LIVELIHOOD SECURITY OF IRULIGA TRIBES IN RAMANAGARA DISTRICT OF KARNATAKA

AMAR, M. I.

PAMB 2119

DEPARTMENT OF AGRICULTURAL EXTENSION

COLLEGE OF AGRICULTURE, GKVK

UNIVERSITY OF AGRICULTURAL SCIENCES

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By
AMAR, M. I.
PAMB 2119

UNIVERSITY OF AGRICULTURAL SCIENCES
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With regardful memories……

In everyone's life, the day arises when one has to shape the feelings in words. Sometimes, the words become unable to express the feelings of the mind, because the feelings of heart are beyond the reach of the words. When, I come to complete this manuscript, so many memories have rushed through my mind which is full of gratitude to those who encouraged and helped me at various stages of this research. It gives me immense pleasure to record my feelings at this place.

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Bengaluru

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(AMAR, M. I.)

Status of Livelihood Security among Iruliga Tribes of Ramanagara District

M I AMAR, PAMB 2119

Department of Agricultural Extension, CoA, GKVK

INTRODUCTION

Tribes, referred to as indigenous peoples, are distinct communities that have maintained a unique identity, cultural heritage, and lifestyle for generations. Spread across the globe, these communities play a crucial role in preserving cultural diversity and maintaining a harmonious relationship with the environment.

Irula tribe belonging to the Dravidian family, Iruliga means "dark people/darkness" in Kannada. The root word irula means "darkness" in Tamil and Malayalam. Thurston speculated that it either referred to the darkness of the jungles which they inhabited or their dark skin complexion. Iruligas are distributed in Ramanagara and Mysore districts of Karnataka.

Predominant occupation of the Iruliga tribe has been rat, snake catching and collection of honey. They also work as laborers in the agricultural fields during the sowing and harvesting seasons. According to the 2011 Census, the total population of the Iruliga tribe in Karnataka is 11,144.

The concept of rural livelihood security (RLS) focuses on capability, equity, and sustainability of the people. Since the concept implies the protection or assurance of the means of livelihood for the masses not only at the present time but also in the future, it reflects equally the concern for both the inter-generational and the intra- generational equity.

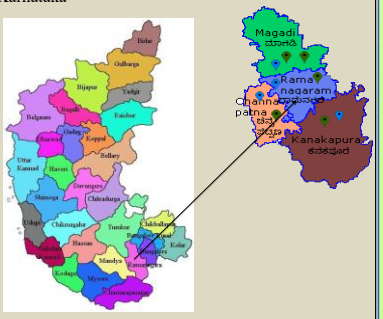
OBJECTIVE

To measure the livelihood security of Iruliga tribe in Ramanagar district

MATERIAL AND METHODS

Research design: *Ex-post-facto research* design

Locale of the study: Ramanagara District of Karnataka



Selection of Sample: In Ramanagara district, Ramanagara taluk was selected for the study. Within the taluk, 6 villages were chosen. From each village, 10 tribal individuals were selected randomly for participation in the study. Thus, total sample size was 60 for the study.

Analysis of Data: Mean, standard deviation, frequency (f) and percentage (%)

RESULTS AND DISCUSSION

(n=60)

Table 1: Components wise distribution of livelihood security of Iruliga tribes

Sl. No	Dimensions of livelihood security	Categories					
		Low		Medium		High	
		f	%	f	%	f	%
1	Food security	05	8.33	34	56.67	21	35.00
2	Habitat security	30	50.00	10	16.67	20	33.33
3	Health security	25	41.67	29	48.33	06	10.00
4	Occupational security	17	28.33	25	41.67	18	30.00
5	Cultural security	10	16.67	22	36.67	28	46.66
6	Asset security	24	40.00	19	31.67	17	28.33
7	Transportational security	09	15.00	27	45.00	24	40.00
8	Social security	13	21.66	27	45.00	20	33.34
9	Financial security	26	43.33	31	51.67	03	5.00
10	Educational security	11	18.33	23	38.33	26	43.34
11	Information security	10	16.67	41	68.33	09	15.00
	Total						
	Mean = 572.15 **SD =** 84.93 **Low =** < 529.68 **Medium** = 529.68-614.61 **High** = > 614.61						

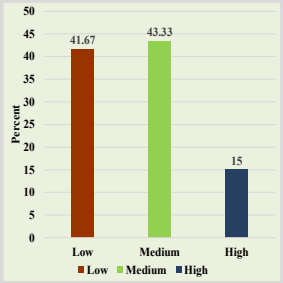


Fig1: Distribution of respondents according to their livelihood security

DATA COLLECTION

- ✓ Table 1 depicts the overall livelihood security of tribes. A significant numbers of tribals had medium level (43.33 %) of livelihood security, followed by low (41.67 %) and high (15.00 %) respectively.
- ✓ It is noticed from the Table 1 that, out of 11 dimensions of livelihood securities majority of tribals have high level of cultural security (46.66 %), educational security (43.34 %) and transportational security (40.00 %). The reasons could be nearly all tribal people actively engage in group activities, either as participants or representatives, reflecting their increasing integration into broader societal frameworks. Additionally, majority of tribal families enrolling their children in schools and colleges, as well as utilizing hostel accommodations and widespread ownership and accessibility to diverse transportation options.
- ✓ It also revealed that majority of tribals have low level of habitat security (50.00 %), and financial security (43.33 %).
- ✓ Many face insecurity in their habitats due to the complete absence of washroom facilities in tribal areas. This lack of basic sanitation infrastructure worsens their living conditions, leading to health risks and discomfort. These challenges arise from their poor economic conditions and the lack of essential resources, including clean water storage. Additionally, many tribal people focus more on repaying debts than on saving or earning extra money, making their financial difficulties even greater.

CONCLUSION

The tribal group currently faces medium to low levels of livelihood security and lacks sufficient awareness about essential services related to health, sanitation, and education. Although several policies and programs have been developed to address these issues, there is a need for active government monitoring and evaluation to assess their effectiveness. Future policies should be based on these evaluations. Field extension workers, NGOs, and private organizations must enhance outreach and coordination to ensure that the tribe is well-informed and can fully benefit from available resources.

REFERENCES

RAMYA. H.R., 2016,. Livelihood analysis of tribal farmers in high altitude tribal zone of Karnataka. state *M.Sc. (Agri.) Thesis* (Unpub.), ANGRU, Andra Pradesh.

LIVELIHOOD SECURITY OF IRULIGA TRIBES IN RAMANAGARA DISTRICT OF KARNATAKA

AMAR M I

ABSTRACT

The study was conducted in Ramanagara district to assess the livelihood security of the Iruliga tribes during 2023–24. Primary data was gathered from 120 randomly selected households through personal interviews using an ex-post-facto research design. The results revealed that 41.17 per cent of respondents had medium livelihood security, with 43.33 per cent in Ramanagara taluk and 45.00 per cent in Magadi taluk. About 48.33 per cent had high food security, while 50.83 per cent had medium health security. Financial security was medium for 61.67 per cent, and transportation security was low for 52.50 per cent of respondents. Agricultural labor was the dominant livelihood source, engaging 95.83 per cent of households and contributing 54.62 per cent of total income. Livestock rearing (56.67%) and agriculture (55.83%) were also major income contributors. The most prevalent livelihood pattern combined agriculture, wage labor, and livestock (22.50%), with agricultural labor taking up the most time (62.53%). Sericulture was seen as the riskiest livelihood (66.67%), while those in government and semi-government jobs had the highest technical competency. Awareness of developmental programs was nearly universal, 96.67 per cent had used formal education programs, and all had access to safe drinking water initiatives. Correlation analysis revealed strong positive relationships between livelihood security and annual income, media exposure, social participation, occupation, and extension participation ($p < 0.01$). Economic orientation, aspiration, and education showed moderate positive effects ($p < 0.05$), whereas fatalism had a weak negative correlation. Major constraints included limited awareness of livestock subsidies (1.63) and poor extension networking (0.98). Suggested improvements included enhancing wage employment (1.80), awareness programs (1.63), and land allocation for the landless (1.35). The study highlights the need for targeted interventions to strengthen the economic resilience of the Iruliga tribes.

April, 2025

Department of Agricultural Extension
UAS, GKVK, Banglore-65

C. M. Savitha
(Major Advisor)

ಕರ್ನಾಟಕದ ರಾಮನಗರ ಜಿಲ್ಲೆಯ ಇರುಳಿಗ ಬುಡಕಟ್ಟುಗಳ ಜೀವನೋಪಾಯ ಭದ್ರತೆ

ಅಮರ್ ಎಂ ಐ

ಪ್ರಬಂಧ ಸಾರಂಶ

ಈ ಅಧ್ಯಯನವನ್ನು 2023-24ರಲ್ಲಿ ರಾಮನಗರ ಜಿಲ್ಲೆಯಲ್ಲಿ ನಡೆಸಲಾಗಿತ್ತು, ಇದರಲ್ಲಿ ಇರುಳಿಗ ಜಾತಿಯ ಜನಾಂಗದ ಜೀವನೋಪಾಯ ಭದ್ರತೆಯನ್ನು ವಿಶ್ಲೇಷಿಸಲಾಗಿತು. ಪ್ರಾಥಮಿಕ ಮಾಹಿತಿಯನ್ನು ಯಾದೃಚ್ಛಿಕವಾಗಿ ಆಯ್ಕೆಮಾಡಿದ 120 ಇರುಳಿಗ ಜನಾಂಗದ ಮನೆಮಂದಿಯಿಂದ ವೈಯಕ್ತಿಕ ಸಂದರ್ಶನಗಳ ಮೂಲಕ ಸಂಗ್ರಹಿಸಲಾಯಿತು, ಇದಕ್ಕಾಗಿ ಎಕ್ಸ್-ಫಾಕ್ಟೋ ಸಂಶೋಧನೆಯ ವಿನ್ಯಾಸವನ್ನು ಬಳಸಲಾಗಿತ್ತು. ಸಂಶೋಧನೆಯ ಫಲಿತಾಂಶಗಳಿಂದ ಶೇಕಡಾ 41.17 ಪ್ರತಿಸ್ಪಂದಿಗಳು ಮಧ್ಯಮ ಜೀವನೋಪಾಯ ಭದ್ರತೆಯನ್ನು ಹೊಂದಿದ್ದರು ಎಂಬುದು ಬಹಿರಂಗವಾಗಿದೆ, ರಾಮನಗರ ತಾಲ್ಲೂಕಿನಲ್ಲಿ ಶೇಕಡಾ 43.33 ಮತ್ತು ಮಾಗಡಿ ತಾಲ್ಲೂಕಿನಲ್ಲಿ ಶೇಕಡಾ 45.00 ಈ ವರ್ಗಕ್ಕೆ ಸೇರಿದರು. ಸುಮಾರು ಅರ್ಧದಷ್ಟು (48.33 %) ಜನರು ಹೆಚ್ಚಿನ ಆಹಾರ ಭದ್ರತೆಯನ್ನು ಹೊಂದಿದ್ದರು, ಶೇಕಡಾ 50.83 ಜನರು ಮಧ್ಯಮ ಆರೋಗ್ಯ ಭದ್ರತೆಯನ್ನು ಹೊಂದಿದ್ದರು. ಆರ್ಥಿಕ ಭದ್ರತೆಯನ್ನು ಶೇಕಡಾ 61.67 ಜನರು ಮಧ್ಯಮ ಮಟ್ಟದಲ್ಲಿದ್ದು, ಶೇಕಡಾ 52.50 ಪ್ರತಿಸ್ಪಂದಿಗಳಿಗೆ ಸಾರಿಗೆ ಭದ್ರತೆ ಕಡಿಮೆಯಾಗಿತ್ತು. ಕೃಷಿ ಕೂಲಿ ಮುಖ್ಯ ಜೀವನೋಪಾಯ ಮೂಲವಾಗಿದ್ದು, ಶೇಕಡಾ 95.83 ಪ್ರತಿಸ್ಪಂದಿಗಳು ಇದರಲ್ಲಿ ತೊಡಗಿಸಿಕೊಂಡಿದ್ದರು ಮತ್ತು ಇದು ಒಟ್ಟು ಮನೆಯ ಆದಾಯದಲ್ಲಿ ಶೇಕಡಾ 54.62 ಹಂಚಿಕೆಯನ್ನು ಹೊಂದಿತ್ತು. ಜಾನುವಾರು ಸಾಕಾಣಿಕೆ (56.67 %) ಮತ್ತು ಕೃಷಿ (55.83 %) ಸಹ ಪ್ರಮುಖ ಆದಾಯ ಮೂಲಗಳಾಗಿವೆ. ಅತ್ಯಂತ ಸಾಮಾನ್ಯ ಜೀವನೋಪಾಯ ಮಾದರಿಯು ಕೃಷಿ, ಕೂಲಿ ಕೆಲಸ ಮತ್ತು ಜಾನುವಾರು ಸಾಕಾಣಿಕೆಯ ಸಂಯೋಜನೆಯಾಗಿದ್ದು, ಶೇಕಡಾ 22.50 ಜನರು ಇದನ್ನು ಅನುಸರಿಸುತ್ತಿದ್ದರು. ಕೃಷಿ ಕೂಲಿ ಹೆಚ್ಚು ಸಮಯ (62.53 %) ಪಡೆದುಕೊಂಡಿತು. ರೇಷ್ಮೆ ಕೃಷಿಯನ್ನು ಅತ್ಯಂತ ಅಪಾಯದ ಜೀವನೋಪಾಯ ಆಯ್ಕೆಯಾಗಿ (66.67 %) ಪರಿಗಣಿಸಲಾಗಿದೆ, ಸರಕಾರಿ ಮತ್ತು ಅರೆ-ಸರಕಾರಿ ಉದ್ಯೋಗಗಳಲ್ಲಿ ನಿರತ ಪ್ರತಿಸ್ಪಂದಿಗಳು ಅತ್ಯುನ್ನತ ತಾಂತ್ರಿಕ ಪರಿಣತಿಯನ್ನು ಹೊಂದಿದ್ದರು. ಪ್ರಮುಖ ಅಭಿವೃದ್ಧಿ ಕಾರ್ಯಕ್ರಮಗಳ ಕುರಿತು ಜಾಗೃತಿಯು ಸಾಮಾನ್ಯವಾಗಿದ್ದು, ಶೇಕಡಾ 96.67 ಜನರು ಅಧಿಕೃತ ಶಿಕ್ಷಣ ಕಾರ್ಯಕ್ರಮಗಳನ್ನು ಬಳಸಿಕೊಂಡಿದ್ದರು ಮತ್ತು ಎಲ್ಲಾ ಪ್ರತಿಸ್ಪಂದಿಗಳು ಸುರಕ್ಷಿತ ಕುಡಿಯುವ ನೀರಿನ ಕಾರ್ಯಕ್ರಮಗಳನ್ನು ಬಳಸಿಕೊಂಡಿದ್ದಾರೆ. ಸಾಮಾಜಿಕ ವಿಶ್ಲೇಷಣೆಯು ಜೀವನೋಪಾಯ ಭದ್ರತೆ ಮತ್ತು ಆದಾಯ, ಮಾಧ್ಯಮ ಪ್ರಭಾವ, ಸಾಮಾಜಿಕ ಪಾಲ್ಗೊಳ್ಳುವಿಕೆ, ಉದ್ಯೋಗ ಹಾಗೂ ವಿಸ್ತರಣಾ ಕಾರ್ಯಕ್ರಮಗಳಲ್ಲಿ ಭಾಗವಹಿಸುವಿಕೆ ($p < 0.01$) ನಡುವೆ ಗಟ್ಟಿಯಾದ ಸಕಾರಾತ್ಮಕ ಸಂಬಂಧವಿದೆ ಎಂದು ತೋರಿಸಿದೆ. ಆರ್ಥಿಕ ಚಿಂತನೆ, ಆಕಾಂಕ್ಷೆಯ ಮಟ್ಟ ಹಾಗೂ ಶಿಕ್ಷಣವು ಮಧ್ಯಮ ಮಟ್ಟದ ಸಕಾರಾತ್ಮಕ ಪರಿಣಾಮ ($p<0.05$) ಹೊಂದಿತ್ತು, ಭಾಗ್ಯ ನಂಬಿಕೆ (fatalism) ದುರ್ಬಲ ನಕಾರಾತ್ಮಕ ಸಂಬಂಧವನ್ನು ತೋರಿಸಿತು. ಪ್ರಮುಖ ಸಮಸ್ಯೆಗಳಲ್ಲಿ ಜಾನುವಾರು ಅನುದಾನದ ವಿಧಾನಗಳ ಬಗ್ಗೆ ಅರಿವು ಕೊರತೆ (1.63) ಮತ್ತು ಕಳಪೆ ವಿಸ್ತರಣಾ ಜಾಲ (0.98) ಸೇರಿವೆ. ಜೀವನೋಪಾಯ ಭದ್ರತೆಯನ್ನು ಸುಧಾರಿಸುವ ಸಲುವಾಗಿ ಶಿಫಾರಸ್ಸು ಮಾಡಿದ ಕ್ರಮಗಳಲ್ಲಿ ಕೂಲಿ ಉದ್ಯೋಗವನ್ನು ಬಲಪಡಿಸುವುದು (1.80), ಜಾಗೃತಿಯ ಕಾರ್ಯಕ್ರಮಗಳನ್ನು ಹೆಚ್ಚಿಸುವುದು (1.63), ಮತ್ತು ಭೂಹೀನ ಜನಾಂಗಗಳಿಗೆ ಭೂಮಿಯನ್ನು ಮೀಸಲಿಡುವುದು (1.35) ಸೇರಿವೆ. ಈ ಅಧ್ಯಯನವು ಜೀವನೋಪಾಯ ಭದ್ರತೆಯಲ್ಲಿನ ಪ್ರಮುಖ ಅಂತರಗಳನ್ನು ಉಲ್ಲೇಖಿಸುತ್ತಿದ್ದು, ಇರುಳಿಗ ಜನಾಂಗದ ಆರ್ಥಿಕ ಸ್ಥಿರತೆಯನ್ನು ಉತ್ತೇಜಿಸಲು ಉದ್ದೇಶಿತ ನೀತಿಗಳ ಅವಶ್ಯಕತೆಯನ್ನು ಒತ್ತಿಹೇಳುತ್ತದೆ.

ಏಪ್ರಿಲ್, 2025

ಕೃಷಿ ವಿಸ್ತರಣಾ ವಿಭಾಗ
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ಸಿ. ಎಂ. ಸವಿತಾ
(ಪ್ರಧಾನ ಸಲಹೆಗಾರರು)

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INTRODUCTION

I INTRODUCTION

One of the most remarkable aspects of Indian population is its "unity in diversity," reflecting the wide variety of communities and cultures across the country. On the basis of geographical surroundings and socio-cultural characteristics, the Indian society is divided into tribal, rural and urban societies. Tribal people have a deep connection with nature, living in harmony with their environment. Their ways of life, passed down through generations, are self-sufficient and distinct from mainstream society. They are known for their peaceful nature and respect for others, causing no harm and maintaining a gentle coexistence with the world around them. There are over 476 million indigenous people living in 90 countries across the world, accounting for 6.2 per cent of the global population.

Defining and understanding tribes is challenging because they exist in various social and economic settings and are continuously blending with the larger society. However, scholars agree on certain common features that help to define and conceptualize tribes.

The term "tribe" originated during the time of the Greek city-states and the early Roman Empire. It comes from the Latin word "tribus" and has evolved to mean “a group of people forming a community and claiming descent from a common ancestor”.

According to Oxford dictionary

“A tribe is a group of people in primitive barbarous stage of development, acknowledging the authority of a chief and usually regarding themselves as having a common ancestor”.

A tribe is defined in *The Imperial Gazetteer of India* (1911) as a "group of families sharing a common name, speaking a common dialect, residing in or claiming to reside in a common territory, and typically not practicing endogamy." India has the second-largest tribal population in the world, with the largest being in Africa. As of the 2011 Census, India's tribal population is 10.43 crore, which is 8.6 per cent of the country's total population. Most tribal people (89.97 %) live in rural areas, while 10.03 per cent live in urban areas.

Between 2001 and 2011, the tribal population grew by 23.66 per cent, which is higher than the overall population growth of 17.69 per cent during the same period. The census recorded a total of 705 different tribes, including both major tribes and their sub-tribes. Tribal communities inhabit about 15 per cent of the country's land, but may not be owned by them living in a variety of ecological and climatic conditions, including plains, forests, hills, and remote areas.

In India, tribal people are known by various names, including ‘adivasi’ (original settlers), ‘scheduled tribes,’ ‘janajati’ (folk communities), ‘girijan’ (hill dwellers), and

‘vanvasi’ (forest dwellers). The Indian Constitution refers to them as ‘Scheduled Tribes’. Many tribal people prefer the term ‘Adivasi,’ which means "original inhabitants," reflecting their self-identification as indigenous peoples.

The term **"tribal"** or **"Adivasi"** often conjures up images of people dressed in traditional clothing, holding arrows and spears, and adorned with feathers, speaking languages that seem foreign to many. Such portrayals are frequently accompanied by outdated notions and misconceptions about their way of life. While many societies have evolved and embraced modern advancements, adapting their lifestyles to fit the progress of the world, there are numerous communities that continue to uphold their traditional values, customs, and beliefs, preserving their distinct cultural heritage despite the pressures of modernization.

Karnataka, a state where the ancient rhythms of tribal life harmonize with a rich historical backdrop, is renowned for its vibrant cultural mosaic. As of 2011, the state is home to approximately 4.248 million tribal individuals, a significant increase from 3.464 million in 2001. This growth, reflecting a substantial decadal rise of 22.7 per cent, is primarily due to the addition of several new tribes to the Scheduled Tribes (ST) category, rather than a surge in fertility rates (Anon., 2011). The tribal population of Karnataka, which constitutes 6.95 per cent of the state’s total population, is marked by its diverse array. Among the 50 tribes officially recognized by the Government of India, 14, including two Primitive Tribal Groups, are indigenous to Karnataka. These tribes, with their deep

historical connections to the region, play a crucial role in the state's rich cultural heritage (Anon., 2010b).

Notable tribal groups in the state include the Gandalas, Hakkipikkis, Jenukurubas, Soligas, Malaikuds, Bhils, Gonds, Chenchus, Koyas, Yeravas, Haleyas, Koramas, Malikuds, and Iruligas, among others.

The focus of this study is the Iruliga tribal community, which faces significant challenges related to poverty and livelihood. The research is conducted in the Ramanagara district of southern Karnataka, where a substantial portion of the Iruliga population resides. The Iruliga tribe, part of the Dravidian ethnic group, is known for its unique cultural heritage and traditional occupations. The name "Iruliga" comes from the Kannada word for "darkness," derived from the Tamil and Malayalam term "irula," which may refer to their dark skin or the dense forests they historically inhabited. The Iruliga community is primarily found in the southern states of India, including Karnataka, Tamil Nadu, and Kerala. In Karnataka, their presence is most notable in the Ramanagara and Bangalore Rural districts, where over 50 per cent of the community resides. They also live in other regions like Mysuru, Bangalore Urban, Kolar, Chikkamagaluru, and Chitradurga. According to the 2011 census, there were 2,057 Iruliga households in Karnataka, totaling a population of 10,259.

Traditionally, the Iruliga have been engaged in occupations such as rat and snake catching, honey collection, and agricultural labor, particularly during sowing and harvesting seasons. Their expertise in handling snakes and collecting honey is widely recognized. The community speaks a language closely related to Dravidian languages like Kannada and Tamil, reflecting their deep cultural and linguistic roots.

Problems faced by the Iruliga tribal communities

The Iruliga tribes in Karnataka face numerous challenges that impact their livelihood, health, education, and cultural heritage. Land alienation is a major concern, rooted in historical events. During British colonial rule, large forest areas were declared "reserved," and policies like the Indian Forest Act of 1927 restricted tribal access to their traditional lands, forcing them out of forested areas. Even after independence, forest

policies continued to limit their rights. Although the government promised to rehabilitate these communities by allocating land, many Iruliga families have not received what was promised. This ongoing struggle for rightful land ownership threatens their livelihood security and cultural integrity. Poverty is widespread among the Iruliga families, who primarily engage in low-income occupations such as labor, small-scale farming, and basket-making. These marginal activities provide minimal income, leaving most families below the poverty line. Consequently, many fall into debt, borrowing money from local moneylenders, contractors, and landlords at high interest rates, creating a cycle of indebtedness.

Health is a significant concern among the Iruliga community, with many suffering from diseases due to unhygienic conditions, lack of clean water, malnutrition, and superstitions that hinder proper treatment. Rat-catching, a common job, exposes them to respiratory and heart issues from inhaling smoke. They commonly face tuberculosis, typhoid, skin diseases, leprosy, malaria, and stomach ailments. Doctors in these areas also report widespread skin conditions, dysentery, and sexually transmitted diseases. Annual outbreaks of chickenpox, whooping cough, and mumps further illustrate their poor health, sanitation, and the lack of adequate healthcare services (Basha, 2022). Despite government initiatives to enhance tribal education, formal schooling has had little impact on the Iruliga community. Many families do not view formal education as necessary, often due to superstitions, poverty, and the need for children to contribute to household income. Additionally, the lack of accessible schools in remote areas limits educational opportunities, particularly for girls, who frequently drop out to help their families. Cultural erosion is another significant issue, as contact with other cultures has led to changes in the tribe's traditional way of life. While some aspects of modernization have improved their livelihoods, it has also contributed to the loss of tribal customs, art forms, and practices.

A lack of awareness about government welfare programs, combined with illiteracy and isolation, leaves many Iruliga families unaware of benefits like ration cards and employment schemes. Limited land access forces them to rely on NTFPs and monoculture farming, primarily for subsistence. These practices, while providing income, threaten biodiversity and the environment. With growing material, educational, and health needs,

alternative income sources are needed that do not harm natural resources. Understanding their current livelihoods is key to identifying sustainable alternatives for the Iruliga tribes.

The situation faced by tribal farmers highlights that ensuring 'security' for their livelihoods is a crucial concern that must be addressed by all relevant stakeholders to promote their well-being and upliftment. According to the Food and Agriculture Organization (FAO, 1995), livelihood security involves having sufficient and sustainable access to income and resources to fulfill essential needs. This includes access to nutritious food, clean water, healthcare services, educational opportunities, proper housing, and time for community involvement and social integration.

Livelihood refers to the means through which individuals earn a living and secure their basic needs, such as food, shelter, and clothing. In simple terms, a livelihood is how people make money to support themselves and their families. For example, a farmer's livelihood depends on access to land, water, and favorable weather conditions to grow crops. The concept of livelihood has become important in understanding the various factors that affect people's lives and well-being. It encompasses people's skills, assets, activities, and strategies that they use to make a living and manage difficult situations (Chambers and Conway, 1992).

Need and Importance of the study

The Iruliga tribal community in Ramanagara district represents one of the most marginalized and vulnerable groups in society. Historically, they have faced social, economic, and political exploitation and have been excluded from mainstream development due to caste based discrimination. As a result, the Iruliga tribes struggle with poverty, unemployment, inadequate livelihoods, and malnutrition. Additionally, many members of the community do not have secure land ownership, forcing them to rely on monoculture farming on leased lands and engage in labor-intensive activities like the collection of Non-Timber Forest Products (NTFPs). This over-reliance on forests and unsustainable farming practices threatens biodiversity and poses a risk to their long-term well-being.

Despite various government and non-governmental initiatives, there is still limited understanding of the unique challenges faced by the Iruliga tribes. This study aims to bridge this gap by examining their livelihoods, health, education, land ownership, and access to government schemes, offering insights into their daily struggles and available resources. Additionally, it explores sustainable livelihood options, such as skill development, sustainable agriculture, and cooperative marketing, to reduce reliance on harmful practices and improve economic resilience. The findings will be valuable for policymakers, government agencies, and NGOs in creating targeted programs that support the socio-economic inclusion and long-term development of the Iruliga tribes. Hence the present study was taken up with the following objectives,

Objectives of the research

Given these key concerns, the current study titled "Livelihood security of Iruliga tribes in Ramanagara district of Karnataka" was taken up with the following objectives.

1. To measure the livelihood security of Iruliga tribes in Ramanagara district
2. To study the personal, socio-economic and psychological characteristics of the Iruliga tribes and their relationship with the livelihood security
3. To examine the different livelihood systems followed by tribes
4. To assess the awareness and utilization of tribal development programs among the Iruliga tribes in Ramanagara district
5. To document a case study of selected tribal livelihoods
6. To elicit the problems and suggestions as perceived by the Iruliga tribes for their livelihood security

Hypothesis of the study

The study was conducted with the following hypothesis

- There is no significant difference in the livelihood security among Iruliga tribes in Ramanagara district

- There is no significant relationship between the personal, socio-economic and psychological characteristics of Iruliga tribes and their livelihood security

Scope of the study

The present study focuses specifically on the Iruliga tribes located within the boundaries of Ramanagara district, a satellite town near Bengaluru, characterized by urbanization and a cosmopolitan environment. It aims to measure the livelihood security of the Iruliga tribes by studying their personal, socio-economic, and psychological characteristics and their potential influence on livelihood security. The study seeks to explore the various livelihood systems followed by the Iruliga tribes, understanding their diversity and implications for livelihood security. The findings will help policymakers and administrators in planning and implementing effective programs, taking into account the impact of urbanization on the tribes.

Limitations of the study

This study follows an ex-post-facto research design, which has limitations as the causes and effects have already occurred. It is based on primary data from a small sample of tribes and stakeholders, relying on respondents' opinions, which may not fully reflect the situation. The study is limited to two taluks in Ramanagara district, so its findings may not be applicable to the entire state or country. Human bias in respondents' answers is also a potential limitation. These factors should be considered when interpreting the results.

Presentation of the study

The thesis is divided into six chapters. The first chapter deals with the introduction wherein the importance, statement of the problem, specific objectives, the scope and limitations of the study are detailed. The second chapter deals with the reviews of literature and related studies in light of present investigation. The third chapter devoted to the details of methodology used in the process of investigation, followed by presentation of results and findings of study have been discussed in fourth chapter and the fifth chapter summarizes the study followed by references in sixth chapter and appendices

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Operational definition

Livelihood security:

Livelihood security for tribes refers to the ability of indigenous or tribal communities to sustainably access and utilize resources (natural, economic, human and social) necessary for their physical, cultural and social well-being.

REVIEW OF LITERATURE

II REVIEW OF LITERATURE

This chapter presents research findings drawn from a review of relevant literature to develop a conceptual framework for the study. Reviewing past research is essential for understanding the research problem and forming a solid foundation for the study. This review not only provides insight into previous work but also serves as the basis for interpreting and discussing the current findings.

A thorough review of the literature is crucial for gaining a comprehensive background in the field, which in turn aids in formulating an effective research methodology. By systematically presenting relevant aspects from various sources, this review helps in building a strong foundation for empirical investigation and in understanding the different components of the research problem. For this study, literature relevant to the selected variables and objectives has been reviewed. This approach ensures a deep insight into the subject, which is necessary for conducting rigorous research. The literature review is organized under specific headings, reflecting its meaningful relation to the objectives of the study

2.1 Livelihood security of the tribes

2.2 Personal, socio-economic and psychological characteristics of tribes

2.3 Relationship between the personal, socio-economic andpsychological characteristics and livelihood security of the tribes

2.4 Livelihood system analysis

2.5 Awareness and utilization of tribal development programmes

2.6 Problems as perceived by the tribes

2.7 Suggestions as expressed by the tribes to overcome the problems

2.1 Livelihood security of the tribes

Krishnaprasad (2005) affirmed that majority (73.33 %) of the farmers had medium sustainable rural livelihood followed by the rest with high (13.75 %) and low (12.92 %)

livelihood.

Shalander *et al.* (2006) indicated that goat rearing was contributing significantly to the family's livelihood security. Goat alone contributed 49.00 to 86.00 per cent of the household's total income. Hence, instead of depending on agriculture alone for income, adapting integrated farming system will be helpful for better livelihood.

Rathod (2007) revealed that majority (73.33 %) of the Lambani farmers had medium sustainable livelihood status followed by the remaining with high (14.00 %) and low (12.67 %) livelihood status.

Steward (2007) reported that income diversification has increased livelihood security of farmers. Over the past 15 years, income sources in Amazonian community of Carvao have diversified to include government salaries, retirement, welfare benefits of wages from an evolving informal service sector.

Rai *et al.* (2008) reported that distribution of zones with different livelihood status depicts that most of the tribal regions pertaining to Bihar, Madhya Pradesh, Orissa, North-Eastern states and J & K fall under the category of low livelihood status. The regions pertaining to states in South India, Gujarat, Haryana and Punjab are in highly developed category and rest of the country falls in the middle livelihood status category.

Saha (2008) depicted that 48.34 per cent of the farmers were in satisfied level of livelihood security, whereas, 29.16 per cent of the farmers were with least satisfied level of livelihood security and 22.50 per cent of the farmers were with fully satisfied level of livelihood security.

Lakshmi (2009) reported that 37.50 per cent of farmers attained medium level of livelihood security followed by those with low (33.33 %) and high (29.17 %) livelihood security.

Lavanya (2010) furnished that about 38.33 per cent of farmers were found to be in satisfied level of livelihood security. Remaining 32.50 per cent were less satisfied with their livelihood security and 29.17 per cent in highly satisfied level.

Saha and Bahal (2010) stated that the majority of the diversifiers (60.00 %) had medium level of livelihood diversification index as against only 21.74 per cent and 18.26 per cent of diversifiers were under high and low level of livelihood diversification index respectively.

Kiran (2011) reported that majority number of the respondents (70.56 %) had medium level of livelihood status followed by almost an equal proportion with high (15.00 %) and low (14.44 %) levels of livelihood status.

Narayani *et al*. (2011) revealed that 42.50 per cent each of small and medium farmers and also 52.50 per cent of big farmers attained medium level of total livelihood security, whereas, only 30.00 per cent each of small and medium farmers and 25.00 per cent of big farmers attained high level of total livelihood security, while, 27.50 per cent each of small and medium farmers and 22.50 per cent of big farmers attained low level of total livelihood security. In case of pooled sample of farmers 37.50 per cent of them attained medium level of total livelihood security followed by low (33.33 %) and high (29.17 %).

Prajapati *et al.* (2011) indicated that the impact of the agricultural modernization on the extent of sustainable livelihood among the non tribal respondents was more, while it was very low in tribal respondents.

Goswami and Paul (2012) observed that capital and vulnerability score of the respondents before and after Joint forest management (JFM) intervention, physical capital (before-88, after-119 Sonahara village and before-96, after-125 Safarambera village) and human capital (before-77, after-156 Sonahara village and before-84, after-122 Safarambera village) has significantly improved in Sonahara village due to joint forest management intervention; whereas, for Safarambera village, significant improvement was found in financial capital (before- 105, after-164Safarambera village and before-108, after-121 Sonahara village). However, vulnerability was found to have decreased significantly in both the study villages (before-160, after-93 Sonahara village and before-175, after-86 Safarambera village). Overall, financial and human capital was significantly improved over time as captured by the perception analysis tool.

Mahadik and Sawant (2012) noticed that three-fourth (74.00 %) of tribal people had medium livelihood security status, while 26.00 per cent of them had high livelihood security status.

Datta *et al.* (2014) revealed that the highest proportion (39.30 %) of tribal farmers have low livelihood status followed by medium (36.40 %) and high (24.30 %) livelihood status who were practicing Shifting (Jhum) Cultivation in Tripura State of North-East India.

Dhanasree *et al.* (2014) figured out that 52.77 per cent of the tribal households in the study area had better livelihood security while 35.00 per cent had poor livelihood security and 12.23 per cent of the households had high livelihood security.

Mandal and Sengupta (2016) found that according to the house structures of the tribes in Porobusty village of West Bengal state 55.00 per cent of houses were kutcha, 41.00 per cent were mixed (pucca and kutcha), and only 4.00 per cent were concrete. Most houses 94.00 per cent were single-storey, with a few double-storey 6.00 per cent. Walls were mainly bamboo 55.00 per cent and tin 26.00 per cent. Roofs were mostly tin 88.00 per cent, with some using bamboo, straw, asbestos, or concrete. Most houses had electricity (96.00 %). About 68.00 per cent of families had toilets, either earthen or concrete. Cooking was done in courtyards, and 97.00 per cent of families used wood, showing a lack of environmental awareness.

Ramya (2016) observed that nearly two third (63.33 %) of the tribal farmers were having moderate livelihood security followed by below moderate (22.50 %) and above moderate (14.17 %) livelihood security.

Kowsalya (2017) revealed that 46.87 per cent of integrated farming system demonstrations programme beneficiaries had medium level of livelihood security followed by high (33.75 %) and low (19.38 %) level of livelihood security. Whereas, 77.50 per cent of non-beneficiaries had low level of livelihood security followed by 15.00 per cent had medium and 7.50 per cent had high level of livelihood security. Further, the overall livelihood security of beneficiaries and non-beneficiaries showed that 40.50 per cent of the respondents belong to medium level of livelihood security followed by 31.00

and 28.50 per cent having low and high level of livelihood security, respectively.

Barela *et al*. (2018) studied that the majority of respondents were found to have low livelihood security across various aspects. Specifically, 47.50 per cent had low food security, 52.50 per cent had low economic security, 43.33 per cent had low health security, and 43.83 per cent had low institutional security. For education security and infrastructural security, 49.17 per cent and 46.67 per cent of respondents fell under the medium category respectively. However, 51.67 per cent of respondents reported high social security. Overall, 48.33 per cent of respondents were categorized as having low livelihood security.

Prashanthi and Geetha (2022) indicated that the majority (78.30 %) of the respondents expressed that they have sufficient food throughout and only 21.7 per cent responded they didn't had sufficient food.

Rutika *et al.* (2022) reported that the majority (77.50 %) of the tribal farmers had low level of livelihood security, followed by 15.00 and 07.50 per cent of them had low and medium level of livelihood security respectively.

Pattamajhi and Sudhakar (2023) observed that only 37.38 per cent houses had drinking water facilities and 62.62 per cent don't have. The study showed that 50.93 per cent and 49.07 per cent households are using Tap water and Hand pump water respectively for their daily life. The householders distance from source of water is more than 100 mtrs is 62.15 per cent and less than 100 mtrs is 37.85 per cent. The study revealed that only 0.93 per cent households are using gas for cooking. 71.50 per cent, 8.41 per cent and 19.16 per cent households are using respectively fuel wood, others like cow dungs , straw and both gas and fuel wood for cooking. It was seen that toilet don't have facilities in the houses is 64.02 per cent and only 35.98 per cent have toilet facilities in their houses.

2.2 Personal, socio-economic and psychological characteristics of tribes

2.2.1 Age

Ramasamy (2012) reported that majority (64.50 %) of the tribal respondents belongs to old age category followed by the middle (24.50 %) and young age (11.00 %).

Barman *et al.* (2013) indicated that more than two- fifth (43.33 %) of the tribal respondents belonged to old age category followed by middle age (39.17 %) and young age (17.50 %).

Nisha (2013) reported that more than two-fifth (45.00 %) of the tribal women belong to middle age category followed by young age (30.00 %) and old age (25.00 %) categories.

Senthil (2013) conveyed that nearly half (47.50 %) of the tribal respondents belonged to middle age group followed by young (32.50 %) and old age groups (20.00 %).

Tudu *et al.* (2013) described that most (85.90 %) of tribal dairy cooperative members belongs to middle age group, followed by old age (7.70 %) and young age (6.40 %).

Ayyappan (2014) stated that 45.00 per cent of the tribal SHG members as middle aged followed by young aged (38.30 %) and old aged (16.70 %).

Mareeswaran (2014) found that majority (41.91 %) of the tribal respondents were middle aged followed by the remaining coming under old (40.44 %) and young age (17.65 %).

Prajapati *et al.* (2015) inferred that less than half (42.00 %) of the tribal respondents belong to middle age group (36 to 50 years), followed by old (37.00 %) and young age (21.00 %), respectively.

Pradeep and Kalicharan (2016) revealed that among the 50 respondents, 36.00 per cent were between 26-30 years of age, 26.00 per cent were between 20-25 years, 16.00 per cent were above 36 years, 14.00 per cent were below 19 years, and 8.00 per cent were between 31-35 years.

Pavithra (2019) inferred that more than half (53.33 %) of the Soliga tribal women belong to middle age, while 30.00 per cent belonged to young age and the rest 16.66 per cent were in old age group.

Thomas (2020) observed that among 520 respondents, majority of the respondents (139 male and 99 female) were from the 26-35 age group, followed by the 36-60 age group (105 male and 81 female). The Above 60 age group (51 male and 45 female) had the least number of respondents.

Shalini (2022) reported that the majority of women respondents were in the age group of 36 to 60 years, comprising 49.21 per cent of the total sample. This was followed by those in the younger age group of 15 to 35 years (35.71 per cent). The senior citizen group (61 years and above) constituted the smallest number of respondents, accounting for 15.08 percent of the total sample size.

Thorat and Patel (2022) observed that majority (60.00 %) of the respondents belong to middle age group followed by an equal proportion of 20.00 per cent of the respondents belong to old and young age respectively.

2.2.2 Gender

Himansu (2014) inferred that out of 160 respondents, 93.75 per cent (150 numbers) are males and 6.25 per cent (10 numbers) are female.

Pulla Rao (2014) found that out of 138 respondents i.e. 87.68 per cent are male and 12.32 per cent of respondents are female.

Jagannath and Singh (2016) observed that majority of the respondents (77.00 %) are female, and 23.00 per cent of the respondents are males.

Jayakumar and Palaniyammal (2016) revealed that 64.00 per cent of the scheduled tribes in kalrayan hills Salem district of Tamil Nadu were male, while 36.00 per cent were female. This indicates that the majority of the respondents were male.

Mandal and Sengupta (2016) illustrate that, the male population (51.00 %) of tribes in Porobusty village of West Bengal state is more than the female population (49.00 %).

Deepak and Sindhu (2017) reported that 58.00 per cent of the respondents were female, while 42.00 per cent were male. This disparity may be attributed to the higher

involvement of males in agricultural activities compared to females.

Naresh (2017) revealed that in Irula tribe, more than half of the (57.50 %) respondents are male, and about 42.50 per cent were female.

Biswas (2022) found that 53.00 per cent of tribal respondents of Tripura state were female and 47.00 per cent of respondents were male.

Sreenivas (2022) observed that majority of the respondents (53.00 %) are male, and 47.00 per cent of the respondents are Female.

Jyothi *et al.* (2023) revealed that in the Jenukuruba Tribe, nearly half of the respondents are males (49.00 %), and the other half are females (51.00 %). Similarly, in the Koraga Tribe, about half are males (52.00 %), and the other half are females (48.00 %).

Pattamajhi and Sudhakar (2023) observed that out of 214 tribes respondents Gajapati district of Odisha state i.e. 80.37 per cent are male and 19.63 per cent are female.

Vishakantanayaka (2024) reported that in Iruliga Tribes of Ramanagara district, the majority of respondents are male about 87.00 per cent and female respondents are 13.00 per cent in the district.

2.2.3 Education

Dipika and Sharma (2010) reported that less than half (42.50 %) of the tribal respondents had primary school level of education followed by the remaining having middle school level (33.33 %), illiterate (19.17 %), literate (4.17 %) and college (0.83 %) level of education.

Kiran (2011) stated that majority (61.67 %) of the tribal farmers were illiterate followed by those with primary education (25.00 %) and high school education (13.33 %).

Bankey *et al.* (2012) affirmed that 62.00 per cent of the tribal respondents were Illiterate followed by 26.00 per cent with primary school and 12.00 per cent with middle school and above level of education.

Meena and Punjabi (2012) observed that more than half (52.94 %) of tribal respondents were illiterates followed by those with primary level (12.47 %) and senior secondary level (32.24 %). Those educated up to graduate and above level were observed as only 2.35 per cent.

Barman *et al.* (2013) indicated that majority (35.83 %) of the tribal respondents had primary school education followed by the rest with middle school (29.17 %), high school (21.67 %), higher secondary (5.83 %), graduation (3.33 %), illiterate (2.50 %) and post graduate level (1.67 %) of education.

Marbaniang *et al.* (2013) affirmed that 29.62 per cent of the tribal respondents were illiterate followed by rest with primary school (47.40 %), middle school (7.40 %), high school (11.12 %), PUC (2.23 %) and degree (2.23 %) level of education.

Nisha (2013) stated that majority (56.67 %) of the tribal women were observed to be illiterates followed by those with functional literacy (28.33 %), middle school education (10.83 %) and primary school education (4.17 %).

Tudu *et al.* (2013) described that majority of the respondents were illiterate (34.60 %) followed by those coming under can read and write (24.40 %), primary (21.20 %), can read only (11.50 %), educated upto secondary (5.10 %), graduate (1.90 %) and higher secondary (1.30 %) education categories.

Ayyappan (2014) inferred that 32.50 per cent of the tribal women respondents had primary education followed by the rest belonged to illiterates (30.80 %) and functional illiterate (14.20 %), middle (15.00 %), secondary (4.20 %) and collegiate (3.30 %) level of education categories.

Dhanasree *et al.* (2014) stated that 48.34 per cent of the tribal respondents were illiterate whereas 32.77 per cent are functionally literate and 18.89 per cent of them had education upto primary school.

Mareeswaran (2014) observed that 45.58 per cent of the tribal people were illiterates followed by those belonged to primary education (16.94 %), middle education (16.17 %), functionally literate (10.29 %), secondary education (8.08 %) and collegiate education (2.94 %) categories.

Prajapati *et al.* (2015) conveyed that majority (56.00 %) of the tribal respondents belong to illiterate group followed by the remaining with primary education (Up to VII standard- 31.00 %) and Secondary education (VIII to XII standard- 10.00 %) and collegiate (3.00 %) level of education.

Reddy (2019) revealed that majority of the tribal farmers were illiterates (33.33 %), followed by secondary school (24.17 %), primary level (23.33 %), Higher (11.67 %), graduates (5.83 %) and post graduates (1.67 %) education.

Sreenivas (2022) reported that less than one-third of the (30.00 %) respondents had completed graduation, followed by 21.00 per cent who attained secondary education. Primary education accounted for 19.00 per cent, while 12.00 per cent had completed higher secondary education. Post-graduation was achieved by 10.00 per cent of the respondents, and the lowest percentage, 8.00 per cent, were illiterate.

2.2.4 Family size

Rathod (2007) reported that two-thirds of the farmers (66.67 %) were in small family size followed by the remaining with medium (18.00 %) and large (15.33 %) families.

Kiran (2011) recognized that a great majority (75.00 %) of the tribal respondents were in small family size followed by the rest with medium (21.67 %) and large (3.33 %) family size.

Ananda and Sahu (2012) stated that a great majority (75.56 %) of the respondents belonged to average family size with 5-10 members, 13.33 percent of the respondents had large size family comprising of more than 10 members. Whereas only 11.11 per cent of the respondents had small family size of up to 4 members.

Bankey *et al.* (2012) inferred that majority (49.33 %) of the tribal respondents had medium family size followed by those with small (38.67 %) and large (12.00 %) family size.

Barman *et al.* (2013) revealed that less than half (44.17 %) of the tribal respondents had medium family size followed by the rest with small (30.83 %)and large (25.00 %) family size.

Marbaniang *et al.* (2013) reported that majority (56.30 %) of the tribal respondents had medium family size followed by those with small (24.45 %) and large (19.25 %) family size.

Rokonuzzaman (2013) noticed that 47.37 per cent of them had small family size followed by medium family size (43.16 %) and large family size (9.47 %) respectively.

Tudu *et al.* (2013) affirmed that majority (87.20 %) of the respondents have family members upto 5 and followed by the rest (12.80 %) with more than 5 members.

Dhanasree *et al.* (2014) observed that almost half (49.44 %) of the tribalwomen respondents had medium family size followed by those with large (31.12 %) and small (19.44 %) family size.

Mareeswaran (2014) revealed that more than two-thirds (69.85 %) of tribal family had members less than four and 30.15 per cent members had more than four.

Prashanthi and Geetha (2022) reported that the majority (78.33 %) of the respondents belonged to small families (Up to 5 members) followed by 21.67 per cent medium families (6 to 10 members) and there were no large families (11 and above).

2.2.5 Farming experience

Amol (2006) reported that most (90.14 %) of the tribal respondents had high farming experience (more than 20 years), 9.86 per cent respondents had medium farming experience and none had low farming experience (up to 10 years).

Rathod (2007) affirmed that almost two thirds (66.00 %) of the Lambani farmers

possessed medium farming experience followed by those with high (25.33 %) and low (8.67 %) farming experience.

Swati (2007) noticed that in case of beneficiaries, majority (45.00 %) of the tribal respondents had medium farming experience i.e., with 15 to 25 years followed by those with high (35.00 %) faming experience of more than 25 years, very low (11.25 %) with less than 10 years and low (8.75 %) with 10 to 15 years farming experience, respectively. In case of non-beneficiaries, majority (46.25 %) of the tribal respondents had high farming experience i.e., with more than 25 years followed by medium (41.25 %) with 15 to 25 years, low (7.50 %) with 10 to 15 years and very low (5.00 %) with less than 10 years of farming experience, respectively.

Kailash (2010) expressed that less than half (48.33 %) of the tribal respondents had medium farming experience followed by the remaining with high (35.84 %) and low (15.83 %) farming experience.

Kiran (2011) revealed that majority (65.00 %) of the tribal respondents had high farming experience followed by the rest with medium (26.67 %) and low farming experience (8.33 %).

Swathi (2012) indicated that in podu cultivation (shifting cultivation), majority of the tribal respondents had medium farming experience (59.17 %), followed by those with low farming experience (28.33 %) and high farming experience(12.50 %).

Barman *et al.* (2013) reported that majority (45.00 %) of the farmers had more than 10 years of farming experience followed by 41.67 per cent with 5-10 years of experience and 13.33 per cent with less than 5 years of farming experience.

Senthil (2013) indicated that nearly half (49.17 %) of the tribal respondents had medium farming experience, followed by the rest with low farming experience (38.33 %) and high farming experience (12.50 %).

Mooventhan *et al.* (2015) reported that more than half (62.00 %) of the farmers were found with medium level of farming experience followed by 27.33 per cent with high level of farming experience and 10.67 per cent of farmers possessed low level of

experience in farming.

Mahesh (2016) noticed that about 43.40 per cent of respondents had medium farming experience, followed by high (30.80 %) and low (25.80 %) farming experience respectively.

Swathi (2016) indicated that in podu cultivation majority of the tribal farmers had medium farming experience (55.84 %), followed by those with low farming experience (27.08 %) and high farming experience (17.08 %).

Reddy (2019) revealed that (60.83 %) of respondents had medium farming experience, followed by low (22.50 %) and high (16.67 %) farming experience respectively.

Gandhale and Tekale (2021) revealed that majority (52.85 %) of the respondents had medium (24 to 43 years) farming experience, followed by 35.00 per cent of them had low (Up to 23 years) farming experience and 12.15 per cent of the respondents had high (above 43 years) farming experience.

2.2.6 Annual income

Bharathamma (2005) indicated that 40.09 per cent of the rural women belonged to low income category followed by 39.00 per cent belonged to medium income category and remaining 20.01 per cent belonged to high income category.

Malik (2007) observed that 40.00 per cent of tribal communities belonged to low income category followed by medium (38.33 %) and large income category (21.67 %).

Malik (2010) opined that large majority of farm women belonged to medium income category (98.00 %) followed by a very little extent of farm women belonged to low (1.33 %) and big income category (0.67 %).

Painkra *et al.* (2010) indicated in their study on information sources of tribal rice growers that most of the farmers had low income (64.17 %) and remaining 35.83 per cent belonged to medium annual income group.

Indumathy (2013) found that more than half of the Kolli hill tribes (55.00 %) were found under medium income category, followed by 24.00 per cent of tribes in medium and about 21.00 per cent of them under low income category. Nearly three-fourth (41.00 %) of the Jawadhu tribes were found under low income category, followed by 35.00 per cent of tribes in medium and 24.00 per cent of them under high income category.

Jayakumar and Palaniyammal (2016) revealed that 30.00 per cent of the respondents monthly income range from below 5,000, 23.00 per cent of the respondents monthly income is between Rs. 5001-10000, 16.00 per cent of the respondents monthly income is 10001-15000, and only 10.00 per cent of the respondents earns a monthly income range above Rs.15001.

Wadekar *et al.* (2016) found that majority (43.33 %) of the respondents were having low annual income, while 32.50 per cent and 24.17 per cent of the respondents had medium and high annual income respectively.

Deepak and Sindhu (2017) reported that the income varies round the year where more than half (65.00 %) of the respondents had low level of annual income followed by medium level (32.00 %) and 3.00 per cent with high income.

Pavithra (2019) observed that 40.00 per cent of the Jenukuruba tribal women had 10,000-20,000 annual income followed by 36.66 per cent had less than 10,000 income and 23.34 per cent of them had 20,000-40,000 annual income.

Gandhale and Tekale (2021) revealed that majority of the respondents (72.14 %) had annual earning up to Rs. 80000, followed by 23.22 per cent of the respondents were at annual income range of Rs. 80,001 to 1,40,000 and 04.64 per cent of them belonged to income above Rs. 1,40,000.

Abhigna *et al.* (2024) revealed that that 44.17 per cent of respondents were in the medium-income category, indicating a moderate level of economic stability that supports their involvement in agriculture and small-scale enterprises. Meanwhile, 35.83 per cent reported low annual incomes and smaller proportion, 20.00 per cent, were in the high income group.

2.2.7 Family type

Marimuthu (2001) found that majority of the tribal farmers (65.24 %) belonged to joint family category followed by nuclear family (34.76 %) category.

Bhuvaneswari (2005) indicated that most of the tribal farm families (69.00 %) resided under joint family system followed by nuclear family (31.00 %) category.

Shibi Sebastian (2006) revealed that more than half of the respondents (54.00 %) belonged to nuclear family followed by joint family (46.00 %) category.

Swati (2007) reported that in case of beneficiaries majority (82.50 %) of the tribal respondents were in nuclear family followed by joint family (17.50 %) category. In case of non-beneficiaries majority (76.25 %) of the tribal respondents were in nuclear family followed by joint family (23.75 %) category.

Antara *et al*. (2009) observed that 63.80 per cent of the toto tribes of West Bengal were in nuclear family and 36.20 per cent of the toto tribes were in joint family. He also observed that 78.80 per cent of the santal tribes of West Bengal were in nuclear family and 21.20 per cent of the santal tribes were in joint family and 30.00 per cent of the sabar tribes of West Bengal were in nuclear family and 70.00 per cent of the sabar tribes were in joint family and 20.00 per cent of the Lodha tribes were in nuclear family and 80.00 per cent of the Lodha tribes were in joint family.

Rao and Venkataswamy (2009) noticed that 90.40 per cent of the tribal respondents were in nuclear type of families while 9.60 per cent of them were in joint families.

Mohanta (2014) reported that majority of the tribal respondents (60.00 %) were having nuclear family followed by joint family (40.00 %).

Parida (2015) reported that majority of the Santal tribal families (72.68 %) had nuclear family followed by joint family (16.79 %) and single member family (4.58 %).

Deepak and Sindhu (2017) reported that nearly three-fourth (73.00 %) of the respondents belonged to nuclear families, while the remaining 27.00 per cent were part of

joint families.

Singh *et al*. (2018) reported that majority of the respondents had nuclear family (76.90 %) followed by joint family (23.10 %).

Sunani and Mishra (2019) found that more than three-fourth (76.00 %) of the respondents had nuclear family followed by joint family (24.00 %).

Thorat and Patel (2022) observed that more than half of the (55.00 %) respondents were having joint family followed by nuclear family (45.00 %).

2.2.8 Land holdings

Amol (2006) conveyed that majority (58.00 %) of the tribal respondents were marginal farmers followed by those belonging to small (22.00 %), semi- medium (13.00 %) and medium (7.00 %) farmers.

Rathod (2007) reported that half (50.00 %) of tribals are marginal farmers followed by those belonged to small farmers (38.00 %), medium farmers (8.67 %) and large farmers (3.33 %).

Ravi (2007) explored that majority (40.62 %) of the tribal respondents were medium farmers followed by small farmers (36.88 %) and big farmers (22.50 %).

Swati (2007) found that, in case of beneficiaries, majority (57.50 %) of tribal respondents were small farmers followed by the rest belonged to medium (35.00 %), large (5.00 %) and marginal (2.50 %) farmers. In case of non-beneficiaries, majority (53.75 %) of tribal respondents were small farmers followed by medium (33.75 %), marginal (8.75 %) and large (3.75 %) farmers.

Antara *et al.* (2009) observed that among toto tribes 56.50 per cent of the respondents are landless, 36.50 per cent are marginal and 7.00 per cent are small farmers. He also reported that among santal tribes 38.80 per cent are landless, 43.70 per cent are marginal and 17.50 per cent are small farmers He also reported that among sabar tribes, 85.00 per cent are landless, 12.50per cent are marginal and 2.50 per cent are small farmers.

Kailash (2010) envisaged that more than two-fifth (43.33 %) of the tribal respondents are medium farmers followed by those coming under small (39.17 %), marginal (12.50 %) and large (5.00 %) farmers.

Kiran (2011) noticed that majority of the tribal farmers are marginal (80.00 %) followed by those to small (15.00 %) and medium (5.00 %) farmers.

Ananda and Sahu (2012) reported that 40.00 per cent of the tribal respondents possessed medium land holding followed by those with small land holding (36.25 %) whereas, 23.75 per cent of them had big land holdings.

Bankey *et al.* (2012) reported that majority (58.00 %) of the tribalfarmers are small farmers, followed by the remaining coming under medium (31.33 %) and large (10.67 %) farmers.

Swathi (2012) indicated that the under podu cultivation (shifting cultivation) more than two fifth (41.67 %) of the tribal respondents were marginal farmers followed by those belonged to small farmers (28.33 %), semi-medium farmers (10.83 %), medium farmers (10.00 %) and large farmers (9.17 %).

Barman *et al.* (2013) reported that majority (70.83 %) of the tribalrespondents had marginal land holding followed by those with small (15.00 %)and medium (14.17 %) land holding.

Senthil (2013) pointed that more than two thirds (68.34 %) of the tribal farmers had marginal sized farms, followed by 25.83 per cent with small sized farms and 5.83 per cent of tribals with big farm size.

Prajapati *et al.* (2015) expressed that majority (54.00 %) of the tribal respondents have up to 1.0 ha. Land. This was followed by 1.1 to 2.0 ha (29.00 %), 2.1 to 3.0 ha. land (12.00 %) and only 5.00 per cent who owned land 3.0 hectares respectively.

Jagannath and Singh (2016) observed that, more than one-third of the respondents (78.00 %) were landless or owned less than one acre of land. A smaller proportion (16.00 %) reported holding between one and two acres, while only 6.00 per cent had landholdings

exceeding two acres.

Prashanthi and Geetha (2022) revealed that the nearly half (43.33 %) of the respondents were small (1.01 to 2.00 hectare) landholding followed by semi medium (2.01 to 4.00 hectares) landholdings (38.33 %), medium (4.01 to 10.00 hectares) landholding 6.67 per cent, only 5 per cent tribes hold marginal landholding (up to 1.00 hectares) and remaining 3.33 per cent tribes had big landholding (10.0 and above hectares).

2.2.9 Occupational status

Kumari *et al.* (2003) revealed that majority of tribal women of high altitude tribal zone of Andhra Pradesh had medium extent of improvement in economic conditions as in adda leaf plate making (45.00 %), tailoring (48.34 %) and pooled sample (44.44 %). Whereas women in bamboo basket making had high (46.67 %) extent of improvement in economic conditions.

Krishnaprasad (2005) in his study on rural poverty and sustainable livelihoods in agrarian sector of andhra pradesh reported that majority (73.75 %) of the respondents belonged to Farming + Wage earners followed by the remaining farming + livestock (12.50 %), farming alone (6.67 %), skilled wage earner (4.16 %), Wage earners (1.67 %), farming + business (0.83 %) and farming + services (0.42 %).

Anand (2007) reported that nearly three fourth (73.00 %) of the Lambani farmers belonged to farming + wage earners category followed by the rest belonging to farming + livestock (9.00 %), farming alone (7.00 %), skilled wage earners (4.00 %), farming + business (3.00 %), farming + services (2.00 %) and wage earners (2.00 %) categories.

Kiran (2011) reported that 95.00 per cent of the tribal farmers eke their living based on the combination of occupations like farming, rearing of livestock, collection of NTFP and wage work. About 5 per cent of the farmers are involved in the business activities besides the above activities.

Bankey *et al.* (2012) reported that farming was the main occupation for majority (83.33 %) of the tribal respondents followed by other occupations such as agricultural

laborer (10.00 %).

Devika (2012) reported that more than half (55.83 %) of the tribal women involve in Non Wood Forest Products Activity (NWFPs) as main occupation and the remaining 44.17 per cent practicing subsidiary occupation.

Mahadik and Sawant (2012) reported that agriculture is the main source of livelihood, it is imperative to guide, motivate and assist the farmers from the disadvantaged area to adopt improved farm technology, which would increase the crop productivity and ultimately the income to achieve the livelihood standard of the farmers.

Barman *et al.* (2013) reported that agriculture was the main occupation for majority (58.33 %) of the tribal respondents followed by other occupations such as agriculture labourer (37.50 %), service (2.50 %) and business (1.67 %), respectively.

Nisha (2013) reported that nearly three-fifth (59.17 %) of tribal women were farming + wage earners followed by those with farming alone (27.50 %) and farming + business (13.33 %).

Senthil (2013) indicated that majority (74.17 %) of the tribal farmers had farming as their primary occupation. Whereas, 25.83 per cent of them had farming as their secondary occupation.

Mareeswaran (2014) in his study on tribal people of Sathuragiri Hills in Tamil Nadu, observed that majority (69.86 %) of the tribals as wage earners followed by those with Wage + Agriculture (27.94 %) and Services (2.20 %) like forest guard.

Swathi (2016) indicated that 77.50 per cent of the tribal farmers eke out their living based on the combination of occupations like farming, rearing of livestock, collection of NTFP and wage work. About 10.00 per cent combined agriculture with wage work, livestock, NTFP, and business. Additionally, 4.17 per cent pursued agriculture with livestock and wage work, while 3.75 per cent combined agriculture, wage work, NTFP, and business. Those solely involved in agriculture accounted for 2.50 per cent, and 2.08 per cent engaged in agriculture along with livestock.

Manjunatha and Gangadhar (2017) reported that 44.20 per cent of the respondents are working as an agriculture labour, 16.70 per cent engaged in agriculture, 24.10 per cent in collection of minor forest product, 3.30 per cent in government service, and 11.70 per cent respondents are engaged other occupation like business, tailoring, selling in livestock product, gazing cattle, handicraft etc.

Abhigna *et al.* (2024) illustrated that the majority of respondents (61.67 %) were primarily engaged in agricultural labor, reflecting a heavy reliance on traditional agricultural livelihoods. Additionally, 27.50 per cent were involved in agriculture-related activities, further underscoring the sector's dominance. In contrast, non-agricultural labor was less common, comprising only 9.16 per cent of participants and 1.67 per cent reported having no specific occupation.

2.2.10 Social participation

Saha (2008) indicated that more than half of the respondents had medium participation (59.16 %) in any social organization while only 22.50 per cent and 18.34 per cent had low and high social participation, respectively.

Narayani *et al.* (2009) stated that nearly half of the farmers (49.17 %) had low social participation followed by high (27.50 %) and medium (23.33 %) social participation categories.

Devarajaiah (2010) found that among the small farmers 44.00 per cent had no social participation followed by 32.00 per cent had membership in one organization, 19.00 per cent had membership in two or more organization and only 5.00 per cent of them were office bearer. In case of marginal farmers 43.00 per cent fall under no social participation subsequently 29.00 per cent had membership in one organization and only 5.00 per cent of them were office bearers.

Lavanya (2010) noticed that 39.20 per cent of all the farmers had medium social participation. Further, 31.60 per cent and 29.20 per cent of them had high and low social participation, respectively.

Marbaniang (2010) conveyed that 64.45 per cent of the respondents had high level of social participation, whereas 25.92 per cent and 9.63 per cent of them had low and medium level of social participation, respectively.

Indumathy (2013) revealed that more than half (62.00 %) of the Kolli hill tribes were having medium level of social participation followed by high (23.00 %) and low (15.00 %) levels. In the same way majority of Jawadhu hill tribes (49.00 %) were having medium level of social participation followed by low (27.00 %) and high (24.00 %) levels of participation.

Rajasekaran (2013) indicated that less than half of the beneficiaries (46.67 %) were reported to have low level of social participation followed by 45.00 and 8.33 per cent in medium and high levels of social participation categories respectively.

Rokonuzzaman (2013) disclosed that majority (73.68 %) of the respondents had very low social organization participation subsequently 24.21 per cent had low social organization participation and 1.05 per cent each under medium social organization participation and no participation.

Wadekar *et al.* (2016) found that majority (64.17 %) of the respondents had low social participation, while 22.50 per cent of the respondents had medium social participation and 13.33 per cent of the respondents had high social participation.

Devi (2020) observed that majority of the respondents do not have membership of any organisation. 97.00 per cent Toto, 52.00 per cent Mech and 18.00 per cent Rava had membership of only one organization. Whereas, 74.00 per cent of Rava, 43.00 per cent of Mech, and 3.00 per cent of Toto had membership of one organisation. 5.00 per cent Rava and 2.00 per cent Mech had membership in more than one organisation however, 3.00 per cent of Rava and 3.00 per cent of Mech possess the responsibility of office bearer of some organization.

Rutika *et al.* (2022) reported that, the great majority (85.00 %) of the tribal farmers had membership in one organization, followed by 12.50 per cent of them who had no membership in any organization. Only 02.50 per cent of the tribal farmers had

membership in more than one organization, while none of them was found to have membership along with position in organization.

Prashanthi and Geetha (2022) indicated that the majority of the respondents always involved in village meetings (90.00 %), tribal organization activities (86.67 %), gram panchayath activities (61.67 %) and half of the respondents occasionally participate in the political activities (51.67 %). The study also revealed that there were no self-help groups and training sessions conducted in the villages.

2.2.11 Economic orientation

Sarada (2004) revealed that majority (51.00 %) of farmers had high economic orientation followed by 33.00 per cent and 16.00 per cent with low and medium economic orientation, respectively.

Kumari (2008) inferred that majority (40.00 %) of the respondents had medium economic orientation, followed by low (35.83 %) and high (24.17 %) levels of economic orientation.

Meena and Fulzele (2008) showed that majority of meena tribe (53.33 %), bhil tribe (94.00 %), garasia tribe (71.11 %) and damor tribe (84.45 %) exhibited low level of economic motivation. Besides 25.00 per cent of the meena tribe community belonged to medium level of economic motivation followed by bhil (6.00 %), garasia (28.89 %) and damor tribes (15.55 %). Surprisingly none of bhil, garasia and damor tribes were found in high level of economic motivation. Only meena tribe was found in high economic group (21.67 %).

Kiran (2011) reported that more than half (56.67 %) of the tribal respondents had medium level of economic orientation followed by the rest with low (25.00 %) and high (18.33 %) levels of economic orientation.

Prajapati and Bhatt (2013) proposed that slightly more than four-fifth (82.00 %) of the tribal dairy farm women had medium economic orientation followed by those with low (10.00 %) and high (8.00 %) levels of economic orientation.

Ramya (2016) projected that nearly two-third (64.17 %) of the tribal farmers had medium level of economic orientation, followed by low (25.83 %) and high (10.00 %) levels of economic orientation.

Swathi (2016) revealed that majority (59.58 %) of the tribal farmers had medium economic orientation followed by those with low (19.59 %) and high (20.83 %) level of economic orientation.

2.2.12 Mass media exposure

Jamatia (1999) indicated that 60.00 per cent of the Tripura tribal women possessed low level mass media exposure followed by medium level of mass media exposure (32.00 %) and high mass media exposure (8.00 %).

Gopala (2006) reported that majority of the groundnut farmers had medium level of mass media use (40.00 %).

Geetha (2007) revealed that 65.62 per cent of the Bharatiya Agro- Industries Foundation (BAIF) programmes women beneficiaries were viewing TV regularly followed by radio (34.37 %). Mass media viewed occasionally were TV (18.75 %), radio (15.63 %). Mass media which were never exposed, newspaper and magazines cent per cent, radio (50.00 %) and TV (15.63 %).

Rathod (2007) perceived that neighbours (25.33 %) were found to be the main source of information source followed by local leaders (20.00 %), newspapers (19.33 %), radio (16.00 %) televisions (14.00 %) and panchayat/society officials (5.33 %).

Devarajaiah (2010) reported that among small farmers 40.00 per cent had low mass media exposure followed by medium (31.00 %), very low (25.00 %) and only 4.00 per cent had high mass media exposures. With regards to marginal farmers, 38.00 per cent had low mass media exposure followed by 25.00 per cent very low and medium mass media exposure each and 12.00 per cent had high mass media exposure.

Hadagali (2013) reported that 42.50 per cent of rural youth had high level of mass media utilization followed by low (35.17 %) and medium (22.33 %) level of mass

utilization.

Datta (2013) found that almost half (49.29 %) of the tribal farmers had medium level of mass media participation while 36.42 per cent had low level of mass media participation.

Yashodhara (2015) found that more number (41.10 %) of farmers were having low level of mass media participation followed by high (36.10 %) and medium (22.80 %) level of mass media participation.

Goggy Reddy (2019) revealed that (65.83 %) of respondents belonged to medium category followed by high (17.50 %) and low (16.67 %) mass media exposure respectively.

Pavithra (2019) inferred that 43.33 per cent of the Jenukuruba tribal women had medium level of mass media exposure, followed by high (33.33 %) level of mass media exposure. While 23.33 per cent of the respondents had low level of mass media exposure.

Prashanthi and Geetha (2022) observed that half of the respondents (53.30 %) were occasionally exposed to mobile phones, while 46.70 per cent were exposed to mobile phones daily. It was also found that respondents had no exposure to other forms of media such as radio, television, the internet, or other print materials.

Rutika *et al.* (2022) revealed that less than half (47.50 %) of the tribal farmers had very low level of mass media utilization, followed by 35.84 and 15.83 per cent of them had low and medium level of mass media utilization, respectively. Only, 00.83 per cent of the them had high level of mass media utilization.

2.2.13 Level of aspiration

Rao (1987) reported that majority (56.00 %) of the silkworm rearing tribal farmers had medium level of aspiration followed by low (26.67 %) and high (17.33 %) level of aspiration.

Rao (1988) observed that majority (74.00 %) of the respondents belonged to

medium category of level of aspiration, followed by low (15.00 %) and high (15.00 %) level of aspiration.

Rao (1993) found that majority (71.43 %) of the respondents fell in medium category in respect of their level of aspiration, whereas 19.64 per cent and 8.93 per cent were found under high and low level of aspiration categories, respectively.

Rambabu (1997) revealed that in case of wet cropping system 70.00 per cent of the respondents had medium level of aspiration, followed by low (25.00 %) and high (5.00 %) aspiration. In dry cropping system 70.00, 18.33 and 11.67 per cent of the respondents were distributed under medium, low and high level of aspiration respectively. In case of garden cropping system, 71.67 per cent of the respondents were found to have medium level of aspiration, followed by 18.33 per cent and 10.00 per cent of the respondents who had low level of aspiration and high level of aspiration respectively.

Kumari (2008) pointed out that majority (55.83 %) of the respondents has medium level of aspiration, followed by low (23.33 %) and high (20.84 %) level of aspiration.

Saha (2008) observed that nearly half of the (45.00 %) respondents had medium level of aspiration, followed by high (30.00 %) and low (25.00 %) level of aspiration.

Viswanatha *et al*. (2014) revealed that majority (36.67 %) of farm youth had high level of aspirations followed by 33.33 per cent and 30.00 per cent of farm youth had medium and low level of aspirations respectively in agriculture, which imply that rural youth strive to excel in agriculture

Rani and Rampal (2015) inferred that a majority of rural youth (90.00 %) had medium general aspirations followed by 5.84 per cent with high aspiration levels and 4.16 per cent with low aspiration levels.

Ramya (2016) revealed that more than two-third (66.67 %) of tribal farmers had medium level of aspiration followed by low (21.67 %) and high (11.66 %) level of aspiration.

Gandhale (2017) analyzed a study on Aspirations of rural youth and observed that 86.66 per cent of rural youth had medium aspiration while 9.17 per cent had low aspiration and 4.17 per cent of them were found in high aspiration category.

Radhakrishnan and Arunachalam (2019) found that the majority of the respondents (64.00 %) had medium level of aspiration followed by low (18.50 %) and high levels (17.50 %).

Gomase and Tekale (2021) found that more than half of the rural youth (58.66 %) had a medium level of aspiration followed by the same percentage of respondents had low (20.67 %) and high (20.67 %) levels of aspiration towards agriculture.

Uttej *et al.* (2022) observed that majority (41.61 %) of the youth belonged to high level of aspiration category followed by medium (35.00 %) and low (23.39 %). Among male youth nearly half (46.61 %) of the youth belonged to high level of aspiration category followed by medium (30.00 %) and low (23.39 %). Among female youth 40.00 per cent of the youth belonged to medium level of aspiration category followed by high (36.61 %) and low (23.39 %).

2.2.14 Extension participation

Saha (2008) reported that 65.00 per cent of the belonged to medium extension system link category followed by high (22.50 %) and low (12.50 %) categories.

Lakshminarayani (2009) revealed that an equal per cent (35.00 % each) of the farmers belonged to low and medium extension participation while 30.00 per cent of them had high extension participation.

Marbaniang (2010) indicated that majority (66.67 %) of the respondents had medium extension participation, whereas, 26.66 per cent and 6.67 per cent of the respondents had high and low extension participation, respectively.

Lavanya (2010) reported that more than half of the farmers (58.30 %) had medium level of extension participation followed by 26.70 per cent and 15.00 per cent of them having high and low level of extension participation, respectively.

Datta (2013) observed that 38.57 per cent of the tribal people had medium level of extension participation followed by 35.00 per cent had low level of extension participation and 26.43 per cent had high level of extension participation.

Mohanty *et al.* (2013) revealed that 46.67 per cent of tribal farmers had low extension participation followed by medium (40.00 %) and high extension participation (13.33 %) respectively.

Rokonuzzaman (2013) observed that more than half (55.79 %) of the tribals had low extension participation followed by 38.95 per cent and 5.26 per cent had very low and medium extension participation, respectively.

Himansu (2014) noticed that there was maximum in medium level of extension participation up to 36.25 per cent followed by high level of participation up to 35.00 percent and low level of participation up to 28.75 per cent.

Yashodhara (2015) reported that majority (43.80 %) of the farmers had low level of extension participation followed by high (30.60 %) and medium (25.60 %) level of extension participation.

Bharathkumar (2018) observed that more than two-third of Soliga youth (67.50 %) fall under low category of extension participation followed by high (20.00 %) and medium (12.50 %) category of extension participation. Similar result was observed with respect to Kuruba youth, wherein 68.75 per cent belong to low category of extension participation followed by high (18.75 %) and medium (12.50 %) category of extension participation. A large majority of tribal youth (68.13 %) belong to low category of extension participation followed by high (19.38 %) and medium (12.50 %) category of extension participation in pooled sample.

Shamna *et al.* (2018) revealed that nearly half of the (45.00 %) respondents had high level of extension participation followed by low (35.00 %) and medium (20.00 %) level of extension participation.

Pavithra (2019) observed that half (50.00 %) of Kadukuruba tribal women had low level of extension participation followed by medium (33.33 %) and high (16.66 %)

level of extension participation.

2.2.15 Cosmopoliteness

Basavaraj (2008) reported that (49.17 %) had low urban contact, followed by 38.33 per cent and 12.50 per cent of Karnataka Watershed Development Society (KAWAD) project beneficiaries had medium and high urban contact, respectively.

Lakshminarayani (2009) observed that 46.67 per cent of farmers had high level of cosmopoliteness followed by 35.83 per cent and 17.50 per cent had low and medium cosmopoliteness, respectively.

Devarajaiah (2010) revealed that more than half (55.00 %) of the small farmers had medium cosmopoliteness followed that 38.00 per cent low, six per cent high and only one per cent had very low cosmopoliteness.

Lavanya (2010) observed that 40.00 per cent of the respondents had high cosmopoliteness and an equal number of the farmers (30.00 %) each had low and medium cosmopoliteness.

Datta (2013) indicated that nearly half of the respondent (49.29 %) had medium level of cosmopoliteness and 19.28 per cent of the farmers had high level of cosmopoliteness.

Rokonuzzaman (2013) reported that nearly half (48.42 %) of tribals had low cosmopoliteness followed very low (40.00 %) and medium cosmopoliteness (11.58 %) level of cosmopoliteness.

Senthil (2013) observed that 70.00 per cent of the respondents were neither fully localite nor fully cosmopolite, followed by 20.00 and 10.00 per cent of them belonged to cosmopolite and localite nature categories respectively.

Yashodhara (2015) found out that both in rainfed and irrigated situation 38.90, 32.20 and 28.90 per cent of farmers had medium, high and low level of cosmopoliteness, respectively.

Bharathkumar (2018) observed that majority (53.75 %) of Soliga youth belong to high category of cosmopoliteness followed by low (36.25 %) and medium (10.00 %) category of cosmopoliteness. More than half (56.25 %) of Kuruba youth belong to high category of cosmopoliteness followed by low (35.00 %) and medium (08.75 %) category of cosmopoliteness. As high as 55.00 per cent of tribal youth belong to high category of cosmopoliteness followed by low (35.63 %) and medium (09.38 %) category of cosmopoliteness.

Kareini (2018) revealed that more than half (52.00 %) of the respondents had medium level of cosmopoliteness, followed by low (27.20 %) and high (20.80 %) level of cosmopoliteness, respectively.

Gandhale and Tekale (2021) observed that majority (63.92 %) of the respondents had concentrated in medium cosmopoliteness category, while 24.64 per cent of them concentrated low cosmopoliteness and 11.44 per cent of the respondents concentrated high cosmopoliteness category.

2.2.16 Fatalism-Scientism

Rao (1993) reported that majority (48.22 %) of tribal farmers had medium fatalism while 38.39 and 13.39 per cent exhibited low and high fatalism respectively.

Rao (1996) recognized that majority (85.54 %) of the tribes of Vizag district of Andhra Pradesh had medium fatalism while 7.50 per cent and 6.66 per cent exhibited low and high fatalism respectively.

Rambabu (1997) indicated that majority (58.33 %) of the tribal respondents had medium level of fatalism followed by high (21.34 %) and low(18.33 %) fatalism.

Jamatia (1999) stated that half of the tribal farm women had high level of fatalism, followed by 35.33 and 14.67 per cent who had low and medium level of fatalism respectively.

Karna (1999) revealed that majority (76.67 %) of tribal respondents hadmedium fatalism followed by low (16.67 %) and high (6.66 %) fatalism respectively. The low

percentage of tribes in high fatalism category is an indication of entering of modernity into life of tribals.

Bindu (2001) observed that majority (38.89 %) of the tribal respondents had un favourable fatalism followed by favourable (36.67 %) and neutral (24.44 %) fatalism respectively.

Marimuthu (2001) elucidated that all the Irula respondents were observed with medium level of fatalism. Majority (85.71%) of Kattunaickan respondents possessed medium level of fatalism and remaining (14.29 %) belonged to low level fatalism category.

Kumari (2008) notified that majority (62.50 %) of the tribal farmers had high level of fatalism followed by medium (20.82 %) and low (16.68 %) fatalism.

Devika (2012) found that, 45.83 per cent of the respondents were normal, 29.17 per cent were scientistic and 25.00 per cent were found to be fatalistic in nature.

Indumathy (2013) observed that nearly two fifth (38.50 %) of the respondents were normal, 40.00 per cent were fatalistic and 21.50 per cent were found scientistic in nature.

Rajasekaran (2013) noted that majority of the (74.17 %) respondents were normal in fatalism-scientism (10.00 %) were scientific and 15.83 per cent were found to be fatalistic in nature.

Rokonuzzaman (2013) reported that the majority of the respondents (82.11 %) exhibited low levels of fatalism. Conversely, only a smaller portion, 17.89 per cent of respondents demonstrated medium fatalism.

Vasanthapriya (2015) inferred that more than three fourth (75.80 %) of the respondents were in medium level followed by high (15.80 %) and low (8.30 %) levels of fatalism –scientism.

Ramya (2016) revealed that, nearly half (48.34 %) of the respondents had high fatalism followed by medium (38.33 %) and low (13.33 %) fatalism.

Bande (2017) observed that slight more than half (52.50 %) respondent tribal farmers had medium level of fatalism, followed by 24.17 per cent of them had low level of fatalism and 23.33 per cent respondent tribal farmers had high level of fatalism.

Gandhale and Tekale (2021) reported that majority (56.07 %) of the respondents had medium level of fatalism, followed by 26.43 per cent of them had high and 17.50 per cent of the respondents had low level of fatalism.

2.3 Relationship between the personal, socio-economic and psychological characteristics and livelihood security of the tribes

Rathod (2007) perceived that age, family size, land holding and economic motivation were found significant at 1 per cent level with sustainable rural livelihoods.

Gangadharappa *et al.* (2008) revealed that out of 14 independent variables used for the study, area under agriculture, long-term investment in agriculture and cosmoploliteness had positive and significant contributiontowards social capital. When tested, all 14 independent variables together could explain only 32.70 per cent of the variation in the dependent variable (i.e., social capital).

Saha (2008) identified that the socio-economic status and achievement motivation was having significant relationship with livelihood security in caseof marginal farmers. In case of small farmers socio-economic status, family size, farming experience and extension system link were found to have relationship with livelihood security. Further, study explained that achievement orientation (among marginal farmers) and socio-economic status and extension system link (among small farmers) were significantly contributing in explaining the variation on livelihood security.

Lakshmi (2009) revealed that the relationship between independent variables of farmers and their livelihood security. The variables such as deferred gratification, cosmopoliteness, credit orientation, family size, land holding, material possession, social participation and annual income had positive and significant relationship with livelihood security at 1 per cent level of significance. Risk orientation had positive and significant relationship with livelihood security at 5 per cent level of significance. Other variables

such as age, education, marketing orientation, family dependency ratio, livestock possession, extension participation were found to have non significant relationship with livelihood security.

Devarajaiah (2010) observed that education, caste, dependency ratio, risk orientation, cosmopoliteness, livestock possession and availability of financial capital had positive and highly significant association with livelihood diversification at 1 per cent level. While age had positive and significant association at 5 per cent level with livelihood diversification. The study also indicated that out of 25 independent variables selected for the study, one variable i.e. dependency ratio was negative but highly significant at 1 per cent level. Four variables namely innovative proneness, resource mobilization potentiality, livestock, and financial capital availability were positive and significant at 1per cent level of significance while seven variablesnamely economic family labour, annual income, land size, education, cosmopoliteness, awareness about diversification and extent to local infrastructure were positive and significant at 5 per cent level. This indicated that with increase in the values of these independent variables the level of extent of diversification increases significantly. The extent of variation was 72.00 per cent.

Marbaniang (2010) in his study on livelihood activities of Tibetanrehabilitants of Mundgod - a socioeconomic analysis reported that education, economic motivation and risk orientation were found to be highly significantly associated with the livelihood activities at 1 per cent level, while family size and social participation were found to be significantly associated with the livelihood activities at 5 per cent level.

Saha and Bahal (2010) explained that labour, innovation proneness, annual income, credit seeking behaviour, land size, number of livestock, education, family education status, contact with personal, localite, awareness about diversification and extent to local infrastructure were closely and positively contributed to degree of livelihood diversification. On the other hand, dependency ratio was negatively contributed to degree of livelihood diversification.

Narayani *et al.* (2011) noticed that deferred gratification, cosmopoliteness, credit orientation, family size, land holding, social participation and annual income had positive

and significant relationship with livelihood security at one per cent level of significance. While risk orientation had positive and significant relationship with livelihood security at five per cent level of significance.

Datta (2013) inferred that relationship of livelihood status of the tribal people with independent variables such as education, number of family member involved in Jhum, area under Jhum, annual income and material possession had positive and significant relationship with livelihood status at one percent level of significance. Whereas family size, Jhum cycle, livestock possession and extension participation had positive and significant relationship with livelihood status at five percent level of significance. Other variables such as age, cosmoplotieness, credit orientation, mass media participation had non-significant relationship with livelihood status of tribal people.

Dhanasree *et al.* (2014) observed that the computed coefficient of correlation 'r' values of age, education, annual income and extension contact were found to be positively significant at 0.05 level of probability while achievement motivation was found to be positively significant at 0.01 level of probability. Hence, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore, it could be inferred that there was a positive and significant relationship between independent variables and livelihood security of the tribal women. The computed coefficient of correlation 'r' values of family size, information seeking behavior, mass media exposure, market facilities and credit orientation were found positively and non significantly related with livelihood security of tribal women.

Ramya (2016) reported that education, land holding, annual income, extension contact, mass media exposure, social participation, economic orientation, risk orientation and level of aspiration had shown positively significant relationship and fatalism had shown negatively significant relationship with livelihood securityof tribal farmers. On the other side age, farming experience, family type and land holding had shown non-significant relationship with livelihood security of tribal farmers.

Swathi (2016) revealed that, the calculated ‘r’ values of the variables age, land holding, farming experience, expenditure pattern, trainings undergone, information

source utilization and market orientation were significant at 1 per cent level of probability. The other variables such as education, family size, tribe, occupational status, extension contact, urban contact, religious belief, economic orientation and scientific orientation did not show any significant relationship with knowledge on existing livelihood systems.

Kowsalya (2017) revealed that the correlation analysis indicated a positive and significant relationship at 1 per cent level between land holding, management orientation, economic motivation, extension participation, mass media exposure and social participation and livelihood security of beneficiaries about IFSD. Similarly, income generation, risk orientation and achievement motivation had negative and significant relationship with livelihood security at 1 per cent level and entrepreneurship behavior, employment generation, innovative proneness, cosmopoliteness had positive and significant relationship with livelihood security at 5 per cent level. The remaining variables viz., age, education, family size, scientific orientation, credit orientation and deferred gratification had non-significant relationship with livelihood security. The results of the study also revealed that the variables such as income generation, risk orientation and achievement motivation had negative and significant relationship with livelihood security of non-beneficiaries. Similarly, land holding, management orientation, extension participation, employment generation, innovative proneness, cosmopoliteness, and social participation had positive and significant relationship with livelihood security at five per cent level. The remaining variables such as, age, education, family size, economic motivation, entrepreneurship behavior, mass media exposure, scientific orientation, credit orientation and deferred gratification had non-significant relationship with livelihood security.

Harshitha (2018) revealed that the characteristics such as annual income, land holding, livestock possession, achievement motivation, risk orientation and farming commitment had positive and significant relationship with livelihood Security at one per cent level. Similarly family size, material possession, mass media use, deferred gratification and extension orientation had positive and significant relationship with livelihood Security at five per cent level.

Kareini Kayina *et. al.* (2018) inferred that education, occupation, size of land holding, annual income, social participation, mass media exposure, extension participation and level of aspiration were found to be positively and significantly correlated to the extent of entrepreneurial behaviour of the tribal farmers at 0.05 level of probability. It was observed that education emerged as the most significant characteristics in predicting the extent of entrepreneurial behaviour.

Lade *et al.* (2019) revealed that among selected characteristics of respondents viz., The significant variables include achievement motivation and economic motivation found the positive and significant level of probability 0.01 with perception level. The variable viz., training received, social participation and extension contact found positive and significant at 0.05 level of probability with perception level. The variable age, education, farming experience, land holding and annual income found non-significant relationship with perception level.

Rutika *et al.* (2022) reported that, the relationship between various factors with livelihood security. The independent variables viz. education, land holding, annual income, mass media utilization and economic motivation of the tribal farmers had a positive and highly significant relationship with their livelihood security, livestock possession of tribal farmers had positive and significant relationship with their livelihood security. Further, the variables like age, family size, farming system practiced and social participation found to be non significant relationship with their livelihood security.

2.4 Livelihood system analysis

Rathod (2007) reported that nearly three fourth (73.00 %) of the Lambani farmers belonged to farming + wage earners category followed by the rest belonging to farming + livestock (9.00 %), farming alone (7.00 %), skilled wage earners (4.00 %), farming + business (3.00 %), farming + services (2.00 %) and wage earners (2.00 %) categories.

Deepak *et al.* (2010) that development of irrigation facilities for trible people and training on integrated crop management practices through OTELP (Orissa Tribal Empowerment and Livelihoods Programme) had led the farmers to grow more number of crops along with some poultry. By adopting this farming system module, farmers

earned 7 times higher net monetary return (NMR) as compared to traditional method.

Marbaniang (2010) indicated that, the average number of persons employed per year among the livelihood activities was 42 in agriculture + dairy, followed by 28 in case of agriculture + non-farm. Whereas, it was 24 in case of agriculture and 10 in non-farm activities.

Kiran (2011) found that 95.00 per cent of the tribal farmers eke their living based on the combination of occupations like farming, rearing of livestock, collection of NTFP and wage work. About 5 percent of the farmers are involved in the business activities besides the above activities.

Bankey *et al.* (2012) recognized that farming was the main occupation for 83.33 per cent of the tribal respondents.

Devika (2012) reported that more than half (55.83 %) of the tribal women involve in Non Wood Forest Products activity (NWFP's) as main occupation and the remaining 44.17 per cent practice it as subsidiary occupation.

Gautam and Sharma (2012) concluded that Non Timber Forest Products (NTFPs) play a crucial role in securing livelihoods of the poor forest dwellers. Out of 77 households in Jeerapur, 35 families (45.00%) are now involved in collection of NTFPs like Churaki Ful (Punder Fu); Kutaj Chhal; Arjun Chhal; Patal Umhara (Bdari Kand) and Salparni. They are also workingon value addition in the form of grading and drying. They can sell their collections at Kuranj, a temporary storage centre near their village. Considering their activeness and involvement, the forest department has constructed a concrete platform of dimension 27x27 metres for drying, cleaning and grading of raw NTFPs. In this village, almost every family owns two to five tamarind trees, which fetches them INR 2000-4000/- per tree, without value addition. The last two years have opened up new occupations for substantial family income. Those who were engaged in other activities, arenow getting involved in NTFP collection.

Mahadik and Sawant (2012) revealed that agriculture is the main source of livelihood among tribal people, it is imperative to guide, motivate and assist the farmers

from the disadvantaged area to adopt improved farm technology, which would increase the crop productivity and ultimately the income to achieve the livelihood standard of the farmers.

Mishra *et al.* (2012) stated that tribal farmers are largely engaged in wage labour works in the unorganized sectors especially in private agricultural farms, construction work in brick kilns, roads and unskilled manual labour in ginning factories/cotton mills to earn their livings.

Barman *et al.* (2013) inferred that agriculture was the main occupation for majority (58.33 %) of the tribal respondents followed by other occupations such as agriculture labourer (37.50 %), service (2.50 %) and business (1.67 %), respectively.

Nisha (2013) reported that nearly three-fifth (59.17 %) of tribal women were farming + wage earners followed by those with farming alone (27.50 %) and farming + business (13.33 %).

Senthil (2013) indicated that majority (74.17 %) of the tribal farmers had farming as their primary occupation. Whereas, 25.83 per cent of them had farming as their secondary occupation.

Subramanyam and Veerabhadrudu (2013) noticed that tribals inhabitingin Eastern Ghats environment mostly depend on its forest flora and fauna for their livelihood.

Dhanasree *et al.* (2014) depicted that majority (42.22 %) of the respondents were involved were involved in Forest based activities + wage earners followed by Agriculture + Forest based activities + wage earners (27.22 %), Agriculture + wage earners+ Animal husbandry (15.00 %), Agriculture alone (8.88 %) and Agriculture + petty business (6.66 %). Most of the households supplemented their household income through Forest based activities + wage earning occupation for their livelihood. This might be because of two reasons (i) most of the tribes were landless and (ii) those who possessed land, hold only limited land holding. Most of the households earn a living by maintaining a diversified pattern of occupations viz., on-farm activities, wage employment, forest activities, small enterprises.

Mareeswaran (2014) observed that majority (69.86 %) of the tribes as wage earners followed by those with Wage + Agriculture (27.94 %) and Services (2.20 %) like forest guard.

Ramya (2016) reported that one fourth (25.83 %) of the tribal farmers followed "Horticulture + Migration" combination as the major source of their livelihood. About 18.33 per cent of tribal farmers followed "Agriculture + NTFP+ Livestock + Migration" combination followed by "Horticulture + Collection of NTFP's + Other livelihood options" combination which constituted to 14.17 per cent. The livelihood combination system of "Horticulture + Agriculture/ Non agriculture labor" was noticed among 12.50 per cent of the tribal farmers. Nearly one tenth (9.17 %) of them had "Migration + Collection of NTFP's + Other livelihood options" followed by "Horticulture + Govt/semi-Govt job/ Private job" with 7.50 per cent. About 5.83 per cent and 4.17 per cent followed "Migration + Livestock + Other livelihood options" and "Agriculture + Livestock + Other livelihood options" respectively. A very meager per cent of (2.50 %) of the tribal farmers followed the combination of (Agriculture + Small vendors + Other livelihood options).

2.5 Awareness and utilization of tribal development programmes

Arularasan (2010) revealed that due to implementation of the programme, 44.00 per cent of the respondents opined that there was high level of literacy and formal education followed by medium and low levels (40.00 % and 16.00 %) respectively.

Sujeetha (2012) revealed that cent per cent (100.00 %) of the toda women have awareness of the Integrated Tribal Development Programme followed by the Horticulture department and Health education programmes and 90.00 per cent of them are aware of the Hill Area Development Programme and Forest Rights Act (90.00 %). In the case of Kattunayaka women, 92.50 per cent of them are aware of the Health Education Programmes followed by the Integrated Tribal Development Programme (90.00 %) and Hill Area Development Programme (85.00 %). Majority of the Paniya women are well aware of the scheme for tea planting for tribals and Integrated Tribal Development Programmes.

Indumathy (2013) observed that majority (85.00 %) of the Kolli hill tribes have awareness of the Integrated Horticulture Development Programme followed by the National Bamboo Mission (71.00 %), Rainfed Area Development Authority (65.00 %), National Horticulture Mission (63.00 %), Hi-tech Productivity (58.00 %), Hill Area Development programmes (52.00 %) and National Horticulture Mission for Medicinal Plants (48.00 %). Only meagre per cent of the respondents participate in the Integrated Cereal Development Programme (37.00 %) and Seed Village Programme (26.00 %). In the case of Jawadhu tribes, 85.00 per cent of them are aware of Integrated Tribal Development Programme followed by Integrated Horticulture Development Programme (72.00 %), Integrated Cereal Development Programme (61.00 %), National Bamboo Mission (54.00 %), Rainfed Area Development Authority (71.00 %), Seed Village Programme (31.00 %) and National Horticulture Mission for Medicinal Plants (53.00 %).

Das (2014) inferred that majority (80.00 %) of the Paniya people of Wayanad district were aware of the scholarships made available for their benefits.

Naik and Reddy (2014) observed that more than half of the (52.00 %) respondents were reported to have marginal increase in their income and employment opportunities and also improved their ability to face social evils.

Swathi (2016) inferred that 29.17 per cent of tribal farmers had improved access to healthcare through Primary Health Centres (PHCs). About 37.50 per cent used public transport, while 31.25 per cent relied on jeeps or autos when public transport was unavailable. In emergencies, 16.67 per cent used their own vehicles, and 10.42 per cent walked when no transport options were available. Only 4.16 per cent used bullock carts. As tribal farmers lived in forested areas with abundant firewood, 87.50 per cent used firewood for domestic purposes, followed by kerosene (8.33 %) and LPG (4.17 %).

Mareeswaran *et al.* (2017) inferred that in social development, initiatives like access to safe drinking water (76.50%) and infrastructure development (75.50 %) engaged a majority of participants, while activities like community center establishment (15.47 %) had lower involvement. Health care programs had the highest participation (96.50 %), reflecting their widespread reach, while maternal malnutrition (26.00 %) and hygiene and

sanitation programs (26.50 %) targeted specific needs. Educational efforts, such as the SSA program (63.00 %) and free education (29.50 %), showed moderate involvement, whereas special coaching classes (10.00 %) had limited participation. Economic development activities, including bank savings (19.50 %) and marketing tribal products (7.00 %), saw lower engagement, highlighting potential barriers to economic inclusion.

Poojakrishna (2017) observed the distribution of respondents based on their awareness of developmental programs. It was found that the majority (96.67 %) of the men and all the women in the Kattunaika community, 90.00 per cent and 93.33 per cent of the Paniya men and women, and 76.67 per cent and 86.67 per cent of the Kurichiya men and women had low awareness of the developmental programmes. Kurichiya had better level of awareness owing to their better educational, financial status and better political orientation. Tribal women had comparatively low awareness due to their less education level, poor financial condition and low political orientation.

Prashanthi and Geetha (2022) reported that 48.33 per cent of the respondents were aware of the free hostel facility, while 41.67 per cent were aware of free education and scholarship programs.

Pattamajhi and Sudhakar (2023) observed that the houses are built by householders own cost is 82.71 per cent and government assistance is 17.29 per cent i.e., Indira Awas Yojana, Mo Kudia Yojana and Pradhan Mantri Awas Yojana etc.,

2.6 Problems as perceived by the tribes

Krishnaprasad (2005) stated that 90.83 per cent of tribal farmers reported lack of remunerative prices for the farm produce and high price fluctuations followed by poor market conditions and high interference ofmiddle men, lack of awareness about the value addition of the farm produce, lack of year round employment guarantee schemes in the agricultural slack seasons and lack of awareness and governmental encouragement about the subsidiary occupations.

Rathod (2007) noticed that depletion of ground water levels and groundwater table (98.00 %), non-availability of institutional credit and procedural delay in obtaining farm

loans (92.66 %), erratic rainfall and cumulative droughts over year (91.33 %), lack of remunerative prices for the farm produceand high price fluctuation (90.83 %), Lack of year round employment guarantee schemes in the agricultural slack seasons (88.00 %) and tradersforming as a syndicates‟ in the markets and fixing low prices for the produce (87.50 %) were the prime problems of the farmers on sustainable livelihoods.

Tejaswi (2007) revealed that 52.70 per cent of tribal respondents, agreed that restriction of collection of forest produce under the forest laws is the most severe constraint. About 47.30 per cent of the tribes agreed that, the high risk of being caught or punished by the forest officers, for gathering NTFPs was a problem. 54.90 per cent of the tribes report that travelling in theforest for long distances daily in search of NTFPs is a problem, because of thefact that NTFPs collection is a routine practice for their livelihood.

Narayani *et al.* (2009) showed that farmers faced constraints in getting their livelihood from different sources such as crop production, dairy and sheep rearing. In crop production, high cost of inputs (65.00 %), problem of pests and diseases (51.66 %) and non-availability of labour (46.66 %) were the major constraints faced by the farmers. In dairy, 63.16 per cent of them faced the problem of diseases. In sheep rearing, 60.87 per cent of them faced the problem of not getting the good price followed by difficulty in management (39.13 %).

Devarajaiah (2010) accounted that lack of marketing facilities for the products (rank I) and lack of storage facilities (rank II) has emerged as most important constraint among infrastructural constraints. As regards the social constraints, non-exposure to new occupations (rank I), shyness of doing socially underestimated work (rank II) and rank III being the inadequateknowledge and information about the diversification.

Marbaniang (2010) listed the problems of the Tibetan rehabilitants withrespect to their livelihood activities. The respondents who had been practiced agriculture as their livelihood activity revealed the problems such as lack of tractor facilities (100.00 %), lack of labour force (89.65 %), lack of irrigation facilities and uncertainty of rainfall (86.20 %), lack of remunerative prices for farm produce and high price fluctuation (34.48 %). Similarly, the respondents who had been practiced agriculture + dairy as their livelihood

activity revealed the problems such as lack of irrigation facilities and uncertainty of rainfall (95.23 %), 83.34 per cent each of the respondents expressed that, lack of tractor facilities as well as lack of labour force in the settlement. Further, cent per cent of the respondents who had been practicing agriculture + nonfarm expressed low income (100.00 %) and more working hours (100.00 %) among the service personnel as one of their major problems, followed by problem of tractor facilities (97.23 %) among the farmers.

Ulman (2010) stated that in farming category, lack of employment opportunity (90.62 %) was the major constraint faced by the tribes and the least constraint faced was low market price for agricultural produce by 29.75 per cent of tribes. In dairy category, Non-financial help from dairy cooperatives to purchase animals (72.72 %) was the major constraint followed by low remunerative price for milk by 65.08 per cent of tribes.

Kiran (2011) observed that the major problem that the tribal respondents expressed in their livelihood activities was the delay in weeding due to incessant rains (79.44 %) followed by drudgery in operating the hand tools in shifting cultivation fields as they are hand operated (72.22 %), reduced opportunities for continuing shifting cultivation, which is the main source of their food requirement, as the department of forestry is discouraging the shifting cultivation (71.11 %)

Marbaniang *et al.* (2011) conveyed that the major problems expressed by the Tibetan rehabilitants in livelihood activities were lack of labour force (63.70 %), uncertainty of rainfall and lack of irrigation facilities (62.96 %), lack of veterinary facilities in the settlement (29.63 %) and lack ofremunerative price for farm produce and high price fluctuation (11.12 %).

Swathi (2012) reported that agro biodiversity is one of the major tool for livelihood security for tribal farmers. But, introduction of high yielding varieties (HYVs), modern varieties, or introduced crops and hybrids in place of local land races for commercial cultivation is the major factor contributing towards the loss of agro biodiversity.

Singh and Yadav (2013) revealed that about 68.33 per cent of the tribal farmers reported that main constraints for low yield of rice was non availability of improved seed/ non-availability of timely information, highcost of improved seed, lack of awareness about improved cultivation practicesand high cost of fungicide/pesticide were reported by 66.67, 52.50, 49.17 and 45.83 per cent respondents, respectively.

Dhanasree *et al.* (2014) stated that tribal women and tribal's face lot of problems to enhance their livelihood security. About three fourth of tribal respondents (71.11 % to 82.11 %) expressed lack of credit facilities, illiteracy, exploitation of money lenders, poor connectivity, lack of accessibility to nearby markets. On the other hand, about 50 per cent respondents (47.77 % to 65.55 %) expressed limited social participation, lack of access and control of productive resources and services and finally less than 20 per cent of respondents indicated location of isolated villages, limited extension staff and no access to basic amenities as problems.

Patel *et al.* (2015) noticed that constraints faced by the tribal farm women for their better involvement in agricultural development activities in descending rank order of their importance were illiteracy (rank-I), lack of irrigation facilities (rank-II), lack of educational facilities(rank-III), uneven land (rank-VI), lack of knowledge about improved agricultural technology (rank-VII), lack of transportation facility (rank-VIII), unavailability of timely inputs (rank-IX), lack of appropriate technology (rank-X), unfavourable climatic conditions(rank-XI), low selling price of farm produce (rank-XII), lack of regular and timely contact with VI.W and experts(rank-XIII), lack of marketing facility (rank-XIV), lack of training(rank-XV), social handicaps (rank-XVI) and unemployment during off season (rank-XVII).

Ramya (2016) observed that ninety per cent of the tribal farmers perceived that the landless ness/ small land holdings as the major problem and ranked first. Followed by the stringent laws, acts, rules and regulations pertaining to NTFPs collection and improper functioning of PDS were perceived as critical problems by large majority (87.50 %) and (75.00 %) of respondents securing second and third respectively. More than half of the tribes perceived that irregular/ seasonal availability of jobs (65.00 %) ranked fourth, erratic weather conditions (64.17 %) ranked fifth, inadequate financial support to take up

livelihood enterprises (62.50 %) ranked sixth, insecurity to family members due to migration (61.67 %) ranked seventh, exploitation by middlemen (58.33 %) ranked eighth and unorganized functioning of MGNREGA (50.00 %) with ninth rank, as their major problems.

Sujeetha *et al.* (2017) reported that various constraints faced by tribal women in farm and home management. Among extension constraints, poor services in remote areas ranked highest (97.78 %), followed by inaccessibility of officials (94.34 %) and lack of response from them (89.44 %). Economic challenges included limited subsidies in programs (91.67 %) and insufficient credit facilities (89.44 %). Personal barriers were dominated by social taboos (64.34 %) and indebtedness (51.11 %). Infrastructure issues highlighted non-availability of hospital facilities (85.00 %) and inadequate housing (65.56 %). These constraints underscored the pressing need for better support systems and resources for tribal women.

Bharathkumar (2018) revealed that inadequate land for cultivation (Rank I) was the major constraint experienced by tribal youth of both group (Soliga and Kuruba), followed by, uncertainty of rainfall (Rank II), lack of knowledge about improved agricultural technologies (Rank III), fodder problem (Rank IV), inadequate irrigation facilities for farming and to maintain live-stock (Rank V), high price fluctuation for farm produce (Rank VI), lack of market intelligence and improper control over traders in the regulated markets (Rank VII), lack of awareness on government encouragement about the subsidiary enterprise (Rank VIII), alternative irrigation (Rank IX), lack of credit to invest on agriculture and allied activities (Rank X), wild animal threats (Rank XI), lack of soil fertility (Rank XII), lack of support from line department (Rank XIII), high cost of inputs (Rank XIV), markets are far away (Rank XV), lack of remunerative prices for the farm produce (Rank XVI), lack of veterinary facilities at the village (Rank XVII), non-availability of quality inputs (Rank XVIII), distant location of land (Rank XIX) and non-availability of labour and high labour cost (Rank XX).

Zagade *et al.* (2022) reported that majority (92.92 %) of the tribal farmers have experienced the constraints of 'less employment opportunities for livelihood' followed by 'planning of tribal welfare schemes is not based on local needs of the community' (87.92

%), ‘poor access to health centers and limited mobility of ASHA workers’ (87.50 %), ‘low wages, and sex-wise difference in wages lead to poor income’ (87.08 %), and ‘basic aspects such as drinking water, health, child-welfare and transport etc. are not taken care off’ (83.75 %). Further it is noticed that, more than three-fifth (77.92 %) of the tribal farmers have pointed out the constraint such as ‘livelihood security forces one to migrate’ followed by ‘very few avenues for creation of livelihood security in remote areas’ (76.67 %), ‘no trainings for income generating activities, skill development and subsidiary occupation’ (74.16 %), ‘lack of awareness about tribal welfare schemes’ (71.67 %), and ‘political interference in the selection of beneficiaries’ (70.00 %).

2.7 Suggestions as expressed by the tribes to overcome the problems

Tonen and Wiersum (2003) suggested that NTFPs may play an important role in meeting subsistence needs as one of the scarce sources of cash income and as a safety net in periods during which food becomes scarce. Role of NTFPs in people’s livelihoods is basically twofold. In the first place, in remote areas where forest extraction still prevails, NTFPs provide subsistence goods like food, medicines and building materials and form a safety cushion in times of economic hardship. The increasing incorporation of rural areas into external commercial networks means there is some scope for improving livelihoods on the basis of NTFP production through the gradual domestication of NTFP species in anthropogenic forest types as well as through the creation of NTFP-related jobs.

Krishnaprasad (2005) stated that crop specific price stabilization mechanism should be evolved followed by stringent measures to be taken for effective functioning of regulated markets, encouragement and establishment of agri-processing units and suitable extension personnel should be posted in the problematic areas.

Rathod (2007) reported that Lambani farmers had low or poor technology utilization pattern and low crop diversification. The extension personnel have to look into this matter and should provide needed technology to the farmers for improving their livelihoods. Protect the farmers from the clutches of money lenders by establishing/encouraging self help groups to finance and market the produce of the entire Tanda in a cooperative mannerby the concerned authorities.

Awais *et al*. (2009) expressed that NTFP's are essential components of the livelihood of the forest dependent population of the area. The monopoly restrictions over NTFP should be immediately removed while ensuring social protection through provision of support prices to tribals who should be allowed to collect, process, transport and market the NTFP. Increased agricultural production through conservation to settle agriculture, where possible, with linkage to easy credit and markets and assured irrigation also improves the livelihoods.

Narayani *et al.* (2009) indicated the suggestions as perceived by the farmers in improving the livelihood from different sources. In cropproduction, they have suggested for development of cost effective technology (36.66 %) followed by monitoring crop production activities by the government (35.00 %), mechanization of crop production and strengthening extension services (33.34 %) each. In dairy, 42.10 per cent of them suggested for development of disease tolerant and high yielding breeds followed by development of cost effective technology and providing quality feed (31.58 %)each. In sheep rearing, 52.18 per cent of the farmers suggested that the allied activities should be encouraged and supported by the government followed bymarketing should be improved and more labour should be involved (34.78 %) each.

Naresh and Pallavi (2009) observed that extinct varieties of different crops were brought from interior villages and put into the seed bank forfurther sale. This reduced indebtedness, demonstrated shift from hybrid to traditional seed varieties and led to the preservation of 6 local varieties of seed, thus conserving local biodiversity.

Devarajaiah (2010) reported that special training programmes on entrepreneurship development should be conducted regularly for the benefit of the respondents to enable them to start good income generating activities. The banks should consider credit needs of the respondents on priority and repeat finance should be enhanced well in time taking into consideration of the vulnerability shocks and should also extend insurance cover. The proper training facilities should be created by the NGOs/Sate Govt. to train few members for groups‟ formations. The rate of interest charged on loans granted to the respondents affected by climate uncertainties or any natural calamities should not be more than 4 per cent. More emphasis should be given for empowerment and capacities building of the

farmers through orientation programmes and special literacy drives by the concerned NGOs and Govt. Authorities. This will enable members to increase their social participation and extension contacts. The Govt. should create good infrastructural facilities for development of themarket for the products of the farmers.

Marbaniang (2010) documented the suggestions given by tibetan rehabilitants for improving their livelihoods. It was revealed that 59.25 per cent suggested for water facilities which was followed by training on skill development (44.45 %), better milk price (29.62 %), veterinary hospital facilities (25.92 %), educating them on improvement of dairy management (31.12 %) and increase the salary among the service personnel (7.40 %).

Ranjay *et al.* (2010) suggested to enhance the conservation process of indigenous varieties through increasing productivity, the role of plant breeder and biotechnologist would be required in leading manner to make these varieties productive, lucrative and competitive to hybrid seeds produced by private companies. Such strategy will boost up the process of conservation of indigenous and location specific paddy varieties even in the pace of commercialization and privatization of agriculture sector.

Ulman (2010) stated that in farming category, training on modern agricultural technology organized for tribes (86.25 %) was the most important suggestion followed by procurement of farm produce at minimum support price (66.25 %). In dairy category, institutional finance be given to purchase dairy animals (77.27 %) followed by knowledge regarding preservation of milk and milk product imparted by 66.72 per cent of tribals.

Kiran (2011) concluded that, highest majority of the respondents (89.44 %) suggested that their health situation could be improved by deploying more doctors and paramedical staff in the tribal areas through providing the better living conditions such as good quarters and other amenities, so that they would be willing to work in the tribal areas. They also suggested that, better educational facilities be provided to their children such as setting up of more schools in their vicinities (78.33 %), followed by issuing the land titles to the tribal farmers, so that they will not face any problems with the forest department (78.80 %), improving the better transport facilities to the tribal villages (78.80

%) and supporting the trainees financially to start their own trading activities (51.10 %) etc.

Kunjani *et al.* (2011) recognized that appropriate national policy, actionplan and program related to the conservation and sustainable uses of plants should be formulated taking into consideration both the needs of the people and sustainable management of resources. Emphasis should be given to conserve the habitats and useful species in ex-situ conservation and an attempt should be made to launch some pilot programmes for plantation, domestication and cultivation of useful species and also for raising people's awareness about conservation and utilization of species.

Marbaniang *et al.* (2011) witnessed that majority of the Tibetan rehabilitants (59.25 %) suggested to create water facilities. 44.45 per cent suggested for training on skill development in the enterprises, followed by 29.62 and 25.92 per cent suggesting for better milk price and veterinaryhospital facilities, respectively.

Marcus (2013) informed that the major tribal groups in Jharkhand are dependent on agriculture for their livelihood. Low agricultural productivity and production have resulted into their economic deprivation. New agricultural technology can improve the production and productivity of agricultural sector in tribal region and can cause the improvement in economiccondition of the people.

Subramanyam and Veerabhadrudu (2013) summarized that strengthening of the infrastructure facilities in the interior tribal settlements as well as intensifying the poverty alleviation programmes among the primitive tribes are the immediate actions to be initiated for the sustainability of the tribal families which are still at pre-agricultural stage of economy and largely depending on the physical environment of forest.

Dhanasree *et al.* (2014) revealed that 75.55 per cent of tribal women respondents suggested creation of transport facilities followed by Creation of market facilities (68.88 %), regular visit of extension worker (65.55 %), creating awareness about income generating activities (60.55 %), conducting training programmes (60.55 %), establishment of training centres (57.22 %), providing access to credit and other financial

services(50.44 %), access to better health facilities(55.00 %), reducing the dependence on external source of finance (42.22 %) and access to appropriate technologies and information(27.22 %) to enhance livelihood security.

Patel *et al.* (2015) inferred that (i) voluntary organizations should come forward to promote tribal farm women's literacy and improvement of educational opportunities in ITDP, Dahod. (ii) There should be proper source of credit in ITDP, Dahod. (iii) There should be technical assistance andtraining related to agriculture in ITDP Dahod. (iv) Establishing training centres in locations that can be reached easily by the tribal farmwomen in ITDP, Dahod. (v) There should be provision of irrigation and remission in loans during loss of crops due to natural calamities in ITDP, Dahod. (vi) There should be development of co-operatives for the tribal farmwomen in ITDP, Dahod. (vii) There should be easy availability of cattle of better breedin ITDP, Dahod. (viii) There should be easy availability of agricultural inputs in ITDP, Dahod. (ix) There should be proper transport facilities in ITDP, Dahod.

Bharathkumar (2018) revealed that cent per cent of the tribal youth were of the opinion that the need of RTC in their name (Rank I), followed by establishment of small scale enterprises (Rank II), organizing the training programmes at village level on improved farm technologies (Rank III), increased support price for agriculture produce (Rank IV), conducting awareness programmes at village level to know the different government schemes (Rank V), providing subsidies for inputs (Rank VI), veterinary facilities should be provided in the village (Rank VII), placement of field level officers at village level (Rank VIII) and permission should be provided for NTFP collection (Rank IX). The above suggestions should be implemented by the authorities for improving the livelihood status of tribal youth.

Lade *et al.* (2020) revealed that majority of the respondents (90.00 %) suggested that use of projected and non-projected Audio-visual aids for better and quick understanding in demonstration, 88.75 per cent of respondents reported that Front line demonstrations should be arranged in fixed date and time, 87.50 per cent of respondents reported that programme should be arranged in consistent at the village level, 81.25 per

cent of respondents reported that Brief explanation of new techniques and practical knowledge should be given in local condition by demonstrator, and 82.50 per cent of respondents reported that Farmers want to kept personal contact with demonstrator.

METHODOLOGY

III METHODOLOGY

This chapter describes the methods and procedures used for carrying out present study. The study was conducted in Ramanagara district of Karnataka state during the year 2023-24. Every possible effort was made to use appropriate methods and procedures in order to make the research reliable, unbiased to draw practical conclusions. It also contains the methods and procedures employed for data collection. The sampling procedure adopted as well as the tools and techniques used for analysis of data are also explained. This chapter also includes the procedure for measurement of independent variable under study:

The methodology adopted is described in this chapter as given below:

3.1 Locale of the study

3.1.1 Selection of district

The present investigation was carried out in Ramanagara district of Karnataka state. Ramanagara district was purposively selected for the study as mentioned in Table A since it has the highest population of Iruliga tribes in Karnataka.

3.1.2 Selection of taluks

Ramanagara district consists of four taluks, and among them Ramanagara and Magadi were selected for this study due to convenience and accessibility. This selection facilitates a thorough examination of the tribal populations in these areas while ensuring efficient data collection.

Table A: Details of taluks, villages and number of respondents selected for the study

Sl. No.	Taluks	Name of the villages / Hamlets	Respondents
1	Ramanagara	Ramdevara Betta	10
		Iruligara Colony	10
		Gangodanahalli	10
		Muniyappana Doddi	10
		Rathnagiri Doddi	10
		Chamundipura	10
2	Magadi	Ramkalpalya	10
		Kalyanpalya	10
		Sonenahalli	10
		Joddagatte	10
		Jenkalpalya	10
		Ajjanahalli	10

3.1.3 Selection of villages/ Hamlets

Twelve villages/ hamlets are randomly selected for this study, comprising 6 villages/ hamlets from each of the Ramanagara and Magadi taluks. This selection process ensures that the chosen villages/hamlets represent the diverse socio-economic conditions of the tribal population in the region. By randomly selecting the villages/hamlets, the study aims to capture a broad spectrum of experiences and perspectives within the tribal communities.

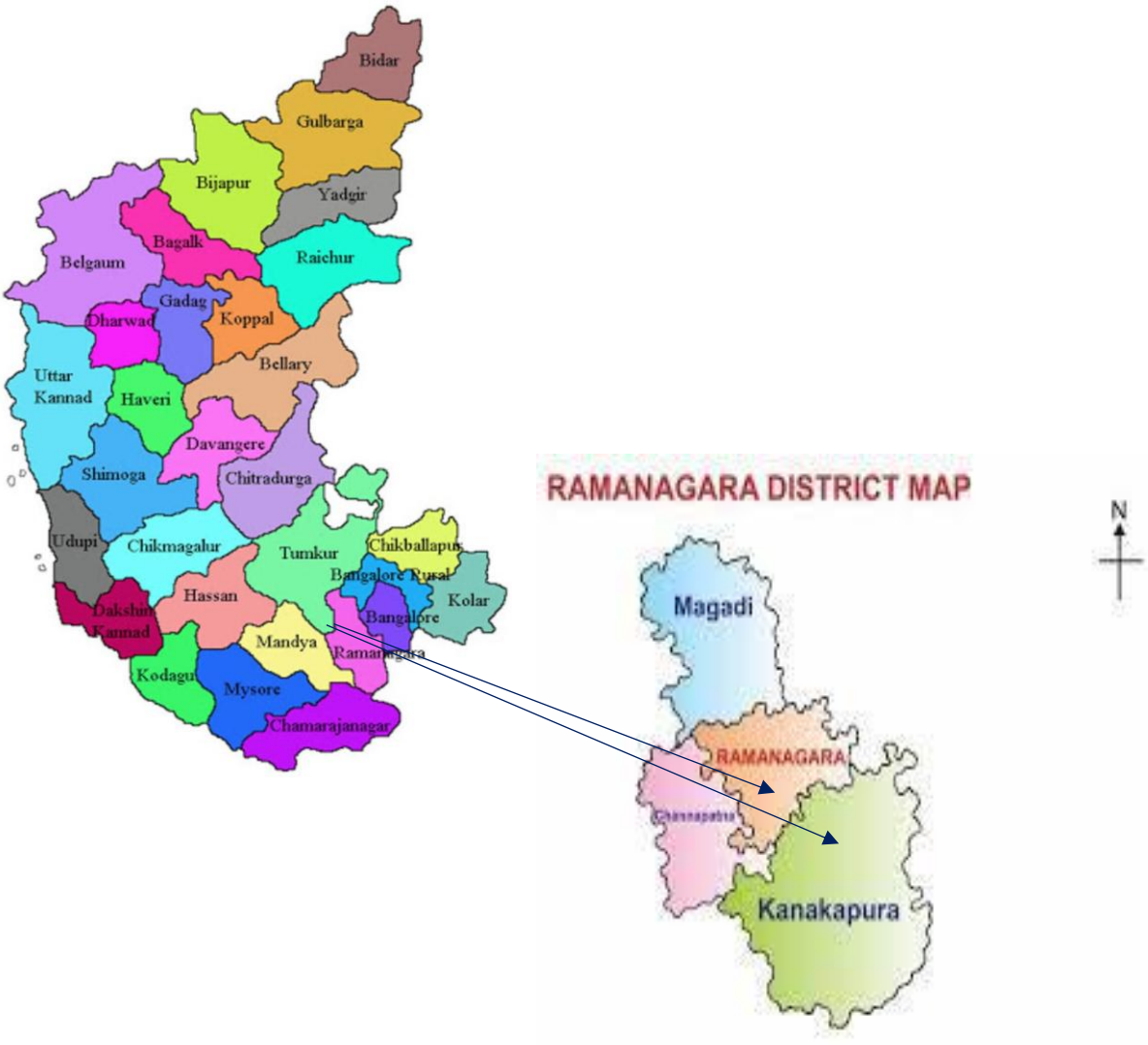

Fig 1: Map showing the study area

3.1.4 Selection of respondents

Ten respondents were randomly selected from each of the six villages/hamlets in Ramanagara and Magadi taluks, constituting a total of 60 tribal people from each taluk. Therefore, a total of 120 tribal people were selected from Ramanagara and Magadi taluks in Ramanagara district.

Based on the objectives of the study, ex post facto research design was followed in the present investigation. Ex post facto research design is a systematic empirical enquiry in which the independent variables have not been directly manipulated because they have already occurred or they are inherently not manipulated. Ex post facto studies can be devised to identify behavioral phenomenon and to explore conditions under which a phenomenon occurs (Kerlinger, 1973). Keeping in view the type of variables under consideration, size of respondents and phenomenon to be studied ex post facto research design was selected as an appropriate research design to investigate the variables influencing the livelihood security of Iruliga tribes in Ramanagara district of Karnataka

3.2 Research design

3.3 Variables and their empirical measurement

Table B presents the variables considered for the study, categorized into dependent and independent variables. The dependent variable, livelihood security of the tribes, was measured using an index developed by Ramya (2016). The independent variables include demographic, socioeconomic and psychological factors, each variable is assessed using established procedures, scales or schedules, with necessary modifications to suit the study context.

Table B: Variables and their empirical measurement

Sl. No.	Variables	Empirical measurement
A. Dependent variable		
1	Livelihood securityof the tribes	Index developed by Ramya (2016) with suitable modifications
B. Independent variables		

1	Age	Chronological age of the respondents
2	Gender	Schedule developed for the study
3	Education	Procedure followed by Hiremath (2000)
4	Family size	Schedule developed for the study
5	Farming experience	Schedule developed for the study
6	Annual income	Schedule developed for the study
7	Family type	Schedule developed for the study
8	Land holding	Procedure followed by Karnataka land reforms act 1996
9	Occupational status	Procedure followed by Swathi (2016) with suitable modifications
10	Social participation	Procedure followed by Sarada (2001) with suitable modifications
11	Economic orientation	Scale developed by Supe (1969) with suitable modifications
12	Mass media exposure	Procedure followed by Ramya (2016) with suitable modifications
13	Level of aspiration	Scale developed by Muttaiah (1971) with suitable modifications
14	Extension participation	Scale developed by Hiremath (2000) with suitable modifications
15	Cosmopoliteness	Procedure followed by Desai (1975) with suitable modifications
16	Fatalism-Scientism	Scale developed by Chattopadyaya and Pareek (1963) with suitable modifications

3.4 Methods used for measurement of dependent variables

Livelihood security of tribes was operationalized as the degree of accessibility, adequacy and utility of different resources to meet the basic needs of the family.

An index developed by Ramya (2016) was used to measure the livelihood security of tribes, incorporating insights from an extensive review of literature and consultation with extension experts. The multidimensional nature of livelihood security includes eleven components: food security, habitat security, cultural security, asset security, health

security, financial security, educational security, social security, transportation security, information security, and occupation security. The procedure for measuring each component to derive its index score is detailed in section 3.4.1.

After calculating the index scores for all eleven components of livelihood security using the procedure outlined by Ramya (2016), the overall livelihood security index score was determined using the formula:

LIVELIHOOD SECURITY INDEX SCORE =

$$\frac{A + B + C + D + E + F + G + H + I + J + K}{11}$$

Where, A. Food security

B. Habitat security

C. Health security

D. Occupational security

E. Cultural security

F. Asset security

G. Transportation security

H. Social security

I. Financial security

J. Educational security

K. Informational security

After obtaining the index score and calculating the mean and standard deviation, livelihood security among the respondents was categorized into three groups for a comprehensive assessment.

Sl. No.	Livelihood security	Criterion
1.	Low	Below (Mean – ½SD)
2.	Medium	Between (Mean $\pm$ ½SD)
3.	High	Above (Mean + ½SD)

3.4.1 Measurement of components of livelihood security

3.4.1.1 Food Security

Food security for tribes is essential for ensuring that they have consistent access to sufficient, safe, and nutritious food to support their health and well-being. This component consists of four key items that evaluate the availability and quality of food, affordability for balanced nutrition, and the ability to maintain adequate food stock for future needs. The four items, each measured with a maximum score of 1 and a minimum score of 0. The maximum obtainable score for Food security was 4. The food security score was calculated using the following formula:

$$\textbf{Food Security Index} = \frac{Obtained\ score}{maximum\ obtainable\ score} \times 100$$

The scores from all four items were summed up, and the final food security score was obtained by dividing the total score by four. The index score is obtained, and based on this score, tribes were categorized into three categories using the following criteria:

Sl.No.	Food Security	Criterion
1	Low	Below (Mean – ½SD)
2	Medium	Between (Mean $\pm$ ½SD)
3	High	Above (Mean + ½SD)

3.4.1.2 Habitat Security

Habitat security for tribes was operationalized as the degree of possession and utilization of various facilities necessary for a better home environment, specifically

housing with basic amenities. This component consists of twelve items, with scoring done accordingly based on their significance. The maximum obtainable score for habitat security is 40. The total score for habitat security was calculated by summing the scores of all twelve items as provided by the respondents. The habitat security index score was derived using the formula:

$$\textbf{Habitat Security index} = \frac{Obtained\ score}{maximum\ obtainable\ score} \times 100$$

Based on the habitat security index, the tribes were grouped into three categories using the following criteria:

Sl. No.	Habitat security	Criterion
1	Low	Below (Mean – ½SD)
2	Medium	Between (Mean $\pm$ ½SD)
3	High	Above (Mean + ½SD)

3.4.1.3 Health Security

Health security of tribes was operationalized as the degree of incidence of infant mortality, diseases and utilization of health services by the family members. This component consists of six items. Six items were assessed, each with a score range of 0 to 1, resulting in a maximum possible score of 6 for health security. The first, second and fifth items were framed as negative statements. The total score of health security was measured by summing up of the scores of all the seven items as given by the respondents. The health security index score was derived by using the formula:

$$\textbf{Health Security index} = \frac{Obtained\ score}{maximum\ obtainable\ score} \times 100$$

Based on the health security index, the tribes were grouped into three categories using the following criteria:

Sl. No.	Health security	Criterion
1	Low	Below (Mean – ½SD)
2	Medium	Between (Mean $\pm$ ½SD)
3	High	Above (Mean + ½SD)

3.4.1.4 Occupational Security

Occupational security of tribes was operationalized as the stability and availability of employment opportunities and regularity of income. This component consists of four items, each measured with a maximum score of 1 and a minimum score of 0. The maximum obtainable score for occupational security was 4. The total score of occupational security was measured by summing up the scores of all four items as given by the respondents. The occupational security index score was derived by using the formula:

$$\textbf{Occupational Security index} = \frac{Obtained\ score}{maximum\ obtainable\ score} \times 100$$

Based on the occupational security index, the tribes were grouped into three categories using the following criteria:

Sl. No.	Occupational security	Criterion
1	Low	Below (Mean – ½SD)
2	Medium	Between (Mean $\pm$ ½SD)
3	High	Above (Mean + ½SD)

3.4.1.5 Cultural Security

Cultural security of tribes was operationalized as the degree of pursuance/ non-pursuance of different cultural norms of the tribal society which enhances their civilization. This component consists of seven items with scoring done accordingly based on their significance. The maximum obtainable score for Cultural security is 17. The total score of cultural security was measured by summing up of the scores of all the seven items as given

by the respondents. The cultural security index score was derived by using the formula:

$$\textbf{Cultural Security index} = \frac{Obtained\ score}{maximum\ obtainable\ score} \times 100$$

Based on the cultural security index, the tribes were grouped into three categories using the following criteria:

Sl. No.	Cultural security	Criterion
1	Low	Below (Mean – ½SD)
2	Medium	Between (Mean $\pm$ ½SD)
3	High	Above (Mean + ½SD)

3.4.1.6 Asset Security

Asset security of tribes was operationalized as the degree ofpossession of different household assets to meet their domestic family needs. This component consists of ten items. Each item was measured with a maximum score of 1 and minimum score of 0. Then the maximum obtainable score for asset security was 10. The total score of asset security was measured by summing up of the scores of all the seven items as given by the respondents. The asset security index score was derived by using the formula:

$$\textbf{Asset Security index} = \frac{Obtained\ score}{maximum\ obtainable\ score} \times 100$$

Based on the asset security index, the tribes were grouped into three categories using the following criteria:

Sl. No.	Asset security	Criterion
1	Low	Below (Mean – ½SD)
2	Medium	Between (Mean $\pm$ ½SD)
3	High	Above (Mean + ½SD)

3.4.1.7 Transportation Security

Transportation security was operationalized as the degree of utilization of transport for mobility to nearby places. Respondents were scored based on the different modes of transport they used, with the scores added together if multiple means were used. The total transportation security score was calculated by summing the individual scores, with a maximum obtainable score of 15 and a minimum of 1. The Transportation Security Index was then derived using the formula:

$$\textbf{Transportation security index} = \frac{Obtained\ score}{maximum\ obtainable\ score} \times 100$$

Based on the transportation security index, the tribes were grouped into three categories using the following criteria:

Sl. No.	Transportation security	Criterion
1	Low	Below (Mean – ½SD)
2	Medium	Between (Mean $\pm$ ½SD)
3	High	Above (Mean + ½SD)

3.4.1.8 Social Security

Social security of tribes was operationalized as the degree of social contact, participation and representation in different institutions and developmental programs. This component consists of seven items. Each item was measured with a maximum score of 1 and minimum score of 0. Then the maximum obtainable score for cultural security was 7. The total score of social security was measured by summing up of the scores of all the eight items as given by the respondents. The social security index score was derived by using the formula:

Social security index = $\frac{Obtained\ score}{maximum\ obtainable\ score} \times 100$

Based on the social security index, the tribes were grouped into three categories using the following criteria:

Sl. No.	Social security	Criterion
1	Low	Below (Mean – ½SD)
2	Medium	Between (Mean $\pm$ ½SD)
3	High	Above (Mean + ½SD)

3.4.1.9 Financial Security

Financial security of tribes was operationalized as the degree ofindebtedness or savings over the expenditure incurred towards basic family needs. This component was measured by following below mentioned scoring pattern.

3.4.1.9.1 Indebtedness

Total loans (in Rs.)	Score
0	5
2000-5000	4
5000-8000	3
8000-10000	2
>10000	1

Maximum obtainable score=5

Indebtedness index = $\frac{Obtained\ score}{Maximum\ obtainable\ score} \times 100$

3.4.1.9.2 Savings

Savings (in Rs.)	Score
0	1
2000-5000	2
5000-8000	3
8000-10000	4
>10000	5

Maximum obtainable score=5

$$\textbf{Saving index} = \frac{Obtained\ score}{Maximum\ obtainable\ score} \times 100$$

Based on the financial security index, the tribes were grouped into three categories by using following criteria.

Sl.No.	Financial security	Criterion
1	Low	Below (Mean – ½SD)
2	Medium	Between (Mean $\pm$ ½SD)
3	High	Above (Mean + ½SD)

3.4.1.10 Educational Security

Educational security of tribes was operationalized as the degree of existing educational status of childrens. This component consists of three items. Each item was measured with a maximum score of 1 and minimum score of 0. Then the maximum obtainable score for educational security was 3. The total score of educational security was measured by summing up of the scores of all the three items as given by the respondents. The Educational security index score was derived by using the formula:

$$\textbf{Educational Security index} = \frac{Obtained\ score}{Maximum\ obtainable\ score} \times 100$$

Based on the educational security index, the tribes were grouped into three categories by using following criteria.

Sl.No.	Education security	Criterion
1	Low	Below (Mean – ½SD)
2	Medium	Between (Mean $\pm$ ½SD)
3	High	Above (Mean + ½SD)

3.4.1.11 Information Security

Information security of tribes was operationalized as the degreeof utilization of different information sources. This component consists of ten items. Each item was measured with a maximum score of 1 and minimum score of 0. Then the maximum obtainable score for information security was 10. The total score of information security was measured by summing up of the scores of all the ten items as given by the respondents. The information security index score was derived by using the formula:

$$\textbf{Information Security index} = \frac{Obtained\ score}{Maximum\ obtainable\ score} \times 100$$

Based on the information security index, the tribes were grouped into three categories by using following criteria.

Sl.No.	Information security	Criterion
1	Low	Below (Mean – ½SD)
2	Medium	Between (Mean $\pm$ ½SD)
3	High	Above (Mean + ½SD)

3.4.2 Ranking of different components of livelihood security of tribes

Based on the obtained index scores for all the eleven components of livelihood security of tribes, the components were arranged in the rank order from highest to lowest index scores.

3.5 Methods used for measurement of independent variables

3.5.1 Age

Age of the tribes was operationalized as the chronological age of the tribes in terms of the total number of years completed at the time of investigation. Based on the completed years, the respondents were classified as follows.

Sl.No	Age	Years
1.	Young	35 years and below
2.	Middle	36 years to 58 years
3.	Old	58 years and above

3.5.2 Gender

Gender refers to the differences between males and females with respect to the dimensions of the study. Both male and female respondents were randomly selected to capture their perspectives.

3.5.3 Education

It was operationally defined as the educational level attained by the tribal farmer at the time of investigation. Procedure followed by Hiremath (2000) was used for the study. The scoring pattern followed in the study is given below:

Category	Score
Illiterate	0
Can read and write	1
Primary school	2

Middle school	3
High school	4
P.U.C/ Diploma	5
Degree	6
Post Graduate	7

3.5.4 Family size

Family size was operationalized as the number of members in a family of a tribal farmer. The family members may include husband, wife, children and other dependent members. Based on the number of family members, the tribes were grouped into three categories of family size viz., small (2 to 3 members), medium (4 to 5 members) and large (more than six members) with scores of 1, 2, 3 respectively and the number of tribes falling under each category was worked out through frequency and percentage.

Sl.No.	Family size	Score
1	Small	1
2	Medium	2
3	Large	3

3.5.5 Farming experience

The farming experience was operationalized as the number of years completed by tribes in farming at the time of investigation. A weightage of "1" was assigned to each of the completed years to compute the score. The respondents were classified into three groups based on mean and standard deviation as follows.

Sl. No.	Farming Experience	Score range
1	Low	Below (Mean – ½SD)
2	Medium	Between (Mean $\pm$ ½SD)

3	High	Above (Mean + ½SD)

3.5.6 Annual income

It was operationalized as the actual income received by the tribes from different sources of their livelihood. Based on the annual income, the tribes were grouped into 3 categories by using mean and standard deviation.

Sl. No.	Annual income	Score range
1	Low	Below (Mean – ½SD)
2	Medium	Between (Mean $\pm$ ½SD)
3	High	Above (Mean + ½SD)

3.5.7 Family type

It refers to the situation that whether the family members of respondents were divided or combined. On this basis the respondents were divided into two categories of family type viz., nuclear family and joint family with scores of "1" and "2" respectively.

Sl. No.	Family type	Score
1	Nuclear	1
2	Joint	2

3.5.8 Land holding

The extent of land actually possessed by the tribes was recorded and this was converted in to standard acres based on Karnataka land reforms act 38 of 1996. According to this act, one acre of garden and wet land was considered equal to 2.50 acres of dry land. (Anonymous, 1992).

It is taken as the total number of standard acres a tribes-owned at the time of data collection including land leased. The conversion of different kinds of land holding into standard dry land acre was done.

Based on the extent of land owned by the family, they were classified into three groups' viz., marginal, small and big farmers. The grouping made based on the extent of land owned by each category tribes is given below.

Category	Extent of area
Marginal farmers	Below 2.5 acres
Small farmers	2.5 to 5.0 acres
Big farmers	Above 5.0 acres

3.5.9 Occupational status

Occupational status was operationally defined as the tribes occupation at the time of investigation to generate income and means of livelihood. Occupational schedule with the following items and their scores is given below. The number of tribes falling under each category worked out through frequency and percentage. Procedure followed by Swathi (2016) with suitable modifications was used for the study.

Type of occupation	Score
Agriculture	1
Wage work	2
Non timber forest products (NTFP)	3
Agriculture + Wage work	4
Agriculture + Livestock	5
Agriculture + Livestock + Wage work	6
Agriculture + Livestock + Wage work + Non timber forest products	7
Agriculture + Livestock + Wage work + Non timber forest products+ Business	8
Others	9

3.5.10 Social participation

The degree of social participation among the respondents was measured using an adapted version of the method followed by Sarada (2001), with suitable modifications. Data were collected on their membership in seven social organizations, including Gram Panchayat, Taluk Panchayat, Zilla Panchayat, Cooperative Societies, and others, as well as how often they participated in these organizations' activities. The total scores were arrived at by adding the scores obtained on both the items. Involvement of individual as office bearer was scored “2”, as member “1” and as not member “0” respectively. Extent of involvement was measured with a score of “2” for “regularly”, “1” for “occasionally” and “0” for “never”. The maximum and minimum scores were 2 and 0. The respondents were grouped into three categories based on mean and standard deviation.

Sl. No.	Category	Score range
1	Low	Below (Mean – ½SD)
2	Medium	Between (Mean $\pm$ ½SD)
3	High	Above (Mean + ½SD)

3.5.11 Economic orientation

It was operationalized as the extent to which a tribes were oriented towards achieving the maximum returns such as maximization of profits. It was measured with the help of scale developed by Supe (1969) with suitable modifications. The scale consists of 6 statements of which 5 were positive and 1 was negative. The response continuum was “agree”, “undecided” and “disagree” with weightage of “3”, “2” and “1” for positive statements and “1”, “2” and “3” for negative statement, respectively. The scoring of respondents was done by summing up response weightages for each statement in the scale and the maximum and minimum scores were 18 and 6. The respondents were grouped into three categories based on mean and standard deviation.

Sl. No.	Economic orientation	Score range
1.	Low	Below (Mean – ½SD)
2.	Medium	Between (Mean ± ½SD)
3.	High	Above (Mean + ½SD)

3.5.12 Mass media exposure

The degree of mass media exposure among the respondents was measured based on the extent to which the tribes utilized various mass media sources, following the method adapted from Ramya (2016) with appropriate modifications. The exposure was scored as 2 for "regularly", 1 for "occasionally", and 0 for "never". The total score for each respondent was obtained by summing these values, with possible scores ranging from 0 to 12. Respondents were then categorized into three groups based on the mean and standard deviation, representing different levels of mass media exposure.

Sl. No.	Category	Score range
1	Low	Below (Mean – ½SD)
2	Medium	Between (Mean ± ½SD)
3	High	Above (Mean + ½SD)

3.5.13 Level of aspiration

Level of aspiration was operationalized as the degree or quality of performance exhibited by a tribal farmer that he desires to attain or feels to achieve. Level of aspiration was measured with the help of the scale developed by Muttaiah (1971) with suitable modifications. The scale consists of four statements and the maximum and minimum scores were 26 and 0 respectively. Depending on the extent of level of aspiration the respondents were grouped into three categories based on mean and standard deviation.

Sl. No.	Level of Aspiration	Score range
1.	Low	Below (Mean – ½SD)
2.	Medium	Between (Mean ± ½SD)
3.	High	Above (Mean + ½SD)

3.5.14 Extension participation

It refers to the extent of participation of tribes in different extension activities. This variable was quantified by following the procedure used by Hiremath (2000) with slight modification. A list of extension activities was prepared and the respondents were asked to indicate their extent of participation in each of the activity. The frequency of extension participation was quantified on a three point continuum namely regularly, occasionally and never with the score of 2, 1 and 0, respectively. The higher score revealed greater participation of the respondents and lower score indicates low participation of the respondents in the extension activities. The responses were later categorized considering mean and half standard deviation as measure of check.

Sl. No.	Category	Score range
1	Low	Below (Mean – ½SD)
2	Medium	Between (Mean ± ½SD)
3	High	Above (Mean + ½SD)

3.5.15 Cosmopoliteness

It is defined as the degree to which an individual is oriented towards his immediate social system. The cosmopolite farmer is likely to be a unique individual in that he/she motivated to look beyond his environment when most others are content to maintain a legalistic frame of reference. The variable was measured using the scale developed by Desai (1975). Two dimensions of the variable are considered in this case.

a. The frequency of visit to the nearest town.

b. The purpose of visit to the town.

Sl. No.	a) Frequency of visit	Score	b) Purpose of visit	Score
1	Two or more times in a week	4	All visits relating to agriculture	4
2	Once in a week	3	Marketing of products	3
3	Once in a fifteen days	2	Personal / Domestic	2
4	Once in a month	1	Entertainment	1
5	Never	0	others	0

3.5.16 Fatalism-Scientism

Fatalism was operationalized as the degree to which the tribal farmer perceives a lack of ability to control his future. Fatalism was measured with the help of the scale developed by Chattopadyaya and Pareek (1963) with suitable modifications. The scale consists of 'three' statements. The response continuum was "agree", "undecided" and "disagree" with weightage of '3', '2' and '1' for positive statements and '1', '2' and '3' for negative statement, respectively. The scoring of respondents was done by summing up response weightages for each statement in the scale and the maximum and minimum scores were 9 and 3 respectively. The respondents were grouped in to three categories based on mean and standard deviation.

3.6 Relationship between the personal, socio-economic and psychological characteristics and livelihood security of the tribes

The relationship between the personal, socio-economic and psychological characteristics and livelihood security of the tribes was measured by co-efficient of correlation and multiple linear regression analysis.

3.7 Livelihood system analysis of tribes

Livelihood system of a tribes was operationalized as the established structure and functioning of different livelihood options of a tribes to meet the basic needs of his family. The six components analysed for the tribes livelihood system are described below.

3.7.1 Different Combinations of Livelihood options being followed by the tribes

During the investigation, all existing combinations of different livelihood options practiced by the tribes were documented and analyzed based on their distribution. A total of sixteen combinations involving ten different livelihood options were identified among the one twenty respondents. Considering the major livelihood options, these sixteen combinations were grouped into ten broad categories.

3.7.2 Distribution of each Livelihood option among the tribes

An attempt was also made to analyze the distribution of each livelihood option among the number of tribes. To measure this component,existence of each livelihood option either as sole or in combination with the tribes was calculated and accordingly all the livelihood options were ranked in terms of their distribution among the tribes.

3.7.3 Proportion of income earned and the proportion of time spent on each livelihood options.

To measure the contribution of each livelihood option towards livelihood security of tribes, two important criteria viz., “income generated” and the “time spent” on each livelihood were considered to determine its contribution to livelihood security of the tribes.

The respondents were asked to mention their annual income and also split up from each of the livelihood option. Accordingly tribal annual income of all the one hundred and twenty respondents was summed up to form the total annual income of all the one hundred and twenty respondents from all the livelihood options. Further the split up annual income as given by the respondents for each livelihood option was also summed up to get the total income generated for each livelihood option.

Contribution of each livelihood option was calculated by using the formula:

$$\frac{Annual\ income\ generated\ from\ each\ livelihood\ by\ all\ the\ respondent}{Total\ annual\ income\ of\ all\ the\ respondents} \times 100$$

The respondents were asked to mention the total time spent by all the family members on their livelihood options and also split up of time spent for each livelihood option. Accordingly total time spent by all the one hundredand twenty respondents was summed up to form the total time spent by all the one hundred and twenty respondents for all the livelihood options. Further the split up of time spent as given by the respondents for each livelihood option was also summed up to get the total time spent by all the family members for each livelihood option.

To calculate the time spent on each livelihood option the following formula was used:

$$\textbf{Time spent} = \frac{"Number\ of\ man\ days\ spent\ on\ the\ livelihood\ option"}{Year}$$

3.7.4 Share of male and female family members in terms of their involvement on each livelihood option.

An attempt was made to observe the male and female share in terms of their involvement of family in different livelihood options of the tribes. this component was measured on the three point continuum fully involved, partially involved and not involved with scores of 2, 1 and 0 respectively for both male and female family members against each livelihood option. The respondents who were taking up respective livelihood options were only considered for the present component. Accordingly, the responses were taken from the respective respondents for all the nine livelihood options.

The number of family members and their extent of involvement for both male and female members for all the respective respondents of each livelihood option was pooled and the total score of each livelihood option was pooled and the total score of each livelihood option was arrived. Further, the male and female share for each livelihood option was calculated by using the formula:

$$\textbf{Male share of each livelihood option} = \frac{Male\ score\ of\ each\ livelihood\ option}{Total\ score\ of\ each\ livelihood\ option} \times 100$$

$$\textbf{Female share of each livelihood option} = \frac{Female\ score\ of\ each\ livelihood\ option}{Total\ score\ of\ each\ livelihood\ option} \times 100$$

3.7.5 Degree of possession of technical competency with respect to each tribal livelihood options.

Degree of possession of technical competency by tribes with respect to their existing livelihood option was measured on 3 point continuum as enough, moderate and less with scores of 3, 2 and 1 respectively.The respondents who were taking up respective livelihood options were only considered for the present component. Accordingly the responses were taken from the respective respondents for the nine livelihood options and final technical competency scores were arrived for each livelihood option dividing the total technical competency score and the maximum possible score of the respective respondents for each livelihood options.

$$\textbf{Degree of Technical competency (\%)} = \frac{\text{Total technical competency score}}{Maximum\ possible\ score} \times 100$$

Based on the degree of technical competency on each livelihood option expressed in percentage, they were ranked from highest to lowest in terms of degree of technical competency and ranks were given according to the highest frequency to lowest frequency.

3.7.6 Extent of risk involved with respect to each tribal livelihood option

Extent of risk as perceived by tribes with respect to their existing livelihood option was measured on 3point continuum as high risk, moderate risk and less risk with scores of 3, 2 and 1 respectively. The respondents who were taking up respective livelihood options were only considered for the present component. Accordingly the responses were taken from the respective respondents for the nine livelihood options and final risk involvement scores were arrived for each livelihood option by dividing the total risk involvement score and the maximum possible score of the respectiverespondents for each livelihood options.

Based on the extent of risk involvement of each livelihood option expressed in percentage, they were ranked from highest to lowest in terms of extent of risk involvement

for each livelihood option.

Extent of risk as perceived by tribes with respect to their existing livelihood option was measured on 3 point continuum as high risk, moderate risk and less risk with scores of 3, 2 and 1 respectively. The respondents who were taking up respective livelihood options were only considered for the present component. Accordingly, the responses were taken from the respective respondents for the nine livelihood options and final risk involvement scores were arrived for each livelihood option by dividing the total risk involvement score and the maximum possible score of the respective respondents for each livelihood options.

$$\textbf{Extent of Risk involvement (\%)} = \frac{Total\ risk\ involvement\ score}{Maximum\ possible\ score} \times 100$$

Based on the extent of risk involvement of each livelihood option expressed in percentage, they were ranked from highest to lowest in terms of extent of risk involvement for each livelihood option.

3.8 Awareness and utilization of tribal development programmes

Awareness refers to the respondents' knowledge of the tribal development programs, while utilization reflects the extent to which they have benefited from or used these programs. Both were measured across seven sections: education, social development, economic development, health, employment, agriculture and allied sectors, and NGO development programs. Respondents provided “yes” or “no” answers, scored as 1 and 0 respectively, for both awareness and utilization.

The respondents were grouped into three categories based on mean and standard deviation to analyze the extent of awareness and utilization among the tribes.

S.No.	Category	Criterion
1	Low	Below (Mean – ½SD)
2	Medium	Between (Mean $\pm$ ½SD)
3	High	Above (Mean + ½SD)

3.9 Problems and suggestions as perceived by the tribes for their livelihood security

For the present study, the Problem was operationalized as the unsatisfactory situations with respect to livelihood security as perceived by the tribes. The respondents were asked to provide their problems regarding their livelihood security through both close-ended and open-ended questionnaires.

Suggestion was defined as the requirements expressed by the tribes to fulfil their livelihood security needs. The respondents were asked to give their suggestions for overcoming the problems related to their livelihood security using both close-ended and open-ended questionnaires, expressed in terms of frequency and percentage.

3.10 Development of interview schedule

Taking into consideration the objectives of the study, an interview schedule was prepared after reviewing available literature and consulting extensively with experts in the fields of extension education and related areas. Each question was refined for relevance and clarity through continuous interaction with the experts. The schedule was then translated into the local language, Kannada, to ensure ease of administration and accurate responses from the tribes. The final schedule was used to collect the required information from the tribes.

3.11 Data collection

In the initial period, visit was made to the tribal village and attended a training program conducted by a NGO, to build rapport with the tribes and establish contact with the Iruliga. These visits, in coordination with officials from Janapada Loka and other local NGOs, helped ensure that reliable and accurate information could be gathered. Data was collected from one hundred and twenty tribes in July 2024 through personal interviews conducted in a relaxed, informal setting. Each question was clearly explained to the respondents, and consistent care was taken to ensure equal understanding among all participants. Efforts were made to minimize the influence of onlookers during the interviews. Informal discussions and observations were also conducted to gain a deeper

understanding of the respondents and their circumstances, which aided in interpreting the results more effectively.

3.12 Statistical techniques used for analysis of data

The data collected from all the respondents were coded and tabulated. Then the data were subjected to different statistical tests keeping in view the objectives of the study. The findings emerged out of the data analysis wereinterpreted, discussed and necessary inferences and conclusions were drawn. The following statistical tests and measures were used for the analysis of the data.

3.12.1 Arithmetic mean

It is the sum of the observed values of a set divided by the number of observations in the set is called a mean or an average. The calculated mean was used for grouping the respondents.

$$\bar{X} = \frac{\sum X}{n}$$

Where,

$\bar{x}$ = Mean

$\sum X$ = sum of scores

n = Number of respondents

3.12.2 Standard deviation

It is positive square root of the mean of the squared observation taken from arithmetic mean. It was used to find out the variation in the score in the dependent variable and for categorization of respondents.

$$\sigma = \sqrt{\frac{1}{n}\{\sum x^2 - \frac{(\sum x)^2}{n}\}}$$

where,

σ	=	Standard Deviation
$\sum x^2$	=	Sum of squares of observations
$(\sum x)^2$	=	Square of sum of *"x"* values
n	=	Number of observations

3.12.3 Frequency and percentage

Frequency and percentages were used to know the distribution pattern of respondents according to objectives under study. Percentages were used forstandardization of sample size by calculating the number of individuals that would be under a given category, if the total number of cases were hundred.

3.12.4 Co-efficient of Correlation (r)

This measure was used to find out the relationship between the scores on independent and dependent variables of the sample respondents. The computed "r" values were then compared with the table values of coefficientof correlation at 5 and 1 per cent level of significance.

The formula is as follows:

$$r = \frac{\sum xy - \frac{(\sum x)(\sum y)}{n}}{\sqrt{\sum x^2 - \frac{(\sum x)^2}{n}}\sqrt{\sum y^2 - \frac{(\sum y)^2}{n}}}$$

Where,

r = Co-efficient of correlation between x and y

$\sum$ x = Sum of independent variable x

$\sum$ y = Sum of independent variable y

$\sum x^2$ = Sum of squares of x variable

$\sum y^2$ = Sum of squares of x variable

n = Size of the sample

3.13 Conceptual model of the study

Conceptually the variables under the study and the assumed relationship between dependent and independent variables are presented in Figure 2. It is conceived that the dependent variables i.e. livelihood security influenced by the independent variables like age, gender, education, family size, farming experience, annual income, family type, land holding, occupational status, social participation, economic orientation, mass media exposure, level of aspiration, extension participation, cosmopoliteness and fatalism-scientism.

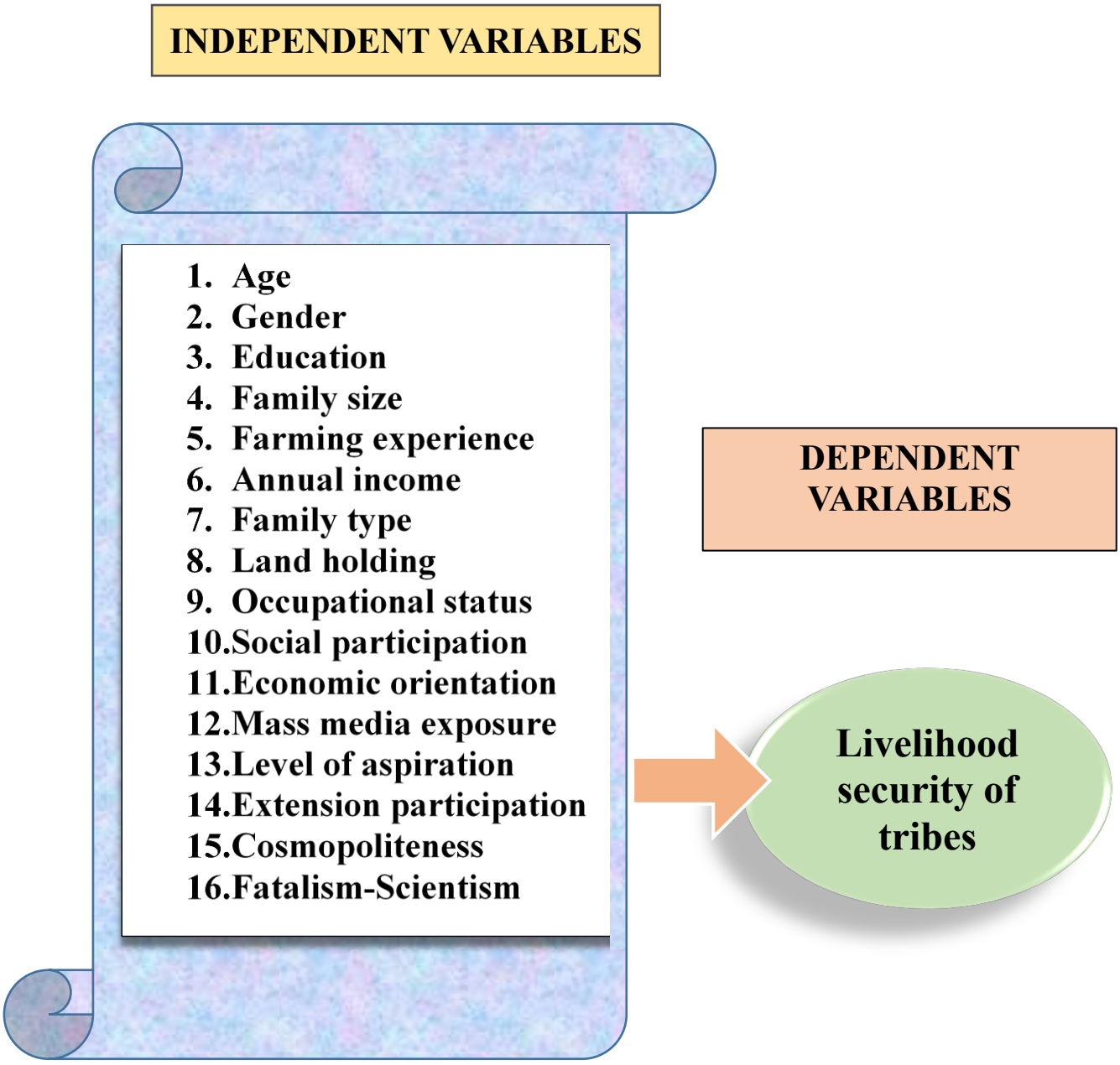

Fig 2: Conceptual model of the study

RESULTS AND DISCUSSION

IV RESULTS AND DISCUSSION

This chapter deals with the systematic presentation of results and discussions of the study. The results and discussion on various aspects according to the objectives are presented under the following headings.

4.1 Livelihood security levels of tribes

4.2 The personal, socio-economic and psychological characteristics of tribes

4.3 Livelihood system analysis

4.4 Awareness and utilization of tribal development programs

4.5 Relationship between the personal, socio-economic and psychological characteristics and livelihood security of the tribes

4.6 Problems as perceived by the tribes and their suggestions to overcome the problems

4.7 To document case studies of tribal livelihoods

4.1 Livelihood security levels of tribes

4.1.1. Overall livelihood security

Table 1 provides information on the overall livelihood security of tribes. Among respondents in Magadi taluk, nearly half (45.00 %) belonged to the medium category followed by over one-third (36.67 %) in the high category and nearly one-fifth (18.33 %) in the low category. In Ramanagara taluk, nearly half (43.33 %) of respondents belonged to the medium category followed by more than two-fifths (41.67 %) in the low category and one-sixth (15.00 %) in the high category. Overall, nearly two-fifths (41.17 %) of respondents were categorized under the medium category followed by three-tenths (30.00 %) in the low category and one-fourth (25.83 %) in the high category. The variation in distribution could be attributed to factors such as differences in access to resources, socioeconomic conditions, education levels and external influences like environmental challenges or availability of employment opportunities. In Magadi, better access to land for agriculture, improved habitat, and infrastructure contribute to higher livelihood

security. These factors along with stable living conditions likely support the overall better performance in livelihood security compared to other areas. Socioeconomic factors such as income opportunities also play a significant role in shaping the security levels. The findings are in line with studies of Dhanasree *et al.* (2014) and Ramya (2016).

Table 1: Livelihood security distribution pattern among Iruliga tribes

(n=120)

Sl. No.	Category	Magadi (n_1=60)		Ramanagara (n_2=60)		Pooled	
		f	%	f	%	f	%
1.	Low (< 529.68)	11	18.33	25	41.67	36	30.00
2.	Medium (529.68-614.61)	27	45.00	26	43.33	53	41.17
3.	High (> 614.61)	22	36.67	09	15.00	31	25.83
	Total	**60**	**100**	**60**	**100**	**120**	**100**

Mean = 572.15 S.D = 84.93

4.1.2. Dimension wise

4.1.2.1 Food security

Data from Table 2 shows that food security levels among the Iruliga tribes in Magadi and Ramanagara taluks. In Magadi, nearly two-thirds (61.66 %) of respondents had high food security followed by about one-third (31.67 %) in the medium category and only a small portion (6.67 %) in the low category. In Ramanagara, three-fifths (56.67 %) in the medium category followed by nearly two fifths (35.00 %) were in the high category and nearly one-tenth (8.33 %) in the low category. Overall, nearly half (48.33 %) of the respondents were categorized under high food security followed by less than half (44.17 %) in the medium category and nearly one-tenth (7.50 %) in the low category.

The probable reasons may be families in Magadi having better access to agricultural resources, markets, or government support, which helps them achieve greater food security

compared to Ramanagara. Higher income levels or more stable earning opportunities in Magadi contribute to their ability to afford sufficient and nutritious food, while Ramanagara families struggle with limited income sources. In Magadi, where many members cultivate and produce crops, families are better able to rely on these reserves during times of scarcity. In contrast, the lower number in Ramanagara reflects limited agricultural activity or storage practices, contributing to lower food security. The findings are in line with Ramya (2016).

4.1.2.2 Health security

Data from Table 2 depicts that more than half (53.33 %) of the respondents in Magadi had medium health security, while nearly one-third (31.67 %) were in the high category and 15.00 per cent were in the low category. In Ramanagara, nearly half (48.33 %) of respondents had medium health security, whereas more than two-fifths (41.67 %) were in the low category and only one-tenth (10.00 %) fell into the high category. Overall, half (50.83 %) of the respondents had medium health security followed by more than one-third (28.34 %) in the low category and one-fifth (20.83 %) in the high category.

The potential factors include poor sanitation in Ramanagara, which contributes to the spread of epidemic diseases, significantly impacting health security. Inadequate waste management, contaminated water sources, and poor hygiene practices further increase the risk of disease outbreaks. Additionally, the distant location of healthcare facilities from residential areas limits access to timely medical care, particularly during emergencies or for routine check-ups. Addressing these challenges could involve improving healthcare infrastructure, making services more affordable and enhancing health awareness. These findings align with those of Mandal and Sengupta (2016).

4.1.2.3 Occupational security

Data from Table 2 highlights the occupational security levels among the respondents. In Magadi taluk, nearly half (45.00 %) of the respondents were in the medium category followed by over one-third (35.00 %) in the high category and one-fifth (20.00 %) in the low category. In Ramanagara taluk, over two-fifths (41.67 %) of the respondents belonged to the medium category, followed by nearly one-third (30.00 %) in the high

category and more than one-fourth (28.33 %) in the low category. Overall, across both taluks nearly half (43.33 %) of the respondents fell into the medium category, while one-third (32.50 %) were in the high category and nearly one-fourth (24.17 %) were in the low category.

The reasons may include many tribes relying on seasonal work or manual labor, which often results in inconsistent income and job insecurity. Limited skills beyond basic wage work further restrict their opportunities for stable and better-paying employment. In rural areas, the scarcity of available job options exacerbates the challenge of securing higher-paying or year-round work. Additionally, inadequate support, such as infrastructure, financial assistance and training for small businesses, hinders individuals from creating their own sources of income. Consequently, they remain reliant on unpredictable and unreliable forms of labor.

4.1.2.4 Habitat security

Data from Table 2 reveals that in Magadi, above two-fifths (43.33 %) of the respondents reported high habitat security followed by 26.67 per cent in the medium category and 30.00 per cent in the low category. Conversely, in Ramanagara, half (50.00 %) of respondents had low habitat security followed by 33.33 per cent were in the high category and 16.67 per cent were in the medium category. Overall, two-fifths (40.00 %) of respondents were in the low category, while nearly two-fifths (38.33 %) had high security and above one fifth (21.67 %) were in the medium category.

The underlying reasons might be that Magadi benefits from stronger local governance and policies that prioritize housing and infrastructure development. In contrast, Ramanagara seems to lack similar levels of investment, resulting in poorer living conditions. Additionally, the growing family size in Ramanagara has caused overcrowding in homes originally designed for smaller families. As a result, children are often forced to construct their own tents or thatched houses. This situation highlights the challenges posed by population growth and inadequate housing space, emphasizing the urgent need for improved housing solutions and infrastructure development in Ramanagara.

4.1.2.5 Cultural security

From Table 2, it is evident that more than three-fifths (61.67 %) of respondents in Magadi had medium cultural security, while 26.66 per cent were in the high category and 11.67 per cent were in the low category. In Ramanagara, nearly half (46.66 %) of the respondents had high cultural security, 36.67 per cent had medium security and 16.67 per cent were in the low category. Overall, nearly half (49.17 %) of the respondents were in the medium category, 36.66 per cent were in the high category and 14.17 per cent were in the low category.

The key factors could include sufficient access to clothing and resources in both taluks, which may be driven by a combination of local economic stability, government welfare programs and the ability of families to meet basic needs through available resources. The rarity of child marriage and absence of widow marriage reflect increased awareness of social norms and legal frameworks. Higher festival expenditures in Ramanagara may result from cultural expectations and variations in income levels. Minimal participation in folk events might be attributed to limited opportunities, a declining focus on traditional practices or the influence of modernization.

4.1.2.6 Educational security

The results from Table 2 highlight that in Magadi, the two-thirds (65.00 %), of respondents fall under the high educational security category, followed by the medium category with nearly one-fifth (18.33 %) and one-sixth (16.67 %) in the low category. In Ramanagara, just above two-fifths (43.34 %) of respondents fall under the high category, with nearly two-fifths (38.33 %) in the medium category and nearly one-fifth (18.33 %) in the low category. Overall, more than half (54.17 %) of the respondents were categorized under high educational security followed by above one-fourth (28.33 %) in the medium category and nearly one-fifth (17.50 %) in the low category.

The probable reasons could be better access to educational resources and infrastructure in Magadi, leading to higher educational security. In contrast, Ramanagara faces challenges like longer travel distances to schools making education less accessible, especially for girls. Additionally, many children in Ramanagara drop out of school to

support their families by working instead of continuing their education. The findings are in line with Barela *et al*. (2018).

4.1.2.7 Financial security

Table 2 reveals that in Magadi, nearly three-fourths (71.67 %) of respondents were observed to have medium financial security, while 15.00 per cent were in the high category and 13.33 per cent were in the low category. In Ramanagara, slightly more than half (51.67 %) of respondents had medium financial security, above two-fifths (43.33 %) were in the low category and only 5.00 per cent had high security. Overall, above three-fifths (61.67 %) reported medium financial security, above one-fourth (28.33 %) were in the low category and 10.00 per cent had high security.

The probable reasons could be differences in land ownership and farming practices with people in Magadi possibly having better access to productive land and more diverse agricultural opportunities. Additionally, Ramanagara's proximity to Bengaluru may lead to higher living costs and increased competition for resources, making it more difficult for residents to maintain financial security due to higher expenses and limited affordable resources. However, opportunities to improve financial security exist by focusing on expanding credit access, enhancing financial education, and creating more stable job opportunities.

4.1.2.8 Asset security

Data in Table 2 highlights that nearly half (46.67 %) of respondents in Magadi experienced low asset security, while nearly two-fifths (38.33 %) were in the high category and about one-sixth (15.00 %) were in the medium category. In Ramanagara, two-fifths (40.00 %) had low security, while nearly one-third (31.67 %) were in the medium category and above one-fourth (28.33 %) were in the high category. Overall, more than two-fifths (43.33 %) of respondents reported low security, one-third (33.34 %) had high security and nearly one-fourth (23.33 %) were in the medium category.

The probable reasons for low asset security could include the Iruliga tribes primary reliance on agricultural labor, non-agricultural labor and livestock, which often provide

unstable and seasonal incomes. Limited access to land and resources for farming can restrict wealth accumulation, while dependence on labor-based work may lead to lower financial security due to inconsistent wages. Additionally, the lack of diversified income sources or skills development may leave them vulnerable to economic fluctuations. Livestock rearing, may not generate enough income to build substantial assets, especially without access to proper markets or support systems. Furthermore, the lack of financial services and government schemes could prevent them from securing assets.

4.1.2.9 Transportational security

As shown in Table 2, nearly half (48.33 %) of respondents in Magadi were categorized under medium transportation security followed by one-third (33.34 %) in the high category and less than one-fifth (18.33 %) in the low category. In Ramanagara, nearly half of respondents (45.00 %) had medium transportation security, two-fifths (40.00 %) were in the high category and nearly one-sixth (15.00 %) had low security. Overall, less than half (44.17 %) had medium transportation security, more than one-third (36.67 %) were in the high category and nearly one-fifth (19.16 %) were in the low category.

The contributing factors may include limited or poorly maintained roads, particularly in rural areas, which restrict mobility and access to essential services. The high cost of owning and maintaining vehicles forces many families to rely on inefficient or expensive transport options. Public transportation is often irregular, making it difficult to reach work or other important destinations on time. School children face commuting challenges, relying on scarce transport options like autos and jeeps. Additionally, geographic isolation in both taluks exacerbates the situation further reducing overall transportation security.

4.1.2.10 Social security

As outlined in Table 2, in Magadi nearly two-thirds (61.67 %) of respondents fall under the high social security category followed by just about one-fifth (21.67 %) in the medium category and a small proportion (16.66 %) in the low category. In Ramanagara, more than two-fifths (45.00 %) are in the medium category, one-third (33.34 %) in the high

category and one-fifth (21.66 %) in the low category. Overall, nearly half (47.50 %) of respondents fall under the high category, with a significant portion 33.34 per cent in the medium category and a smaller portion nearly one-fifth (19.16 %) in the low category.

The probable reasons could be that Magadi has better access to self-help groups, where participation enhances social security through mutual support, financial assistance and collective decision-making. Greater involvement in social organizations in Magadi fosters a sense of solidarity, which contributes to stronger social security. In contrast, Ramanagara may have lower participation in such organizations, resulting in weaker social networks and fewer support opportunities. The major difference in social security likely stems from the level of participation in group meetings. In Magadi, more active participation in self-help groups and social organizations may have led to better social cohesion and access to resources, while lower participation in Ramanagara could limit these benefits.

4.1.2.11 Information security

The findings from Table 2 show that nearly half (45.00 %) of respondents in Magadi were classified as having medium informational security, while 31.67 per cent were in the low category and 23.33 per cent were in the high category. In Ramanagara, two-thirds (68.33 %) had medium security, 16.67 per cent were in the low category and 15.00 per cent were in the high category. Overall, 56.67 per cent of respondents were in the medium category, 24.17 per cent in the low category and 19.16 per cent in the high category.

The likely causes may include variations in the implementation and awareness of NGO-led informational support programs coupled with weaker community networks, which contribute to the lower informational security in Magadi. The comparatively better performance of local leaders and NGOs in Ramanagara may explain its higher medium security. Overall, the medium to low levels of informational security indicate a need to strengthen NGO efforts improve community networks and enhance the role of local leaders to elevate informational security to a high level, ultimately supporting better livelihoods.

Table 2: Distribution of Iruliga tribes based on livelihood security components

(n=120)

Sl. no	Livelihood security	Category	Magadi (n_1=60)		Ramanagara (n_2=60)		Pooled (n=120)	
			No.	%	No.	%	No.	%
1	Food security Mean =85.20 SD =15.64	Low(<77.38)	04	6.67	05	8.33	09	7.50
		Medium(77.38-93.03)	19	31.67	34	56.67	53	44.17
		High(>93.03)	37	61.66	21	35.00	58	48.33
2	Health security Mean =83.33 SD =12.41	Low(<77.12)	09	15.00	25	41.67	34	28.34
		Medium(77.12-89.54)	32	53.33	29	48.33	61	50.83
		High(>89.54)	19	31.67	06	10.00	25	20.83
3	Occupational security Mean =56.87 SD =26.99	Low(<43.37)	12	20.00	17	28.33	29	24.17
		Medium(43.37-70.37)	27	45.00	25	41.67	52	43.33
		High(>70.37)	21	35.00	18	30.00	39	32.50
4	Habitat security Mean =41.04 SD =11.88	Low(<35.10)	18	30.00	30	50.00	48	40.00
		Medium(35.10-46.98)	16	26.67	10	16.67	26	21.67
		High(>46.98)	26	43.33	20	33.33	46	38.33
5	Cultural security Mean =61.42 SD =6.01	Low(<58.41)	07	11.67	10	16.67	17	14.17
		Medium(58.41-64.43)	37	61.67	22	36.67	59	49.17
		High(>64.43)	16	26.66	28	46.66	44	36.66
6	Educational security Mean =46.66 SD =27.01	Low(<33.16)	10	16.67	11	18.33	21	17.50
		Medium(33.16-60.17)	11	18.33	23	38.33	34	28.33
		High(>60.17)	39	65.00	26	43.34	65	54.17
7	Financial security Mean =28.91 SD =8.44	Low(<24.69)	08	13.33	26	43.33	34	28.33
		Medium(24.69-33.13)	43	71.67	31	51.67	74	61.67
		High(>33.13)	09	15.00	03	5.00	12	10.00
8	Asset security Mean =27.72 SD =17.08	Low(<19.18)	28	46.67	24	40.00	52	43.33
		Medium(19.18-36.26)	09	15.00	19	31.67	28	23.33
		High(>36.26)	23	38.33	17	28.33	40	33.34
9	Transportation security Mean =52.41 SD =9.47	Low(<47.67)	11	18.33	09	15.00	23	19.16
		Medium(47.67-57.14)	29	48.33	27	45.00	53	44.17
		High(>57.14)	20	33.34	24	40.00	44	36.67
10	Social security Mean =52.97 SD =19.46	Low(<43.24)	10	16.66	13	21.66	23	19.16
		Medium(43.24-62.70)	13	21.67	27	45.00	40	33.34
		High(62.70)	37	61.67	20	33.34	57	47.50
11	Information security Mean =34.91 SD =15.05	Low(<27.38)	19	31.67	10	16.67	29	24.17
		Medium(27.38-42.44)	27	45.00	41	68.33	68	56.67
		High(>42.44)	14	23.33	09	15.00	23	19.16

4.1.3 Statement-Wise Assessment of Tribes on Livelihood Security Components

4.1.3.1 Food security

Table 3 shows the food security status of the Iruliga tribes in Magadi and Ramanagara taluks. Cent percent of respondents in both areas reported having food available throughout the year, indicating reliable food access. Similarly, all respondents agreed that the quality of food was good, reflecting satisfactory standards. However, differences emerged in affordability and food grain sufficiency. While more than seven-tenths (72.5 %) of the respondents could afford balanced food, more than four-fifths (86.67 %) in Magadi could do so, compared to less than three-fifths (58.33 %) in Ramanagara. Regarding food grain sufficiency, over two-thirds (68.33 %) of respondents in Magadi had sufficient stock, while only about two-fifths (38.33 %) in Ramanagara did. Overall, more than half (53.33 %) had adequate food grain stocks, while nearly half (46.67 %) lacked sufficient reserves.

The likely causes of differences in food affordability and sufficiency between the taluks include variations in income levels, food costs and storage facilities. While landowners or lessees typically had adequate reserves, wage workers faced food insecurity due to irregular income, restricting their ability to store food for the future. Additionally, limited awareness of nutrition and food management further amplified these challenges.

4.1.3.2 Health security

Table 3 shows the health security status of the Iruliga tribes shows varying levels of access and challenges across Magadi and Ramanagara taluks. Regarding chronic diseases like diabetes and high blood pressure, over two-thirds (66.67 %) of respondents across both taluks reported such incidences, with slightly more cases in Magadi 68.33 per cent than Ramanagara 65.00 per cent. Epidemic diseases like malaria and typhoid were reported by 82.50 per cent of respondents, with a higher prevalence in Ramanagara 86.67 per cent compared to Magadi 78.33 per cent.

Nearly all respondents utilized Primary Health Centres (PHCs), with cent percent in Magadi and 93.33 per cent in Ramanagara, resulting in an overall utilization rate of

96.67 per cent. Similarly, vaccination coverage for infants was almost universal, with 98.33 per cent in Magadi and 95.00 per cent in Ramanagara, achieving an overall rate of 96.67 per cent.

However, nearly two-fifths (42.50%) of respondents reported that they need to travel to distant towns for better health services. This challenge was significantly higher in Magadi 66.67 per cent compared to Ramanagara 18.33 per cent. Cent per cent of respondents reported that healthcare facilities are not affordable for their families.

The probable reasons for the varying health security challenges include the incidence of epidemic diseases, likely caused by poor sanitation and unhygienic conditions, as well as chronic diseases resulting from a lack of awareness about available healthcare options. In Ramanagara, the need to travel to distant PHCs or government hospitals may be attributed to the remote locations of these services. Additionally, affordability issues are exacerbated by low awareness of government programs designed to help people access healthcare benefits.

4.1.3.3 Occupational security

The results from Table 3 highlight the occupational security of the Iruliga tribes. In Magadi, nearly two-thirds (65.00 %) of respondents reported having regular employment, while one-third (35.00 %) were engaged in seasonal employment. In Ramanagara, two-thirds (66.67 %) had regular employment, and one-third (33.33 %) had seasonal employment. Overall, approximately two-thirds (65.83 %) of respondents across both taluks had regular employment, while more than one-third (34.17 %) were in seasonal employment.

Regarding migration for work, only a small percentage 3.33 per cent of respondents across both taluks stated they were forced to migrate, while the majority 96.67 per cent were able to find local employment. When asked about year-round employment for family members, more than one-third (36.67 %) of respondents in Magadi and about one-third (30.00 %) in Ramanagara reported having access to year-round employment. Overall, one-third (33.33 %) of respondents across both taluks had year-round employment, while more than two-thirds (66.67 %) did not.

Satisfaction with the current occupation was relatively low, with nearly two-fifths (38.33 %) of respondents in Magadi and one-fourth (25.00 %) in Ramanagara expressed satisfaction. Across both taluks, 31.67 per cent were satisfied with their occupation, while the remaining 68.33 per cent expressed dissatisfaction.

The underlying reasons for the limited occupational security of the Iruliga tribes include their reliance on seasonal labor, which leads to irregular income and low job satisfaction.

Many lack the necessary skills for stable or diversified work, keeping them in labor-intensive jobs. Limited education and living in remote areas restrict their access to diverse employment opportunities, while lack of awareness prevents them from utilizing available government programs.

4.1.3.4 Habitat security

The findings presented in Table 3 emphasize that the majority of the Iruliga tribes, just above two-thirds (67.50 %), lived in tiled houses, while thatched houses were more common in Ramanagara, where nearly half (48.33 %) of the respondents lived in such houses compared to just 15.00 per cent in Magadi most homes had single rooms, with about nine-tenths (87.50 %) indicating limited space for family members. Floors were predominantly earthen with more than half (54.17 %) having earthen floors, while less than half (43.33 %) had cemented floors. Cooking energy sources varied, with firewood being the primary option for more than half (52.50 %) of respondents, especially in Ramanagara nearly six-tenths, (56.67 %), while LPG was used by nearly half (47.50 %) of the respondents. Sanitation facilities were inadequate with only about one-quarter (24.16 %) having latrines and even fewer (26.67 %) having drainage systems, the access to basic sanitation facilities is limited. Furthermore, clean water storage or purification facilities were alarmingly lacking, with 87.50 per cent of respondents without these amenities, particularly in Ramanagara, where nearly all (96.67 %) lacked such facilities. While electricity was universally available, the lack of basic amenities like sanitation and clean water highlights significant challenges in improving habitat security for the tribes.

The probable reasons for the habitat security challenges among the Iruliga tribes include low incomes, which hinder improvements in housing, sanitation and water facilities. Their remote locations limit access to government infrastructure programs and a lack of awareness about housing and energy subsidies further restricts upgrades. Traditional reliance on firewood for cooking persists despite its associated health and environmental risks. Additionally, delays in implementing rural development policies contribute to the continuation of these issues. The findings are in line with Mandal and Sengupta (2016)

4.1.3.5 Cultural security

The results from Table 3 highlight cultural security among the Iruliga tribes. In both Magadi and Ramanagara taluks, cent per cent of respondents owned at least three pairs of clothes and exclusively wore new dresses. Child marriage was reported only in Magadi, affecting about one-sixty (1.67 %) of respondents, with no cases in Ramanagara, and widow remarriage was absent in both taluks.

Regarding festival expenditures, nearly two-thirds (65.83 %) of respondents spent between ₹2,001 and ₹3,000, with higher expenditures (₹3,001- ₹5,000 and above ₹5,001) more common in Ramanagara. Community gatherings were typically held semi-annually about two-thirds (65.83 %), with quarterly gatherings more common in Magadi about one-fifth (18.33 %) and yearly gatherings more common in Ramanagara about one-fourth (26.67 %). Participation in events showcasing folk traditions was minimal, at only about one-hundredth (0.83 %).

The key determinants of cultural security among the Iruliga tribes are shaped by strong traditional beliefs, as seen in the absence of widow remarriage and adherence to basic clothing norms. The low incidence of child marriage, particularly in Ramanagara is due to increased awareness about the legal framework. Higher festival expenditures in Ramanagara suggest a stronger cultural emphasis. Half-yearly community gatherings highlight the importance of social bonding, while minimal participation in folk tradition events points to declining interest, lack of awareness or limited platforms for cultural preservation.

4.1.3.6 Education security

The results from Table 3 highlight the education and child labor aspects among the Iruliga tribes. In Magadi, nearly two-thirds (66.67 %) of respondents reported sending their children to school compared to just over half (53.33 %) in Ramanagara. Across, both taluks 60.00 per cent of respondents sent their children to school, while 40.00 per cent did not. Regarding the affordability of higher education, nearly all respondents (95.00 %) in Magadi and (98.33 %) in Ramanagara reported that it was unaffordable for their families, with only a small fraction (5.00 %) in Magadi and (1.67 %) in Ramanagara stating they could afford it. In terms of child labor, 18.33 per cent of respondents in Magadi and 28.33 per cent in Ramanagara reported engaging their children in labor during working days, while across both taluks 23.33 per cent of respondents involved their children in labor and 76.67 per cent did not.

The probable reasons for these findings include financial constraints as most families in both taluks find higher education unaffordable. The prevalence of child labor, especially in Ramanagara may be driven by economic pressures with families relying on children to contribute to household income. In contrast, more respondents in Magadi report sending their children to school, possibly due to better access to education or stronger local emphasis on schooling. Additionally, there is possibly a lack of awareness about available financial support or scholarship opportunities. These factors collectively hinder children's educational opportunities across both taluks.

4.1.3.7 Financial security

The results from Table 3 show that cent percent of respondents in both Magadi and Ramanagara taluks had some level of indebtedness, with the majority (93.33 %) carrying loans exceeding ₹10,000. In Magadi, majority of respondents (91.67 %) had loans over ₹10,000, while in Ramanagara nearly all (95.00 %) had similar loans. Only a small fraction (1.67 %) in Magadi reported no loans. Regarding savings, more than two-thirds (67.50 %) of respondents had savings between ₹2,000 and ₹5,000 with a higher proportion in Magadi (85.00 %) compared to Ramanagara (50.00 %). Nearly one-third (27.50 %) reported no savings, a more significant issue in Ramanagara (46.67 %) compared to Magadi (8.33 %).

Very few respondents had savings over ₹5,000 and a negligible proportion (0.84 %) had savings exceeding ₹10,000.

The underlying reasons for the financial challenges faced by the Iruliga tribes stem from irregular work opportunities. Even when employed regularly, their income is often insufficient to sustain their families during the off-season, leading them to rely on debt. They prefer informal loans or borrowing from self-help groups (SHGs) due to the ease of access and lack of procedural requirements. This dependence on seasonal income and informal credit sources further limits their ability to plan and manage finances effectively.

4.1.3.8 Asset security

From Table 3, results show that cent percent of respondents in Magadi and Ramanagara taluks owned at least some basic assets, but their distribution varied. Three-fourths (75.00 %) of respondents had a television, with slightly more in Ramanagara (76.67 %) than Magadi (73.33 %). Nearly cent per cent (91.67 %) owned a mobile phone with higher ownership in Magadi (95.00 %) compared to Ramanagara (88.33 %). However, very few respondents (2.50 %) owned a bicycle.

Only one-fifth (20.00 %) of respondents had a fan more common in Ramanagara (28.33 %) than Magadi (11.67 %). A small proportion (12.50 %) owned furniture like a sofa, almirah or cot, with slightly higher ownership in Magadi (15.00 %) compared to Ramanagara (10.00 %). Almost cent percent (98.33 %) lacked water purifiers and nearly all (96.67 %) did not have a refrigerator.

A quarter (25.00 %) of respondents owned a pressure cooker or electric cooker, mostly in Magadi (41.67 %) compared to Ramanagara (8.33 %). Ownership of motorbikes or scooters was moderate at (44.17 %) with more in Ramanagara (55.00 %) than Magadi (33.33 %). Less than one-third (26.67 %) owned a mixer or grinder and very few (2.50 %) had an auto.

The possible causes for limited ownership of modern appliances and vehicles among the Iruliga tribes include financial constraints, as irregular incomes make it difficult for many families to afford higher end assets. Wage laborers in particular struggle to save

for non-essential purchases. A lack of financial literacy and reliance on informal credit options further hinder investments in conveniences like refrigerators or mixers. Cultural priorities may also lead families to focus on meeting immediate needs rather than making long-term investments in household appliances.

4.1.3.9 Transportational security

From Table 3, results show that cent percent of respondents in Magadi and Ramanagara taluks walked to reach nearby towns, worksites and other places. Public transport was used by more than four-fifths (84.17 %) with slightly higher usage in Ramanagara (85.00 %) compared to Magadi (83.33 %). Jeep and auto usage was also common with (85.83 %) overall relying on this mode including (85.00 %) in Magadi and (86.67 %) in Ramanagara. Less than half (45.83 %) of respondents used their own vehicles such as bicycles or motorbikes with ownership higher in Ramanagara (55.00 %) than Magadi (36.67 %). A very small number (1.67 %) in Magadi reported using bullock carts, while no respondents in Ramanagara relied on this mode.

The reasons for the findings could be that many respondents lack the financial means to purchase or maintain personal vehicles due to limited income or competing financial priorities. Public transport options, like jeeps and autos are more affordable and accessible making them the preferred choice especially in areas with limited infrastructure. Additionally, living in remote areas may reduce the perceived need for personal vehicles as people may find walking or using public transport sufficient for nearby travel.

4.1.3.10 Social security

From Table 3 results show that cent percent of respondents in Magadi and Ramanagara taluks were aware of socio-economic development programs. Nearly all (97.50 %) made use of institutions like gram panchayats, cooperative societies or post offices with cent percent participation in Magadi and slightly lower (95.00 %) in Ramanagara. Membership in social organizations was observed in about half (50.83 %) of respondents with more members in Magadi (61.67 %) compared to Ramanagara (40.00 %). Over half (53.33 %) of respondents engaged with social groups like SHGs, FIGs or CIGs with higher participation in Magadi (65.00 %) than Ramanagara (41.67 %). Participation

in village developmental works was low at one-tenth (10.00 %) with more involvement in Magadi (16.67 %) than Ramanagara (3.33 %).

Only a small proportion (5.00 %) of respondents had attended government training programs, while over half (55.00 %) participated in group meetings to share views with higher participation in Magadi (60.83 %) compared to Ramanagara (41.67 %).

The likely causes are that membership in social organizations is limited, possibly due to a preference for informal networks and a lack of time or interest, especially among wage laborers focused on earning. Awareness of developmental programs reflects exposure, but a lack of understanding of benefits or procedures may limit active participation. Greater participation in SHGs reflects an immediate focus on financial needs, while low participation in training and developmental works may result from inconvenient timings, distance and transportation issues. In areas with lower livelihood security, stronger community bonds encourage active engagement, whereas in areas with better security, the urgency to participate is reduced.

4.1.3.11 Information security

From Table 3 results show that cent percent of respondents in both Magadi and Ramanagara taluks relied on neighbors for information with slightly fewer in Ramanagara (90.00 %). Over two-thirds (68.33 %) sought advice from local leaders with a higher percentage in Ramanagara (88.33 %) compared to Magadi (48.33 %). Nearly all respondents (95.83 %) engaged with panchayat or society officials for information with similar proportions in both taluks.

Newspapers were a source of information for less than one-sixth (14.16 %) of respondents, with significantly higher usage in Magadi (23.33 %) than Ramanagara (5.00 %). Cent percent of respondents did not use radio or farm literature as sources of information. Television was accessed by about one-fourth (24.17 %) with higher usage in Ramanagara (31.67 %) compared to Magadi (16.67 %). Mobile phones were used for information by less than one-third (30.83 %) of respondents with more users in Magadi (35.00 %) than Ramanagara (26.67 %). Only a small proportion (3.33 %) of respondents

Table 3: Item-wise analysis of livelihood security levels of Iruliga tribes

(n=120)

Sl. no.	Item	Response	Magadi (n_1=60)		Ramanagara (n_2=60)		Pooled (n= 120)	
			No	%	No	%	No	%
FOOD SECURITY								
1	Food of any kind is available to us throughout the year.	Yes	60	100	60	100	120	100
		No	00	0.00	00	0.00	00	0.00
2	The quality of food available is good	Yes	60	100	60	100	120	100
		No	00	0.00	0.00	0.00	00	0.00
3	Balanced food to all family members is affordable with my income (Cereals, pulses, vegetables, Dairy products, non- vegetarian foods)	Yes	52	86.67	53	88.34	105	87.50
		No	08	13.33	07	11.66	15	12.50
4	I have sufficient stock of food grains for future	Yes	41	68.33	23	38.33	64	53.33
		No	19	31.67	37	61.67	56	46.67
HEALTH SECURITY								
1	Incidence of chronic diseases to family members (Diabetes, Heart Disease, High Blood Pressure, Stroke, etc)	Yes	41	68.33	39	65.00	80	66.67
		No	19	31.67	21	35.00	40	33.33
2	Incidence of epidemic diseases like Malaria/chicken pox/typhoid/ etc	Yes	47	78.33	52	86.67	99	82.50
		No	13	21.67	08	13.33	21	17.50
3	Utilization of PHC	Yes	60	100	56	93.33	116	96.67
		No	00	00	04	6.67	04	3.33
4	Vaccination for infant	Yes	59	98.33	57	95.00	116	96.67
		No	01	1.67	03	5.00	04	3.33
5	Traveling to a distant town is needed to access better health services	Yes	20	33.33	49	81.67	69	57.50
		No	40	66.67	11	18.33	51	42.50
6	Healthcare facilities are not affordable for my family	Yes	60	100	60	100	120	100.00
		No	00	00	00	00	00	0.00
OCCUPATIONAL SECURITY								
1	Employment	Regular	39	65.00	40	66.67	79	65.83
		Seasonal	21	35.00	20	33.33	41	34.17
2	Are you forced to migrate for job?	Yes	02	3.33	02	3.33	04	3.33
		No	58	96.67	58	96.67	116	96.67
3	Does your family get employment round the year	Yes	22	36.67	18	30.00	40	33.33
		No	38	63.33	42	70.00	80	66.67

4	Are you satisfied with the present occupation?	Yes	23	38.33	15	25.00	38	31.67
		No	37	61.67	45	75.00	82	68.33
HABITAT SECURITY								
1	Type of house	Thatched house	09	15.00	29	48.33	38	31.67
		Roofed house	51	85.00	30	50.00	81	67.50
		Building	00	00	01	1.67	01	0.83
2	Number of rooms in a dwelling	3	02	3.33	02	3.33	04	3.33
		2	09	15.00	02	3.33	11	9.17
		1	49	81.67	56	93.34	105	87.50
3	Material of roof	Cemented	01	1.67	01	1.67	02	1.67
		Asbestos sheet	51	85.00	32	53.33	83	69.17
		Thatched roof	08	13.33	27	45.00	35	29.16
4	Material of walls	Bricks +cement	34	56.67	32	53.34	66	55.00
		Bricks + Mud	19	31.67	02	3.33	21	17.50
		Earthen/straw	07	11.66	26	43.33	33	27.5
5	Material for floor	Tiles + Cement	00	00	02	3.33	02	1.67
		Cemented	26	43.33	26	43.33	52	43.33
		Bricks	01	1.67	00	00	01	0.83
		Earthen	33	55.00	32	53.34	65	54.17
6	Availability of kitchen	Within the premises without water supply	28	46.67	30	50.00	58	48.34
		In the Court yard	00	00	01	1.67	01	0.83
		In the living room	32	53.33	29	48.33	61	50.83
7	Accessibility of water supply	Piped water outside home 0-2 min	08	13.33	00	00	08	6.67
		Common tap line (2-5 min Distance)	52	86.67	60	100	112	93.33
8	Source of energy for cooking	Firewood	29	48.33	34	56.67	63	52.50
		L P Gas	31	51.67	26	43.33	57	47.50
9	Availability of electricity	Yes	60	100	60	100	120	100
		No	00	00	00	00	00	00
10	Latrines facility	Yes	25	41.67	04	6.67	29	24.16
		No	35	58.33	56	93.33	91	75.84
11	Drainage facility	Yes	28	46.67	04	6.67	32	26.67
		No	32	53.33	56	93.33	88	73.33
12	Clean water storage facility/water purification	Yes	13	21.67	02	3.33	15	12.50
		No	47	78.33	58	96.67	105	87.50

CULTURAL SECURITY								
1	Clothing status (Number of pairs of clothes)	3 ≥	60	100	60	100	120	100
		2	00	00	00	00	00	00
		1	00	00	00	00	00	00
2	Type of dresses used	New dress	60	100	60	100	120	100
		Pre used	00	00	00	00	00	00
3	Child marriage	Yes	01	1.67	00	00	01	0.84
		No	59	98.33	60	100	119	99.16
4	Widow marriage	Yes	00	00	00	00	00	00
		No	60	100	60	100	120	100
5	Expenditure towards celebration of festivals	1000-2000	06	10.00	02	3.33	08	6.67
		2001-3000	47	78.33	32	53.33	79	65.83
		3001-5000	07	11.67	16	26.67	23	19.17
		>5001	00	00	10	16.66	10	8.33
6	How frequently you have your community get togethers?	Monthly	00	00	11	18.33	11	9.17
		Quarterly	11	18.33	02	3.33	13	10.83
		Half yearly	48	80.00	31	51.67	79	65.83
		Yearly	01	1.67	16	26.67	17	14.17
7	Do your family members participate in any events to exhibit your folkways?	Yes	01	1.67	01	1.67	02	1.67
		No	59	98.33	59	98.33	118	98.33
EDUCATIONAL SECURITY								
1	Are you sending your children to school?	Yes	40	66.67	32	53.33	72	60.00
		No	20	33.33	28	46.67	48	40.00
2	Higher education of children is not affordable to my family ?	Yes	57	95.00	59	98.33	116	96.67
		No	03	5.00	01	1.67	04	3.33
3	Are you engaging your children in labor work during working days?	Yes	11	18.33	17	28.33	28	23.33
		No	49	81.67	43	71.67	92	76.67
FINANCIAL SECURITY								
1	Current outstanding debt (in Rs)	0	02	3.33	00	00	02	1.67
		2000-5000	00	00	00	00	00	00
		5000-8000	00	00	00	00	00	00
		8000-10000	03	5.00	03	5.00	06	5.00
		>10000	55	91.67	57	95.00	112	93.33
2	Current savings (in Rs)	0	08	13.33	28	46.67	36	30.00
		2000-5000	48	80.00	30	50.00	78	65.00
		5000-8000	03	5.00	01	1.67	04	3.33
		8000-10000	00	00	01	1.66	01	0.83

		>10000		01	1.67	00	00	01	0.84
ASSET SECURITY									
1	Television	Yes		44	73.33	46	76.67	90	75.00
		No		16	26.67	14	23.33	30	25.00
2	Mobile	Yes		57	95.00	53	88.33	110	91.67
		No		03	5.00	07	11.67	10	8.33
3	Bicycle	Yes		03	5.00	00	00	03	2.50
		No		57	95.00	60	100	117	97.50
4	Fan	Yes		07	11.67	17	28.33	24	20.00
		No		53	88.33	43	71.67	106	88.33
5	Sofa/Almyrah/Cot	Yes		09	15.00	06	10.00	15	12.50
		No		51	85.00	54	90.00	105	87.50
6	Water purifier	Yes		02	3.33	00	00	02	1.67
		No		58	96.67	60	100	118	98.33
7	Refrigerator	Yes		03	5.00	01	1.67	04	3.33
		No		57	95.00	59	98.33	116	96.67
8	Pressure cooker/ Electric cooker	Yes		25	41.67	05	8.33	30	25.00
		No		35	58.33	55	91.67	90	75.00
9	Motor cycle/ Scooter	Yes		20	33.33	33	55.00	53	44.17
		No		40	66.67	27	45.00	67	55.83
10	Mixer/ Grinder	Yes		24	40.00	08	13.33	32	26.67
		No		36	60.00	52	86.67	88	73.33
11	Auto	Yes		02	3.33	01	1.67	03	2.50
		No		58	96.67	59	98.33	117	97.50
TRANSPORTATION SECURITY									
1	Mode of Transportation to the Nearest Town, Work Sites, and Other Places	By walk	Yes	60	100	60	100	120	100
			No	00	00	00	00	00	00
		Bullock cart	Yes	02	3.33	00	00	02	1.67
			No	58	96.67	60	100	118	98.33
		Public transport	Yes	50	83.33	51	85.00	101	84.17
			No	10	16.67	09	15.00	19	15.83
		Jeep/autos	Yes	51	85.00	52	86.67	103	85.83
			No	09	15.00	08	13.33	17	14.17
		Own vehicle – Bicycle/ Bike	Yes	22	36.67	33	55.00	55	45.83
			No	38	63.33	27	45.00	65	54.17
SOCIAL SECURITY									

1	Are you making use any of the following institutions in your day to day life? (Gram panchayat/ Cooperative society/ Post office/ NGO)	Yes	60	100	57	95.00	117	97.50
		No	00	00	03	5.00	03	2.50
2	Do you have membership in any of the social organization?	Yes	37	61.67	24	40.00	61	50.83
		No	23	38.33	36	60.00	59	49.17
3	Do you have awareness about socio-economic development programmes?	Yes	60	100	60	100	120	100
		No	00	00	00	00	00	00
4	Are you making use any of the following Social groups like (SHG/FIG/CIG)	Yes	39	65.00	25	41.67	64	53.33
		No	21	35.00	35	58.33	56	46.67
5	Are you participating in village developmental works?	Yes	10	16.67	02	3.33	12	10.00
		No	50	83.33	58	96.67	108	90.00
6	Are you participating in any training programmes given by Government?	Yes	04	6.67	02	3.33	06	5.00
		No	56	93.33	58	96.67	114	95.00
7	Do you participate in any group meetings to share your views?	Yes	41	60.83	25	41.67	66	55.00
		No	19	31.67	35	58.33	54	45.00
INFORMATION SECURITY								
1	Neighbor's	Yes	60	100	54	90.00	114	95.00
		No	00	00	06	10.00	06	5.00
2	Local leaders	Yes	29	48.33	53	88.33	82	68.33
		No	31	51.66	07	11.66	38	31.66
3	Panchayat/society officials	Yes	57	95.00	58	96.66	115	95.83
		No	03	5.00	02	3.33	05	4.16
4	News papers	Yes	14	23.33	03	5.00	17	14.16
		No	46	76.66	57	95.00	93	77.50
5	Radio	Yes	00	00	00	00	00	00
		No	60	100	60	100	120	100
6	Television	Yes	10	16.67	19	31.67	29	24.17
		No	50	83.33	41	68.33	91	75.83
7	Mobile	Yes	21	35.00	16	26.67	37	30.83
		No	39	65.00	44	73.33	83	69.17
8	Farm literature/ Farm magazines	Yes	00	00	00	00	00	00
		No	60	100	60	100	120	100
9	Extension personnel	Yes	05	8.33	04	6.67	09	7.50
		No	57	91.67	56	93.33	111	92.50
10	Social media platforms	Yes	13	21.67	03	5.00	16	13.33
		No	47	78.33	57	95.00	104	86.67

received information from extension personnel all from Magadi. Social media platforms were utilized by about one-seventh (13.33 %) of respondents with more usage in Magadi (21.67 %) than Ramanagara (5.00 %).

The influencing factors are strong community bonds in rural areas fostering reliance on familiar sources like neighbors and local leaders reducing the need for modern communication tools. Limited digital literacy, lack of awareness about the benefits of modern media and inadequate internet connectivity further restrict its usage. Poor mobile network coverage in remote areas and minimal interaction with extension workers limit exposure to updated practices and developmental initiatives reinforcing reliance on traditional sources.

4.2 The personal, socio-economic and psychological characteristics of tribes

There is a need to examine the profile of the Iruliga tribes to gain a clear understanding of their personal, socio-economic and cultural background. This will provide a foundation for offering appropriate suggestions based on the conclusions drawn from the study. Relevant information on the profile was collected and the analysis of the profile of the Iruliga tribes is discussed in Table 4.

4.2.1 Age

Age is an important factor as it reflects the maturity of an individual in making decisions to achieve their needs. The data revealed that, in Magadi taluk more than two-fifths (41.67 %) of the respondents were middle-aged (35–55 years) followed by more than one-third (36.67 %) in the young age group (< 35 years) and a smaller proportion (21.66 %) in the old age group (> 55 years). In Ramanagara taluk, nearly half (45.00 %) of the respondents were middle-aged followed by over two-fifths (41.67 %) in the young age group and a small percentage (13.33 %) in the old age group. Overall, just above two-fifths (43.33 %) of the respondents were middle-aged followed by nearly two-fifths (39.19 %) in the young age group and less than one-fifth (17.50 %) in the old age group.

The key determinants show that the majority of respondents belong to the middle-aged category reflecting their active involvement in livelihood activities due to physical

capacity and experience. Young respondents, especially in Ramanagara taluk are shifting focus to other jobs and migrating to cities in search of employment, where they are learning and engaging in different types of labor. Older respondents, despite reduced physical participation act as knowledge holders. This distribution indicates a balanced contribution across age groups with supportive roles potentially enabling older respondents to remain engaged in community activities. The findings are in line with Thorat and Patel (2022).

4.2.2 Gender

In Magadi taluk, Table 4 highlights that more than two-thirds (72.50 %) of respondents were male and about one-third (27.50 %) were female. In Ramanagara taluk about three-quarters (75.00 %) of the respondents were male and about one-quarter (25.00 %) were female. In total, about three-quarters (73.75 %) of the respondents were male and about one-quarter (26.25 %) were female. The explanatory factors indicate a clear male dominance in both Magadi and Ramanagara taluks with males forming the majority. However, females despite being fewer in number as respondents, play crucial roles in areas such as self-help groups, livestock management and as daily wage agricultural laborers. Although they are underrepresented in direct responses, their contributions in these support roles are vital for the community's overall well-being. This underscores the importance of recognizing their contributions more inclusively and encouraging greater female participation in decision-making and leadership roles. The observations resonate with the findings of Vishakantanayaka (2024).

4.2.3 Education

The findings in Table 4 show that in Magadi taluk, roughly half (53.33 %) of the respondents were illiterate followed by one-tenth (10.00 %) who could read and write, about one-twelfth (6.67 %) with primary school education, about one-tenth (10.00 %) with middle school education, about one-sixth (13.33 %) with high school education, about one-sixth (6.67 %) with PUC/Diploma and none with graduate or post-graduate education. In Ramanagara taluk, more than half (55.00 %) of the respondents were illiterate followed by less than one-tenth (3.33 %) who could read and write, nearly one-tenth (8.33 %) with primary school education, about one-tenth (10.00 %) with middle school education, nearly

one-fourth (21.16 %) with high school education, about one-sixtieth (1.67 %) with PUC/Diploma and none with graduate or post-graduate education. In total, above half (54.17 %) of the respondents were illiterate, about one-twentieth (6.66 %) who could read and write, about one-twelfth (7.50 %) with primary school education, about one-tenth (10.00 %) with middle school education, about one-seventh (17.50 %) with high school education, about one-twentieth (4.16 %) with PUC/Diploma and none with graduate or post-graduate education.

The underlying reasons for the high illiteracy rates could be attributed to family problems and the immediate need for income from daily wage labor, which often leads to the deprivation of education. When one young person leaves school for work others tend to follow, reinforcing a cycle where short-term financial gain is prioritized over education. Females, in particular face challenges pursuing higher education, mainly due to concerns about long travel distances and safety. To address this, it is important to motivate the use of hostel facilities and ensure their safety. Improving education requires financial support, better infrastructure and efforts to encourage families to prioritize long-term education, especially for females. The observations resonate with the findings of Kiran (2011) and Reddy (2019).

4.2.4 Family type

It is noticed from Table 4 that in Magadi taluk, cent percent of respondents had nuclear families, and none had joint families. In Ramanagara taluk, nearly all (96.67 %) of the respondents had nuclear families, while about one-thirtieth (3.33 %) had joint families. In total, nearly all (98.33 %) of the respondents had nuclear families, and about one-sixtieth (1.67 %) had joint families.

The factors influencing the preference for nuclear families in both Magadi and Ramanagara taluks are likely driven by a growing trend toward independence, with families opting for self-sufficiency. Economic constraints, limited space and the need for better access to resources also contribute to this preference. Younger generations favor the privacy and autonomy offered by nuclear family setups and traditional joint family

structures are becoming less common due to evolving social dynamics and lifestyle choices. The observations resonate with the findings of Sunani and Mishra (2019).

4.2.5 Family size

From Table 4, it can be observed that in Magadi taluk about one-tenth (6.67 %) of the respondents had small families (1-3 members), about three-fourths (75.00 %) had medium-sized families (4-5 members) and nearly one fifth (18.33 %) had large families (6 or more members). In Ramanagara taluk, about one-tenth (6.67 %) had small families, about nine-tenths (88.33 %) had medium-sized families and about one-twentieth (5.00 %) had large families. In total, about one-tenth (6.67 %) of the respondents had small families, about four-fifths (81.67 %) had medium-sized families, and just above one-tenth (11.66 %) had large families.

The probable reasons may be that most families in both Magadi and Ramanagara taluks tend to have medium-sized families with 4-5 members, reflecting a balance between the need for family support and the economic challenges of raising children. The small number of families with 1-3 members suggests a preference for having more than one child, even in rural areas. Economic pressures and limited resources likely contribute to the low percentage of large families (6 or more members), with medium-sized families becoming more common in rural settings due to these constraints. The observations resonate with the findings of Rokonuzzaman (2013).

4.2.6 Annual income

From Table 4, it is clear that approximately one-third (31.67 %) of respondents in Magadi taluk had a low annual income (less than ₹76,813.99), half (50.00 %) had a medium income (₹76,813.99 - ₹1,12,373.40), and about one-fifth (18.33 %) had a high income (more than ₹1,12,373.40). In Ramanagara taluk, more than one-fourth (26.67 %) of the respondents had a low income, nearly half (48.33 %) had a medium income, and one-fourth (25.00 %) had a high income. Overall, nearly one-third (29.17 %) of the respondents had a low annual income, about half (49.16 %) had a medium income and just above one-fifth (21.67 %) had a high income.

The probable reasons for these income disparities may include the reliance on seasonal and irregular labor, which leads to fluctuating incomes. Many respondents in both taluks depend on traditional livelihoods, which often provide low or unstable earnings. The lack of access to higher education and skill development programs further limits opportunities for better-paying jobs. Additionally, local economic factors such as the availability of employment opportunities and infrastructure contribute to the income differences between the two taluks. These factors combined help explain the observed income distribution. These conclusions are in agreement with the evidence from Deepak and Sindhu (2017).

4.2.7 Land holdings

From the Table 4, it is clear that in Magadi taluk nearly one-fourth (23.33 %) of respondents owned marginal land (< 2.5 acres), while half (50.00 %) leased land. In contrast, only a small proportion (5.00 %) owned small land (2.5-5.0 acres), with a minimal number (1.67 %) leasing small land. No respondents had big land holdings (> 5.0 acres). In Ramanagara taluk, a significant portion (58.33 %) of respondents were landless, while one-fourteenth (6.67 %) owned marginal land and one-fourth (25.00 %) leased it. A very small fraction (10.00 %) leased small land (2.5-5.0 acres), and no respondents had big land holdings. Overall, nearly two-fifths (39.17 %) of respondents were landless, while leasing was more common than ownership across both taluks, with a higher proportion of landless individuals in Ramanagara.

The probable reasons for these landholding patterns may include the lack of access to land ownership, with many respondents relying on leased land for agricultural activities. Limited access to resources such as financial support or loans might make it difficult for individuals to acquire land. Economic factors, including low income and reliance on seasonal or irregular labor, contribute to the preference for leasing land rather than owning it. In rural areas, land ownership is often passed down within families and the high proportion of landless respondents, particularly in Ramanagara taluk, may indicate historical or systemic challenges related to land acquisition. Additionally, the lack of large land holdings may be attributed to the fragmentation of land over generations and the

absence of land redistribution policies. These conclusions are in agreement with the evidence from Ramya (2016).

4.2.8 Farming experience

Table 4 reveals that in Magadi taluk nearly half (48.33 %) of the respondents had medium farming experience followed by nearly one-third (30.33 %) with high experience and just above one-fifth (21.67 %) with low experience. In Ramanagara taluk, more than half (58.34 %) of the respondents had low farming experience followed by nearly one-fourth (23.33 %) with high experience and nearly one-fifth (18.33 %) with medium experience. Overall, two-fifths (40.00 %) of the respondents had low farming experience followed by one-third (33.33 %) with medium experience and just above one-fourth (26.67 %) with high experience.

The probable reasons for the variation in farming experience between the two taluks may be influenced by age, with older individuals having more experience. Magadi's higher proportion of respondents with medium to high experience could indicate established agricultural practices. In contrast, Ramanagara's higher percentage of respondents with low experience may reflect younger generations shifting away from farming or new entrants without much experience. Additionally, factors like land availability, economic conditions and resource access could also contribute to these differences. These conclusions are in agreement with the evidence from Gandhale and Tekale (2021).

4.2.9 Occupational status

It is evident from Table 4 that half (50.00 %) of the respondents in Magadi taluk had medium occupational status followed by a little more than one-fourth (26.67 %) in the high category and more than one-fifth (23.33 %) in the low category. In Ramanagara taluk, nearly two-third (63.34 %) had low occupational status followed by nearly one-third (28.33 %) in the medium category and a small proportion (8.33 %) in the high category. Overall, just above two-fifths (43.33 %) of the respondents had low occupational status, nearly two-fifths (39.17 %) were in the medium category and nearly one-fifth (17.50 %) had high occupational status.

The occupational status disparity may stem from varying livelihood opportunities in the taluks. Magadi, with better access to diverse jobs and skills, shows a higher proportion of respondents in medium and high occupational categories. In contrast, Ramanagara's reliance on traditional and low-paying occupations contributes to a higher percentage of respondents in the low category. Limited access to education, skill development programs and infrastructure in Ramanagara further restricts occupational mobility. Addressing these gaps could improve occupational outcomes across both taluks.

4.2.10 Social participation

According to the findings in Table 4, three-fifths (60.00 %) of the respondents in Magadi taluk had medium social participation followed by just above one-fifth (21.67 %) in the high category and slightly less than one-fifth (18.33 %) in the low category. In Ramanagara taluk, nearly three-fifths (61.67 %) of the respondents were in the medium social participation category followed by nearly one-third (30.00 %) in the low category and a small proportion (8.33 %) in the high category. Overall, the majority, three-fifths (60.83 %) of the respondents had medium social participation, while nearly one-fourth (24.16 %) had low social participation and more than one-tenth (15.00 %) were in the high category.

The likely causes for medium social participation among the majority of respondents can be attributed to time constraints and the priority given to wage labor, which limits their involvement in community activities. However, women actively participating in self-help groups significantly contribute to household and community well-being. The limited engagement among wage workers underscores the need for flexible meeting schedules and awareness programs that highlight the benefits of participation. Enhanced involvement could foster stronger community ties and improved access to development opportunities. These conclusions are in agreement with the evidence from Saha (2008) and Wadekar *et al.* (2016).

4.2.11 Economic orientation

From the data presented in Table 4, in Magadi taluk, just above three-fifths (63.33 %) of respondents exhibited medium economic orientation followed by one-fifth (20.00

%) with high economic orientation and nearly one-fifth (16.67 %) with low economic orientation. In Ramanagara taluk, slightly more than half (51.67 %) of the respondents were in the medium category, while two-fifths (40.00 %) had low economic orientation and only a small proportion (8.33 %) displayed high economic orientation. Overall, nearly three-fifths (57.50 %) of the respondents fell under the medium economic orientation category, more than one-fourth (28.33 %) had low economic orientation, and more than one-tenth (14.16 %) showed high economic orientation.

The probable reasons for medium economic orientation among respondents are limited opportunities and resources, restricting efforts to explore new livelihoods or higher economic gains. In Ramanagara taluk, the high proportion with low economic orientation is likely due to a lack of financial literacy and reliance on traditional subsistence activities. The small number with high economic orientation suggests challenges in pursuing alternative livelihoods. Skill development and exposure to new livelihood options could address these issues. These conclusions are in agreement with the evidence from Swathi (2016).

4.2.12 Mass media exposure

As per Table 4, just above two-fifths (43.33 %) of the respondents in Magadi taluk reported having medium mass media exposure followed by just above one-third (35.00 %) in the low category and just above one-fifths (21.67 %) in the high category. In Ramanagara taluk, more thantwo-fifths (45.00 %) of the respondents also had medium exposure, with nearly one-third (31.67 %) in the low category and nearly one-fourth (23.33 %) in the high category. Overall, more than two-fifths (44.16 %) of the respondents had medium mass media exposure, followed by one-third (33.33 %) had low exposure and nearly oe-fourth (22.50 %) had high exposure.

The possible contributing factors for medium mass media exposure among respondents include limited access to information, insufficient to significantly influence livelihood decisions. Low exposure, seen in a substantial proportion, may restrict access to broader knowledge and opportunities. The small percentage with high exposure suggests that mass media is not a primary information source. Enhancing targeted media access

through channels like radio, TV and social media could improve awareness and opportunities. These conclusions are in agreement with the evidence from Pavithra (2019).

4.2.13 Level of aspiration

It is evident from Table 4 that three-fifths (60.00 %) of the respondents in Magadi taluk had a medium level of aspiration followed by just above one-fourth (28.33 %) with high aspirations and just above one-tenth (11.67 %) with low aspirations. In Ramanagara taluk, the majority (76.67 %) had medium aspirations followed by nearly one-fifth (18.33 %) with low aspirations and a very few (5.00 %) with high aspirations. Overall, the majority (68.33 %) of respondents had medium levels of aspiration followed by nearly one-fifth (16.67 %) with high aspirations and more than one-tenth (15.00 %) with low aspirations.

The possible causes for medium aspirations among respondents include a common drive for economic advancement and better living standards, despite challenges like limited land ownership and resource access. In Magadi, middle-aged individuals dominate this category, while younger respondents show medium to high aspirations driven by the desire for improved livelihoods. In Ramanagara, younger individuals exhibit medium aspirations, reflecting their pursuit of growth despite low-income wage labor.

High aspirations in a smaller proportion suggest potential for upward mobility constrained by current socio-economic limitations. These conclusions are in agreement with the evidence from Gomase and Tekale (2021).

4.2.14 Extension participation

From Table 4, it is evident that in Magadi taluk, just above three-fifths (61.67 %) of the respondents had medium extension participation followed by slightly more than one-fifth (21.66 %) in the high category and less than one-fifth (16.67 %) in the low category. In Ramanagara taluk, just above two-thirds (68.33 %) of the respondents were in the medium category followed by just above one-fifth (21.67 %) in the low category and one-tenth (10.00 %) in the high category. Overall, the majority, nearly two-thirds (65.00 %), of the respondents were in the medium category, while less than one-fifth (19.16 %) had low participation, and more than one-tenth (15.83 %) were in the high category.

The reasons for medium extension participation include moderate awareness of available resources, lack of time and competing priorities as wage workers. Low participation may be attributed to limited accessibility to services, inadequate follow-up by extension workers and lack of interest. Encouraging higher involvement requires targeted outreach, mobile extension units and community-based programs. These conclusions are in agreement with the evidence from Datta (2013).

4.2.15 Cosmopoliteness

From the Table 4, in Magadi taluk, slightly more than half (51.67 %) of the respondents had low cosmopoliteness followed by more than one-third (38.33 %) in the medium category and one-tenth (10.00 %) in the high category. In Ramanagara taluk, just above half (51.66 %) of the respondents had high cosmopoliteness, just above one-fourth (26.67 %) were in the medium category and slightly more than one-fifth (21.67 %) were in the low category. Overall, more than one-third (36.67 %) of the respondents had low cosmopoliteness, nearly one-third (32.50 %) were in the medium category, and nearly one-third (30.83 %) had high cosmopoliteness.

The reasons for low cosmopoliteness in Magadi include dependency on localized livelihoods and restricted mobility. High cosmopoliteness in Ramanagara is attributed to proximity to urban centers, greater exposure to diverse employment opportunities and external influences. Bridging this gap may require exposure visits, community interactions and awareness programs. These conclusions are in agreement with the evidence from Rokonuzzaman (2013).

4.2.14 Fatalism-scientism

The data from Table 4 reveals that two-fifths (40.00 %) of the respondents in Magadi taluk exhibited low fatalism, followed by slightly more than one-third (38.33 %) with high fatalism and just above one-fifth (21.67 %) with medium fatalism. In Ramanagara taluk, more than half (56.67 %) of the respondents were in the medium category, while nearly one-fourth (23.33 %) exhibited low fatalism, and one-fifth (20.00 %) showed high fatalism. Overall, nearly one-third (31.67 %) of the respondents had low

fatalism, nearly two-fifths (39.17 %) were in the medium category and slightly less than one-third (29.16 %) exhibited high fatalism.

The reasons for low fatalism in Magadi come from a proactive attitude. In Ramanagara, medium fatalism is due to seeing life events as influenced by outside factors but still having some control. High fatalism in both areas is linked to resignation, which can limit involvement in development activities. Awareness and training can help empower people. These conclusions are in agreement with the evidence from Bande (2017).

4.3 Livelihood system analysis

4.3.1 Available Livelihood options

Table 5 indicates that the available livelihood options among respondents revealed varied engagements across activities. In Magadi taluk, agriculture was a prominent option just above three-fourths (76.67 %) of the respondents, while just above three-fifths (61.67 %) were involved in livestock activities. Collection of non-timber forest products (NTFPs) was another notable option, utilized by more than half (51.67 %) of the respondents. Nearly all (95.00 %) participated in agricultural labor, indicating its dominance as a livelihood activity. Additionally, nearly one-third (30.00 %) were engaged in non-agricultural labor, while small proportions were involved in migration activities (3.33 %), government or private jobs (1.67 %), or as small vendors (1.67 %).

In Ramanagara taluk, the majority (96.67 %) of respondents participated in agricultural labor, followed by just above half (51.67 %) involved in livestock rearing.

Agriculture, however, was pursued by more than one-third (35.00 %), indicating less emphasis on this activity compared to Magadi. Non-agricultural labor was significant, engaging nearly half (48.33 %) of the respondents. Few were involved in the collection of NTFPs (5.00 %), migration activities (3.33 %), or government/private jobs (3.33 %).

Table 4: Personal, socio-economic and psychological characteristics of Iruliga tribes

(n=120)

Sl. No	Characteristics	Category		Magadi (n_1=60)		Ramanagara (n_2=60)		Pooled (n=120)	
				No.	%	No.	%	No.	%
1	Age	Young (< 35 years)		22	36.67	25	41.67	47	39.19
		Middle (35-55 years)		25	41.67	27	45.00	52	43.33
		Old (> 55 years)		13	21.66	8	13.33	21	17.50
2	Gender	Male		48	80.00	44	73.33	92	76.67
		Female		12	20.00	16	26.67	28	23.33
3	Education	Illiterate		32	53.33	33	55.00	65	54.17
		Can read and write		06	10.00	02	3.33	08	6.66
		Primary school		04	6.67	05	8.33	09	7.50
		Middle school		06	10.00	06	10.00	12	10.00
		High school		08	13.33	13	21.16	21	17.50
		PUC/Diplomo		04	6.67	01	1.67	05	4.16
		Graduate		00	0.00	00	0.00	00	0.00
		Post graduate		00	0.00	00	0.00	00	0.00
4	Family type	Nuclear		60	100	58	96.67	118	98.33
		Joint		00	0.00	02	3.33	02	1.67
5	Family size	Small (1-3 members)		04	6.67	04	6.67	08	6.67
		Medium (4-5 members)		45	75.00	53	88.33	98	81.67
		Large (6 members and above)		11	18.33	03	5.00	14	11.66
6	Annual income Mean= 94593.71 SD=35559.43	Low (<76813.99)		19	31.67	16	26.67	35	29.17
		Medium (76813.99-112373.4)		30	50.00	29	48.33	59	49.16
		High (>112373.4)		11	18.33	15	25.00	26	21.67
7	Land holding	Marginal (< 2.5 acres)	Owned	14	23.33	04	6.67	18	15.00
			Leased	30	50.00	15	25.00	45	37.50
			Owned	03	5.00	00	0.00	03	2.50

		Small (2.5-5.0 acres)	Leased	01	1.67	06	10.00	07	5.83
		Big (> 5.0 acres)		00	0.00	00	0.00	00	0.00
		Landless		12	20.00	35	58.33	47	39.17
8	Farming experience Mean=16.95 SD=13.79	Low (> 10.05)		13	21.67	35	58.34	48	40.00
		Medium (10.05-23.85)		29	48.33	11	18.33	40	33.33
		High (< 23.85)		18	30.33	14	23.33	32	26.67
9	Occupational status Mean=4.70 SD=3.27	Low (> 3.06)		14	23.33	38	63.34	52	43.33
		Medium (3.06-6.33)		30	50.00	17	28.33	47	39.17
		High (< 6.33)		16	26.67	05	8.33	21	17.50
10	Social participation Mean=2.95 SD=1.07	Low (< 2.42)		11	18.33	18	30.00	29	24.16
		Medium (2.42-3.49)		36	60.00	37	61.67	73	60.83
		High (> 3.49)		13	21.67	05	8.33	18	15.00
11	Economic orientation Mean=13.79 SD= 1.10	Low (< 13.24)		10	16.67	24	40.00	34	28.33
		Medium (13.24-14.34)		38	63.33	31	51.67	69	57.50
		High (> 14.34)		12	20.00	05	8.33	17	14.16
12	Mass media exposure Mean= 3.85 SD=0.90	Low (< 3.39)		21	35.00	19	31.67	40	33.33
		Medium (3.39-4.30)		26	43.33	27	45.00	53	44.16
		High (> 4.30)		13	21.67	14	23.33	27	22.50
13	Level of aspiration Mean=10.48 SD= 9.76	Low (< 5.06)		07	11.67	11	18.33	18	15.00
		Medium (5.06-15.36)		36	60.00	46	76.67	82	68.33
		High (>15.36)		17	28.33	03	5.00	20	16.67
14	Extension participation Mean=2.55 SD=1.47	Low (< 1.81)		10	16.67	13	21.67	23	19.16
		Medium (1.81-3.28)		37	61.67	41	68.33	78	65.00
		High (> 3.28)		13	21.66	06	10.00	19	15.83
15	Cosmopoliteness Mean=3.97 SD=0.88	Low (<3.53)		31	51.67	13	21.67	44	36.67
		Medium (3.53-4.41)		23	38.33	16	26.67	39	32.50
		High (> 4.41)		06	10.00	31	51.66	37	30.83
16	Fatalism-Scientism Mean=12.09 SD=1.69	Low (< 11.24)		10	16.67	12	23.33	22	18.33
		Medium (11.24-12.93)		39	65.00	34	56.67	73	60.84
		High (>12.93)		11	18.33	14	20.00	25	20.83

Overall, agricultural labor was the primary livelihood activity for almost all (95.83 %) respondents, followed by livestock rearing (56.67 %) and agriculture (55.83 %). While nearly two-fifths (39.16 %) of respondents were engaged in non- agricultural labor, while other options like NTFP collection (28.33 %) and migration (3.33 %) were less common. Activities like small vending and government jobs were rare, reflecting limited diversification into non-traditional livelihoods.

Table 5: Distribution of Iruliga tribes according to livelihood options

(n=120)

Sl. No	Available Livelihood options	Magadi (n_1=60)			Ramanagara (n_2=60)			Pooled (n=120)		Rank
		No.	%	Rank	No.	%	Rank	No.	%	
1	Agriculture	46	76.67	II	21	35.00	IV	67	55.83	III
2	Horticulture	01	1.67	X	01	1.67	VIII	02	1.67	VIII
3	Livestock	37	61.67	III	31	51.67	II	68	56.67	II
4	Collection of NTFP's	31	51.67	IV	03	5.00	V	34	28.33	V
5	Agricultural labour	57	95.00	I	58	96.67	I	115	95.83	I
6	Non- agricultural labour	18	30.00	V	29	48.33	III	47	39.16	IV
7	Small vendor	01	1.67	VIII	00	0.00	IX	01	0.83	IX
8	Govt / semi- govt job/private job	01	1.67	VIII	02	3.33	VI	03	2.50	VII
9	Migration activities	02	3.33	VI	02	3.33	VI	04	3.33	VI
10	Sericulture	02	3.33	VI	00	0.00	IX	02	1.67	VIII

The probable reasons for these patterns could be attributed to several factors. In Ramanagara taluk, the reliance on wage labor may stem from landlessness or limited access to agricultural resources, forcing respondents to seek non-agricultural employment. This reflects a shift from traditional farming to alternative livelihoods. In contrast, in Magadi taluk, the greater involvement in the collection of non-timber forest products (NTFPs) could be due to better proximity to forested areas. The low participation in small vending or skilled jobs across both areas suggests limited access to education, training, and more

diverse livelihood opportunities, highlighting a need for interventions to address these gaps and promote sustainable livelihood options. These outcomes support the conclusions of Barman *et al.* (2013).

4.3.2 Different combinations of Livelihood systems followed by tribes

It is observed from Table 6 that the livelihood options pursued by the respondents revealed significant variation. In Magadi taluk, one-fourth (25.00 %) of the respondents combined agriculture, wage work, livestock rearing, and NTFP collection, emphasizing diversified livelihood strategies. Nearly one-fourth (23.33 %) engaged in agriculture, wage work, and livestock activities, while smaller proportions opted for combinations like agriculture and wage work (8.33 %) or agriculture with wage work and NTFP collection (13.33 %). A small percentage of respondents (1.67 %) pursued combinations like sericulture with livestock and agriculture or sericulture with livestock, NTFP, and agriculture.

In Ramanagara taluk, more than one-fourth (28.33 %) of the respondents depended solely on wage work, while just above one-fourth (26.67 %) engaged in wage work and livestock rearing. Other combinations, such as agriculture and wage work (10.00 %), were also present but less prominent. Overall, a considerable proportion of respondents nearly one-fourth (22.50 %) across both taluks combined agriculture, wage work, and livestock rearing. Standalone wage work accounted for more than one-tenth (16.67 %) of respondents, while combinations like wage work and livestock (17.50 %) and agriculture with wage work and NTFP collection (6.67 %) were less common. A few respondents pursued niche options like small vending (0.83 %), horticulture (0.83 %), or migration activities (3.33 %), while sericulture combinations accounted for another small proportion (0.82 %). This reflects a limited diversification in livelihood options.

The probable reasons for these livelihood strategies could be attributed to several factors. In Magadi taluk, the combination of agriculture, wage work, livestock rearing, and NTFP collection suggests a diversified approach, likely driven by limited land holdings and the need to generate income from various sources to sustain livelihoods. The small proportion of respondents pursuing sericulture combinations highlights the presence of

favorable climatic conditions and some knowledge of sericulture practices, though limited by insufficient support for scaling up or accessing markets. In Ramanagara taluk, the reliance on wage work reflects limited access to agricultural opportunities, landlessness, or the preference for stable, daily income from labor. The higher participation in livestock activities may indicate adaptive strategies to supplement income. However, the low engagement in niche activities such as horticulture, small vending, or sericulture points to constraints in market access, lack of training, and limited opportunities for skill development, restricting economic diversification. These outcomes support the conclusions of Nisha (2013).

Table 6: Different combinations of livelihood systems followed by Iruliga tribes

(n=120)

Sl. No.	Available Livelihood options	Magadi (n_1=60)		Ramanagara (n_2=60)		Pooled (n=120)	
		No.	%	No.	%	No.	%
1	Wage work	03	5.00	17	28.33	20	16.67
2	Agriculture + Wage work	05	8.33	06	10.00	11	9.17
3	Wage work + Livestock	05	8.33	16	26.67	21	17.50
4	Wage work + NTFP	02	3.33	03	5.00	05	4.16
5	Agriculture + Wage work + Livestock	14	23.33	13	21.66	27	22.50
6	Agriculture + Wage work + Livestock + NTFP	15	25.00	00	00	15	12.50
7	Horticulture + Livestock + Wage work	00	0.00	01	1.67	01	0.83
8	Govt/private job	00	0.00	02	3.33	02	1.67
9	Agriculture + wage work+ NTFP	08	13.33	00	00	08	6.67
10	Small vendor	01	1.67	00	00	01	0.83
11	Sericulture + Livestock + NTFP+ Agriculture	01	1.67	00	00	01	0.83
12	Livestock + NTFP + Wage work	01	1.67	00	00	01	0.83
13	Govt job + Agriculture + Wage work + Livestock + NTFP	01	1.67	00	00	01	0.83
14	Migration activitiy	02	3.33	02	3.33	04	3.33
15	Horticulture + Agriculture +NTFP + Wage work	01	1.67	00	00	01	0.82
16	Sericulture + Livestock + Agriculture	01	1.67	00	00	01	0.82

4.3.3 Proportion of income earned by tribes on different livelihood options

Table 7 reveals that in Magadi taluk, the majority of income was derived from agricultural labor, contributing more than half (53.71 %) of the total, with livestock rearing contributing just above one-tenth (12.10 %). Non-agricultural labor accounted for nearly one-tenth (9.23 %) of income, while the collection of non-timber forest products (NTFPs) contributed a smaller portion (4.01 %). Agriculture provided a similar share of just above one-tenth (12.50 %), whereas horticulture (0.77 %), migration activities (2.29 %), and sericulture (4.14 %) contributed minimally. Negligible income came from small vending (0.60 %) or government and private jobs (0.65 %).

In Ramanagara taluk, agricultural labor similarly dominated, contributing more than half (55.52 %) of income, followed by non-agricultural labor, which accounted for nearly one-fifth (19.17 %). Livestock rearing provided a smaller share (7.93 %), while government and private jobs contributed significantly at nearly one-tenth (6.12 %). Other activities, such as agriculture (8.24 %), migration activities (1.54 %), and horticulture (1.23 %), contributed minimally, and no income was reported from small vending or sericulture.

Overall, agricultural labor remained the predominant income source, contributing more than half (54.62 %) across both taluks. Non-agricultural labor made up a significant portion, more than one-tenth (14.16 %), followed by livestock rearing at approximately one-tenth (10.39 %). Agriculture contributed just over one-tenth (10.03 %), while other activities, including NTFP collection (2.14 %), government and private jobs (3.36 %), sericulture (2.09 %), migration (1.91 %), and horticulture (1.00 %), contributed marginally. Small vending was negligible (0.31 %).

The possible explanations for these patterns are collection of non-timber forest products (NTFPs) is more common in Magadi due to its proximity to forested areas, though it contributes only minimally to income. The low participation in horticulture and migration activities suggests limited economic diversification, likely due to lack of knowledge, skills, or market access. The absence of small vending points to a lack of entrepreneurial activity, possibly caused by inadequate resources, skills, or market opportunities. Overall, the findings highlight systemic constraints such as landlessness, limited skill development,

poor market access, and reliance on labor-based livelihoods, all of which hinder income diversification and sustainable livelihoods. These outcomes support the conclusions of Mareeswaran (2014).

Table 7: Proportion of income earned by Iruliga tribes on different livelihood options

(n=120)

Sl. No.	Available Livelihood options	Proportion of income					Rank
		Magadi (n_1=60)		Ramanagara (n_2=60)		Pooled (n=120)	
		%	Rank	%	Rank	%	
1	Agriculture	12.50	II	8.24	III	10.03	IV
2	Horticulture	0.77	VIII	1.23	VII	1.00	IX
3	Livestock	12.10	III	7.93	IV	10.39	III
4	Collection of NTFP's	4.01	VI	0.24	VIII	2.14	VI
5	Agricultural labor	53.71	I	55.52	I	54.62	I
6	Non – agricultural labor	9.23	IV	19.17	II	14.16	II
7	Small vendor	0.60	X	0.00	IX	0.31	X
8	Govt / semi- govt job/private job	0.65	IX	6.12	V	3.36	V
9	Migration activities	2.29	VII	1.54	VI	1.91	VIII
10	Sericulture	4.14	V	0.00	IX	2.09	VII
	Total	100		100		100	

4.3.4 Proportion of time spent by tribes on different livelihood options

As presented in Table 8, agricultural labor was the primary activity for the Iruliga tribes in Magadi and Ramanagara taluks, constituting just above three-fifths (62.53 %), with 58.81 per cent in Magadi and 66.39 per cent in Ramanagara respectively. Non-agricultural labor occupied just above one-tenth (11.74 %), with higher involvement in Ramanagara 15.52 per cent compared to Magadi 8.70 per cent. Livestock rearing was

another significant activity, accounting for slightly more than one-tenth (11.01 %). The collection of Non-Timber Forest Products (NTFPs) was more prevalent in Magadi nearly one-tenth (9.36 %) but minimal in Ramanagara (0.23 %), averaging (5.00 %). Agriculture and sericulture together contributed 2.92 per cent and 1.02 per cent, respectively, while horticulture accounted for a negligible portion (0.15 %). Small vendor activities and government/semi-government/private jobs were minor livelihood sources, contributing (0.79 %) and (3.04 %), respectively, while migration activities took a mere (1.74 %) of their time. Agricultural labor clearly dominated as the primary livelihood source, with other options playing relatively minor roles.

The probable reasons for the reliance on agricultural labor as the primary livelihood activity for the Iruliga tribes can be attributed to their limited access to diverse opportunities and dependence on wage labor due to the lack of land ownership. Non-agricultural labor serves as a secondary income source, with higher engagement in Ramanagara, where such opportunities are more available. The underutilization of livestock rearing is due to challenges like limited resources and access to veterinary care, while minimal involvement in agriculture and horticulture stems from subsistence farming rather than commercial practices. The low engagement in small vendor activities and formal employment reflects limited entrepreneurial opportunities and inadequate skills or education for higher-paying jobs. Migration is not a significant strategy, as the tribes prefer to remain close to their communities.

The higher prevalence of Non-Timber Forest Products (NTFP) collection in Magadi is attributed to better access to forest resources, though its limited contribution may result from declining forest cover and regulatory restrictions. The low involvement in sericulture could stem from factors such as lack of awareness, insufficient training, and inadequate resources. These findings suggest the need for interventions such as skill development, support for livestock, horticulture, and sericulture, as well as better access to land and resources to improve and diversify the livelihoods of the Iruliga tribes. These outcomes support the conclusions of Ramya (2016).

Table 8 : Proportion of time spent by Iruliga tribes on different livelihood options

(n=120)

Sl. No.	Available Livelihood options	Proportion of time spent					
		Magadi (n_1=60)		Ramanagara (n_2=60)		Pooled (n=120)	Rank
		%	Rank	%	Rank	%	
1	Agriculture	3.64	V	2.25	V	2.92	VI
2	Horticulture	0.15	IX	0.14	VIII	0.15	X
3	Livestock	11.89	II	10.06	III	11.01	III
4	Collection of NTFP's	9.36	III	0.23	VII	5.00	IV
5	Agricultural labor	58.81	I	66.39	I	62.53	I
6	Non - agricultural labor	8.70	IV	15.52	II	11.74	II
7	Small vendor	1.53	VII	0.00	IX	0.79	IX
8	Govt / semi- govt job/private job	1.53	VII	4.69	IV	3.04	V
9	Migration activities	2.63	V	0.78	VI	1.74	VII
10	Sericulture	1.97	VI	0.00	IX	1.02	VIII
	Total	100		100		100	

4.3.5 Proportion of male and female Share in each livelihood option

The data in Table 9 reveals a gender-based distinction in livelihood involvement among the Iruliga tribes. Male participation in agriculture was notably higher, constituting nearly three-fifths (59.56 %) of the workforce, while female participation stood at slightly more than two-fifths (40.44 %). In horticulture, male and female participation was perfectly balanced 50.00 per cent for both genders, and the same distribution applied to sericulture

(50.00 %) for both. Livestock involvement saw almost equal contributions from both genders, with males slightly leading at 51.60 per cent, compared to 48.40 per cent female participation. Collection of Non-Timber Forest Products (NTFPs) was largely male-driven, with males contributing nearly three-fourths (74.44 %), while females contributed a smaller portion slightly more than one-fourth (25.55 %). Agricultural labor also had a more equal distribution, with males forming just above half of the workforce (53.77 %) and females slightly less than half (46.23 %). Non-agricultural labor was highly male-dominated, with males contributing 91.30 per cent and females only 8.69 per cent. Small vendor activities had equal male and female participation in Magadi (50.00 %) each, but remained minimal overall. Government, semi-government, and private jobs saw a predominance of male workers (75.00 %), with females making up just (25.00 %). Migration activities were exclusively male-dominated , with no female involvement.

The underlying reasons for gender-based participation in livelihood activities among the Iruliga tribes can be attributed to traditional gender roles. Males predominantly engage in more physically demanding and outdoor work, such as non-agricultural labor, collection of Non-Timber Forest Products (NTFPs), and migration activities, often due to limited local employment opportunities and the need for income generation outside the household. In contrast, women are more involved in agriculture and livestock, though still less than men, with the higher economic value of livestock driving more male participation. The relatively balanced gender participation in horticulture suggests shared responsibility in this less labor-intensive activity. Similarly, sericulture also sees equal involvement from both genders, indicating its relatively accessible nature for women, alongside traditional male roles. Women's minimal involvement in non-agricultural labor and formal employment reflects limited access to formal job opportunities, indicating a need for interventions promoting gender equality, skill development, and increased access to resources.

Table 9 : Proportion of male and female share in terms of their involvement in different livelihood options.

(n=120)

Sl. No.	Available Livelihood options	Proportion of male and female Share in each livelihood option					
		Magadi (n_1=60)		Ramanagara (n_2=60)		Pooled (n=120)	
		Male	Female	Male	Female	Male	Female
		%	%	%	%	%	%
1	Agriculture	61.74	38.25	55.26	44.73	59.56	40.44
2	Horticulture	50.00	50.00	50.00	50.00	50.00	50.00
3	Livestock	51.85	48.14	51.30	48.69	51.60	48.4
4	Collection of NTFP's	75.30	24.69	66.67	33.33	74.44	25.55
5	Agricultural labour	51.45	48.54	56.25	43.75	53.77	46.23
6	Non- agricultural labour	88.23	11.76	93.10	6.89	91.30	8.69
7	Small vendor	50.00	50.00	0.00	0.00	50.00	50.00
8	Govt / semi- govt job/private job	100	0.00	66.67	33.33	75.00	25.00
9	Migration activities	100	0.00	100	0.00	100.00	0.00
10	Sericulture	50.00	50.00	0.00	0.00	50.00	50.00

4.3.6 Percentage of Risk perceived

The data presented in Table 10 highlights the perceived risk levels across various livelihood activities. Horticulture had the lowest risk perception, averaging one-third (33.33 %), consistent across both taluks. Livestock activities were moderately risky, with nearly two-fifths (39.70 %) risk perception, slightly higher in Ramanagara 43.24 per cent than in Magadi 35.48 per cent. Collection of Non-Timber Forest Products (NTFPs) showed low to moderate risk, averaging nearly one-third (34.31 %). Agricultural labor also exhibited minimal risk perception, at about one-third (33.91 %), with negligible differences between Magadi (33.33 %) and Ramanagara (34.48 %).

Non-agricultural labor was perceived as moderately risky, averaging just above three-fifths (63.12 %), with higher perception in Ramanagara nearly two-thirds (65.51 %) compared to Magadi nearly three fifths (59.25 %). Small vendor activities, reported only in Magadi, showed minimal risk, averaging one-third (33.33 %). Government/semi-government/private jobs had a similarly low risk perception, consistently at one-third (33.33 %) across both taluks. Migration activities demonstrated moderate risk, averaging more than three-fifths (58.33 %), consistent in both regions. Sericulture had the highest risk perception, with two-thirds (66.67 %), exclusively reported in Magadi.

Table 10 : Risk perceived by Iruliga tribes with respect to different livelihood options.

(n=120)

S.l No.	Available Livelihood options	Percentage of Risk perceived					
		Magadi (n_1=60)		Ramanagara (n_2=60)		Pooled (n=120)	Rank
		%	Rank	%	Rank	%	
1	Agriculture	65.94	III	61.90	III	64.67	II
2	Horticulture	33.33	VII	33.33	VI	33.33	VIII
3	Livestock	35.48	V	43.24	IV	39.70	V
4	Collection of NTFP's	34.40	VI	33.33	VI	34.31	VI
5	Agricultural labour	33.33	VII	34.48	V	33.91	VII
6	Non- agricultural labour	59.25	IV	65.51	II	63.12	III
7	Small vendor	33.33	VII	0.00	IX	33.33	VIII
8	Govt / semi- govt job/private job	33.33	VII	33.33	VI	33.33	VIII
9	Migration activities	66.67	I	66.67	I	58.33	IV
10	Sericulture	66.67	I	0.00	IX	66.67	I

The perceived risks associated with various livelihood options among the Iruliga tribes highlight their reliance on natural resources and economic uncertainties. Agriculture, livestock, and the collection of Non-Timber Forest Products (NTFPs) were perceived as moderately risky due to dependency on erratic weather, fluctuating market demands, and limited technical knowledge. Non-agricultural labor, particularly in Ramanagara, was viewed as highly risky due to the physically demanding nature of activities like construction and woodcutting, safety concerns, and the lack of stable wages.

Small vendor activities, though less risky, were constrained by inconsistent customer traffic and limited sales opportunities. Minimal risk perception in agricultural labor reflects its familiarity and low entry barriers, though it offers modest economic returns. The moderate risk in migration activities is attributed to uncertain job availability and potential exploitation in distant locations. Sericulture was perceived as the riskiest livelihood due to its technical complexity, high investment requirements, and susceptibility to environmental factors. Addressing these risks through targeted interventions, such as capacity building, market linkages, and enhanced safety measures, can reduce vulnerabilities and improve livelihood resilience.

4.3.7 Percentage of Technical competency

Table 11 reveals that the technical competency among the Iruliga tribes in relation to different livelihood options was notably high. Agriculture showed more than three-fourths (76.28 %) competency, with Magadi reporting a slightly higher level more than three-fourths (77.29 %) compared to Ramanagara nearly three-fourths (74.07 %). Horticulture demonstrated slightly more than four-fifths (83.33 %) competency, with better proficiency in Ramanagara more than seven-eighths (88.89 %) than in Magadi just above three-fifths (77.78 %). Livestock activities exhibited nearly three-fourths (74.18 %) technical understanding, higher in Magadi just above three-fifths (77.47 %) compared to Ramanagara more than two-thirds (70.25 %). Collection of NTFPs reflected four-fifths (84.64 %) competency, with minimal variation between Magadi more than four-fifths (84.94 %) and Ramanagara just above four-fifths (81.48 %). Agricultural labor showed more than four-fifths (83.76 %) competency, slightly higher in Ramanagara (85.82 %) than in Magadi (81.67 %). Non-agricultural labor demonstrated nearly nine-tenths (89.36 %)

technical proficiency, with Ramanagara (94.25 %) leading over Magadi (81.48 %). Small vendor activities, exclusive to Magadi, showed nearly nine-tenths (88.89 %) competency. Sericulture, also exclusive to Magadi, exhibited a similar level of competency (88.89 %). Both government/semi-government/private jobs and migration activities achieved full competency across both taluks.

The underlying reasons for the high level of technical competency among the Iruliga tribes across various livelihood activities reflect their adaptability and ability to manage diverse economic opportunities. Agriculture demonstrates strong skills due to its long-standing role as a primary livelihood. Livestock activities, NTFP collection, and sericulture showcase considerable technical know-how, linked to their reliance on natural resources and traditional practices. Horticulture, agricultural labor, and non- agricultural labor show even higher competency, especially in Ramanagara, likely due to better support and advanced opportunities.

Table 11: Technical competency of tribal farmers with respect todifferent livelihood options

(n=120)

Sl. No.	Available Livelihood options	Percentage of Technical competency					
		Magadi (n_1=60)		Ramanagara (n_2=60)		Pooled (n=120)	Rank
		%	Rank	%	Rank	%	
1	Agriculture	77.29	X	74.07	VII	76.28	IX
2	Horticulture	77.78	VIII	88.89	IV	83.33	VIII
3	Livestock	77.47	IX	70.25	VIII	74.18	X
4	Collection of NTFP's	84.94	V	81.48	VI	84.64	VI
5	Agricultural labour	81.67	VI	85.82	V	83.76	VII
6	Non- agricultural labour	81.48	VII	94.25	III	89.36	III
7	Small vendor	88.89	III	0.00	IX	88.89	IV
8	Govt / semi- govt job/private job	100	I	100	I	100	I
9	Migration activities	100	I	100	I	100	I
10	Sericulture	88.89	III	0.00	IX	88.89	IV

4.4 Awareness and utilization of tribal development programs

4.4.1 Awareness of tribal development programs

4.4.1.1 Education

Table 12 indicates that the Iruliga tribes in both Magadi and Ramanagara taluks showed a high level of awareness regarding educational developmental programs. The awareness of formal education for children aged 3-5 through nursery centers was cent percent in both taluks. Awareness of free residential schools for ST students was reported nearly two-thirds (65.00 %) in Magadi and just above four-fifths (86.67 %) in Ramanagara, totaling about three-fourths (75.83 %).

Hostel facilities for ST students were widely known, with just above four-fifths (81.67 %) in Magadi and cent per cent in Ramanagara, totaling about nine-tenths (90.83 %). Awareness of scholarships for encouraging ST students was also high, with more than two-thirds (70.00 %) in Magadi and more than four-fifths (83.33 %) in Ramanagara, totaling slightly more than three-fourths (76.67 %). These results highlight significant awareness of educational support programs among the Iruliga tribes in both areas.

The underlying reasons for awareness in both Magadi and Ramanagara taluks show high level of awareness about educational development programs. The programs related to formal education for young children, hostel facilities, and scholarships had particularly strong recognition, with almost all respondents being aware. However, awareness of free residential schools was somewhat lower, particularly in Magadi. Overall, the awareness of educational support programs is quite high, reflecting the effectiveness of these initiatives in reaching the community. Still, further efforts could be made to improve awareness about specific programs like free residential schools. These outcomes support the conclusions of Arularasan (2010).

4.4.1.2 Social development

As seen in Table 12, the highest level of awareness among the Iruliga tribes in both Magadi and Ramanagara taluks was for safe drinking water and infrastructure development under rural development and panchayat raj programs, with every respondent in both taluks

recognizing these initiatives. Awareness of the housing scheme for vulnerable sections was also high, with nearly all respondents (99.17 %) aware, leaving just a tiny fraction (0.83 %) unaware. The Bhagyalakshmi scheme had a relatively lower awareness, with less than one-tenth (4.17 %) unaware across both taluks. Awareness of the construction of Valmiki Bhavanas was moderate, with nearly two-fifths (37.50 %) of respondents aware, while others were unaware. Awareness of the Sarala Vivaha Yojane was cent percent absent in Ramanagara, with no respondents aware of the program, while a small fraction (6.67 %) in Magadi had some awareness. These findings highlight the need for targeted awareness campaigns to improve knowledge of lesser-known schemes and ensure more equitable access to government programs.

The likely causes may include the significant variation in awareness levels of various social development programs among the Iruliga tribes in Magadi and Ramanagara taluks. Programs related to basic needs, such as safe drinking water and infrastructure development under rural development and panchayat raj, had universal awareness, reflecting the importance and visibility of these initiatives in the communities.

However, awareness of other programs, like the Bhagyalakshmi scheme and the construction of Valmiki Bhavanas, was notably lower, with a small proportion of respondents unaware, indicating limited reach or engagement in certain areas. The complete lack of awareness regarding Sarala Vivaha Yojane in Ramanagara and these findings suggest a need for improved outreach and education to ensure that all members of the tribal communities are informed about available developmental programs. These outcomes support the conclusions of Mareeswaran *et al.* (2017).

4.4.1.3 Economic development

The findings from Table 12 indicate that cent percent of the respondents in both Magadi and Ramanagara taluks were aware of the microcredit schemes, showing the highest level of awareness among the economic development programs. The land purchase scheme had no awareness, with cent percent of respondents unaware of it. Loan facilities for small and medium-scale industrialists had nearly one-fifth (19.17 %) awareness across both taluks, with a larger awareness in Magadi (28.33 %) compared to Ramanagara (10.00

%). Van Dhan Vikas Yojana for marketing tribal products had very low awareness, with nearly one-tenth (7.50 %) of the respondents aware, with higher awareness in Magadi (15.00 %). Lastly, short-term loans through LAMPS had no awareness, with cent percent unaware in both taluks.

The probable reason may be that the Iruliga tribes in both Magadi and Ramanagara taluks are highly aware of the microcredit schemes, with cent percent of respondents recognizing the program. However, awareness of other economic development programs varies significantly. The land purchase scheme had no awareness among the respondents in both taluks, highlighting a gap in knowledge regarding land acquisition opportunities. Loan facilities for small and medium-scale industrialists showed modest awareness, with Magadi having a higher level of awareness than Ramanagara. The Van Dhan Vikas Yojana, aimed at marketing tribal products, had minimal awareness, particularly in Ramanagara. Finally, there was no awareness of the short-term loans through LAMPS, suggesting that tribes are largely uninformed about this specific financial support. The disparities in awareness levels reflect the need for targeted awareness campaigns to improve outreach and understanding of these programs.

4.4.1.4 Health

The findings from Table 12 reveal that among the Iruliga tribes health-related schemes, awareness of the Yashaswini health scheme was reported by more than half (53.33 %) of the respondents in both taluks, while nearly half (46.67 %) were unaware.

The Nutritious Diet Plan under TSP had cent percent awareness among respondents across both taluks. Awareness of the Thayi Bhagya scheme was relatively lower, with about one-third (33.33 %) of respondents aware, while two-thirds (66.67 %) were unaware. Awareness of free health camps organized by government departments was also cent percent across both taluks. Finally, awareness of the Department of Health Kits for Mothers was high, with more than four-fifths (89.17 %) aware, while a small fraction (10.83 %) was unaware.

The underlying reasons for high awareness of the Nutritious Diet Plan under TSP and free health camps can be attributed to effective communication and direct benefits,

ensuring widespread understanding. The Yashaswini health scheme's moderate awareness may stem from limited outreach or specific eligibility criteria. Low awareness of the Thayi Bhagya scheme could be due to insufficient promotional efforts or its limited relevance to certain community members. The high awareness of Department of Health Kits for Mothers likely results from active health campaigns targeting maternal health. Unawareness in some cases reflects gaps in outreach or access to specific programs. These outcomes support the conclusions of Swathi (2016).

4.4.1.5 Employment

Table 12 reveals that in the area of employment-related programs, awareness of skill-based training for unemployed ST youth was the lowest, with less than one-tenths (6.67 %) aware in both Magadi (6.67 %) and Ramanagara (6.67 %). Awareness of the nursing program was also low, with nearly one-tenth (8.33 %) aware in Magadi and one-tenth (10.00 %) aware in Ramanagara. Awareness of the self-employment scheme was minimal, with only 3.33 per cent were aware in Magadi, and no respondents in Ramanagara were aware of the program. These low awareness levels highlight the need for more focused outreach and awareness campaigns to improve knowledge of these employment-related initiatives.

The key influences could be limited outreach and insufficient promotional efforts by government agencies, which may have resulted in a lack of exposure to these employment-related programs. Additionally, the specific nature of these programs may not align with the immediate needs or interests of the Iruliga tribes, leading to reduced engagement. In areas like Ramanagara, the absence of awareness about the self-employment scheme could reflect a lack of targeted communication or relevance to the local context. Economic constraints and low education levels may also contribute to unawareness, as individuals may not actively seek such opportunities.

4.4.1.6 Agriculture and allied sectors

Table 12 highlights that in the agriculture and allied sectors, awareness of various programs varied. The highest awareness was for the demonstration on modern practices, with almost one-third aware in Magadi (30.00 %) and a very small portion in Ramanagara

(1.67 %). Awareness of storage facilities was very low, with only a few aware in Magadi (1.67 %) and none in Ramanagara. Awareness of irrigation facilities was higher, with four-fifths aware in Magadi (80.00 %) and one-tenth aware in Ramanagara (10.00 %). Dairy, sheep rearing, and goat rearing programs had high awareness, with almost all respondents aware in both taluks—Magadi (96.67 %) and Ramanagara (90.00 %). The Ganga Kalyana Yojana saw moderate awareness, with more than four-fifths aware in Magadi (88.33 %) and more than half aware in Ramanagara (55.00 %).

The key influences could be the specific relevance of certain programs to the livelihood activities of the Iruliga tribes, such as dairy, sheep, and goat rearing, which have high awareness due to their importance in daily life. The demonstration on modern practices in Magadi likely benefited from better outreach or localized government initiatives, making it more accessible. Higher awareness of irrigation facilities in Magadi is probably due to better water resources and greater government support for agriculture in the region. The low awareness of storage facilities may be due to insufficient exposure to such programs or limited infrastructure in the area. The moderate awareness of the Ganga Kalyana Yojana could be attributed to its gradual implementation, resulting in partial targeting and outreach.

4.4.1.7 NGO development

As indicated in Table 12, in the area of vocational training, awareness was observed in more than one-third (36.67 %) of respondents in Magadi and four-fifths (80.00 %) in Ramanagara. Awareness of health camps was cent percent in both taluks. There was no awareness of medicinal plant cultivation in both taluks. Participation in SHG activities showed awareness in nearly half (48.33 %) of Magadi respondents and more than four-fifths (83.33 %) in Ramanagara. Awareness of marketing agricultural produce was minimal, with only a small percentage (1.67 %) aware in Magadi and a minimal percentage (0.83 %) in Ramanagara. There was no awareness of value addition of millets, value addition of forest produce, and natural resource conservation in either taluk. Awareness of the distribution of solar lights and sheets was observed in a small percentage (6.67 %) in Magadi and more than two-fifths (41.67 %) in Ramanagara.

Table 12: Distribution of tribes based on awareness of developmental programmes

(n=120)

Sl. No.	Developmental programmes and benefits	Awareness											
		Magadi				Ramanagara				Pooled			
		Yes		No		Yes		No		Yes		No	
I	**EDUCATION**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**
1	Formal education to age group of 3-5 under nursery and centers for welfare of children's	60	100	00	00	60	100	00	00	120	100	00	00
2	Free residential schools for ST students	39	65.00	21	35.00	52	86.67	08	13.33	91	75.83	29	24.17
3	Hostel facilities for the ST students	49	81.67	11	18.33	60	100	00	00	109	90.83	11	15.27
4	Providing scholarships for encouraging ST students by GoK and GoI	42	70.00	18	30.00	50	83.33	10	16.67	92	76.67	28	23.33
II	**SOCIAL DEVELOPMENT**												
1	Incentives for inter-caste marriages	11	18.33	49	81.67	04	6.67	56	93.33	15	12.50	105	87.50
2	Sarala Vivaha Yojane	04	6.67	56	93.33	00	00	60	100	04	3.33	116	96.67
3	Construction of Valmiki bhavanas	26	43.33	34	56.67	19	31.67	41	68.33	45	37.5	75	62.5
4	Safe drinking water	60	100	00	00	60	100	00	00	120	100	00	00
5	Infrastructure development under rural development and panchayat raj	60	100	00	00	60	100	00	00	120	100	00	00
6	Bhagyalakshmi scheme	05	8.33	55	91.67	00	00	60	100	05	4.17	115	95.83

III	**ECONOMIC DEVELOPMENT**												
1	Micro credit schemes	60	100	00	00	60	100	00	00	120	100	00	00
2	Land purchase scheme	00	00	60	100	00	00	60	100	00	00	120	100
3	Loan facilities for small and medium scale industrialists	17	28.33	43	71.67	06	10.00	54	90.00	23	19.17	97	80.83
4	Van dhan vikas yojana for marketing tribal products	09	15.00	51	85.00	00	00	60	100	09	7.50	111	92.50
5	Short term loans through LAMPS	00	00	60	100	00	00	60	100	00	00	120	100
IV	**HEALTH**												
1	Yashaswini health scheme	32	53.33	28	46.67	32	53.33	28	46.67	64	53.33	56	46.67
2	Nutritious diet plan under TSP	60	100	00	00	60	100	00	00	120	100	00	00
3	Thayi bhagya scheme	18	30.00	42	70.00	22	36.67	38	63.33	40	33.33	80	66.67
4	Free health camps by government departments	60	100	00	00	60	100	00	00	120	100	00	00
5	Distribution of health kits for mothers	49	81.67	11	18.33	58	96.67	02	3.33	107	89.17	13	10.83
V	**EMPLOYMENT**												
1	Skill based training for unemployed ST youth	04	6.67	56	93.33	04	6.67	56	93.33	08	6.67	112	93.33
2	Nursing programme	05	8.33	55	91.67	06	10.00	54	90.00	11	9.17	109	90.83
3	Self employment scheme	02	3.33	58	96.67	00	00	60	100	02	1.67	118	98.33

VI	**AGRICULTURE AND ALLIED SECTORS**												
1	Demonstration on modern practices	18	30.00	42	70.00	01	1.67	59	98.33	19	15.83	101	84.17
2	Storage facilities	01	1.67	59	98.33	00	00	60	100	01	0.83	119	99.17
3	Irrigation facilities	48	80.00	12	20.00	06	10.00	54	90.00	54	45.00	66	55.00
4	Dairy	58	96.67	02	3.33	54	90.00	06	10.00	112	93.33	08	6.67
5	Sheep rearing	58	96.67	02	3.33	54	90.00	06	10.00	112	93.33	08	6.67
6	Goat rearing	58	96.67	02	3.33	54	90.00	06	10.00	112	93.33	08	6.67
7	Ganga kalyana yojana	53	88.33	07	11.67	33	55.00	27	45.00	86	71.67	34	28.33
8	Encouragement of social forests	00	00	60	100	00	00	60	100	00	00	120	100
VII	**NGO DEVELOPMENT PROGRAMMES**												
1	Vocational training	22	36.67	38	63.33	12	20.00	48	80.00	34	28.33	86	71.67
2	Health camp	60	100	00	00	59	98.33	01	1.67	119	99.17	01	0.83
3	Medicinal plant cultivation	00	00	60	100	00	00	60	100	00	00	120	100
4	Participation in SHG activities	29	48.33	31	51.67	10	16.67	50	83.33	39	32.50	81	67.50
5	Marketing agricultural produce	01	1.67	59	98.33	00	00	60	100	01	0.83	119	99.17
6	Value addition of millets	00	00	60	100	00	00	60	100	00	00	120	100
7	Value addition of forest produce	00	00	60	100	00	00	60	100	00	00	120	100
8	Natural resource conservation	00	00	60	100	00	00	60	100	00	00	120	100
9	Distribution of solar lights, sheets etc	04	6.67	56	93.33	25	41.67	35	58.33	29	24.16	91	75.84

The possible contributing factors might involve NGOs having a significant impact on tribal communities through vocational training, health camps, and livelihood improvements. However, limited participation in initiatives like medicinal plant cultivation and agricultural produce marketing may stem from a lack of awareness, cultural factors, or a disconnect between these programs and the tribal way of life. Tribal communities often face challenges like limited access to information and resources, hindering the adoption of new practices. To improve program reach and effectiveness, initiatives should be tailored to the unique needs of tribal populations. Increasing community involvement and overcoming logistical barriers are crucial for improving participation.

4.4.2 Utilization of tribal development programs

4.4.2.1 Education

From Table 13, the results for the utilization of development programs in Magadi and Ramanagara taluks are as follows: For formal education to the age group of 3-5 under nursery and centers for the welfare of children, nearly all respondents (96.67 %) in both Magadi and Ramanagara utilized the program. For free residential schools for ST students, no respondents in Magadi utilized the program, while nearly one-fifth (18.33 %) in Ramanagara utilized it. Regarding hostel facilities for ST students, less than one-tenth (5.00 %) in Magadi and nearly one-fifth (16.67 %) in Ramanagara utilized the program. Lastly, for scholarships provided by GoK and GoI to encourage ST students, more than one-tenth (13.33 %) of respondents in both taluks utilized the program.

The probable reasons for the lower utilization of hostel facilities in Magadi and Ramanagara could include limited awareness of the program or logistical barriers that prevent tribal students from accessing these facilities. Despite the availability of hostel facilities, the challenges of geography or transportation might make it difficult for students to attend, especially in Magadi. In Ramanagara, while there is higher utilization, issues like a lack of information or the financial burden associated with travel could still limit access. Cultural factors or a preference for local schooling might also contribute to the low uptake of these services. These outcomes support the conclusions of Arularasan (2010).

4.4.2.2 Social development

As per the findings in Table 13, it is observed that safe drinking water facilities were utilized by cent percent of the respondents in both Magadi and Ramanagara. Regarding infrastructure development under rural development and panchayat raj, more than four-fifths in Magadi (85.00 %) and more than half (56.67 %) in Ramanagara utilized the program. The housing scheme for vulnerable sections was utilized by more than four-fifths in Magadi (86.67 %) and more than half (55.00 %) in Ramanagara. Construction of Valmiki Bhavanas was utilized by one-third in Magadi (33.33 %) and a negligible proportion (1.67 %) in Ramanagara. Incentives for inter-caste marriages, Sarala Vivaha Yojane, and the Bhagyalakshmi scheme were not utilized by any respondents in either taluk.

Probable reasons could be the effective implementation and accessibility of safe drinking water facilities, ensuring cent percent utilization in both taluks. The higher utilization of infrastructure and housing schemes in Magadi compared to Ramanagara may result from better outreach and support mechanisms in Magadi, while gaps in awareness or logistical challenges could limit access in Ramanagara. The limited use of Valmiki Bhavanas and the complete lack of utilization of programs like incentives for inter-caste marriages, Sarala Vivaha Yojane, and Bhagyalakshmi scheme might be due to insufficient awareness campaigns or cultural factors affecting acceptance. This trend highlights the need for focused efforts on improving outreach, addressing logistical barriers, and tailoring programs to meet the specific needs of the tribal population, especially in Ramanagara. The results align closely with Pattamajhi and Sudhakar (2023).

4.4.2.3 Economic development

Table 13 shows that micro-credit schemes were actively utilized by a significant majority, with nearly all (95.00 %) of respondents in Magadi and nearly two-thirds (65.00 %) in Ramanagara making use of these programs. Land purchase schemes, loan facilities for small and medium-scale industrialists, and short-term loans through LAMPS were not utilized by any respondents in either taluk. The Van Dhan Vikas Yojana for marketing

tribal products was utilized by less than one-tenth in Magadi (6.67 %) but was not utilized by any respondents in Ramanagara.

Probable reasons could be the better outreach and support mechanisms in Magadi, leading to higher utilization of micro-credit schemes compared to Ramanagara. The non-utilization of land purchase schemes, industrial loans, and LAMPS loans may result from the lack of relevance or awareness among the tribal population. Limited utilization of the Van Dhan Vikas Yojana in Magadi and its absence in Ramanagara might stem from inadequate promotion and challenges in aligning the program with tribal needs. This trend underscores the need for targeted awareness campaigns, simplified processes, and customized program designs to improve participation. Special efforts in Ramanagara are essential to bridge these gaps and ensure equitable access to economic opportunities.

4.4.2.4 Health

From Table 13, it is observed that the Yashaswini health scheme was utilized by more than half of the respondents in Magadi (58.33 %) and slightly more than half in Ramanagara (51.67 %). The nutritious diet plan under TSP was utilized by nearly cent percent in Magadi (96.67 %) and Ramanagara (96.67 %). The Thayi Bhagya scheme saw utilization by nearly one-third in Magadi (30.00 %) and slightly over one-fourth in Ramanagara (26.67 %). Free health camps conducted by government departments were utilized by cent per cent of respondents in Magadi and more than four-fifths (88.33 %) in Ramanagara. Health kits for mothers provided by the department were utilized by more than three-fourths of respondents in Magadi (76.67 %) and Ramanagara (80.00 %).

Probable reasons could be the accessibility and widespread promotion of the Yashaswini health scheme, leading to its moderate utilization in both taluks. The near cent percent utilization of the nutritious diet plan under TSP in Magadi and Ramanagara indicates its effective distribution and alignment with community needs. The limited utilization of the Thayi Bhagya scheme may be attributed to low awareness or procedural challenges in accessing benefits. Free health camps showed high participation due to their local availability and direct health benefits. The strong utilization of health kits for mothers highlights their relevance and effectiveness in addressing maternal health needs. Overall,

gaps in awareness and accessibility, particularly in programs like the Thayi Bhagya scheme, require targeted outreach and simplification of procedures.

4.4.2.4 Employment

The data from Table 13 reveals that the utilization of skill-based training for unemployed ST youth was minimal, with only a small fraction of respondents in Magadi (3.33 %) and Ramanagara (1.67 %) making use of the program, while most did not participate. The nursing program was not utilized by any respondents in either taluk. The self-employment scheme was utilized by a very small proportion in Magadi (3.33 %) and none in Ramanagara, with the vast majority in both areas not utilizing the program.

Probable reasons could be the lack of awareness about skill-based training programs and self-employment schemes among the respondents, limiting their participation. The minimal utilization may also stem from inadequate promotion or outreach efforts to inform the tribal communities about these opportunities. Cultural factors and a preference for traditional occupations might contribute to the limited interest in such programs. The non-utilization of the nursing program could indicate a mismatch between the program's offerings and the aspirations or qualifications of the target group. Procedural barriers and eligibility criteria may also deter participation. To address these challenges, tailored awareness campaigns, simplified access processes, and programs aligned with tribal needs and interests are essential.

4.4.2.5 Agriculture and allied sectors

As per Table 13, the demonstration on modern practices saw minimal usage, with only a small portion in Magadi (3.33 %) and no utilization in Ramanagara. Storage facilities were not utilized in either taluk. Irrigation facilities were utilized by nearly one-tenth in Magadi (5.00 %) and a small proportion in Ramanagara (1.67 %). Dairy was utilized by a very small proportion in Magadi (3.33 %) and none in Ramanagara. Sheep rearing was utilized by a very small proportion in Magadi (1.67 %) and nearly one-tenth in Ramanagara (5.00 %). Goat rearing was utilized by a very small proportion in Magadi (1.67 %) and none in Ramanagara. The Ganga Kalyana Yojana was utilized by nearly one-

tenth in Magadi (5.00 %) and none in Ramanagara. Encouragement of social forests was not utilized in both taluks.

Probable reasons could be the lack of awareness and information about these agricultural programs, leading to low participation. Cultural factors and a preference for traditional farming methods might hinder the adoption of modern practices. The limited availability of resources, such as irrigation or storage facilities, could contribute to the low utilization of these programs. Additionally, insufficient outreach and accessibility, particularly in remote areas, may prevent people from engaging with the schemes. Economic constraints and the lack of immediate perceived benefits could also deter participation. To improve utilization, targeted awareness campaigns, improved infrastructure, and greater community involvement are necessary.

4.4.2.6 NGO development

The findings from Table 13 highlight that vocational training was utilized by a limited proportion of respondents, with one-tenth (10.00 %) in Magadi and more than one-tenth (13.33 %) in Ramanagara, with the majority in both areas not utilizing the program. Health camps were utilized by cent percent in Magadi, with nearly all (96.66 %) in Ramanagara utilizing the program. Medicinal plant cultivation was not utilized by any respondents in both taluks. Participation in SHG activities was utilized by nearly one-fifth in Magadi (16.67%) and just above one-tenth in Ramanagara (11.67%), with the majority in both taluks not participating. Marketing agricultural produce, value addition of millets, value addition of forest produce, and natural resource conservation were not utilized by any respondents in either taluk. Distribution of solar lights and sheets was utilized by a small poroportion in Magadi (3.33%) and two-fifths in Ramanagara (40.00%), with a larger proportion in Ramanagara utilizing the program.

Probable reasons could be the lack of awareness or interest in vocational training programs, leading to low participation. Health camps' higher utilization suggests their accessibility and direct benefits, which resonate more with the community. The non-utilization of programs like medicinal plant cultivation and marketing could be due to limited understanding of their potential or a disconnect from the traditional livelihoods.

Table 13: Distribution of tribes based on utilization of developmental programmes

(n=120)

Sl. No.	Developmental programmes and benefits	Utilization											
		Magadi				Ramanagara				Pooled			
		Yes		No		Yes		No		Yes		No	
I	**EDUCATION**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**
1	Formal education to age group of 3-5 under nursery and centers for welfare of children's	58	96.67	02	3.33	58	96.67	02	3.33	116	96.67	04	3.33
2	Free residential schools for ST students	00	00	60	100	11	18.33	49	81.67	11	9.16	109	90.84
3	Hostel facilities for the ST students	03	5.00	57	95.00	10	16.67	50	83.33	13	10.83	107	89.67
4	Providing scholarships for encouraging ST students by GoK and GoI	08	13.33	52	86.67	08	13.33	52	86.67	16	13.33	104	86.67
II	**SOCIAL DEVELOPMENT**												
1	Incentives for inter-caste marriages	00	00	60	100	00	00	60	100	00	00	120	100
2	Sarala Vivaha Yojane	00	00	60	100	00	00	60	100	00	00	120	100
3	Construction of Valmiki bhavanas	20	33.33	40	66.67	01	1.67	59	98.33	21	17.50	99	82.50
4	Safe drinking water	60	100	00	00	60	100	00	00	00	00	120	100
5	Infrastructure development under rural development and panchayat raj	51	85.00	09	5.00	34	56.67	26	43.33	85	70.83	35	29.17

6	Bhagyalakshmi scheme	00	00	60	100	00	00	60	100	00	00	120	100
III	**ECONOMIC DEVELOPMENT**												
1	Micro credit schemes	57	95.00	03	5.00	39	65.00	21	35.00	96	80.00	24	20.00
2	Land purchase scheme	00	00	60	100	00	00	60	100	00	00	120	100
3	Loan facilities for small and medium scale industrialists	00	00	60	100	00	00	60	100	00	00	120	100
4	Van dhan vikas yojana for marketing tribal products	04	6.67	56	93.33	00	00	60	100	04	3.33	116	96.67
5	Short term loans through LAMPS	00	00	60	100	00	00	60	100	00	00	120	100
IV	**HEALTH**												
1	Yashaswini health scheme	35	58.33	25	41.67	29	48.33	31	51.67	64	53.33	56	46.67
2	Nutritious diet plan under TSP	58	96.67	02	3.33	58	96.67	02	3.33	116	96.67	04	3.33
4	Thayi bhagya scheme	18	30.00	42	70.00	16	26.67	44	73.33	34	28.33	86	71.67
5	Free health camps by government departments	60	100	00	00	59	88.33	01	1.67	119	99.16	01	0.84
6	Department of health kits for mothers	46	76.67	14	23.33	48	80.00	12	20.00	94	78.83	26	21.67
V	**EMPLOYMENT**												
1	Skill based training for unemployed ST youth	02	3.33	58	96.67	01	1.67	59	98.33	03	2.50	117	97.50
2	Nursing programme	00	00	60	100	00	00	60	100	00	00	120	100
3	Self employment scheme	02	3.33	58	96.67	00	00	60	100	02	1.67	118	98.33

VI	**AGRICULTURE AND ALLIED SECTORS**												
1	Demonstration on modern practices	02	3.33	58	96.67	00	00	60	100	02	1.67	118	98.33
2	Storage facilities	00	00	60	100	00	00	60	100	00	00	120	100
3	Irrigation facilities	03	5.00	57	95.00	01	1.67	59	98.33	04	3.33	116	96.67
4	Dairy	02	3.33	58	96.67	00	00	60	100	02	1.67	118	98.33
5	Sheep rearing	01	1.67	59	98.33	03	5.00	57	95.00	04	3.33	116	96.67
6	Goat rearing	01	1.67	59	98.33	00	00	60	100	01	0.84	119	99.16
7	Ganga kalyana yojana	03	5.00	57	95.00	00	00	60	100	03	2.50	117	97.50
8	Encouragement of social forests	00	00	60	100	00	00	60	100	00	00	120	100
VII	**NGO DEVELOPMENT PROGRAMMES**												
1	Vocational training	06	10.00	54	90.00	08	13.33	52	86.67	14	11.67	106	88.33
2	Health camp	60	100	00	00	58	96.66	02	3.33	118	98.33	02	1.67
3	Medicinal plant cultivation	00	00	60	100	00	00	60	100	00	00	120	100
4	Participation in SHG activities	10	16.67	50	83.33	07	11.67	53	88.33	17	14.17	103	85.83
5	Marketing agricultural produce	00	00	60	100	00	00	60	100	00	00	120	100
6	Value addition of millets	00	00	60	100	00	00	60	100	00	00	120	100
7	Value addition of forest produce	00	00	60	100	00	00	60	100	00	00	120	100
8	Natural resource conservation	00	00	60	100	00	00	60	100	00	00	120	100
9	Distribution of solar lights, sheets etc	02	3.33	58	96.67	24	40.00	36	60.00	26	21.67	94	78.33

The moderate involvement in SHG activities may be attributed to a lack of incentives or motivation. Regional differences, like higher demand for solar lights and sheets in Ramanagara, reflect local needs and priorities. To increase engagement, these programs should be tailored to address specific local challenges and needs.

4.5 Relationship between the personal, socio-economic and psychological characteristics and livelihood security of the tribes

To examine the relationship between the variables and livelihood security of the tribes, the correlation coefficient (r) was calculated, with the results shown in Table 14. The statistical significance of these correlation coefficients (r) was then tested.

The study revealed that several factors significantly influenced livelihood security among tribes, while others had no significant relationship. Factors like education, annual income, occupational status, social participation, economic orientation, mass media exposure, level of aspiration, extension participation, and cosmopoliteness showed significant positive relationships with livelihood security. In contrast, age, gender, family type, family size, landholding, farming experience, and fatalism had no significant relationship. Among the significant factors, annual income, occupational status, social participation, mass media exposure, and economic orientation had strong positive impacts at a one per cent level, while education and level of aspiration were significant at a five per cent level. Fatalism, though non-significant, showed a slight negative relationship.

The significant positive relationships of education, annual income, and economic orientation with livelihood security highlight the importance of knowledge, financial stability, and proactive engagement in economic activities. Education equips individuals with awareness of government schemes, health services, and income opportunities, empowering them to enhance their livelihood security. Annual income directly influences access to essential services, better housing, and healthcare, significantly improving livelihood outcomes. Economic orientation fosters diversification of income sources and utilization of available opportunities, contributing to better security. This research validates the findings presented Ramya (2016)

Occupational status, social participation, and mass media exposure were also key contributors. Stable jobs with better pay and benefits improve overall security, while social participation provides access to resources, information, and community support systems. Mass media exposure facilitates awareness about government programs, health services, and other beneficial opportunities.

Table 14 : Relationship between the selected independent variables and livelihood security of the tribes

(n = 120)

Sl. No.	Independent variables	Correlation coefficient ('r' Value)		
		Magadi	**Ramanagara**	**Pooled**
1	Age	0.015^{NS}	0.050^{NS}	0.018^{NS}
2	Gender	0.095^{NS}	0.075^{NS}	0.084^{NS}
3	Education	0.250^{*}	0.210^{*}	0.223^{*}
4	Family type	-0.054^{NS}	0.080^{NS}	-0.062^{NS}
5	Family size	0.110^{NS}	0.095^{NS}	0.107^{NS}
6	Annual income	0.753^{**}	0.880^{**}	0.842^{**}
7	Land holding	0.085^{NS}	0.110^{NS}	0.092^{NS}
8	Farming experience	0.054^{NS}	0.070^{NS}	0.082^{NS}
9	Occupational status	0.514^{**}	0.570^{**}	0.556^{**}
10	Social participation	0.548^{**}	0.610^{**}	0.596^{**}
11	Economic orientation	0.314^{*}	0.380^{*}	0.351^{**}
12	Mass media exposure	0.597^{**}	0.640^{**}	0.663^{**}
13	Level of aspiration	0.351^{*}	0.395^{*}	0.385^{**}
14	Extension participation	0.527^{**}	0.510^{**}	0.496^{**}
15	Cosmopoliteness	0.563^{**}	0.580^{**}	0.547^{**}
16	Fatalism	-0.106^{NS}	0.125^{NS}	-0.115^{NS}

NS - Non significant * Significant at 5% level ** Significant at 1% level

The non-significant relationships of age, gender, family type, and family size indicate that these personal and household factors may not independently influence livelihood security. For instance, age and gender do not appear to affect the tribes' security as challenges and opportunities are shared across all groups. Similarly, family structure and size may not directly determine livelihood outcomes but could influence resource-sharing and responsibilities within households.

Landholding and farming experience also showed no significant impact, likely because the tribes rely more on wage labor or government support than agriculture for livelihood security. Fatalism's lack of significance suggests that economic and social engagement play a larger role in shaping livelihood outcomes than belief systems or outlooks. These findings underscore the need to focus on enhancing education, income opportunities, and access to information while addressing systemic challenges to ensure sustainable livelihood security for tribal communities.

4.7.1 Problems as perceived by the tribes

4.6.1.1 Agricultural constraints

Table 15 shows that being unaware of livestock subsidy procedures for cattle, sheep, and goats due to lengthy processes was ranked first, with the highest mean scores in both Magadi 1.73 and Ramanagara 1.53. This indicates that the complexity and time-consuming nature of the subsidy application process are significant barriers for the tribes in both taluks. Such challenges may lead to lower participation and hinder the effective utilization of available subsidies for livestock, which could otherwise support their livelihoods.Landlessness was ranked second, with mean scores of 1.13 in Magadi and 1.36 in Ramanagara.

The inability to obtain land for lease for agriculture was ranked third, with mean scores of 1.10 in Magadi and 0.96 in Ramanagara. Unpredictable weather patterns that negatively impact farming were ranked fourth, with mean scores of 0.78 in Magadi and 0.38 in Ramanagara. Small landholdings were ranked fifth, with mean scores of 0.50 in Magadi and 0.13 in Ramanagara. Finally, exploitation by landlords by way of giving meager labor charges was ranked sixth, with the lowest mean scores of 0.01 in Magadi and

0.03 in Ramanagara.

The discussion highlights several critical agricultural constraints faced by tribes. Unawareness of livestock subsidy procedures due to lengthy processes is a significant barrier, indicating the need for simplified and transparent processes to ensure accessibility. Landlessness remains a major challenge, reflecting the lack of ownership and security in agricultural livelihoods, which affects economic stability. Difficulty in obtaining land for lease further limits agricultural opportunities, suggesting systemic barriers that need to be addressed. Unpredictable weather patterns exacerbate farming challenges, highlighting the need for climate-resilient practices and support systems. Small landholdings present limitations for those engaged in agriculture, as the scale of operations often hinders sustainability. Exploitation by landlords, though less prominent, continues to indicate inequitable labor practices, calling for measures to safeguard tribal workers' rights and improve their socio-economic conditions. The results align closely with Narayani *et al.* (2009).

4.6.1.2 Technical constraints

The results from Table 15 reveal key technical constraints faced by the tribes. Lack of effective extension networking was the top-ranked constraint in Ramanagara (1.00) and overall (0.98), emphasizing the need for better outreach and support systems to enhance tribal livelihoods. In Magadi, stringent laws, acts, rules, and regulations related to the collection of non-timber forest products (NTFP) emerged as the most pressing issue (1.03), reflecting challenges in accessing and utilizing forest resources sustainably. Additionally, the lack of skills for employment beyond labor was a significant constraint in both taluks, ranked second in Ramanagara (0.56) and third in Magadi (0.73), highlighting the necessity for skill development programs tailored to tribal needs.

The discussion highlights critical technical constraints affecting the tribal communities in the study areas. Strikingly, stringent laws and regulations related to non-timber forest product (NTFP) collection emerged as a significant barrier, particularly in Magadi. These legal restrictions may hinder tribes from effectively utilizing forest resources, which are integral to their livelihoods. Meanwhile, the lack of effective

extension networking in Ramanagara underscores the inadequate access to agricultural and allied advisory services, which are essential for informed decision-making and skill enhancement.

The absence of skills for employment beyond labor further limits livelihood diversification, reinforcing the dependency on low-paying, unskilled jobs. Addressing these constraints through inclusive policies, skill development programs, and robust extension services is essential for improving the socio-economic conditions of these communities. The results align closely with Ramya (2016).

4.6.1.3 Economic constraints

From Table 15, the results reveal the ranked economic constraints observed among the tribes in the study areas. The irregular availability of wage employment ranked first as the most pressing issue, with severe impacts across both Magadi (1.76) and Ramanagara (1.83). Ranked second was the lack of housing infrastructure, highlighting inadequate living conditions in Magadi (1.08) and Ramanagara (1.36). Unorganized functioning of MGNREGA was ranked third, though its impact was relatively lower in Ramanagara (0.06) and Magadi (0.13). Ranked fourth was the exploitation by moneylenders, followed by insecurity to family members due to migration, which ranked. These rankings emphasize the need for addressing the primary economic challenges to enhance the livelihood security of tribal communities.

The results indicate that irregular availability of wage employment is the most significant economic constraint faced by the tribes in both regions. This reflects the inconsistent access to stable income, which deeply impacts their livelihood security. The lack of housing infrastructure is also a major constraint, affecting the living conditions of tribal families and highlighting the need for better housing facilities and programs.

The unorganized functioning of MGNREGA is a significant issue, preventing the full potential of the scheme from being realized. This points to the need for better organization and management of the program. Furthermore, insecurity due to migration and exploitation by moneylenders exacerbate the vulnerability of the tribes, contributing to economic instability and suggesting the importance of policies to safeguard families and

regulate informal lending practices. These findings underscore the need for strategic interventions to address these economic barriers. The results align closely with Ulman (2010) and Zagade *et al.* (2022).

.6.1.4 Social constraints

According to Table 15, the analysis identifies the key social constraints experienced by tribes in Magadi and Ramanagara taluks. In Ramanagara, the lack of proper community sanitation infrastructure ranked first with a mean score of 0.93, reflecting its significant impact on health and living conditions. Similarly, the unavailability of land revenue certificates for residential land ranked first in both taluks with a mean score of 0.93 in Ramanagara and 0.61 in Magadi, highlighting difficulties in securing land rights. The lack of a government school facility ranked second with a mean score of 0.33 in Magadi and 0.03 in Ramanagara, indicating limited access to education for tribal children. The electricity problem, ranked fifth with a mean score of 0.09 in Magadi and 0.13 in Ramanagara, although a lower priority, still affects basic living standards. Lastly, the lack of land for a graveyard, ranked fourth with a mean score of 0.01 in Magadi and 0.33 in Ramanagara, though less significant, affects tribal cultural and social practices. These findings emphasize sanitation, education, and land rights as the most pressing social constraints for the tribes.

The social constraints faced by tribes in both Magadi and Ramanagara taluks highlight several challenges that significantly impact their livelihood and quality of life. In Ramanagara, the lack of proper community sanitation infrastructure stands out as a critical issue, reflecting how inadequate sanitation facilities contribute to poor health outcomes and lower living standards. Similarly, the unavailability of land revenue certificates for residential land emerges as a major concern in both taluks, as it hinders the tribes' ability to secure legal ownership of land, which is essential for stability and long-term development.

The lack of a government school facility is another important issue, particularly in Magadi, where limited access to formal education restricts opportunities for tribal children, thereby perpetuating cycles of poverty and limiting future prospects. Although the

Table 15: Problems as perceived by the tribes with respect to their livelihood security.

(n=120)

Sl. No.	Problems	Magadi (n_1=60)		Ramanagara (n_2=60)		Total (n=120)	
		Mean score	Rank	Mean score	Rank	Mean score	Rank
Agricultural Constraints							
1	Landlessness.	1.13	II	1.36	II	1.25	II
2	Unpredictable weather patterns that negatively impact farming.	0.78	IV	0.38	IV	0.58	IV
3	Exploitation by Landlords by Way of Giving Meager Labor charges	0.01	VI	0.03	VI	0.02	VI
4	Cannot obtain land for lease for agriculture.	1.10	III	0.96	III	1.03	III
5	Small landholdings	0.50	V	0.13	V	0.31	V
6	Unaware of livestock subsidy procedures for cattle, sheep,and goats due to lengthy processes.	1.73	I	1.53	I	1.63	I
Technical Constraints							
1	Stringent Laws, Acts, Rules, and Regulations Pertaining to NTFP Collection.	1.03	I	0.10	III	0.56	III
2	Lack of Effective Extension Networking.	0.96	II	1.00	I	0.98	I
3	Lack of skills for employment beyond labor.	0.73	III	0.56	II	0.64	II
Economical Constraints							
1	Irregular Availability of Wage Employment	1.76	I	1.83	I	1.80	I
2	Lack of housing infrastructure.	1.08	II	1.36	II	1.22	II

3	Unorganized Functioning of MGNREGA	0.13	III	0.06	III	0.09	III
4	Insecurity to Family Members Due to Migration	0.01	V	0.01	V	0.01	V
5	Exploitation by Moneylenders	0.03	IV	0.06	III	0.05	IV
Social Constraints							
1	Not treated equally in the community.	0.26	III	0.40	III	0.33	III
2	Lack of proper community sanitation infrastructure.	0.03	VI	0.93	I	0.48	II
3	Lack of government school facility.	0.33	I	0.03	VI	0.48	IV
4	Electricity Problem.	0.09	V	0.13	V	0.09	VI
5	Unavailability of Land Revenue Certificate for Residential Land.	0.61	II	0.93	I	0.61	I
6	lack of land for a graveyard affects the tribes' cultural and social practices.	0.01	IV	0.33	IV	0.17	IV

electricity problem is a less pressing issue, it still poses a challenge in both taluks, as inconsistent access to electricity can hinder daily activities, including economic work, education, and general development.

Finally, the lack of land for a graveyard in some areas affects the tribes' ability to maintain cultural and social practices, which is crucial for their identity and social cohesion. Addressing these social constraints is vital for improving the overall livelihood and well-being of the tribal communities in both taluks.

4.7.2 Suggestions to overcome the problems

The results from Table 16 indicate that the most significant suggestions for improving livelihood security in both Magadi and Ramanagara taluks are centered around land allocation and streamlining livestock subsidy processes. Facilitate land allocation and redistribution programs for landless tribes was ranked second in Magadi, with mean scores

of 1.13 and 1.56 in Ramanagara, underlining the importance of addressing landlessness as a major constraint. Additionally, conduct awareness programs and simplify livestock subsidy application processes was ranked first in Magadi with mean scores of 1.63 and 1.53 in Ramanagara. This highlights the need for better awareness and easier access to livestock-related support, which is crucial for improving the tribes' livelihoods.

Strengthening wage employment avenues emerged as the top priority in Ramanagara with the mean score 1.83 and 0.96 in Magadi. This indicates a strong recognition of the need to create more stable and accessible employment opportunities beyond agriculture for tribes. Similarly, strengthening extension networks through mobile units and local centers was ranked fifth in both taluks, with mean scores of 0.96 in Magadi and 1.00 in Ramanagara, suggesting that improving access to agricultural and livelihood-related information is considered an essential intervention to support the tribes.

Housing and infrastructure also emerged as key concerns. Implementing tribal housing schemes effectively was ranked third in Magadi with mean scores of 1.08 in Magadi and 1.36 in Ramanagara, reflecting a shared need for improving housing conditions. Lastly, while relaxing NTFP collection regulations and involving tribes in rule-making was a priority in Magadi ranked fourth with a mean score of 1.03, it was ranked thirteenth in Ramanagara with a mean score of 0.56, indicating a relatively lower priority for this issue in Ramanagara compared to Magadi. The results emphasize the importance of land allocation and improving access to livestock subsidies as key measures to enhance the livelihood security of tribes in both Magadi and Ramanagara taluks. The tribes in both areas have shown a significant need for land redistribution programs, suggesting that addressing landlessness could greatly improve their economic stability and overall livelihood.

Similarly, simplifying the livestock subsidy procedures and improving access to such schemes were seen as essential, highlighting the critical role that livestock plays in sustaining the tribes' livelihoods. Furthermore, strengthening wage employment opportunities was highlighted as a key suggestion in both taluks, underscoring the need for reliable income sources beyond agriculture, which can offer greater financial security to tribes.

Table 16: Suggestions given by tribes to overcome their problems.

(n=120)

Sl. No.	Suggestions	Magadi (n_1=60)		Ramanagara (n_2=60)		Total (n=120)	
		Mean score	Rank	Mean score	Rank	Mean score	Rank
1	Facilitate land allocation and redistribution programs for landless tribes	1.13	II	1.56	I	1.35	III
2	Educate tribes on labor rights and encourage formation of worker cooperatives.	0.01	XVI	0.03	XVI	0.02	XVII
3	Conduct awareness programs and simplify livestock subsidy application processes.	1.73	I	1.53	III	1.63	II
4	Relax NTFP collection regulations and involve tribes in rule-making.	1.03	IV	0.10	XIII	0.56	VIII
5	Strengthen extension networks through mobile units and local centers.	0.96	V	1.00	V	0.98	V
6	Provide skill-development training tailored to non-agricultural employment.	0.73	VII	0.56	VIII	0.64	VI
7	Strengthening of wage employment avenues	0.96	V	1.83	I	1.80	I
8	Implement tribal housing schemes effectively by identifying genuine beneficiaries transparently.	1.08	III	1.36	IV	1.22	IV
9	Improve road connectivity with targeted transport infrastructure projects.	0.23	XI	0.33	X	0.28	XI
10	Oversee MGNREGA functioning with better transparency and grievance redressal.	0.13	XII	0.06	XIV	0.09	XIV
11	Educate tribes about existing options for accessing low-	0.05	XIII	0.06	XIV	0.05	XVI

	interest loans to reduce reliance on moneylenders.						
12	Conduct sensitization campaigns to promote social equality and reduce discrimination.	0.26	X	0.40	IX	0.33	X
13	Build sanitation facilities and promote hygiene through community programs.	0.03	XV	0.93	VI	0.47	IX
14	Establish government schools in underserved tribal areas.	0.33	VIII	0.03	XVI	0.18	XII
15	Expand electricity coverage with solar and alternative energy solutions.	0.05	XIII	0.13	XII	0.09	XIV
16	Allocate land for a graveyard to preserve the Iruliga tribes' dignity and culture.	0.01	XVI	0.33	X	0.16	XIII
17	Issue revenue certificates to ensure the Iruliga tribes' access to essential rights and services.	0.30	IX	0.93	VI	0.61	VII

Infrastructure improvements, such as better housing and stronger extension services, were also emphasized. Both taluks recognized that better living conditions and improved access to agricultural knowledge and services are vital for enhancing livelihood security. Additionally, there was a shared recognition of the need to relax NTFP collection regulations, although this was seen as a secondary priority compared to issues like housing and employment. These findings reflect that while both taluks face common challenges, local contexts may influence the perceived urgency of addressing certain issues, such as the emphasis on housing and employment in Ramanagara compared to other areas. This research validates the findings presented in Awais *et al*. (2009).

4.7 To document case studies of tribal livelihoods

4.7.1 Case Study: Lakshmi Savayava Krushikara Sangha, Joddagata, Magadi Taluk

The Lakshmi Savayava Krushikara Sangha, an all-women Self-Help Group (SHG) located in Joddagata near Savandurga Hill in Magadi Taluk, stands as a beacon of

rural empowerment through tamarind processing. Initially formed to foster mutual support among its members, this SHG has evolved into a transformative model showcasing how collective efforts and strategic interventions can uplift livelihoods.

Before joining the group, the women worked as agricultural laborers, earning meager wages of approximately ₹300 per day through strenuous field labor. Motivated by the need for sustainable income opportunities, they transitioned into tamarind processing, a shift facilitated by supportive government schemes. This endeavor not only provided them with a steady source of income but also empowered them to redefine their socio-economic standing in the community.

The Lakshmi Savayava Krushikara Sangha ensures that tamarind sourcing is carried out legally from nearby forests, adhering to forest regulations and promoting sustainable practices. The tamarind undergoes processing using machinery to remove seeds, after which it is cleaned, processed, and packaged for sale. A significant factor in their success has been the intervention of the Pradhan Mantri Van Dhan Vikas Yojana, in collaboration with the Karnataka State Government's Sanjeevini program for rural development. These initiatives provided the SHG with critical support and resources to enhance their operations. The group conducts its activities at the Sanjeevini Bhavan facility, a dedicated center for rural development. Additionally, in 2024, the women received one-day training at the University of Agricultural Sciences (UAS), GKVK, Bengaluru, where they acquired essential skills to operate machinery and manage tamarind processing efficiently. This comprehensive approach has significantly contributed to the group's operational success and sustainability.

Sangha provides its 20–25 members, led by Chikbargamma, with sustainable livelihoods, enabling them to earn ₹400 per day during the 3–4 month tamarind processing season. Supported by government-managed marketing, the SHG ensures consistent sales of its processed tamarind products, securing economic stability for its members. Government support through central and state schemes provided essential infrastructure and market linkages. Training in tamarind processing and machine operations enhanced productivity. Strong leadership by Chikbargamma and teamwork among members created a cohesive and efficient group.

In nearby villages, tamarind is also abundant in forests, but women face challenges in marketing and processing due to the lack of organized efforts and resources. This Comparison with Other Villages highlights the pivotal role of interventions like the Van Dhan Vikas Yojana and Sanjeevini program in the success of the Lakshmi Savayava Krushikara Sangha.

However, the group faces Challenges such as seasonal employment and reliance on government-managed marketing. Diversifying activities could enhance long-term sustainability.

In Conclusion, the Lakshmi Savayava Krushikara Sangha demonstrates how strategic interventions and grassroots initiatives can transform rural livelihoods. Their success emphasizes the importance of skill development, infrastructure support, and collaborative governance in empowering women and driving economic growth in tribal and rural communities.

4.7.2 Siddraju – A Transformative Journey from Wage Labor to Successful Farming and Sericulture

Siddraju, a 34-year-old farmer from Jenkalpalya with 15 years of farming experience, owns 2 acres of irrigated land. Having completed his Pre-University Course (PUC), he initially cultivated ragi and other field crops while supplementing his income as a wage laborer in both agricultural and non-agricultural sectors, earning around ₹1 lakh annually. His livelihood transformed with government support. The Ganga Kalyani Yojana enabled the installation of a borewell, improving irrigation efficiency, while the Pashu Bhagya Scheme provided him with a dairy cow, diversifying his income sources. Siddraju also benefits from agricultural subsidies and actively participates in training programs on silkworm rearing and livestock management, further enhancing his farming activities and income potential.

The installation of a borewell enabled Siddraju to transition from traditional farming to silkworm rearing, a shift supported by the training he received. Alongside silkworm rearing, he collects NTFPs from nearby forests, applying his deep understanding of forest resources, and engages in basket-making, a traditional craft that supplements his

income. His diverse activities, coupled with active participation in government schemes and agricultural support programs, highlight his adaptability and entrepreneurial drive.

Through effective risk management and financial planning, Siddraju has steadily increased his income, expanded his livestock by adding dairy cows, and scaled up his silkworm rearing operations, setting an inspiring example for his community.

Today, Siddraju's annual earnings have increased to ₹2.5 lakh. He has built a new house and is regarded as a local leader who actively addresses the concerns of his community members, many of whom share his background and challenges. His success has not only improved his own financial status but has also inspired others in his village to pursue similar paths.

Siddraju stands out in his tribal community for several reasons. His education, having completed his PUC, has equipped him with the knowledge to embrace and implement modern farming techniques. He is deeply involved in his community, where he actively addresses local issues and has earned a reputation as a respected leader and advisor.

His engagement with government training programs, particularly in silkworm rearing and livestock management, has enabled him to adopt innovative practices that set him apart from his peers.

Siddraju's journey serves as a powerful example of how education, government support, and skill development can significantly improve the livelihoods of rural individuals. Through dedication, strategic decision-making, and active participation in government schemes, he has not only transformed his own life but has also become an inspiring figure in his community. His success demonstrates that with access to the right resources and knowledge, even small scale tribal farmers can achieve remarkable progress and contribute to the broader development of their communities.

Implications and recommendations from the study:

The findings of the present investigation have brought into focus the following implications for consideration in designing a road map for improving the livelihood security of the Iruliga tribes.

1. The distribution of livelihood security among the Iruliga tribes shows that nearly four-fifths of respondents fall under medium livelihood security, while a significant proportion in Ramanagara, nearly one-half, experience low livelihood security. This underscores the need for targeted interventions by government agencies, NGOs, state departments, KVKs, and other organizations to address the disparity between the two areas. Strategic efforts to enhance income-generating opportunities, improve access to resources, and raise awareness about available support services could effectively uplift those in lower security categories, thereby promoting greater overall livelihood stability.

2. The study highlights the need for personalized interventions from KVKs, NGOs, Gram Panchayats, Tribal Welfare, and other organizations. KVKs should focus on skill training in sustainable agriculture, while NGOs can empower communities through education and health initiatives. Gram Panchayats must ensure equitable access to welfare schemes and basic amenities. Tribal Welfare Departments and other organizations should prioritize vocational training, market linkages, and entrepreneurship to enhance livelihoods.

3. The significant number of respondents reporting low levels of health, occupational, financial, asset, transportation, social and informational security highlights the need for targeted interventions. Efforts should focus on improving access to basic health services, diversifying livelihoods, ensuring financial inclusion, and enhancing transportation infrastructure. Strengthening social and informational support through awareness programs and community-led initiatives can address these gaps and improve overall security for the Iruliga tribes.

4. Habitat security remains a critical concern, with one-third of respondents living in thatched houses, over half relying on firewood for cooking, and nearly three-fourths

lacking access to latrines. Addressing these issues requires interventions such as providing support for constructing durable housing, building individual washroom facilities, and developing community sanitation infrastructure. Renovating existing facilities to meet hygiene and safety standards can also significantly enhance living conditions for the community.

5. A significant portion of the population in Magadi and Ramanagara faces challenges with savings and assets, with many having outstanding debts. Around four-fifths in Magadi and half in Ramanagara have limited savings. This highlights unstable financial security and limited ability to save for future needs. Improving financial literacy and access to credit and savings programs could strengthen financial stability in these communities.

6. Agricultural labor is the most common livelihood in both Magadi and Ramanagara, with nearly all respondents relying on it, exposing them to income instability. Some respondents combine agricultural labor with wage work and livestock, but non-agricultural labor remains secondary, especially in Ramanagara. These findings highlight the need for skill development programs to diversify livelihoods. Training in carpentry, tailoring, plumbing, electrical work, hospitality, retail, or digital literacy can offer alternative income sources and formal job opportunities. Collaborating with local institutions or government programs to provide workshops or apprenticeships can help individuals transition to more stable, non-agricultural sectors.

7. The findings indicate a significant gap in both awareness and utilization of developmental programs among the Iruliga tribes in Magadi and Ramanagara. While programs like formal education for children and safe drinking water are widely known, many others, such as skill-based training and self-employment schemes, are poorly recognized and underutilized. This highlights a need for targeted awareness campaigns to inform the tribes about these programs, particularly in areas of economic development and employment. Barriers such as lack of awareness or support may be hindering their effective use. Support from block-level organizations, Panchayati Raj institutions, and grassroots NGOs, could help reach the unreached and ensure better participation and access to resources.

8. Low utilization of educational facilities, such as hostels and free residential schools, indicates the need for better promotion and support of these schemes to encourage tribal children to pursue education. Additionally, educating the tribes regarding the importance of higher education is crucial, as many children tend to drop out after high school. Raising awareness about the long-term benefits of higher education and providing guidance on available opportunities can motivate families to support their children in continuing their education beyond high school, ensuring better prospects for their future.

Future Line of Research

1. The study was carried out in Ramanagara district of Karnataka. Hence, a comprehensive study with large size sample covering tribes can be taken up for in depth study and for wide application of results.

2. As the study was restricted to two taluks, findings of this study could not be generalized to other regions. Therefore, it is suggested to conduct a similar investigation in other districts of the state in order to generalize the findings.

3. The study has also confined to particular tribal communities of Ramanagara region of Karnataka. It can be helpful to conduct study on all other tribal communities present in India. This will also make it easier to compare the differences in livelihood status among diverse section of tribal population.

4. This study was conducted within the time and resource limitations of a student researcher. However, there is further scope for survey and action research in this field.

Plate 1 : Pictures showing the houses and hamlet of Iruliga tribes

Plate 2: Interaction with the Iruliga tribes in Ramanagara district

SUMMARY

V SUMMARY

Tribes, or indigenous communities, are distinct groups preserving unique identities, cultural heritage, and traditional lifestyles. The Iruliga tribe, from the Dravidian family, means "dark people/darkness" in Kannada, referring to jungle habitats or skin tone. According to the 2011 Census, Karnataka's Iruliga population is 10,259. Found in Ramanagara and Mysore districts, their primary occupations include rat and snake catching, honey collection, and seasonal farm labor.

The salient features of the study are as follows:

1. Regarding the overall distribution of livelihood security among Iruliga tribes, slightly more than two-fifths (41.17 %) were categorized under medium livelihood security, while just above two-fifths (43.33 %) in Ramanagara taluk had medium security and nearly half (45.00 %) in Magadi taluk had medium security.

2. Overall, in terms of food security, nearly half (48.33 %) of respondents had high security. Just over one-half (50.83 %) had medium health security. Occupational security was predominantly medium for more than two-fifths (43.33 %), while habitat security remained low for two-fifths (40.00 %) of respondents. Cultural security was mostly at a medium level for just under one-half (49.17 %), and educational security was high for three-fifths (60.00 %) of respondents. Financial security was categorized as medium for nearly two-thirds (61.67 %), while asset security was low for more than two-fifths (43.33 %). In terms of transportation security, more than one-half (52.50 %) of respondents had low security. Social security was high for nearly one-half (47.50 %), while informational security was mostly at a medium level for just over one-half (56.67 %).

3. Regarding age, the majority were middle-aged (35-55 years), making up nearly half (43.33 %), and for gender, most were male, accounting for slightly more than three-fourths (76.67 %). In terms of education, the majority were illiterate, comprising more than half (54.17 %), while nearly all had nuclear families (98.33 %) for family type. For family size, the majority had medium-sized families (4-5 members), comprising just above four-fifths (81.67 %), and regarding annual income, most had

mediumincome, accounting for nearly half (49.16 %). Concerning landholding, the largest group was landless, making up more than one-third (39.17 %), and in terms of farming experience, most had low experience, comprising two-fifths (40.00 %). Regarding occupational status, the majority had medium status, accounting for more than one- third (39.17 %), and for social participation, most had medium participation, comprising about three-fifths (60.83 %). In terms of economic orientation, the majority had medium orientation, making up more than half (57.50 %), and regarding mass media exposure, most had medium exposure, comprising about two-fifths (44.16 %). For level of aspiration, the majority had medium aspirations, comprising about two- thirds (68.33 %), and for extension participation, the majority had medium participation, making up nearly two-thirds (65.00 %). Finally, regarding cosmopoliteness, most had low cosmopoliteness, accounting for just above one-third (36.67 %), and for fatalism-scientism, the majority had medium fatalism-scientism, comprising about three-fifths (60.84 %).

4. Concerning the available livelihood options, overall the combination of agriculture, wage work, and livestock was the most common livelihood pattern, with nearly one-quarter (22.50 %) of respondents engaged in it. Wage work combined with livestock was also prevalent, involving nearly one-fifth (17.50 %) of respondents, while agriculture combined with wage work accounted for nearly one-tenth (9.17 %). Wage work alone was practiced by more than one-tenth (16.67 %) of respondents, whereas several other combinations, including horticulture with livestock and wage work, government or private jobs, and sericulture with livestock and NTFP, were reported by only a small fraction (1.67 %) of respondents.

5. Pertaining to the proportion of income from various livelihood options, overall agricultural labor emerged as the most significant contributor, accounting for more than one-half (54.62 %) of the total income. The next highest income sources were livestock, contributing just above one-tenth (10.39 %), and agriculture, making up one-tenth (10.03 %). Non-agricultural labor followed, providing nearly more than one-tenth (14.16 %). Other sources, including government or private jobs (3.36 %), collection of NTFPs (2.14 %), and migration activities (1.91 %), contributed smaller proportions. Horticulture (1.00 %), sericulture (2.09 %), and small vending (0.31 %) accounted for only a small fraction of the total income.

6. In connection with the proportion of time spent on livelihood activities overall, agricultural labor was the most dominant activity, with more than three-fifths (62.53 %) of respondents time allocated to it. Livestock followed, with just over one-tenth (11.01 %) of time spent, while non-agricultural labor accounted above one-tenth (11.74 %). Collection of NTFPs took up about one-twentieth (5.00 %) of time, whereas agriculture occupied just under three-tenths (2.92 %). Horticulture (0.15 %), small vending (0.79 %), government or private jobs (3.04 %), migration activities (1.74 %), and sericulture (1.02 %) accounted for only a small fraction of the total time spent on livelihood activities.

7. In relation to the proportion of male and female participation in livelihood options, agriculture had higher male participation (59.56 %) than females (40.44 %). Horticulture and sericulture had equal gender participation (50 %). Livestock work was nearly balanced males (51.60 %) and females (48.40 %). NTFP collection (74.44 %) and non-agricultural labor (91.30 %) were male-dominated. Government jobs (75 %) and migration were primarily male-driven. Small vending had equal participation in some areas but lacked female involvement in others.

8. In connection with the perceived risk in various livelihood options overall, sericulture was perceived as the riskiest livelihood option, with two-thirds (66.67 %) of respondents considering it risky. Non-agricultural labor was also seen as risky by nearly two-thirds (63.12 %) of respondents. Livestock and collection of NTFPs were considered moderately risky, with around two-fifths (39.70 %) and just over one-third (34.31 %) perceiving risk, respectively. Agricultural labor had a similar perception, with about one-third (33.91 %) of respondents considering it risky. Horticulture, small vending, and government or private jobs had relatively low perceived risk, with around one-third (33.33 %) of respondents reporting risk.

9. On the subject of the technical competency across different livelihood options overall, government/semi-government and migration activities had the highest technical competency, with all respondents reporting full competency. Sericulture and small vending followed, with just above seven-eighths (88.89 %) of respondents reporting high competency. Non-agricultural labor ranked next, with a majority (89.36 %) having high technical competency. Agricultural labor and collection of NTFPs had similar levels of competency, with just above four-fifths (83.76 %) and more than four- fifths (84.64 %), respectively. Horticulture

also had about four-fifths (83.33 %) of respondents reporting competency. Agriculture and livestock were the lowest-ranked options, with around three-fourths (76.28 %) and (74.18 %), respectively, reporting technical competency.

10. Regarding awareness of various developmental programs overall, cent percent awareness was observed for programs on education, drinking water, rural infrastructure, health camps, and microcredit. Low awareness was noted for Sarala Vivaha Yojane one-thirtieth,(3.33 %) and Van Dhan Vikas Yojana about one-tenth, (7.50 %). Health schemes varied, with Yashaswini Health Scheme known to more than half (53.33 %) and Suvarna Arogya Scheme having none. The Self Employment Scheme had minimal awareness one-sixtieth, (1.67 %). Agriculture programs like dairy, sheep, and goat rearing had nearly all (93.33 %) aware, while social forestry had none. NGO-led health camps had cent percent awareness, vocational training was known to more than one-fourth (28.33 %), while medicinal plant cultivation and value addition of forest produce had none.

11. Regarding the utilization of developmental programs overall, nearly all (96.67 %) utilized formal education programs, while free residential schools and hostel facilities had low uptake nearly one-tenth, (9.16 %). Safe drinking water had cent percent utilization, whereas Valmiki Bhavanas was used by about one-fifth (17.50 %). Microcredit schemes saw high usage (80.00%), but Van Dhan Vikas Yojana had minimal uptake (3.33 %). Free health camps had nearly full utilization (99.16 %), while Health kits for mothers benefited nearly four-fifths (78.83 %). Suvarna Arogya Scheme saw no use. Employment programs like Skill-based training had very low uptake (2.50 %). Agriculture programs such as Irrigation facilities and Dairy had limited use (3.33 %), while Goat rearing was negligible (0.84 %). NGO-led Health camps hadwidespread use (98.33 %), but Vocational training remained low (11.67 %), and programs on Medicinal plant cultivation and Natural resource conservation were unused.

12. The correlation analysis indicates that Annual income, Mass media exposure, Social participation, Occupational status, Cosmopoliteness, and Extension participation had strong positive relationships with livelihood security (1% significance). Level of aspiration, Economic orientation, and Education showed moderate positive effects

(5% significance). Fatalism had a weak negative relationship, implying lower livelihood security with higher fatalistic attitudes. Age, Gender, Family type, Family size, Land holding, and Farming experience showed no significant influence.

13. The analysis highlights key constraints across sectors based on mean scores. In agriculture, unawareness of livestock subsidy procedures (1.63) ranked highest, followed by landlessness (1.25). Technical challenges included weak extension networking (0.98) and lack of employment skills beyond labor (0.64). Economically, irregular wage employment had the highest mean score (1.80), with inadequate housing infrastructure (1.22) ranking second. Socially, lack of land revenue certificates (0.61) and poor sanitation infrastructure (0.48) were major concerns, emphasizing the need for targeted interventions.

14. The analysis of suggestions, based on mean scores, highlights key measures to improve livelihood security. Strengthening wage employment (1.80) ranked highest, followed by awareness programs and simplified livestock subsidy procedures (1.63). Land allocation for landless tribes (1.35) and transparent tribal housing schemes (1.22) were also major recommendations. Technical solutions included enhancing extension networks (0.98) and providing skill training for non-agricultural jobs (0.64) were emphasized, underscoring the need for targeted interventions.

REFERENCES

VI REFERENCES

ABHIGNA, D., SHIVAKRISHNA, K., MADHU, B. K. AND LAVANYA, T., 2024, Profile characteristics of tribals under the tribal sub plan: A study in Kumuram Bheem Asifabad district. *International Journal of Agriculture Extension and Social Development.,* **7** (10): 92-96.

AMOL, A. N., 2006, A study on indigenous technical knowledge about rice cultivation and bovine health management practices in Konkan region of Maharashtra. *Ph. D. Thesis (Unpub.),* University of Agricultural Sciences, Dharwad, India.

ANAND, R. R., 2007, A study on sustainable livelihoods of lambani farmers in Hyderabad Karnataka. *M. Sc. (Ag.) Thesis (Unpub.),* University of Agricultural Sciences, Dharwad, India.

ANANDA, S. M. AND SAHU, U. N., 2012, A study of socio-economic and entrepreneurial characteristics of tribals of Mayurbhanj district in sabai grass enterprise. *International Journal of Management, IT and Engineering.* **2** (5): 426-438.

ANONYMOUS, 2010b, Integrated tribal development project office report of Mysore and Chamarajanagar districts. GoK.

ANONYMOUS, 2011, Government of India, Census 2011. Available from: http://www.censusindia.gov.in/2011census/population_enumeration.aspx, accessed on May 7, 2014.

ANTARA, D., GOSWAMI, A., MINATI, S. AND MAZUMDER, D., 2009, Study on the effect of socio-economic parameters on health status of the Toto,Santal, Sabar and Lodha tribes of West Bengal, India. *Studies Tribes Tribals*. **7** (1): 31-38.

ARULARASAN, G. S., 2010, A critical analysis of tribal development programmes in Western Ghats of south India. *Ph.D. Thesis (Unpub.),* Univ. Agric. Sci., Bangalore.

AWAIS, M., ALAM, T. AND ASIF, M., 2009, Socio-economic empowerment of tribal women: An Indian Perspective. *International Journal of Rural Studies*. **16** (1): 1-11.

AYYAPPAN, N., 2014, Developing integrated module for effective functioningof tribal women SHG's and their empowerment. *M. Sc. (Ag.) Thesis (Unpub.)*, Agriculture College and Research Institute. Tamil Nadu Agricultural University, Coimbatore.

BANDE, V. V., 2017, Awareness and benefits derived from tribal development schemes by tribal farmers. *M.Sc.(Agri.) Thesis (Unpub.)*, Mahatma Phule Krishi Vidyapeeth, Rahuri.

BANKEY, B., RAJESH, K., KAMTA, P. AND SUNDARAMBAL, P., 2012, Role performance and knowledge level of tribal women farmers in Meghalaya. *Indian Research Journal of Extension Education*. **12** (1): 60-62.

BARELA, H. R., JHA, S. K., RAI, C. K. AND YADAV, R., 2018, Assessment of Livelihood Security of Tribal Farmers: A Case Study from Tribal Area of Madhya Pradesh. *Int. J. Curr. Microbiol. Appl. Sci.*, **7** (3):1135-1141.

BARMAN, S., PATHAK, K. AND PATHAK, P. K., 2013, Training needs of tribal farmers in rapeseed production technology of upper Brahmaputra valley zone of Assam. *Journal of Academia and Industria Research.* **1** (11): 686- 688.

BASHA, K., 2022, Health condition among Iruliga tribe in Karnataka. *Int. J. Novel Res.Devel.,***7**: 2456-4184.

BHARATHAMMA, G. U., 2005, Empowerment of women through income generation activities in Gadag district of Northern Karnataka. *M.Sc. (Ag.) Thesis (Unpub.),* Univ. Agric. Sci., Dharwad.

BHARATHKUMAR, T. P., 2018, An analysis of livelihood status of tribal youth in selected districts of Karnataka. *Ph.D. Thesis (Unpub.),* Univ. Agric. Sci., Bangalore.

BHUVANESWARI, SRI VARA BUDDHA., 2005, Role of farm women in conservation of agro-biodiversity : A multi dimensional analysis. *Ph. D. thesis (Unpub.)*, Tamil

Nadu Agricultural University, Coimbatore.

BINDU, S., 2001, Participation of tribal women in income generating activities in Ranchi district of Bihar. *M. Sc. (Ag.) Thesis (Unpub.)*, Acharya N. G. Ranga Agricultural University, Hyderabad, India.

BISWAS, S., 2022, A study on indigenous food consumption and nutritional outcomes of tribal population of Tripura. *M.Sc. (Agri.) Thesis (Unpub.),* IARI, New Delhi.

CHAMBERS, R. AND CONWAY, G., 1992, Sustainable Rural livelihoods: Practical Concept for the 21st Century. *IDS Discussion Paper No.* 296, Institute of Development Studies, Brighton, UK.

DAS, S., 2014, An overview of school absenteeism among students of the Paniya tribes in Mananthavady panchayath of Wayanad district. *Kerala. J. Madras School of Soc. Work.* **8**(1): 15-32.

DATTA, J., 2013, Sustainability of jhum cultivation as perceived by the tribal people of Tripura and their livelihood status. *M.Sc. (Agri.) Thesis (Unpub.),* Univ. Agric. Sci., Bangalore.

DEEPAK, M., PATNAIK, S. C., DAS, P. J., PARIDA, N. K. AND NEDUNCHEZHIYAN, M., 2010, Integrated farming system for sustainable livelihood: a success story of a tribal farmer. *Orissa Review*. 41-43.

DEEPAK, S. J. AND SINDHU, M. GOWDA., 2017, Analysis of socio economic profile of Hakki- Pikki tribes of Karnataka. *Int. J. Sci. Environ. Technol.,* **6** (4): 2475 – 2481.

DEVARAJAIAH, K., 2010, A study on livelihood diversification of small and marginal farmers in Kolar district of Karnataka. *Ph.D. Thesis (Unpub.),* The School of Agricultural Sciences. Yashwantrao Chavan Maharashtra Open University, Nashik, Maharashtra.

DEVI, L. Y., 2020, Role and participation of women in farm livelihood in reference to selected ethnic tribes of Terai region of West Bengal. *Ph.D Thesis (Unpub.),* Uttar

Banga Krishi Viswavidyalaya, West Bengal.

DEVIKA, S., 2012, Non Wood Forest Products (NWFPs) in improving the livelihood of Tribal women. An explorative study. *M. Sc. (Ag.) Thesis (Unpub.),* AC&RI, TNAU, Coimbatore.

DHANASREE, K., VIJAYABHINANDANA, B. AND PRADEEPKUMAR, P. B., 2014, Socio- economic empowerment of tribal women in high altitude and tribal zone of Andhra Pradesh. *International Journal of Innovative Research in Science, Engineering and Technology*. **3** (2): 9360-9368.

DIPIKA, H. AND SHARMA, J. P., 2010, Socio-psychological correlates of tribal entrepreneurship development. *Indian Research Journal of Extension Education*. **10** (3): 27-31.

GANDHALE, A. A., 2017, Aspirations of rural youth. *M.Sc. (Agri.) Thesis (Unpub.),* VNMKV, Univ. Agric. Sci., Parbhani.

GANDHALE, A. A. AND TEKALE, V. S., 2021, Profile Analysis of Tribal Farmers of Vidarbha Region. *Asian Journal of Agricultural Extension, Economics & Sociology*., **39**(11): 592-602.

GANGADHARAPPA, N. R., DAVID G. ACKER, CHENGAPPA, P. G., GANESAMOORTHI, S. S., KUMAR, SAJEEV, M.V. AND SHEN, D., 2008, Social capital status in two Indian villages and implications for extension. *Journal ofExtension Systems*. **24** (1): 1– 16.

GAUTAM, R. S. AND SHARMA, D., 2012, Market Survey Report, Chhattisgarh State Minor Forest Produce Cooperative. Unpublished data by CGMFP Federation.

GEETHA, K., 2007, Impact of Bharathiya Agro-Industries Foundation (BAIF) programmes on livelihoods of women beneficiaries in North Karnataka, *M.Sc. Thesis (Unpub.),* Univ. Agric. Sci., Dharwad.

GOGGY REDDY, V. K., 2019, Sustainable livelihood of tribal farmers of Nanded District in Maharshtra State. *M.Sc.(Agri.) Thesis (Unpub.),* Vasantrao Naik Marathawada

Krishi Vidyapeeth, Parbhani.

GOMASE, A. S. AND TEKALE, V. S., 2021, Agricultural Aspiration of Rural Youth. *Asian Journal of Agricultural Extension, Economics & Sociology.,* **39**(12): 204-211.

GOPALA, H.S., 2006, Analysis of adoption, productivity and economic performance of groundnut growers. *M.Sc. (Agri) Thesis (Unpub.),* Univ. Agric. Sci., Bangalore.

GOSWAMI. AND PAUL., 2012, Using sustainable livelihoods framework for assessing the impact of extension programmes: An empirical study in the context of joint forest management. *Indian Research Journal Extension Education*, **12** (3): 28 – 36.

HADAGALI, V., 2013, A study on aspirations and participation of rural youth practicing agriculture and allied activities. *M.Sc. (Agri.) Thesis, (Unpub.),* Univ. Agric. Sci., Bangalore.

HARSHITHA, D., 2018, Family farming efficiency and livelihood security of women headed households in Tumakuru district. *Ph.D. Thesis (Unpub.)*, Univ. Agric. Sci., Bangalore.

HIMANSU, K. M., 2014, A study on the impact of CBDA on the livelihoods of tribals of Nuapada district of Odisha. *M.Sc.(Agri.) Thesis (Unpub.)*, Orissa University of Agriculture and Technology Bhubaneswar, Orissa.

INDUMATHY, K., 2013, Impact of development programmes on livelihood security of Tribes. *Ph.D. Thesis (Unpub.),* TNAU, Coimbatore.

JAGANNATH, PATRA. AND SINGH, D. V., 2016, Backyard Poultry Farming, a Suitable Intervention for Tribal People for their Livelihood Support and Nutritional Security. *International Journal of Humanities and Social Science Invention*, **5** (6): 22-26.

JAMATIA, P. BHUSAN., 1999, Participation of tribal women in Agriculture and allied activities in Tripura state. *M.Sc.(Ag.) Thesis (Unpub.),* TNAU, Coimbatore.

JAYAKUMAR, A. AND PALANIYAMMAL, P., 2016, Socio-economic status of scheduled tribes in Kalrayan hills. *Int. J. Res. Granthaalayah.,* **4** (3):22-30.

JYOTHI, E. S., DEEPAK, R., VAIJANATH, B. AND MADHU, B. K., 2023, Socio-Economic Status of Particularly Vulnerable Tribal Groups (Pvtgs) In Karnataka: A Comprehensive Study. *J. Namib. Stud.*, **36** (51): 156-165.

KAILASH, J., 2010, A study on information management behavior of tribalfarmers of Adilabad district in Andhra Pradesh. *M.Sc.(Ag.) Thesis (Unpub.)*, Acharya N. G. Ranga Agricultural University, Hyderabad, India.

KAREINI, K. S., DAYARAM., DEEPA, D. M. AND MIRANDA, W., 2018, Correlates of entrepreneurial behaviour of tribal farmers in Senapati district of Manipur, India. *Int.J.Curr.Microbiol.App.Sci.*, **7**(07): 1673-1678.

KARNA, B., 1999, An evaluative study on Horticultural programme of ITDA, Bhadrachalam in Khammam district of Andhra Pradesh. *M.Sc.(Ag.) Thesis (Unpub.),* Acharya N.G.Ranga Agricultural University. Hyderabad.

KIRAN, S., 2011, A critical study on livelihoods of tribal farmers in Andhra Pradesh. *Ph.D. Thesis (Unpub.)*, The School of Agricultural Science. Yashwantrao Chavan Maharashtra Open University. Nashik, Maharashtra, India.

KOWSALYA, K. S., 2017, Impact of integrated farming system demonstration (IFSD) programme on livelihood and nutritional security of farmers of mandya district. *Ph.D Thesis (Unpub.),* Univ. Agric. Sci., Bangalore.

KRISHNAPRASAD., T., 2005, A study on rural poverty and sustainable livelihood in agrarian sector of Andhra Pradesh. *Ph. D. Thesis (Unpub.),* Acharya N.G. Ranga Agricultural University, Hyderabad.

KUMARI, M. S. PRABHAKAR. AND SASIDHAR, P. V. K., 2003, Impact of self-employment programmes on income generation among tribal women- A case study from Andhra Pradesh. *Journal of Research.,* ANGRAU. **30** (1): 68-73

KUMARI, S., 2008, A study on indigenous technical knowledge of tribal farmers in agriculture of Jharkand state. *M.Sc. (Agri.) Thesis (Unpub.),* Acharya N.G. Ranga Agricultural University. Hyderabad.

KUNJANI, J., RANJU, J. AND JOSHI, A. R., 2011, Indigenous knowledge and uses of medicinal plants in Macchegaun, Nepal. *Indian Journal of Traditional Knowledge.* **10** (2): 281-286.

LADE, A. H., DESHMUKH, A. N., KHODAKE, S. B., SURYVANSHI, V. N. AND DESHMUKH, S. A., 2019, Perception of tribal farmers about front line demonstration. Hind Agricultural Research and Training Institute. **14** (3) 209-213.

LADE, A. H., KALYANI, S. K. AND NEHA, S. P., 2020, Suggestions from the Tribal Farmers for Improvement of Front Line Demonstration Programme Implementation. *Int. J. Curr. Microbiol. App. Sci* 11: 17-19.

LAKSHMI, N. S., 2009, A Study on livelihood security of farmers in Virudhunagar district of Tamil Nadu. *M.Sc.(Agri.) Thesis (Unpub.),* Univ. Agric. Sci., Bangalore.

LAKSHMINARAYANI, S., 2009, A study on livelihood security of farmers in Virudhnagar district of Tamil Nadu. *M. Sc. (Agri.) Thesis (Unpub.),* Univ. Agric. Sci., Bangalore.

LAVANYA, B. T., 2010, Assessment of farming system efficiently in Theni district of Tamil Nadu, *M.Sc. (Agri) Thesis (Unpub.),* Univ. Agric. Sci., Bangalore.

MAHADIK, R. P. AND SAWANT, P. A., 2012, Livelihood security of tribal people in Thane District of Maharashtra. *Rajasthan Journal of Extension Education*., 20: 39-43.

MAHESH, L., 2016, A study on sustainable livelihoods of tribal farmers of Adilabad district of Telangana state. *M.Sc. (Agri) Thesis (Unpub.),* Prof. Jayashankar Telangana State Agricultural University, Hyderabad.

MALIK, M.S., 2007, Socio-economic upliftment of tribal communities in Jharkand through Agroforestry based farming system. Publication division, Ministry of

Information and Broadcasting, Government of India, New Delhi.

MALIK, N., 2010, Establishing dialogue with farm women of Uttarakhand hills: A communication strategy. *Journal of Communication Studies.* 27.

MANDAL, J. AND SENGUPTA, P., 2016, Socio-Economic Status of Tribe: A Case Study of Porobusty, Alipurduar, West Bengal. *Imperial Journal of Interdisciplinary Research*, **2** (5), 536-541.

MANJUNATHA, B. R., AND GANGADHAR, M. R., 2018, Socio-Economic Status of the Jenukuruba Tribal Women: A Case Study from the Chamarajanagara District, Karnataka. *Antrocom J. of Anthropology.,* **14**(1):129- 137.

MARBANIANG, E. K., MANJUNATH, L., YADAV, V. S., SADAQATH, S. AND NATIKAR, K. V., 2011, Association between socio-economic profile characteristics of Tibetan rehabilitants and their problems. *Advance Research Journalof Social Science*. **2** (1): 96-100.

MARBANIANG, E., 2010, Livelihood activities of Tibetan rehabilitants of Mundgod - A socio-economic analysis. *M.Sc.(Ag.) Thesis (Unpub.),* University ofAgricultural Sciences, Dharwad.

MARBANIANG, E. K., MANJUNATH, L., ANGADI, J. G. AND BANAKAR, B., 2013, Demographic characteristics of Tibetan rehabilitants and their livelihood activities. *Karnataka Journal of Agricultural Sciences*., **26** (2): 247-250.

MARCUS, B., 2013, The impact of new agricultural technology on Tribal farming: A study of Ranchi district of Jharkhand State. *Journal of Economic & Social Development*., **9** (1): 121-131.

MAREESWARAN, P., 2014, A holistic study on tribal people of Sathuragiri hills in Tamilnadu. *M.Sc. (Agri.) Thesis (Unpub.)*, Agriculture College and Research Institute. Tamil Nadu Agricultural University, Coimbatore.

MAREESWARAN, P., JANSIRANI, R., ASOKHAN, M., MANI, K. AND DURAISAMY, M. R., 2017, Participation of Tribal Women in the Developmental

Programmes for their Livelihood Security. *Int. J. Curr. Microbiol. App. Sci.,* **6** (5): 2181-2185

MARIMUTHU, P., 2001, Indigenous Tribal Wisdom for Rural Development : A Multi-dimensional Analysis. *Ph.D. Thesis (Unpub.),* TNAU, Coimbatore.

MEENA, G. L. AND PUNJABI, N.K., 2012, Farmer's perception towards agriculture technology in tribal region of Rajasthan. *Rajasthan Journal of Extension Education*., 20: 92-96.

MEENA, H. R. AND FULZELE, R. M., 2008, Scale for measuring economic motivation. *Indian Research Journal of Extension Education*. **8** (2 & 3): 22 – 28

MISHRA, J., PATIDAR, N. AND MAHAJAN, M. K., 2012, Sustaining livelihoods of tribal communities through NRM based interventions: The AKRSP (India)'s Experience of MGNREGS in Madhya Pradesh, Aga Khan Rural Support Programme (India), Ahmedabad, Gujarat.

MOHANTA, R., 2014, To study participation of tribal women in agriculture in Mayurbhanj district of Odisha. *M.Sc. (Agri.) thesis (Unpub.),* Orissa University of Agriculture and technology, Bhubaneswar, Odisha.

MOHANTY, A.K., LEPCH, B. AND ASHOK KUMAR, 2013, Constraints analysis in adoption of vegetable production technologies for livelihood perspective of tribal farmers in North Sikkim. *Indian Res. J. Extn. Edn.,* **13** (2): 51 –56.

MOOVENTHAN, P., KADIAN, K. S., SENTHILKUMAR, R. AND KARPAGAM, C., 2015, Socio-Economic Profiling of tribal dairy farmers in Northern hills zone of Chhattisgarh. *J. Ext. Educ.*, **27**(3):5517-5523.

NAIK, G. R. AND REDDY, D. C., 2014., Impact of tribal welfare and developmental programmes: A study in Anantapuramu district of Andhra Pradesh. *Paripexhid. J. Res.* **3**(7): 219-222.

NARAYANI, S., ANAND, T. N., GOWDA, K. AND SHIVAMURTHY, M., 2011, Study on livelihood security of farmers in Virudhunagar district of Tamil Nadu. *Mysore*

Journal of Agricultural Sciences. **45** (1): 111 - 116.

NARESH, J. AND PALLAVI, S., 2009, Women take control of their food security and sovereignty. *Leisa India News Letter*.21-23.

NARESH, K., 2017, A study on Health status and Perception of Illness among Irulas-Tribal people of Nilgiri District Tamilnadu. *Imp. J. Interdiscip. Res.* **3**(3):1208-1362.

NISHA, R., 2013, Participation of tribal women in developmental programmes- A socio cultural Analysis. *M.Sc.(Ag.) Thesis (Unpub.)*, Agriculture College and Research Institute, Tamil Nadu Agricultural University, Coimbatore.

Oxford English Dictionary, IX, 1933, p. 339, as cited in Fried, 1975, p. 7.

PAINKRA, S. K, DEV, C. M. AND MANDAL, B. K., 2010, Information sources of tribal rice growers of Bastar district of Chattisgarh. *Journal of Communication Sciences.* **28**: 135-139.

PARIDA, B., 2015, Santal and their agricultural practices: Continuity and change. *International Journal of Applied Research*, **1**(11): 331-335.

PATEL, M. R., ARUN, P. AND PATEL, P. P., 2015, Constraints faced by the tribal farm women in agricultural and animal husbandry activities. *Guj. J. Ext. Edu.,* **26** (1): 108-111.

PATTAMAJHI, A. AND SUDHAKAR, PATRA., 2023, Impact of Tribal Sub-Plan on Economic Development of Tribes: A Study of Gajapati District. *Int J Multidiscip Res.*, **9**(5):55-62.

PAVITHRA, V., 2019, A critical analysis of social capital among tribal women in Heggadadevanakote taluk of Mysuru district. *M.Sc. (Agri.) Thesis (Unpub.)*, Univ. Agric. Sci., Bangalore.

POOJA KRISHNA, J., 2017, Social discrimination of tribal agricultural labourers in Wayanad district: A critical gender analysis. *M.Sc (Agri.) Thesis (Unpub.),* Kerala

Agricultural University, Thrissur.

PRADEEP, M. D. AND KALICHARAN, M. L., 2016, A study on life style of Jenu Kuruba tribes working as unorganised labourers. *Adelaide J. Soc. Work*, **3**(1): 79-91.

PRAJAPATI, M. R. AND BHATT, M. R., 2013, Attitude of dairy farm women in dairy farming practices. *Guj. J. Ext. Edu.,* **24**: 39-41.

PRAJAPATI, M., SOLANKI, K. D., RAKESH, P. AND RAKESH, D., 2011, Effect of agricultural modernization on sustainable livelihood among the Tribal and Non-Tribal farmers. *Guj. J. Ext. Edu.,* **22**: 63-67.

PRAJAPATI, V.V., DHARA, M. P. AND PATEL, B. K., 2015, Training needs of tribal farmers in agriculture. *Guj. J. Ext. Edu.,* **26** (1):112-115.

PRASHANTHI, A. AND GEETHA, R. R., 2022, Livelihood Security of An Isolated Gothi Koya Tribe in Telangana State. *Indian Res. J. Ext. Edu.,* **22**(1): 1-7.

PULLA, RAO, D., 2014, Socio-Economic Status of Scheduled Tribes in Visakhapatnam District of Andhra Pradesh. *Journal of Social Welfare and Management.,* **6** (4):189-190.

RADHAKRISHNAN, P. AND ARUNACHALAM, R., 2019, Aspirations of Rural Youth in Indian Agriculture – An Overview. *Indian j. ext. educ.,* **55**(4): 211-214.

RAI, A., SHARMA, S. D., SAHOO, P. M. AND MALHOTRA, P. K., 2008, Development of livelihood index for different agro-climatic zones of India. *Agricultural Economics Research Review*. **21** :173-182.

RAJASEKARAN, R., 2013, Participation in Tamil Nadu Afforestration Project –A Beneficiary analysis. *M.Sc. (Agri.) Thesis (Unpub.),* TNAU, Coimbatore.

RAMASAMY, Ph.D., 2012, Study on the influence of climate change and socio-economic factors on the livelihood of farmers in tank command area. *Ph.D. Thesis (Unpub.)*, Tamil Nadu Agric. Univ., Coimbatore.

RAMBABU, P., 1997, Indigenous technologies in cropping system- An analytical study in

Guntur district of Andhra Pradesh. *Ph.D. Thesis (Unpub.),* Acharya N.G. Ranga Agricultural University, Hyderabad.

RAMYA, H. R., 2016, Livelihood analysis of tribal farmers in high altitude tribal zone of Karnataka state. *M.Sc.(Agri.) Thesis (Unpub.)*, Acharya N. G. Ranga Agricultural University, Guntur.

RANI, A. AND RAMPAL, V. K., 2015, Aspiration of Rural Youth from Farming Families in Ludhiana District of Punjab. *Research journal of Agricultural Sciences,* **6**:1543-1548.

RANJAY, K. S., DWIVEDI, B. S. AND RAJESH, T., 2010, Learning and testing the farmers' knowledge: Conservation of location specific indigenous paddy varieties. *Indian Journal of Traditional knowledge.* **9** (2): 361- 365.

Rao, D.K.1996. An analytical study on participation of Chenchu tribals in their agriculture. *M.Sc. (Ag.) Thesis*, Andhra Pradesh, Agricultural University, Hyderabad.

RAO, I. S. AND VENKATASWAMY, D., 2009, Assessment of team performance as perceived by tribal farmers in cashew orchard development program in India. *Proceedings at 22nd Annual Conference*. Clearwater Beach, Florida. 547-554.

RAO, K. R., 1988, An experimental study on the impact of training programmes conducted by KVK on tribal farmers of Vizianagaram district of Andhra Pradesh, *M.Sc. (Agri.) Thesis (Unpub.),* Andhra Pradesh Agricultural University, Hyderabad.

RAO, N. M., 1987, A study on factors associated with the acceptance of sericulture as cottage industry by tribal farmers of Srikakulam district of Andhra Pradesh, *M.Sc. (Agri.) Thesis (Unpub.)*, Andhra Pradesh Agricultural University, Hyderabad.

RAO, P., 1993, A study on adoption of improved agricultural technology by the tribal farmers in high altitude and tribal zone of Andhra Pradesh. *Ph.D. Thesis (Unpub.),* Andhra Pradesh Agricultural University, Hyderabad.

RATHOD, R. A., 2007, A study on sustainable livelihoods of lambani farmers in Hyderabad Karnataka. *M.Sc.(Ag.) Thesis (Unpub.),* University of Agricultural Sciences, Dharwad, India.

RAVI, G. K., 2007, A study on entrepreneurial behavioral characteristics of SC and ST farmers of Gulbarga district. *M. Sc. (Ag.) Thesis (Unpub.*), University of Agricultural Sciences, Dharwad, India.

ROKONUZZAMAN, M., 2013, Training needs of tribal people regarding income generating activities. *Indian Research Journal Extension Education,* **13** (2):10 – 16.

RUTIKA, U. C., CHAUHAN, N. M. AND CHAUDHARY, K. L., 2022, Analysis of livelihood security of tribal farmers. *Guj. J. Ext. Edu.,* **34** (1): 24-29.

SAHA, B. AND BAHAL, R., 2010, Livelihood diversification pursued by farmers in West Bengal. *Indian Research Journal of Extension Education*, **10** (2): 1 - 9.

SAHA, C., 2008, A Study on sustainability of farming system and livelihood security among rural households in Tripura. *M. Sc. (Ag.) Thesis (Unpub.),* Agriculture College and Research Institute, Tamil Nadu Agricultural University, Coimbatore.

SARADA, O., 2004, Perception on communication and feedback effectiveness among researchers, extensionists and farmers. *Ph.D Thesis (Unpub.),* Acharya N. G. Ranga Agricultural University, Rajendranagar, Hyderabad.

SENTHIL, A., 2013, Effectiveness of advanced communication contrivances in transfer of technology among tribal farmers - An experimental study. *Ph. D Thesis (Unpub.)*, Agriculture College and Research Institute. Tamil Nadu Agricultural University, Coimbatore.

SHALANDER, K. A. D., UPADHYEY. AND SURENDRA, SINGH., 2006, Emergence of goat based sustainable farming systems in arid Rajasthan: Farmer's strategies and livelihood security. *Agricultural Economics Research Review*. 11.

SHALINI, A., 2022, Self-help groups movement: Indefatigable guide and supporter of

rural women empowerment leading to sustainable development. *Int. J. Technol. Manag. Sustain. Dev***. 21**(2): 229-249.

SHAMNA. A., BISWAS. P., JHA, S. K., SARKAR, S. AND KUMAR, S., 2018, Tribal Farm Women's Participation in Agriculture and Factors Influencing It: Evidence from West Bengal, India. *J. Agr. Sci. Tech.,* **20**: 911-922.

SHIBI SEBASTIAN., 2006, A study on the socio-economic and environmental implication of Hill Area Development Programmeon the sustainability of agriculture in The Nilgiris. *Ph.D. thesis (Unpub.),* Tamil Nadu Agricultural University, Coimbatore.

SHUKLA, S., 2022, Tribal Women in Transition: A Study Based on Tharu Tribe in Uttar Pradesh. *Ph.D. Thesis (Unpub.)*, Banaras Hindu Univ., Varanasi, India.

SINGH, C. V., RANJAN, R., SHEKHAR, S., SINGH, A. K., JAISWAL, A. K. AND PAN, R. S., 2018, Socio-economic status and attitude of farmers of Santhal Pargana division of Jharkhand, Eastern India-A Benchmark Analysis. *Asian Journal of Agricultural Extension, Economics and Sociology*, **22**(2): 1-6.

SINGH, D. P. AND YADAV, S. K., 2013, Knowledge and adoption gap of tribal farmers of Bastar towards rice production technology. *American International Journal of Research in Humanities, Arts and Social Sciences*. **5** (1): 54-56.

SINGH, J.E., DEEPAK, R., BABSHETTI, V. AND MADHU, B.K., 2023, Socio-economic status of Particularly Vulnerable Tribal Groups (PVTGs) in Karnataka: A comprehensive study. *Int. J. Namib. Stud.* **36**: 156-165.

SREENIVAS, P., 2022, Socio – economic status of the scheduled tribes in Telangana. *Int. J. of Multidiscip. Res.,* **8** (4): 212-218.

STEWARD, A., 2007, Nobody farms here Anymore: livelihood diversification in the Amazonian community of Caarvao, a historical perspective. *Agriculture and Human Value*. **24** (1): 75-92.

SUBRAMANYAM, V. AND VEERABHADRUDU, B., 2013. Environment and sustainable development: a study among the tribes of Eastern Ghats in Andhra Pradesh. *Nature Environment and Pollution Technology.* **12** (3): 425-434.

SUJEETHA, T. N., SUGANTHI, N. AND RAVICHANDRAN, V., 2017, Constraints Expressed by Tribal Women in Farm and Home Management. *Int. J. Curr. Microbiol. App. Sci.* **6** (9): 536-539.

SUJEETHA., 2012, Empowerment of tribal women through SHGs-An Analysis. *M.Sc. (Agri.) Thesis (Unpub.),* TNAU, Coimbatore.

SUNANI, K. CH. AND MISHRA, V. K., 2019, Tribal Population in Dahod District of Gujarat: an evaluation of socioeconomic profile. *Inter. J. Creat. Innov. Res.,* **1**(9):37-45.

SWATHI, G., 2012, A study on agro biodiversity in tribal region of Visakhapatnam district of Andhra Pradesh. *M.Sc.(Ag.) Thesis (Unpub.)*, Acharya N. G. Ranga Agricultural University, Rajendranagar, Hyderabad, India.

SWATHI, G., 2016, A study on livelihoods of tribal farmers in Andhra Pradesh. *Ph.D. Thesis (Unpub.)*, Acharya N. G. Ranga Agricultural University, Guntur, India.

SWATI, C., 2007, An evaluation of impact of Jana utkarsha programme on beneficiary and non-beneficiary farmers in tribal areas of Maharashtra. *M.Sc.(Ag.) Thesis (Unpub.),* University of Agricultural Sciences, Dharwad, India.

TEJASWI, P. B., 2007, Non-Timber Forest Products (NTFPs) for food and livelihood security: an economic study of tribal economy in western ghats of Karnataka, India. *M. Sc. (Agri.) Thesis (Unpub.),* Gent University, Belgium.

THOMAS, T., 2020, Political participation of tribes: A study on Paniya tribes of Wayanad in Kerala. *Ph.D. Thesis (Unpub.)*, Madras Christian College, University of Madras, Chennai.

THORAT, G. N. AND PATEL, U. M., 2022, Migration behaviour of tribal families of Dahod District of Gujarat. *Guj. J. Ext. Edu.,* **33**(1): 20-25.

TONEN, M. A. F. R. AND WIERSUM, K. F., 2003, Non-timber forest products (NTFPs), small-scale logging and rural livelihoods. Paper presented at the International Conference on Rural Livelihoods, Forests and Biodiversity. The importance of non-timber forest products for forest- based rural livelihoods: an evolving research agenda.19-23 May 2003, Bonn, Germany.

TUDU, B., BISWAS, S. AND GOSWAMI, A., 2013, Study on various socio-personal indicators of tribal dairy cooperative member's in relation to adoption behavior in Purulia district of West Bengal. *Indian Journal of Science Research and Technology*. **1** (1): 22-26.

ULMAN, Y. N., 2010, Constraints and suggestions related to occupations oftribals in Thane district of Maharashtra. *Journal of Extension Education.* **22** (3): 4455-4459.

UTTEJ, D., SREENIVASA, R. I., SREENIVASULU, M. AND SAILAJA, A., 2022, Aspiration of Rural Youth in Agriculture and Allied Sectors. *Asian Journal of Agricultural Extension, Economics & Sociology.,* **40**(1): 110-116.

VASANTHAPRIYA, S., 2015, Socio-economic impact of little millet cultivation among tribal farmers. *M. Sc. (Agri.) Thesis*, Tamil Nadu Agric. Univ., Coimbatore.

VISHAKANTANAYAKA, T. M., 2024, Economic conditions of the iruliga tribal community in the Ramanagara district, Karnataka state. *International Journal of Creative Research Thoughts (IJCRT).,* **12**(2): 2320-2882

VISWANATHA, H., MANJUNATHA, B. N. AND LAKSHMINARAYAN, M. T., 2014, Aspirations and problems of rural youth practicing agriculture. *Mysore J. Agric. Sci.,* **48** (4): 583-588.

WADEKAR, R. P., MEHTA, P. G., MARDANE, R. G. AND DHENGE, S. A., 2016, A Study of Socio-Economic Profile of Warli Tribal Farmers. *Advances in Life Sciences*, **5**(18): 7306-7309.

YASHODHARA, B., 2015, A comparative analysis of livelihood status in irrigated and rainfed farming situations in central dry zone of Karnataka. *Ph.D Thesis (Unpub.),* Univ. Agric. Sci., Bangalore.

ZAGADE, P. M., PATIL, V. G., SAWANT, P. A., KADAM, J. R. AND DESHMUKH, S. K., 2022, Constraints in day to day livelihood of tribal farmers. *J. Pharm. Innov.,* **11**(9): 2596-2597.

APPENDICES

UNIVERSITY OF AGRICULTURAL SCIENCES

DEPARTMENT OF AGRICULTURAL EXTENSION

GKVK, BANGALORE-65

Interview schedule for data collection

"Livelihood security of Iruliga tribes in Ramanagara district of Karnataka"

Date of Interview: Respondent No:

Part A

I. General information

i. Name of the respondent :

ii. Name of the village :

iii. Taluk :

II. Information on Personal, socio-economic and psychological characteristics of Iruliga tribes

1. **Age (in years) …….**
2. **Gender ……**
3. **Education**

   Illiterate / Can read and write/ Primary education / Middle school education/ High school education / PUC/Diploma/ Graduation/ Post graduation

4. **Family Size :**
   Male:……Female:……..Children:……..Total:……..

5. **Farming experience (in years) _____**
6. **Annual income: Rs. _____**
7. **Family type:** Nuclear/ Joint
8. **Land holdings**

Type of land	Irrigated	Rainfed
Owned		
Leased		
Shifting cultivation		
Total		

9. **Occupational status**

Type of occupation	Response
Agriculture	
wage work	
Non Timber Forest Products (NTFP)	
Agriculture + wage work	
Agriculture + livestock	
Agriculture + livestock + wage work	
Agriculture + Livestock + wage work + Non Timber Forest Products (NTFP)	
Agriculture + wage work + Non Timber Forest Products + business	
Agriculture + livestock + wage work + non timber forest products + business	
Any other	

10. **Social participation**

a. Are you member of any organization? Yes / No

b. If yes, indicate the following information.

Name of the institution	**Member**	**Office Bearer**	**Regularly**	**Occasionally**	**Never**
Gram panchayat					
Mahila Mandal/ Stree Shakti group					
Co-operative society					
Self Help Group					
Zilla panchayat					
Taluk Panchayat					
Village forest management committee					
Any others (specify)					

11. **Economic orientation**

S. No	**Source**	**Agree (3)**	**Undecided (2)**	**Disagree (1)**
1.	One should work harder towards high productivity and high economic profits.			
2.	The most successful person is one who makes more profits.			
3.	One should try any new idea which may earn him more money.			
4.	One should grow cash crops to increase monetary profit in comparison to growingof food crops for home consumption.			
5.	It is difficult for tribal children to make a good start unless we provide them with economic assistance.			
6.	One must earn his living but the most important thing in life cannot be defined in its economic terms.			

12. **Mass media exposure**

Please mention the frequency of exposure to the different mass media sources

S.No.	Statement	Regularly (2)	Occasionally (1)	Never (0)
1.	Listening to radio			
2.	Viewing TV			
3.	Reading newspaper			
4.	Reading farm magazines			
5.	Traditional folks			
6.	Mobile			
7.	Others			

13. **Level of aspiration**

Will you please indicate how much education you would consider to give yourchildren?

a. Please indicate the type of job/occupation you would like your children to have.

1. Government job ( ) 8
2. Private job ( ) 6
3. Agriculture ( ) 4
4. Any other occupation(specify) ( ) 2

b. Indicate how much income you are expecting to increase from the existing income level in the next five years?

1. No increase ( ) 0

2. Double the present income ( ) 2
3. Three times of the present income ( ) 4
4. Four times the present income ( ) 6

c. Indicate to what extent you would like to increase crop yield on your farm for the next five years?

1. Four times the present income ( ) 6
2. Three times of the present income ( ) 4
3. Double the present income ( ) 2
4. No increase ( ) 0

14. Extension participation

Sl. No.	Extension activity	Extent of participation		
		Regular	Occasional	Never
1.	Demonstration			
2.	Study tour			
3.	Farm and home visit			
4.	Training programme			
5.	Krishimela			
6.	Field day			
7.	Field visit			
8.	Group meeting/ Group Discussion			
9.	Campaign			
10.	Farmers Field School/Farm School			
11.	Any others specify			

15. Cosmopoliteness

Please indicate the number of times you have visited the nearest town.

S.No.	a) Frequency of visit		b) Purpose of visit	
a.	Two or more times in a week		All visits relating to agriculture	
b.	Once in a week		Marketing of product	
c.	Once in fifteen days		Personal / Domestic	
d.	Once in a month		Entertainment	
e.	Never		Others	

16. Fatalism - Scientism

S.No.	Source	Agree (3)	Undecided (2)	Disagree (1)
1.	'Mantras' have after reaching effects. If one can chant and recite accurately right 'mantras' on right occasion he/she can produce miraculous effects			
2.	Every event in man's life has already been settled and determined by his fate			
3.	A basic human tragedy is that man proposes but god disposes			
4.	It is better to disbelieve in what is not proved or tested, but when proved it is to be relied on			
5.	Those who say that they have seen ghosts either distort truth or tell a lie			
6.	There cannot be any real relationship between the difficulties faced by tribes, such as land dispossession, poverty, and lack of access to healthcare, and the congregation of eight planets in the same year, although some astrologers claim this to be true.			

PART – B

LIVELIHOOD SECURITY INDEX

A. FOOD SECURITY

How true are the following statements in your case?

Sr. No.	Item	Yes	No
1	Food of any kind is available to us throughout the year		
2	The quality of food available is good		
3	Balanced food to all family members is affordable with my income (Cereals, pulses, vegetables, Dairy products, non- vegetarian foods)		
4	I have sufficient stock of food grains for future		

B. HABITAT SECURITY

Sl. no	ITEM	RESPONSE	
1.	Type of house	a) Thatched house b) Roofed house c) Building	
2.	Number of rooms in a dwelling	a) 3 b) 2 c) 1	
3.	Material of roof	a) Concrete/Plastered b) Cemented c) Wood trusses d) Asbestos sheet e) Earthen/ Straw	
4.	Material of walls	a) Tiles/pop b) Cemented	

		c) Bricks + cement d) Bricks + Mud e) Earthen/straw	
5.	Material for floor	a) Vinyl/marble mosaic b) Tiles + cement c) cemented d) bricks e) Earthen	
6.	Availability of Kitchen	a) Within the premises with water supply b) Within the premises without watersupply c) In the Court yard d) In the living room	
7.	Accessibility of water supply	a) Own pipeline inside house (Access in washroom and kitchen) b) Access either in washroom or kitchen c) Access only in court yard d) Piped water outside home 0-2 mint. e) Common tap line (2-5 mint. Distance)	
8.	Availability of electricity	a) yes b) no	
9.	Source of energy for cooking	a) firewood b) kerosene c) L P Gas d) biogas e) solar power	
10.	Latrines facility	a) Yes b) No	
11.	Drainage facility	a) Yes b) No	
12.	Clean water storage facility/ water purification	a) Yes b) No	

C. HEALTH SECURITY

1. Incidence of chronic diseases to family members (Diabetes, Heart Disease, High Blood Pressure, Stroke, etc)

   Yes/No

2. Incidence of epidemic diseases like Malaria/chicken pox/Typhoid etc. in the last five years
   Yes/No
3. Utilisation of PHC Yes/No
4. Vaccination for Infant Yes/No
5. Traveling to a distant town is needed to access better health services

   Yes/No
6. Healthcare facilities are not affordable for my family

   Yes/No

D. OCCUPATIONAL SECURITY

1. Employment Regular/Seasonal
2. Are you forced to migrate for Job? Yes/No
3. Does your family get employment round the year? Yes/No
4. Are you satisfied with the present occupation? Yes/No

E. CULTURAL SECURITY

Sl. no	Item	Response	
1.	Clothing status (Number of pairs of clothes)	1. 3≥ 2. 2 3. 1	
2.	Type of dresses used	a) New dress b) Pre used	
3.	Child marriage	a) Yes b) No	

4.	Widow marriage	a) Yes b) No	
5.	Expenditure towards celebration of festivals	a) <1000 b) 1000-2000 c) c)2001-3000 d) 3001-5000 e) >5001	
6.	How frequently you have your community get togethers?	a) Weekly b) Monthly c) Quarterly d) Half yearly e) Yearly	
7.	Do your family members participate in any events to exhibit your folkways?	a) Yes b) No	

F. ASSET SECURITY

Do you possess the following assets for comfortable living?

Sl. no.	Item	Response	
1.	Television	Yes No	
2.	Mobile	Yes No	
3.	Bicycle	Yes No	
4.	Fan	Yes No	
5.	Sofa/Almyrah/Cot	Yes No	
6.	Water purifier	Yes No	
7.	Refrigerator	Yes No	
8.	Pressure cooker/ Electric cooker	Yes No	
9.	Motor cycle/ Scooter	Yes No	
10.	Mixer/ Grinder	Yes No	
11	Any others		

G. TRANSPORTATION SECURITY

Transportation means to nearest places

Sl. no.	Item	
1	By walk	
2	Bullock cart	
3	Public transport	
4	Jeep/autos	
5	Own vehicle – Bicycle/ Bike	

H. SOCIAL SECURITY

Sl. no.	Item	Response	
1.	Are you making use any of the following institutions in your day to today life? (Gram panchayat/ Cooperative society/ Post office/ NGO)	Yes No	
2.	Do you have membership in any of the social organization?	Yes No	
3.	Do you have awareness about socio-economic development programmes?	Yes No	
4.	Are you making use any ofthe following Social groups like (SHG/FIG/CIG)	Yes No	
5.	Are you participating in village developmental works?	Yes No	
6.	Are you participating in any training programmes given by Government?	Yes No	
7.	Do you participate in any group meetings to share your views?	Yes No	

I. FINANCIAL SECURITY

a. Indebtedness

Total loans (in RS)	Response
0	
2000-5000	
5000-8000	
8000-10000	
>10000	

b. Savings

Savings (in Rs)	Response
0	
2000-5000	
5000-8000	
8000-10000	
>10000	

J. EDUCATIONAL SECURITY

Sl. no.	ITEM	Response	
1)	Are you sending your children to school?	Yes No	
2)	Higher education of children is not affordable to my family ?	Yes No	
3)	Are you engaging your children in labour work during working days?	Yes No	

K. INFORMATION SECURITY

Informational means for agricultural purpose

Sl. No.	Information sources	Usage	Score
1.	Neighbor's	Yes No	
2.	Local leaders	Yes No	
3.	Panchayat/society officials	Yes No	
4.	News papers	Yes No	
5.	Radio	Yes No	
6.	Television	Yes No	
7.	Mobile	Yes No	
8.	Farm literature/ Farm magazines	Yes No	
9.	Extension personnel	Yes No	
10.	Social media platforms	Yes No	
11.	Others	Yes No	

PART - C

LIVELIHOOD SYSTEM ANALYSIS											
SL. NO	Available Livelihood options	Livelihood option followed	Total Income from each livelihood option	Proportion of income	Total Time spent on each livelihood	Proportion of time spent	re of family members on each livelihood			Degree of possession of Technical competency	Extent of Risk perceived
							Male	Female	Total		
1	Agriculture										
2	Horticulture										
3	Livestock										
4	Collection of NTFP's										
5	Agricultural labour										
6	Non- agricultural labour										
7	Small vendor										
8	Govt / semi- govt job/private job										
9	Migration activities										
Total											

PART D

Awareness and extent of utilization of tribal development programmes by Iruliga tribes

Sl. No.	Developmental programmes	Awareness		Utilization	
		Yes	No	Yes	No
I	**EDUCATION**				
1	Formal education to age group of 3-5 under nursery and centers for welfare of childrens				
2	Free residential schools for ST students				
3	Hostel facilities for the ST students				
4	Providing scholarships for encouraging ST students by GoK and GoI				
II	**SOCIAL DEVELOPMENT**				
1	Incentives for inter-caste marriages				
2	Sarala Vivaha Yojane				
3	Construction of Valmiki bhavanas				
4	Safe drinking water				
5	Infrastructure development under rural development and panchayat raj				
6	Bhagyalakshmi scheme				
III	**ECONOMIC DEVELOPMENT**				
1	Micro credit schemes				
2	Land purchase scheme				
3	Loan facilities for small and medium scale industrialists				
4	Van dhan vikas yojana for marketing tribal products				
5	Short term loans through LAMPS				
IV	**HEALTH**				
1	Yashaswini health scheme				
2	Nutritious diet plan under TSP				
3	Thayi bhagya scheme				

4	Free health camps by government departments				
5	Disttribution of health kits for mothers				
V	**EMPLOYMENT**				
1	Skill based training for unemployed ST youth				
2	Nursing programme				
3	Self employment scheme				
VI	**AGRICULTURE AND ALLIED SECTORS**				
1	Demonstration on modern practices				
2	Storage facilities				
3	Irrigation facilities				
4	Dairy				
5	Sheep rearing				
6	Goat rearing				
7	Ganga kalyana yojana				
8	Encouragement of social forests				
VII	**NGO DEVELOPMENT PROGRAMMES**				
1	Vocational training				
2	Health camp				
3	Medicinal plant cultivation				
4	Participation in SHG activities				
5	Marketing agricultural produce				
6	Value addition of millets				
7	Value addition of forest produce				
8	Natural resource conservation				
9	Distribution of solar lights, sheets etc				

PART E

Problems perceived by the Iruliga tribes with respect to their livelihood security.

S.No.	Problems	Response		
		Very much a problem	Some What a problem	Not at All a problem
Agricultural Constraints				
1	Landlessness.			
2	Unpredictable weather patterns that negatively impact farming.			
3	Exploitation by Landlords by Way of Giving Meager Labor Charges.			
4	Cannot obtain land for lease for agriculture.			
6	Unaware of livestock subsidy procedures for cattle, sheep, and goats due to lengthy processes.			
Technical Constraints				
1	Stringent Laws, Acts, Rules, and Regulations Pertaining to NTFP Collection.			
2	Lack of Effective Extension Networking.			
3	Lack of skills for employment beyond labor.			
Economical Constraints				
1	Irregular Availability of Wage Employment			
2	Lack of housing infrastructure.			
3	Poor transport limits access to plains.			
4	Improper Functioning of PDS			
5	Unorganized Functioning of MGNREGA			
6	Insecurity to Family Members Due to Migration			
7	Difficulty in establishing a credit history which impacts the ability to obtain loans.			
8	Exploitation by Moneylenders			
Social Constraints				
1	Not treated equally in the community.			
2	Lack of proper community sanitation infrastructure.			
3	Lack of government school facility.			
4	Electricity Problem.			
5	Unavailability of Land Revenue Certificate for Residential Land.			

S.No.	Suggestions	Response		
		Very important	Important	Not at All important
Suggestions				
1	Facilitate land allocation and redistribution programs for landless tribes			
2	Educate tribes on labor rights and encourage formation of worker cooperatives.			
3	Conduct awareness programs and simplify livestock subsidy application processes.			
Suggestions				
1	Relax NTFP collection regulations and involve tribes in rule-making.			
2	Strengthen extension networks through mobile units and local centers.			
3	Provide skill-development training tailored to non-agricultural employment.			
Suggestions				
1	Strengthening of wage employment avenues			
2	Implement tribal housing schemes effectively by identifying genuine beneficiaries transparently.			
3	Improve road connectivity with targeted transport infrastructure projects.			
4	Streamline PDS operations to ensure timely food grain distribution.			
5	Oversee MGNREGA functioning with better transparency and grievance redressal.			
6	Offer financial literacy programs to help establish credit histories.			
7	Educate tribes about existing options for accessing low- interest loans to reduce reliance on moneylenders.			
Suggestions				
1	Conduct sensitization campaigns to promote social equality and reduce discrimination.			
2	Build sanitation facilities and promote hygiene through community programs.			
3	Improve health infrastructure by setting up mobile clinics and health camps.			
4	Establish government schools in underserved tribal areas.			
5	Expand electricity coverage with solar and alternative energy solutions.			