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The Relevance of Gendered Division of Labour to Sustain Indigenous Livelihood Resources in the Era of Climate Change

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ABSTRACT

Rural communities procure household food requirements by raising cattle and subsistence crops as well as by collecting wild edible plant materials, which are recently characterized by poor production as a result of climate change. The present study described the impacts of climate change on indigenous food resources and discusses the relevance of indigenous gendered division of labour in food procurement using these resources today. Participatory research with a sample of 155 participants was used to collect data. The study findings show that the indigenous division of labour for men and women exists to a lesser extent for the provision of household food requirements. The natural resources exploited for household food security are climate-reliant, and therefore, their production is reduced due to unfavorable rainfall and temperature episodes. Paid labour led men and women to leave their cultural responsibilities, a practice that compromised the indigenous division of labour. The study contributes to the need for a coordinated labour force suggested to ensure food security, which could aid in attaining Sustainable Development Goals by 2030.

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INTRODUCTION

The provision of food, water, and other requirements relies heavily on the division of labour within households. This necessitates a division of labour, with each household member responsible for a specific part of the provision. This type of work allocation is determined by the types of activities households engage in to provide for household needs. In a system like this, men and women would each be responsible for different aspects of providing for the family. The efficiency of this cultural practice is negatively impacted by the current climatic conditions in subsistence crop and livestock production. As subsistence crop and livestock production declines, more and more men and women are looking for ways to supplement their incomes outside of agriculture. As a result, the traditional indigenous division of labour in the provision of food security for households may become obsolete. Understanding the relevance of indigenous division of labour when agricultural and livestock production are negatively impacted by changes in weather conditions is imperative. However, the relevance and significance of the indigenous division of work in times of low productivity in agricultural and livestock production due to climate change are poorly recognised. This research details how climate change has affected indigenous food resources and offers supporting evidence for the usefulness of the indigenous gendered distribution of labour among rural communities.

LITERATURE REVIEW

Natural resources are exploited by rural populations in developing nations to complement food purchased from supermarkets and support their way of life. Rural communities accomplish this by raising cattle and subsistence crops as well as by collecting wild edible plant materials. There is proof that pressures related to climate change

have changed the environment in ways that jeopardize people's rights to food.[1] Poverty, hunger, and malnutrition remain livelihood challenges in the regions where climate-dependent resources are still utilized for food security.[2]

However, due to cultural norms, both sexes contribute to the provision of food in underdeveloped nations, where women are frequently in charge of the cultivation of subsistence crops and the gathering of vegetables and fruits while the men take charge of livestock production.[3] This type of task division is the separation of duties with everyone focusing on a specific food procurement mechanism. Indigenous gendered distribution of labour is determined by social and cultural standards, and physical mobility.[4] As a result, the social and cultural connotations of suitable masculine and feminine actions are strongly ingrained in the indigenous division of labour.

Gender hierarchy, based on clearly defined duties and obligations for men and women, is highly supported in patriarchal societies. The changing views and expectations toward men in the family, however, have been highlighted in some publications.[5] These changes are a result of the changing climatic conditions in the form of rising temperatures and decreasing rainfall that negatively impacted the indigenous resources depended upon for survival. The men's engagement in migrant labour violates their culturally assigned household duties and responsibilities to abdicate food production and household chores to women. Considering this, the present study describes climate change impacts on indigenous food resources and discusses the relevance of indigenous gendered division of labour in the procurement of food through these resources today.[6]

An Overview of the Study Area

Mogalakwena is one of the six local municipalities in the Waterberg District Municipality of Limpopo Province, South Africa. The municipality has a geographical area of 6,200 km2, which constitutes 12% of the total Waterberg District area, and has a diverse socio-demographic profile underscored by the spatial and physical diversity reflected in all aspects of local development. Mogalakwena functions largely as the interface between the Waterberg District Municipality and the Capricorn District Municipality and is surrounded by the largely rural areas of Lephalale Local Municipality to the north and west. To the east lies the city of Polokwane and Blouberg Local Municipality, and to the south are Mookgophong and Modimolle Local Municipalities.

Mogalakwena has a well-defined and established development footprint. It consists of three proclaimed townships and 178 villages. The proclaimed townships are Mokopane, Mahwelereng, and Rebone. The municipality has been demarcated into 32 wards.[7] In addition, the municipal territory spans several smaller communities between Mokopane and Rebone, approximately 100 kilometers north along the N11, and Marken, approximately 150 kilometers south along the R518. Strong structural components from the N1, N11, and R518 as well as the Mogalakwena River and mountains helped to influence the growth of the municipal region. To comprehend the patterns that drive growth in the municipal area, it is important to consider these structural components, the area's rich history and cultural diversity, as well as the physical resource base that predetermined agriculture and mining activity.

Rainfall

The Mogalakwena Local Municipality is in the Limpopo region with summer rains between November to March with an average of 600-650 mm of rain. Rainfall is heaviest in January and December. Thunderstorms are frequently observed. Fog and hail are uncommon. Inadequate sewage infrastructure, reliance on boreholes, and

[1] S. Strydom and M. J. Savage, "Potential Impacts of Climate Change on Wildfire Dynamics in the Midlands of KwaZulu-Natal, South Africa," *Climatic Change* 143, no. 3–4 (August 5, 2017): 385–97, https://doi.org/10.1007/s10584-017-2019-8; Sejabaledi A Rankoana, "Climate Change Impact on Indigenous Food Resources," *International Journal of Social Science Research and Review* 5, no. 10 (2022): 522–29.

[2] W Maluleke and R J Mokwena, "The Effect of Climate Change on Rural Livestock Farming: Case Study of Giyani Policing Area, Republic of South Africa," *South African Journal of Agricultural Extension* 45, no. 1 (2017): 26–40.

[3] Kathy Lynn et al., "The Impacts of Climate Change on Tribal Traditional Foods," *Climate Change and Indigenous Peoples in the United States: Impacts, Experiences and Actions*, 2014, 37–48.

[4] Alex O. Awiti, "Climate Change and Gender in Africa: A Review of Impact and Gender-Responsive Solutions," *Frontiers in Climate* 4 (June 30, 2022), https://doi.org/10.3389/fclim.2022.895950; K T Thinda et al., "Understanding the Adoption of Climate Change Adaptation Strategies among Smallholder Farmers: Evidence from Land Reform Beneficiaries in South Africa," *Land Use Policy* 99 (2020): 104858.

[5] Thinda et al., "Understanding the Adoption of Climate Change Adaptation Strategies among Smallholder Farmers: Evidence from Land Reform Beneficiaries in South Africa."

[6] Thinda et al., "Understanding the Adoption of Climate Change Adaptation Strategies among Smallholder Farmers: Evidence from Land Reform Beneficiaries in South Africa."

[7] Mogalakwena Local Municipality, "Mogalakwena Local Municipality Integrated Plan (IDP) 2022-2027," http://www.mogalakwena.gov.za/mogalakwena- dmin/pages/sites/mogalakwena/documents/idp., n.d.

bulk water storage are observable impacts of less rainfall in the area. Groundwater quality is significantly impacted by less rainfall, which is the main recharge [7].[8]

Temperature

Typically, Mogalakwena has a hot, semi-arid climate. From October to March, summer-time temperature ranges from 28°C to 34 °C. Night-time temperature in the summer ranges from warm to cool, between 16°C and 21°C. From April through September, the winter daytime temperature ranges from pleasant to warm, between 19.6°C to 25.2° C. Temperature at night in winter ranges from 4.3° to 12.1°C [7].

Topography

The Waterberg Mountain Range, which creates a central mountain plateau, is in the Mogalakwena Local Municipal Area, which forms the center of the Waterberg District. It is connected to the Strydpoort Mountains, which in turn are connected to the Great Escarpment of the Drakensberg Mountain range via the Sebetiela Mountains in the Waterberg District's southeast. The core terrain is split in half by secondary drainage lines, which are usually found along valleys that run northward. The Springbok Flats, which stretch from the nearby Bela-Bela Local Municipality to the north of Mokopane, are located to the south of the central plateau and are markedly lower in elevation than the plateau itself. While flat plains can be found to the west, the topography in the north becomes hilly and slopes down towards the Limpopo Valley.[9]

Livelihood

There is evidence of reliance on natural resource exploitation to ensure household food security. For instance, to meet their food needs, households in rural areas raise cattle, grow subsistence crops, and gather wild edible plant materials. Poverty is one of the major socioeconomic issues the Mogalakwena Municipality is now dealing with. Between 45% and 70% of the municipality's economically active population—those between the ages of 15 and 64 are estimated to be unemployed. Women in rural areas are primarily impacted by other social issues and a lack of employment options [7].

METHODOLOGY

The study sample was made up of 155 members of the community. The participants were purposefully selected based on age and length of stay in the community. They have lived in the community for more than 40 years, which demonstrates extensive ecological expertise and a lengthy term of occupancy in the area. Out of the 155 participants, 135 were residents by birth, while 20 were immigrants who have been in the Mogalakwena village for more than 40 years. Participants' ages ranged from 50 to 90 years old. Half of the participants were men and half were women.

The data was gathered through participatory research. It was crucial to create a participatory study so that community members could contribute their thoughts on the observed changes in the climatic conditions and how these affected indigenous food resources, and whether all genders still procure food in terms of their cultured-gendered division of labour. The reliability and trustworthiness of the study findings were ensured through the constitution of the study sample by elderly members of the community as custodians of cultural values and their vast knowledge of cultural values. The participants consented to participate in the study by signing the consent form. Ethical approval was obtained from the host university. Mogalakwena Local Municipality granted the research team permission to conduct the study. The confidentiality and anonymity of participants and data collected were honoured by using pseudonyms and the use of collected data for the purpose of this study only.

RESULTS AND DISCUSSION

The indigenous food resources are still exploited for household food security, consisting of subsistence crop production, pastoralism, and gathering. The division of labour in the production of livestock and crops, as well as the gathering of edible plant materials, is dependent on the culturally prescribed division of labour between men and women in the rural communities of Mogalakwena Local Municipality. An analysis of the relevance of this type of division of labour is given to assess the extent to which climate change has impacted these climate-reliant indigenous food resources.

[8] Mogalakwena Local Municipality, "Mogalakwena Local Municipality Integrated Plan (IDP) 2022-2027."
[9] Mogalakwena Local Municipality, "Mogalakwena Local Municipality Integrated Plan (IDP) 2022-2027."

Subsistence Crop Production

The production of subsistence crops is the principal indigenous resource used to ensure household food security. While both gender groups participate in agricultural activities, they are assigned different tasks to complete. The men clean new fields of vegetation including grass and bushes, as is customary. The remaining agricultural tasks are exclusively done by women, men could help whenever required. Women perform continuous seasonal tasks of planting, weeding, and reaping, which ultimately make them the primary household food providers. Home gardens are used to grow crops, ensuring a year-round supply of fruits, vegetables, and cereals.

Food availability, accessibility, and stability are significantly impacted by climate change in Mogalakwena Local Municipality. Climate change also poses a significant risk of increased crop failure, loss of livestock, and impact on local food.[10] However, agriculture, which is a traditional mainstay for rural communities and a reliable recourse to livelihood, is jeopardized. The primary explanation is that farming relies completely on rain and has recently been plagued by low yields due to a lack of precipitation. Fewer households produce these crops on the fields because of uncertain rainfall and the conversion of ploughing fields into residential areas. These conditions are corroborated by the reports that the intensity and frequency of weather events pose a serious threat to livelihoods to rural African livelihoods where crop production and animal husbandry are essential for survival and where traditions are characterized by entrenched patriarchy where men predominate in the decision-making processes.[11] The livelihoods of people and other natural resources vital to human survival are negatively impacted by climatic change.[12] This is consistent with the findings that the decline in the coordinated involvement of men and women in agricultural production was because of a decline in rainfall episodes and an increase in temperatures, both of which contributed to the persistence of poor crop yields.[13]

Relevance of Gendered Division of Labour and Adaptation Practices

Where agricultural production is still carried out, it is primarily women who bear the complete burden of preparing the land (in home gardens), cultivating the crops, and managing them until they are ready for harvest, consumption, and storage for later consumption. Utilizing culturally appropriate adaptation strategies, such as changing the growth season and fertilizing the soil, it is possible to increase productivity while reducing the negative effects of a lack of rain on subsistence farming.

The historical gender divisions of labour and the development and maintenance of gender norms were negatively impacted by a decline in traditional agricultural techniques.[14] These are particularly cultural values and belief systems regulating the division of household chores.[15] Women are well-positioned to contribute to livelihood strategies that are adaptive to changing environmental conditions because of their roles as stewards of natural and domestic resources in homes and communities.[16]

The study findings also demonstrate that some women have turned to paid work in the shops and other local business entities to provide for household food requirements. This change in the household division of labour is most clearly illustrated by the vast differences in female labour force participation, where many women in the municipality work for pay.[17] Many women work as migrant labourers in towns and cities or are professionals such as teachers, clerks, nurses, and others: proof that women participate less in farm activities. Moving generally from contexts where gender roles are more traditional, immigrant men and women are exposed to cultural values and norms of greater gender equality.[18] Fewer men are now involved in crop production due to changes in the community's long-standing, gender-specific division of labour traditions. This

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[10] Mogalakwena Local Municipality, "Mogalakwena Local Municipality Integrated Plan (IDP) 2022-2027."
[11] Thabo Ndlovu and Vuyo Mjimba, "Drought Risk-Reduction and Gender Dynamics in Communal Cattle Farming in Southern Zimbabwe," *International Journal of Disaster Risk Reduction* 58 (2021): 102203; Sejabaledi Agnes Rankoana, "Gendered Vulnerability and Adaptation Efforts to the Health Impacts of Climate Change in a Rural Community in Limpopo Province, South Africa: A Gendered Perspective," *African Epistemology in the 21st Century*, 2021, 142-162.
[12] Mogalakwena Local Municipality, "Mogalakwena Local Municipality Integrated Plan (IDP) 2022-2027."
[13] Strydom and Savage, "Potential Impacts of Climate Change on Wildfire Dynamics in the Midlands of KwaZulu-Natal, South Africa"; Alberto Alesina, Paola Giuliano, and Nathan Nunn, "On the Origins of Gender Roles: Women and the Plough," *The Quarterly Journal of Economics* 128, no. 2 (2013): 469–530.
[14] Amy Trefry, John R. Parkins, and Georgina Cundill, "Culture and Food Security: A Case Study of Homestead Food Production in South Africa," *Food Security* 6, no. 4 (August 27, 2014): 555–65, https://doi.org/10.1007/s12571-014-0362-4.
[15] Alesina, Giuliano, and Nunn, "On the Origins of Gender Roles: Women and the Plough"; Renzo Carriero, "The Role of Culture in the Gendered Division of Domestic Labor: Evidence from Migrant Populations in Europe," *Acta Sociologica* 64, no. 1 (2021): 24–47.
[16] Mogalakwena Local Municipality, "Mogalakwena Local Municipality Integrated Plan (IDP) 2022-2027"; Alesina, Giuliano, and Nunn, "On the Origins of Gender Roles: Women and the Plough."
[17] Chifundo Kanjala et al., "Spatial and Temporal Clustering of Mortality in Digkale HDSS in Rural Northern South Africa," *Global Health Action* 3, no. 1 (2010): 5236.
[18] Mary Agada and Edwin Igbokwe, "Influence of Food Culture and Practices on Household Food Security in North Central Nigeria," *Journal of Food Security* 4, no. 2 (2016): 36–41.

cultural practice division of labour is altered by the lower participation of men due to the negative impacts of harsh climatic conditions on production. This is true despite the rigid patriarchal belief that men should care for family needs, including providing security against threats. As a result, a large number of men moved to urban areas in order to work for pay and meet household food needs.[19]

The findings showed that the production of subsistence crops is carried out primarily by women because of the extended absence of men from the home due to migrant labour.[20] Potential male workers migrate to increasing metropolitan regions when traditional rural economies can no longer provide for household food requirements.[21]

Livestock production

The municipality of Mogalakwena is mostly rural, and many households rely on agriculture for a living, with cattle production being the most common. The most formally defined division is related to the livestock, which, except for pigs and poultry, is entirely contained within the male province. Women are not permitted to handle cattle, sheep, or goats due to their ritual significance, hence only men are allowed to do any labour related to these animals.

Men alone are responsible for herding, milking, slaughtering, and even washing the milking tools for these animals. Even though men kill the pigs, women care for and feed them. Driving the cattle in the veld to graze on grass, leaves, shoots, fruits, and pods is a part of herd production and management. Except for the time immediately following harvest, when they graze on the field stalks, the herd only consumes the available pastures. The stock consumes the pods and stalks in the fields during the winter. When these supplies are depleted, people look for winter grass distance from their households. Pastoralism, a subsistence system in which people raise herds of domesticated animals like the Maasai community is the type of subsistence system that gave origin to the concept of division of labour.[22]

Due to competition for natural resources, the amount and quality of feeds, livestock diseases, heat stress, and biodiversity loss, as well as the rising demand for livestock products, climate change poses a threat to the production of livestock.[23] Additionally, livestock production will be affected indirectly by a decline in maize crop residue availability due to a decrease in maize production by 2050.[20] These findings back the report that climatic extremes like drought, floods, or heat waves can devastate livelihoods by reducing the production of productive assets like livestock.[24] The historical settlement patterns imposed by apartheid, combined with weather and climatic instability impacts on local livelihood strategies, rendered rural South Africa to chronic poverty, food insecurity, environmental degradation, and high human densities.[25] Climate change, competition for land and water, and food security at a time when it is most required are all expected to have a negative impact on livestock.[26] Africa's agricultural production will be negatively impacted by climate change[8]. The majority of South Africa enjoys average annual temperatures above 17 °C due to its warm climate with Limpopo Province being one of the warmest regions.[27] The rising temperatures that inflict heat stress on plants, decrease water availability, and diminish the overall productivity of livestock pose a challenge to smallholder farmers' production systems.[28]

[19] Ndlovu and Mjimba, "Drought Risk-Reduction and Gender Dynamics in Communal Cattle Farming in Southern Zimbabwe."
[20] Daniel G. Boyce et al., "A Climate Risk Index for Marine Life," *Nature Climate Change* 12, no. 9 (September 22, 2022): 854–62, https://doi.org/10.1038/s41558-022-01437-y; Witness Maluleke, Ntwanano Patrick Tshabalala, and Jaco Barkhuizen, "The Effects of Climate Change on Rural Livestock Farming: Evidence from Limpopo Province, South Africa," *Asian Journal of Agriculture and Rural Development* 10, no. 2 (September 1, 2020): 645–58, https://doi.org/10.18488/journal.ajard.2020.102.645.658.
[21] Agada and Igbokwe, "Influence of Food Culture and Practices on Household Food Security in North Central Nigeria."
[22] Noriko Iwai, "Division of Housework in Japan, South Korea,China and Taiwan," *Family,Work and Wellbeing in Asia*, 2017,107–27.
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Relevance of Gendered Division of Labour and Adaptation Practices

During the study, it was discovered that natural resources critical to livestock production are near extinction and scarce in the local wild due to unpredictable weather, increased temperatures that have contributed to the decline in biodiversity, and the destruction of many plant materials browsed by livestock. A decline in livestock production, particularly cattle, would have a detrimental impact on the lives and livelihoods of small-scale farmers and livestock keepers, who are the primary food providers in rural areas.

Climatic stressors such as a lack of and poor-quality water, heat stress, and a paucity of fodder as biodiversity depletes due to irregular rainfall all have a negative influence on cattle output in the municipality. The amount of cattle raised has been decreasing, and many people are discouraged by uncertain rains and the resulting lack of food and water for their livestock. Reducing herd size as a drought coping technique will not help to avoid low production due to health decline and famine.[29] Rainfall impacts on livestock productivity are frequently depicted as a significant drop in cattle population because of feed constraints and water scarcity, which has serious socioeconomic consequences.[30] When a decrease in livestock production threatens food security and the conventional division of labour, alternative livelihood options, such as cattle sales and labour migration, are sought. To ensure household food security, several males left their homes to work for pay in towns and cities. Some are employed in restaurants, stores, mines, and farms, while others work as professionals (teachers, nurses, police officers, and so on) or as self-employed individuals. Most self-employed persons sell their wares, such as handicrafts.

These circumstances jeopardized the indigenous division of labour traditions that had traditionally entrusted males with the production and management of livestock. Tendering livestock has traditionally been a male domain, with women forbidden from tendering and managing cattle. In the current situation, when males go to cities for monetary labour, women are responsible for cattle production and management. With weak livestock productivity, males withdrew from farming to participate in non-agricultural cash-earning activities.[31]

Gathering of vegetables and fruits

The residents of Mogalakwena municipality, like other indigenous peoples in rural South Africa, have relied on a diverse range of local plant resources to meet their household food requirements. Women are mostly responsible for picking edible plants and fruits collected from plant species that grow naturally in the environment. The species' availability is dependent on favorable climatic conditions such as consistent rainfall and temperature.

The women oversee gathering these plant components because they are familiar with the plant types and their seasonal availability. Recently the women have detected fluctuations in the quality and amount of plant materials, as well as shifts in harvest times. Because changes in rainfall and temperature patterns harm ecosystems and water resources, edible plant materials are becoming increasingly scarce. Climate change threatens the animals and ecosystems that provide household food requirements essential to culture, economy, and traditional livelihood patterns.[32] An obvious observation is the shift in the species distribution and phenological events that endanger species' survival even in protected areas since many species have a limited distribution.[33]

Summary

Climate change effects on edible wild plant species are inextricably linked to climate influences on tribal culture and the necessity of the cultural division of labour. The loss of indigenous plant diversity, which provides food for rural populations, has a negative impact on the requirement for food security at the household level. Gathering wild plant materials not only provides household food but ensures the fulfilment of cultural obligations. Because of the limited supply of resources due to reduced rainfall, women's responsibility as

[29] Esther G Kimaro, Siobhan M Mor, and Jenny-Ann L M L Toribio, "Climate Change Perception and Impacts on Cattle Production in Pastoral Communities of Northern Tanzania," *Pastoralism* 8 (2018): 1–16.
[30] L Musemwa et al., "The Impact of Climate Change on Livestock Production amongst the Resource-Poor Farmers of Third World Countries: A Review," *Asian Journal of Agriculture and Rural Development* 2, no. 393-2016–23881 (2012): 621–31.
[31] Zhixia Zhao et al., "Climate Warming Has Changed Phenology and Compressed the Climatically Suitable Habitat of Metasequoia Glyptostroboides over the Last Half Century," *Global Ecology and Conservation* 23 (2020): e01140.
[32] K. R. Shivanna, "Climate Change and Its Impact on Biodiversity and Human Welfare," *Proceedings of the Indian National Science Academy* 88, no. 2 (June 2, 2022): 160–71, https://doi.org/10.1007/s43538-022-00073-6.
[33] Zhao et al., "Climate Warming Has Changed Phenology and Compressed the Climatically Suitable Habitat of Metasequoia Glyptostroboides over the Last Half Century"; Julie Koppel Maldonado et al., "The Impact of Climate Change on Tribal Communities in the US: Displacement, Relocation, and Human Rights," *Climatic Change* 120, no. 3 (October 9, 2013): 601–14, https://doi.org/10.1007/s10584-013-0746-z.

gatherers of plant materials has ceased to exist. The inability to acquire traditional foods in tribal communities is causing women to stop fulfilling their culturally assigned tasks.

The effects of climate change on traditional foods occur alongside a slew of other changes, including the ecological stressors commonly cited in climate change literature as well as the rapid cultural, economic, and political changes experienced by indigenous communities globally.[34]

Climate change has the potential to diminish the number of species that are unable to adapt to the climate to which they are currently suited, putting them at risk of extinction.[35] These findings are supported by traditional value systems such as responsibility, respect, reciprocity, relationship, and reverence, which are ingrained in many cultural rituals. Many traditional behaviors are still practised in indigenous societies, despite the challenges of cultural loss, poor transmission of information connected to subsistence skills, and fewer possibilities for learning traditional lifeways from elders.[36]

RECOMMENDATIONS

It is proposed that existing patterns of labour division be maintained despite the challenges brought about by climate extremes. To maintain food security, a coordinated workforce is required, which could contribute to the achievement of the Sustainable Development Goals by 2030.

CONCLUSION

The responsibilities culturally assigned to men and women in a coordinated effort to exploit natural resources for a livelihood are partially relevant to ensuring household food security. Stressors from climate change reduced subsistence crop and livestock output, as well as the harvesting of indigenous plant materials for human and cattle consumption. This decline changed the traditional gender division of labour. Additionally, the social structure of the community is altered by men's and women's decisions to leave their households for migratory labour. Both genders use cash work as an alternative to the cultural food procurement mechanisms. As a result, at the household level, traditionally assigned males' responsibilities of livestock production are combined with traditionally assigned women's responsibilities of crop production and gathering edible plant resources to be the women's sole responsibility. As a result of combining agriculture, paid labour, and household work, the women bear a greater burden of overall labour to provide for household food requirements than their male counterparts. According to the study's findings, the use of coordinated labour practices to exploit local resources for food security could be helpful in meeting the Sustainable Development Goals by 2030, which call for a large-scale expansion of climate-resilient approaches in food systems.

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