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Gender Dynamics in Single and Integrated Farming in the Municipality of Irosin, Sorsogon, Philippines

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***Abstract*—** The study examined gendered and intersectional trends in agricultural involvement in Irosin, Sorsogon, in the hope that it serves the purpose of informing Gender and Development (GAD) planning. A descriptive-analytical approach was used to analyse sex-disaggregated survey data (N 1, 203) of 19 barangays summarized using frequencies, percentages and sectoral averages, their mean strengths. The involvement was also male dominated (about 75 percent male) with females taking a higher percentage in single farming (27.2 percent) than in the integrated farming (20.7 percent), which indicates the factor could be limiting women participation in the diversified agricultural systems. Intersection of sectors showed that women were always more prone to the indicators of vulnerability than men, such as 4ps beneficiary rates (rice: 33.78% vs 24.60%), and solo parent rates (rice: 19.73% vs 8.77%). Men were also more often observed to be the heads of the homes and in the sectors (more or less about 87 percent-94 percent in men and 45 percent-51 percent in women). The patterns of income differed across sectors: rice incomes matched (₱53,247 among women; ₱54,938 among men), but in HVC, coconut, and inland fishing, the difference was greater. Such results suggest that GAD-responsive agricultural interventions should be sector-specific and subgroup-responsive by prioritizing women who are overlapping poverty, solo parents, and inadequate household decision-makers especially in subsectors where income inequalities are high.

***Keywords*—** gender mainstreaming; women in agriculture; livelihood diversification; integrated farming; livestock and poultry; high-value crops; solo parents; 4Ps; Irosin, Sorsogon.

1. INTRODUCTION

Agriculture still forms an important sector of the Philippine countryside economy, the involvement of women and men in this sector is still stratified along gender lines of labor division. The agricultural economy of the municipality of Irosin, Sorsogon is dominated by the five main activities which include rice crop production, coconut production, high value crop (HVC) production, livestock and poultry production and inland fishing. As much as both genders participate in all these value chains, differences are evident in the degree of participation and the consequent gains especially to access to productive resources as well as the economic gains of the farming activities.

As a response to the economic as well as climate related vulnerabilities, many farm households have shifted to integrated farming systems as a measure to risk management. These limitations cramp livelihood growth and encourage dependency on low-yield activities among women in Irosin who often combine caring responsibilities with no pay, domestic roles, and social safety nets and welfare programs like the 4P. The mechanics of such dynamics are often associated with structural hindrances such as unequal access to land tenure, access to capital, and access to reduced production capacity, which reduce the progress of economic empowerment of women in the agricultural sector.

The current research is contextualized by gender mainstreaming guidelines entrenched within philosophies of Filipino policy, specifically, the Magna Carta of Women (Republic Act No. 9710) that states non-discrimination and fair access to food security and other productive resources including technology, credit, and infrastructure. Similar to the Agriculture and Fisheries Modernization Act (Republic Act No. 8435), equity (and gender equity) are also recognized to be part of agricultural modernization. At the sub-national level, the Philippine Plan of Gender-Responsive Development also provides local government units (LGUs) with the direction on how to

meet gender-related issues of development, whereas the PCW-DILG-DBM-NEDA Joint Memorandum Circular No. 2013-01 obliges the LGUs to provide a minimum of 5% of their annual budget on Gender-And-Development (GAD) programs to fund actionable interventions.

Based on empirical studies, the trends being experienced in Irosin are not isolated. It is indicated that rice cultivation may be characterized by a relatively higher gender balance because of standardized production; on the contrary, women are likely to be concentrated in home-based or smaller scale ventures that do not contradict with care giving. Such arrangement, however, can also put women at the same time at a disadvantage of decreased institutional backing, diminished market accessibility and diminished revenue possibilities.

One of these is the so-called commercialization gap where women can be productive in HVC production but are inhibited in the sphere of market activity, which, in most cases, is the sale of products through small traders instead of being involved in a higher-value turnover. To close these gaps, evidence based inputs are required that could be integrated into the GAD planning and agricultural programming by LGUs in order to enable the empowerment of women economically.

2. OBJECTIVES

This study primarily aims to provide a scientific basis to complement the GAD programming for local agricultural development; specifically, it intends to:

- Recognize gender gaps in participation in five main agricultural activities, namely: rice, coconut, high-value crops (HVC), livestock/poultry, and inland fishing.
- Study the livelihood (Single vs. Integrated farming) pattern changes of male and female farmers.
- Investigate gender relation with other socio-economic factors such as leadership of households, membership 4Ps (Pantawid Pamilyang Pilipino Program), indigenous membership, solo parents.

3. METHODOLOGY

The current research assumed a descriptive-analytical research design which made use of an extant survey data, which constituted 1,203 respondents who were sampled among farmers in 19 barangays in Irosin, Sorsogon. The respondents were divided into two groups of livelihood practices namely: single farming: involvement into one agricultural activity, and integrated farming: involvement into two or more agricultural activities.

Analytical areas of concern were sex-disaggregated participation differentials in five agricultural sectors-rice, coconut, high-value crops, livestock/ poultry and inland fishing and diversification by gender. To investigate the gendered vulnerability and access-related disparities, the research also described the major socioeconomic indicators, such as household headship, approximate income, 4p beneficiary status, solo parent status, and member of indigenous groups. The data were processed and analyzed in Excel, which produced frequencies, percentages, and sector level summary statistics to establish gender gaps that were relevant in the Gender and Development (GAD) planning and local agricultural programming.

4. RESULTS AND DISCUSSION

Agricultural Participation Across Gender

According to the sex-disaggregated data, the number of individuals engaging in the five farming activities was mostly greater among the males than the females, and the degree of the disparity differed according to the sectors. The largest number of people was observed in rice cultivation, the highest absolute difference between men (622) and women (299), which means that this industry is the most common type of agriculture activity, and it is highly male dominated.

The cultivation of coconuts also showed more involvement of men (149) as compared to the female involvement (81). On the other hand, inland fishing had the lowest total participation and the minimum number of females (19) which symbolized the greatest difference in terms of gender gap among the activities listed.

Table 1. Gender Distribution in Farming Activities

Farming Activity	Female / Babayi	Male / Lalaki	Total
Rice Farming	299	622	921
Livestock/Poultry	143	195	338
Coconut Farming	81	149	230
High Value Crop	56	69	125
Inland Fishing	19	57	76

Their involvement was relatively more in the livestock/poultry (143 women vs. 195 men), and high-value crops (56 women vs. 69 men), which shows that the subsectors are more gender-balanced in comparison with rice cultivation and inland fishing. Despite the fact that men had continued to constitute the higher percentage in all activities, the fact that the disparity in high-value crops and livestock/poultry is narrower indicates that the role of women in these spheres of livelihood can be more clearly identified. This trend could represent differences in the organization of work, entry conditions, and access to inputs or resources in subsectors that can adjust the opportunities of both sexes to participate.

The results highlight how the aspect of gender involvement in farming depends on sectoral attributes and how the relative extent of their involvement could be influenced by structural and feasible factors like demands of the job, time availability, mobility requirements and the availability of production factors (Giner et al., 2022; , Pettersen & Solbakken, 1998). Programmatically, these findings can be used to inform gender-responsive agricultural planning by determining subsectors that women already are better represented and those where participation is lower and may reflect the possibility of a constraint to be considered further (Giner et al., 2022; , Vassallo et al., 2021). The sex-disaggregated figures also make a valuable benchmark of the gender equality and development (GAD) tracking, especially in the determination of the ratio of women and men doing each type of farming activity, and assessing whether the interventions result in equal opportunities to access services, training, inputs, and market opportunities (Colaço & Watson-Grant, 2021; , Hawkes et al., 2022; , Esariti & Sabana, 2019).

Pattern Analysis of livelihood diversification (Single vs. Integrated farming) among Gender's farmers.

Farming in the 19 barangays of Irosin was male-dominated as 74.8% of 1203 of agricultural workers were men and 25.2% was 303 (women). When grouped according to farming practice, most of the respondents (836) were single-crop farmers with females making 27.2%(227) and males making 72.8%(609). On the contrary, women had a lower percentage of 20.7 in integrated farming (367) with a rate of 20.7%, whereas men occupied 79.3% (291). These statistics reveal that the gap between the genders exists in both practices, with an acute gap in the integrated systems.

Table 2. Distribution of Gender by Farming Practices

Farming Practice	Male	Female	Total
Single Farming	609 (72.8%)	227 (27.2%)	836
Integrated Farming	291 (79.3%)	76 (20.7%)	367
Total Farmers	900 (74.8%)	303 (25.2%)	1,203

The relative greater number of women in single crop farming as compared to integrated farming argues that the level of participation may be dependent upon the requirements built in each form of farming. Integrated farming normally involves a number of activities and inputs that are coordinated which demands more time, labor, and access to resources (Uddin et al., 2016; Reddy et al., 2020; lnnazent et al., 2022). These may limit the involvement of some farmers especially where there is an overlap between household and caregiving duties and agricultural activities (Ahmed & Garnett, 2011; Ashraf et al., 2020). As a result, the

depicted distribution makes it evident that structural and practical obstacles that drive and impact women to join and remain in the field of integrated farming should be explored (Bosma et al., 2012; Sultan et al., 2024; Purnomo et al., 2023).

Within the local programming and Gender and Development (GAD) perspective, the fact that there are 303 women farmers indicates that it is the urgency of making women visible in agricultural planning in the form of sex-disaggregated targets and monitoring systems (Margaret et al., 2015; , Acheampong et al., 2023; , Giner et al., 2022). The group of 227 women who practice single-crop farming is a possible target group of interventions that would help to diversify their livelihood options, i.e. by providing them with access to the extension facilities, trainings in accordance with the time schedule, and access to the inputs and market access (Awotona et al., 2022; , Remteng et al., 2021; , Davis et al., 2012). In addition, the encouragement of viable small-scale integrated approaches may support food security of households and income stability and make sure that the design of the programmes is non-discriminatory and in line with local realities (Lambarraa et al., 2024; , Remteng et al., 2021; , Tareke, 2025; , Giner et al., 2022).

In all sectors, the sex-disaggregated outcomes show the same intersectional disparities in the social protection status, family structure as well as household authority. In all the sectors (e.g., HVC: 44.64% versus 26.09%; inland fishing: 42.11% versus 15.79; rice: 33.78% versus 24.60%) women had higher 4ps beneficiary rates than men, and in solo-parent rates (e.g., inland fishing: 26.32% versus 8.77; rice: 19.73% versus 9.32%). At the same time, men were more likely to be defined as heads of households in all sectors by far (average of about 87 to 94 % in men versus about 45 to 51 % in women). This trend shows that the involvement of women is often placed within the framework whereby they assume major roles of caring about others and economic insecurity in addition to having less official control of the household decisions. The membership of indigenous groups by women was relatively low in most sectors with 0 to 7.41%, but on inland fishing (12.28 %) the indigeneity of sexes coincides, and hence the areas of inclusion may have diverged.

Table 3. *Intersection analysis on gender and socio-economic indicators of the respondents*

Agricultural Sector	Sex	N	4Ps Beneficiary	Solo Parent	Household Head	Indigenous Group	Avg. Est. Income*
Rice Farming	Female	299	33.78%	19.73%	50.84%	2.01%	₱53,247
	Male	622	24.60%	9.32%	93.89%	3.38%	₱54,938
HVC Farming	Female	56	44.64%	14.29%	44.64%	0.00%	₱13,543
	Male	69	26.09%	1.45%	94.20%	2.90%	₱20,025
Coconut Farming	Female	81	35.80%	18.52%	45.68%	7.41%	₱26,531
	Male	149	24.16%	8.72%	94.63%	4.70%	₱33,468
Livestock Raising	Female	143	34.97%	16.08%	44.76%	1.40%	₱3,766
	Male	195	17.44%	7.18%	87.18%	5.13%	₱3,587
Inland Fishing	Female	19	42.11%	26.32%	47.37%	5.26%	₱1,500
	Male	57	15.79%	8.77%	87.72%	12.28%	₱3,833

Trends in the estimated income also highlight sector specific gender variations which coincide with these vulnerability measures. In rice production, women and men were found to have similar average estimated incomes (Php 53, 247 and Php 54,938) even though women had higher 4Ps and solo-parent ratios, suggesting that income equivalence in this industry does not always occur in a similar household role and vulnerability model. By contrast, the income difference between HVC and coconut farming were less ambiguous (with HVC having a value of Php 13,543 and a positive value of Php 20,025; coconut having a negative value of Php 26,531 and a positive value of Php 33,468) and higher female 4Ps occurred where women were not as often the household head in these subsectors. In the meantime, rearing livestock provided extremely low incomes to both sexes (Php3,766 female versus Php3,587 male); although women tended to be recipients of 4ps and single-parent households, so this area of activity may be viewed as a subsistence or supplementary means of livelihood where women economic activity is directly correlated with household subsistence strategies as opposed to high returns. Inland fishing indicates a compounded vulnerability profile between women (high 4ps and solo-parent rates, low income at Php1,500) and men (greater indigenous membership and higher average income Php3,833) and therefore, a need to conceptualize fishing livelihoods using both gender and subgroup inclusion prisms.

These overlaps suggest that actions that are GAD responses are supposed to be sector-focused and sub-group sensitive, but not across agricultural sectors. Among women, especially those with 4ps benefits, solo parents, and non-head of households, the most relevant support would be in subsectors with the greatest income disparity (HVC and coconut) and those with the highest vulnerability indicators of women (inland fishing and livestock) (Shepherd & Graham, 2020; , Garvey et al., 2020). The practical recommendations would be to make women more access to productive resources and services (e.g., extension, inputs, credit, and market linkage) in HVC/coconut, and to provide livelihood designs that are compatible with the role they have caring (e.g., home-based or near-home production possibilities, labor-saving support, and periodic training or services) (Dunn et al., 2022; , Garvey et al., 2020). In the case of inland fishing and other groups that have higher representation of indigenous people, making sure that they are included in the targeting and with culturally relevant provisions could be useful to reduce disparity (Shepherd & Graham, 2020; , Benoit et al., 2022). The data in general suggest that the current situation requires improvement in terms of not only the concept of sex differences but also the interplay of poverty status (4ps), solo parenthood, household headship, and indigenous membership in each of agricultural sectors (Bell et al., 2021; , Purcell-Khodr et al., 2022).

5. CONCLUSION

Based from the findings, conclusion drawn that GAD-responsive agricultural interventions should be sector-specific and subgroup-responsive, giving priority to women who are experiencing poverty, single parents, and insufficient household decision-makers, particularly in subsectors with significant levels of income inequality.

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