Issue VII July 2024

To reduce expenditures, the farmers applied 5 strategies (Table IV). Each of these strategies included a thrifty initiative (Table 3). One of the strategies solely relied on the thrifty initiative (strategy no.1), while the other four combined the thrifty initiative with another initiative such as self-producing foods, self-producing farm inputs, reducing the use of bought farm inputs, and reducing the use of paid laborers (strategy no. 2-5). The frequency distribution statistics indicated that the thrifty strategy (no.1) was the most popular, adopted by 47 percent of the respondents. Thus, thrifty cash expenditure was the principal component of the farmers' strategies to reduce expenditure. Training and facilitation programs to enhance the farmers' capacities to produce own foods, farm inputs, and to manage income-expenditure cashflows are necessary.

Table IV The Household Strategy to Reduce Expenditure

No	Strategy	Frequency (person)	Percentage (%)
1	Thrifty	14	47
2	Thrifty & self-producing foods	6	20
3	Thrifty, self-producing farm inputs	5	17
4	Thrifty & reducing the use of farm inputs	3	10
5	Thrifty & reducing the use of paid laborers	2	6
Total		30	100

Source: Primary data (2023)

To reduce vulnerabilities, the farmers implemented 6 different strategies (Table V). One of these strategies applied 'balancing expenditure with income' (BEI) as a sole strategy (no.1), while the other 5 strategies (no. 2-6) combined the BEI with another component, namely: farm diversification, additional income sources, credit access, savings, and group participation. Hence, the farmers attempted to reduce vulnerabilities by balancing expenditure with income, increasing and diversifying income, having credit access, savings, and participating in a group to get supports from others. None of the respondents included the benefits of existing social protection programs in their vulnerability reduction strategies. Among the ongoing social protection programs are health insurance for the poor, poor family support, scholarships for the poor, rice for the poor, and house and residential improvement. Therefore, facilitation for accessing these programs are necessary, as mentioned in Section 3.3.

Table V The Household Strategy to Reduce Vulnerability

No	Strategy	Frequency (person)	Percentage (%)
1	Balancing expenditure with income	8	26
2	Balancing expenditure with income & farm diversification	8	26
3	Balancing expenditure with income & additional income source	10	36
4	Balancing expenditure with income & credit access	2	8
5	Balancing expenditure with income & savings	1	2
6	Balancing expenditure with income & group participation	1	2
Total		30	100

Source: Primary data (2023)

The extent to which the livelihood strategies followed by the farmers successfully achieving the goal relied on the capacity of their livelihood assets (Natarajan et al., 2022; Tambe, 2022). Farmers with larger asset capacity would be more likely to success in terms of increasing income, reducing expenditure, and reducing vulnerability,

than farmers with smaller asset capacity would be. Therefore, effective capacity building programs were deemed necessary for the farmers as they owned a relatively small capacity of human, physical, financial, and political capitals/

CONCLUSIONS

The capacity of livelihood assets owned by the majority of the farmers was small and very small capacities in terms of human, physical, financial, and political capitals, but relatively large in terms of social capital. In order to sustain livelihoods, farmers attempted to optimally utilize their livelihood assets to increase incomes, reduce expenditure and vulnerability. The strategies followed by the farmers to increase income were increasing farm productivity (IFP) and several combinations of IFP and one or more of the following activities: farm produce processing, trading, animal rising, technical worker and casual laborer. The strategies followed by the farmers to reduce expenditure were thrifty, and several combinations of thrifty and one of the following initiatives: self-producing foods, self-producing farm inputs, reducing the use of bought farm inputs, and reducing the use of paid laborers. The strategies followed by the farmers to reduce vulnerability were: balancing expenditure with income' (BEI), and several combinations of BEI and one of the following initiatives: farm diversification, additional income sources, credit access, savings, and group participation.

The range of livelihood opportunities available to farmers and the capacity of livelihood assets owned by farmers together shaped their livelihood strategies and determined the outcomes in terms of increasing income, reducing expenditure, and reducing vulnerability. Therefore, developing the variety of livelihood opportunities available to the farmers would enable them to lift up livelihoods. Identified potential programs are infrastructure development (such as roads, piped water, and electricity networks), new technology introduction to improve farm productivity, and access to market (e.g., linking local resources to district/provincial business centers). Providing appropriate training and facilitation programs would be helpful for farmers to build their livelihood asset capacities. The subjects of training programs may include sustainable farming practices, animal husbandry, agroindustry, wood-base handcrafts, and financial and digital literacy. The facilitation programs may include facilitation for access to formal financial services, the government credit and insurance scheme, the ongoing agroforestry scheme, piped drinking water and electricity services, and housing and residential improvement schemes.

REFERENCES

1. Aazami, M., & Shanazi, K. (2020). Tourism wetlands and rural sustainable livelihood: The case from Iran. Journal of Outdoor Recreation and Tourism, 30(August 2019), 100284. https://doi.org/10.1016/j.jort.2020.100284
2. Abera, A., Yirgu, T., & Uncha, A. (2021). Determinants of rural livelihood diversification strategies among Chewaka resettlers' communities of southwestern Ethiopia. Agriculture and Food Security, 10(1), 1–19. https://doi.org/10.1186/s40066-021-00305-w
3. Araro, K., Legesse, S. A., & Meshesha, D. T. (2020). Climate Change and Variability Impacts on Rural Livelihoods and Adaptation Strategies in Southern Ethiopia. Earth Systems and Environment, 4(1), 15–26. https://doi.org/10.1007/s41748-019-00134-9
4. Asante, F., Guodaar, L., & Arimiyaw, S. (2021). Climate change and variability awareness and livelihood adaptive strategies among smallholder farmers in semi-arid northern Ghana. Environmental Development, 39(March), 100629. https://doi.org/10.1016/j.envdev.2021.100629
5. Ayana, G. F., Megento, T. L., & Kussa, F. G. (2022). The extent of livelihood diversification on the determinants of livelihood diversification in Assosa Wereda, Western Ethiopia. GeoJournal, 87(4), 2525–2549. https://doi.org/10.1007/s10708-021-10379-5
6. Badan Pusat Statistik. (2024). Profil Kemiskinan Indonesia. https://ntb.bps.go.id/ (10 Juni 2024).
7. Barati, A.A., Zhoolideh, M., Moradi, M. (2022). Multidimensional poverty and livelihood strategies in rural Iran. Environmental Devevelopment Sustainability 12963–12993, 24, 12963–12993. https://doi.org/https://doi.org/10.1007/s10668-021-01977-x
8. Bires, Z., & Raj, S. (2020). Tourism as a pathway to livelihood diversification: Evidence from biosphere reserves, Ethiopia. Tourism Management, 81(November 2019), 104159. https://doi.org/ 10.1016/ j.tourman.2020.104159

9. Deng, Q., Li, E., & Zhang, P. (2020). Livelihood sustainability and dynamic mechanisms of rural households out of poverty: An empirical analysis of Hua County, Henan Province, China. Habitat International, 99(October 2019), 102160. https://doi.org/10.1016/j.habitatint.2020.102160
10. Fahad, S., Nguyen-Thi-Lan, H., Nguyen-Manh, D., Tran-Duc, H., & To-The, N. (2023). Analyzing the status of multidimensional poverty of rural households by using sustainable livelihood framework: policy implications for economic growth. Environmental Science and Pollution Research, 30(6), 16106–16119. https://doi.org/10.1007/s11356-022-23143-0
11. He, R. wei, Guo, S. li, Deng, X., & Zhou, K. (2022). Influence of social capital on the livelihood strategies of farmers under China's rural revitalization strategy in poor mountain areas: A case study of the Liangshan Yi autonomous prefecture. Journal of Mountain Science, 19(4), 958–973. https://doi.org/10.1007/s11629-020-6395-6
12. He, Y., & Ahmed, T. (2022). Farmers' Livelihood Capital and Its Impact on Sustainable Livelihood Strategies: Evidence from the Poverty-Stricken Areas of Southwest China. Sustainability (Switzerland), 14(9). https://doi.org/10.3390/su14094955
13. Hendratmi, A., Agustina, T. S., Sukmaningrum, P. S., & Widayanti, M. A. (2022). Livelihood strategies of women entrepreneurs in Indonesia. Heliyon, 8(9), e10520. https://doi.org/10.1016/ j.heliyon. 2022.e 10520
14. Li, Q., & Zander, P. (2020). Resilience building of rural livelihoods in PES programmes: A case study in China's Loess Hills. Ambio, 49(4), 962–985. https://doi.org/10.1007/s13280-019-01236-4
15. Natarajan, N., Newsham, A., Rigg, J., & Suhardiman, D. (2022). A sustainable livelihoods framework for the 21st century. World Development, 155, 105898. https://doi.org/10.1016/j.worlddev.2022.105898
16. Nguyen, Y. T. B., & Leisz, S. J. (2021). Determinants of livelihood vulnerability to climate change: Two minority ethnic communities in the northwest mountainous region of Vietnam. Environmental Science and Policy, 123(May), 11–20. https://doi.org/10.1016/j.envsci.2021.04.007
17. Su, F., Song, N., Ma, N., Sultanaliev, A., Ma, J., Xue, B., & Fahad, S. (2021). An assessment of poverty alleviation measures and sustainable livelihood capability of farm households in rural china: A sustainable livelihood approach. Agriculture (Switzerland), 11(12). https://doi.org/10.3390/agriculture11121230
18. Tambe, S. (2022). Sustainable Livelihoods Approach (pp. 45–56). https://doi.org/10.1007/978-3-030-90491-3_4
19. Uddin, M. S., Haque, C. E., Khan, M. N., Doberstein, B., & Cox, R. S. (2021). "Disasters threaten livelihoods, and people cope, adapt and make transformational changes": Community resilience and livelihoods reconstruction in coastal communities of Bangladesh. International Journal of Disaster Risk Reduction, 63(June), 102444. https://doi.org/10.1016/j.ijdrr.2021.102444
20. Wang, W., Lan, Y., & Wang, X. (2021). Impact of livelihood capital endowment on poverty alleviation of households under rural land consolidation. Land Use Policy, 109(June), 105608. https://doi.org/10.1016/j.landusepol.2021.105608
21. Wenjing Li, Chuanmin Shuai, Yu Shuai, Xin Cheng, Yue Liu, F. H. (2020). How Livelihood Assets Contribute to Sustainable Development of Smallholder Farmers. Journal of International Development, 32(3), 408–429. https://doi.org/https://doi.org/10.1002/jid.3461