

Determinants of Farmer Participation in the Implementation Phase of Revitalisation Programme of Selected Smallholder Irrigation Schemes in KwaZulu-Natal, South Africa

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ABSTRACT

The current irrigation schemes in Sub-Saharan Africa perform below expectations, resulting in unreliable, inadequate, and inequitable access to water. It was reported that revitalised smallholder irrigation schemes with high levels of farmer participation have performed better than supply-driven schemes with low levels of farmer participation. The purpose of the study is to investigate how certain socioeconomic and demographic factors, farmer attitudes, RESIS awareness, and access to irrigation water affect a farmer's level of participation in the RESIS implementation phase. Survey results from 350 irrigation farmers in four selected schemes in KwaZulu-Natal province revealed that marital status, farmer attitudes, and access to water all had a statistically significant effect on farmer participation levels during the RESIS implementation phase. It is essential to note that these factors may vary across different irrigation schemes due to variations in biophysical and socioeconomic factors. The implementation guidelines for the RESIS programme should therefore take these variations into account.

Keywords: Irrigation Schemes, Farmer Participation, Smallholder Farmers, Revitalisation.

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1. INTRODUCTION

Agricultural irrigation development is considered a crucial cornerstone for ensuring food security, promoting economic growth, and facilitating adaptation to climate change (World Bank, 1982; Cleaver, 1993; Hamidov & Helming, 2020). Effective irrigation management significantly contributes to several of the United Nations' Sustainable Development Goals (United Nations Development Programme [UNDP], 2015). Nevertheless, current irrigation schemes in Sub-Saharan Africa perform below expectations, resulting in unreliable, inadequate, and inequitable access to water (Merrey *et al.*, 2018). Due to this, Sub-Saharan Africa is hindered from reaching its developmental goals in the irrigation sector (Shah *et al.*, 2020). In response to some of the emerging challenges of the 1970s, policymakers revisited options to improve irrigation development (Inocencio *et al.*, 2003). Challenges included a growing population, a decrease in government budgets for irrigation projects, increased competition among water users (agriculture, domestic, and industrial), poor water management, poor irrigation system operation and maintenance, and concerns regarding the environment (Molden *et al.*, 2007; Turrall *et al.*, 2010). Governments financed, constructed, operated and maintained most irrigation schemes, with farmers left out of the management process (Bjornlund *et al.*, 2020). In the 1980s, the challenges associated with irrigation schemes in Africa intensified (Bjornlund *et al.*, 2020). Various researchers (Higginbottom *et al.*, 2021; Carter, 1989; Fanadzo & Ncube, 2018; Bjornlund & Pittock, 2017; Bjornlund *et al.*, 2020) identified five significant limitations of African irrigation schemes, i.e., high capital costs, exaggerated and overestimated gains, a lack of understanding of the social reality, the absence of management skills and responsible human resources, and the neglect of operations and maintenance. Furthermore, most studies on African irrigation schemes also identified an overly centralised and bureaucratic management system as a major limitation (Ofosu *et al.*, 2014; Higginbottom *et al.*, 2021). A more integrated community-based management mechanism resulted from this recognition. Thus, management transfer became a key strategy (Shah *et al.*, 2002; Cambaza *et al.*, 2020). Management transfer can be categorised differently according to the mode of implementation and phases, such as irrigation management transfer (IMT), participatory irrigation management (PIM), turnover or responsibility transfer (Woodhouse *et al.*, 2017). These terms are often used interchangeably, despite their differing definitions (FAO, 1999; Khadra *et al.*, 2017). FAO (2007) defined the philosophy of participatory management as “increased ownership, decision-making authority, and active participation in the operation

and maintenance of irrigation systems would create or force a binding commitment from water users to be more effective and responsible towards their obligations” (as cited by Pék, 2021).

In South Africa, PIM/IMT policies were adopted and referred to as Revitalisation of Smallholder Irrigation Schemes (RESIS), which aimed at rehabilitating irrigation infrastructure and providing farmers with access to input and output markets, training, financial support and assistance with the establishment of functional institutions within irrigation schemes (DAFF, 2015; Mudhara & Senzanje, 2020). Reinders *et al.* (2010) defined an irrigation scheme as “an agricultural project involving multiple holdings that depend on a shared distribution system for access to irrigation water and, in some cases, on a shared water storage or diversion facility”. Van Averbeke *et al.* (2011) specifically define the term ‘smallholder irrigation scheme’ in the context of South Africa as “an irrigation scheme that was constructed specifically for occupation and use by Black farmers”. Smallholder irrigation schemes are critical to rural livelihood, particularly in arid regions, where crop production depends on irrigation due to erratic rainfall and high evaporative demand (Fanadzo & Ncube, 2018; Serote *et al.*, 2021). In South Africa, Smallholder Irrigation Schemes (SIS) were established after recognising the importance of smallholder farmers to the local communities. Smallholder irrigation schemes are an essential means of achieving food security, creating jobs, and alleviating poverty, particularly in rural areas (Van Averbeke, 2012; Sinyolo *et al.*, 2014). Although the South African government continues to invest heavily in smallholder irrigation schemes, many of them remain inefficient or collapse when state support is withdrawn (Van Averbeke *et al.*, 2011). Between 2016/17 and 2019/20, the South African government invested approximately R64.4 billion in agriculture, rural development, and land reform (National Treasury, 2023). Even though different government departments participated in the RESIS programme, it was the Department of Agriculture (at provincial level) that was responsible for its implementation. The extent to which beneficiaries are involved in the revitalisation process from the beginning determines their sense of ownership over the new and rehabilitated infrastructure. Irrigating farmers or beneficiaries of the RESIS programme should be included in all decision-making processes. Therefore, the RESIS programme should be driven by demand. The selection of an irrigation system should be made in consultation with beneficiaries (Dennison & Manona, 2007). Dennison and Manona (2007) reported that revitalised schemes with high levels of farmer participation have performed better than supply-driven schemes with low levels of farmer participation. In accordance with the 'Continental Irrigation and Agricultural Water

Development Framework for Africa,' governments and implementation agencies should not manage the processes of identification, design, supervision of construction, and farmer organisation; instead, they should focus on facilitating the process based on demand (AU-SAFGRAD, 2018, p. 22).

The level of farmer participation in revitalised schemes has been the subject of several studies. These studies (Nnadi & Akwiwu, 2008; Kgosiemang & Oladele, 2012; Botlhoko & Oladele, 2013; Nxumalo & Oladele, 2013; Etwire *et al.*, 2013; Sithole *et al.*, 2014; Haile, 2016; Mthombeni, 2018) investigated factors influencing farmer participation in agricultural projects and concluded that household size, program effectiveness, constraints and effectiveness of government departments, age, gender, entrepreneurship, and household income are determinants of farmer participation in general. Muchara *et al.* (2014) examined the factors influencing farmer participation in collective activities aimed at improving the management of previously government-funded schemes. Water scarcity and low farmer literacy had a negative impact on collective activities, according to a study by Muchara *et al.* (2014). Fawole and Tijani (2013) investigated farmers' awareness and participation in extension activities, including research, extension services, and input supply services, and found a positive relationship between respondents' awareness and their participation in these activities.

A review of the literature reveals a lack of studies on the effects of farmers' awareness (knowledge) and attitudes on their level of participation during the implementation phase of PIM/IMT policies, such as the RESIS in South Africa. In addition, the study explores the effect of socioeconomic and demographic factors on farmers' level of participation during the RESIS implementation phase. In this study, farmer participation during the RESIS implementation phase refers to two principal ways: (1) resource contributions; and (2) administration and coordination efforts (Cohen & Uphoff, 1980).

2. RESEARCH METHODOLOGY

The research employed a quantitative design and involved surveying 345 farmers across four SISs in the KwaZulu-Natal Province. Data was collected through questionnaires, employing a multistage sampling procedure. The selection of the four SISs (NdumoB-NIS, Makhathini-MIS, Mooi River-MRIS, and Tugela Ferry-TFIS) was based on their participation in the RESIS programme. The researchers obtained a list of farmers from each respective SIS through

extension officers, with a total of 49 from NIS, 778 from MIS, 380 from MRIS, and 771 from TFIS. To select the farmers, the formula outlined by Naing *et al.* (2006) was utilised:

$$S = \frac{N}{1+N(e)^2} \dots\dots\dots (1)$$

To ensure greater accuracy, more farmers were interviewed from each scheme based on specified population sizes and confidence levels. It was assumed that these farmers would have experienced the implementation process of RESIS and developed certain attitudes toward the programme and its implementers. The study deliberately sampled farmers who have been actively farming since 2010 from MIS (85), MRIS (74), and TFIS (88) (Table 1). However, some statisticians argue that census methods should only be used for populations smaller than 100. Therefore, a survey was conducted on all irrigation farmers in the NIS.

TABLE 1: Number of Farmers Sampled from Selected Irrigation Schemes

Irrigation Schemes	Population	Sample size per scheme	
		Calculated	Interviewed
Makhathini	778	85	111
Ndumo B	49	-	49*
Mooi River	380	74	75
Tugela Ferry	771	88	110
Total	2124		345

Note: All Ndumo B farmers were interviewed.

Quantitative data were collected through a questionnaire comprising four distinct sections. These sections included socioeconomic and demographic factors, farmers' awareness of RESIS, farmers' attitudes toward the RESIS Programme and its implementing officials, and farmers' access to water for irrigation. The effectiveness of RESIS programmes was determined by examining the adequacy, timeliness, and equity of irrigation infrastructure. The resulting data was compiled into a comprehensive summary in Table 2.

TABLE 2: Description of Variables in the Study

Variable Description	Level of Measurement
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Farmer Participation Index of RESIS stages (FPID-decision making, FPII-implementation, FPIB-benefit, FPIE-sharing and evaluation)	Continuous variables (%)
The farmer has adequate, equitable and timely access to water	0=No 1=Yes
Age	years
Size of the household	Number of persons per household
Gender	0=Female 1=Male
Educational level of the household head	0=non-formal education, 1=Primary education (Grade 1-6), 3=Secondary education (Grade 7-12), 4= Tertiary education (Certificate/Diploma/Degree)
Size of the household farm/plot	Number of hectares
Marital status of the household head	Singe=0 Married=1
Farmers' knowledge of the RESIS Programme	1=Yes 0=No
Attitudes of farmers toward RESIS irrigation infrastructure services	Likert scale of 1 to 5*
Attitudes of farmers toward RESIS output market services	Likert scale of 1 to 5
Attitudes of farmers toward RESIS financial support services	Likert scale of 1 to 5
Attitudes of farmers toward RESIS training services	Likert scale of 1 to 5
Attitudes of farmers toward the RESIS institutional arrangement support	Likert scale of 1 to 5
RESIS implementers have a participatory approach during the RESIS process	Likert scale of 1 to 5
RESIS implementers are efficient and effective	Likert scale of 1 to 5

RESIS implementers fairness	Likert scale of 1 to 5
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***Note:** Likert scale of 1 to 5 refers to=1-Strongly disagree, 2=Disagree, 3=Neutral, 4=agree and 5=Strongly agree

To describe farmers’ socioeconomic and demographic factors, RESIS awareness, attitudes toward the RESIS programme, implementers (government officials, agencies, and contractors) and access to water, as well as farmers’ level of participation during the RESIS implementation phase, descriptive statistics (mean, percentages, and standard deviations) were used. The multiple regression model was also used to identify the various factors that have a statistically significant association with the farmers' level of participation during the RESIS implementation phase. An explanatory model involves multiple independent variables predicting the dependent variable. Multiple Linear Regression Models take the following form:

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \dots \dots + \beta_nX_n + U \dots \dots \dots (2)$$

In this model, Y represents the Farmer Participation Index (FPI) across four irrigation schemes during the RESIS implementation phase, and α indicates the value of the dependent variable when the independent variables are zero. Each β estimate shows how the average change in Y relates to a unit of change in X, while controlling for other explanatory variables in the model. In this Multiple Linear Regression Model, age, gender, education level and household land size were included as independent variables to represent demographic factors hypothesised to affect farmers’ participation level during RESIS stages based on reviewed literature (Sheikh *et al.*, 2014; Alam *et al.*, 2012; Muchara *et al.*, 2014; Botlhoko & Oladele, 2013; Phali, 2020; Sharaunga & Mudhara, 2018). Additionally, farmers' attitudes towards the RESIS and its implementers, as well as farmers' awareness of the RESIS, were also included in the model as independent variables.

Arnstein's (1969) Ladder of Citizen Participation theory approach was used by various scholars (Okoth & Mbugua, 2018; Ndlovu, 2021; Zondi, 2021) to critically analyse the type and level of farmer participation in various agricultural projects. A similar approach was employed in this study to evaluate farmer participation during various phases of the RESIS programme. Table 4 indicates that the modified version of Arnstein's ladder of participation in the democratic process used in this study was developed by Aref *et al.* (2010). According to Aref *et al.* (2010), six types of participation are grouped into three levels: non-participation (1 -

manipulation, 2-information), symbolic participation (3 - consultation, 4-interaction, 5 - partnership) and genuine participation (6-empowerment). Genuine participation occurs when farmers contact RESIS implementers and ask for their intervention with farmers directly involved in the RESIS implementation, and farmers are mandated to contribute resources and assist with project administration and coordination (empowerment).

TABLE 4: Assessment of Farmers’ Level and Type of Participation during the Implementation Phase of the RESIS Programme.

Level	Types of participation	Characteristics
3. Genuine Participation (High)	Empowerment	Farmers were empowered to participate in RESIS implementation as either locally hired employees or as members of various project advisory or decision-making committees. Farmers were also members of water user associations and irrigation scheme leadership committees, which played a role in coordinating their activities with those of the project (Arnstein, 1969; Cohen & Uphoff, 1980).
2. Symbolic Participation (Average)	Partnership	Farmers were consulted, interacted with, and partnered with RESIS implementers. Farmers received training on participation, but they were not mandated to contribute their resources or participate in project administration or coordination (Arnstein, 1969; Cohen & Uphoff, 1980).
	Interaction	
	Consultation	
1. Non-participation (Low)	Informing	Farmers were aware of or informed of the available opportunities to participate, but RESIS implementers' favourable environment, such as training, was not created for farmers (Arnstein, 1969; Cohen & Uphoff, 1980).
	Manipulation	

Farmer Participation Index FPI_{scheme} measures farmer participation in RESIS stages by calculating the ratio between 'actual participation' (the rated level of farmer participation) and 'possible participation' (the maximum level of farmer participation), expressed as a percentage. Mathematically, it can be expressed as follows (Hasan *et al.*, 2006):

$$FPI_{scheme} = \frac{1}{3} + \left(\frac{FPA_{non}}{FP_p} + \frac{FPA_{symb}}{FP_p} + \frac{FPA_{genuine}}{FP_p} \right) \times 100 \dots \dots \dots (3)$$

Where,

FP_p = farmers' possible level of participation (genuine participation, level 3) during the RESIS implementation stage.

FPA_{non} = Farmers' actual level of participation (non-participation, level 0)

FPA_{symb} = Farmers' actual level of participation (symbolic participation, level 2)

$FPA_{genuine}$ = Farmers' actual level of participation (genuine participation)

As a result, FPI could vary from 0 to 100, with 0 indicating no participation and 100 indicating full participation.

3. RESULTS

Table 3 shows that 48.70% of farmers in revitalised SISs were single. The overall distribution of population across the four SISs was women (54.49%) versus men (45.51%). Farmers owned plot sizes of 4.66 ha on average across four SISs. According to the respondents' educational levels across four SISs, 40% of them had access to primary education. Across four SISs that were revitalised, the average household size was 8.04. The average age of most farmers in the four SISs was 54.38 years. Based on the study's findings, 51.60% of farmers in each of the four SISs were aware of the RESIS programme. Regarding farmers' attitudes towards the RESIS programme, farmers in all four SISs exhibited a generally positive attitude towards institutional support (3.515), training and extension services (3.366), and irrigation infrastructure (2.489); however, they showed negative attitudes towards input and output markets (2.451), financial assistance (2.060), and irrigation infrastructure (2.489). Nonetheless, the participatory approach (2.623), efficiency and effectiveness (2.858), and fairness (3.799) of RESIS implementers were generally regarded favourably or positively by farmers in all four revitalised SISs. Less than 50% of farmers in four revitalised SISs did not participate in the RESIS implementation stage, according to the FPII for the RESIS implementation stage, which was 55.58%. In general, 52.75% of farmers in the four rehabilitated SISs had equitable, timely, and adequate access to water for irrigation.

TABLE 3: Descriptive Results of the Socioeconomic and Demographic Factors, Farmer’s Access to Water for Irrigation, Level of Participation, Awareness, and Attitudes towards RESIS Programme

Variable Description	Level of Measurement
Age	54.38 (13.94)
Household size	8.04 (3.43)
Gender	Female: 54.49%, Male: 45.51%
Marital status	Married: 48.70%, Single: 51.30%
Education level	Non-formal: 24.06%, Primary: 40.00%, Secondary: 26.96%, Tertiary: 8.99%
Plot size	4.66 (5.13)
The farmer has adequate, equitable and timely access to water	Adequate: 82.32% Equitable: 79.13% Timeliness: 62.03% General: 52.75%
Farmer Participation in RESIS Implementation (FPID)	55.58%
Farmers’ knowledge of the RESIS Programme	Yes: 51.60%
Attitudes of farmers toward RESIS irrigation infrastructure services	2.489* (0.988)
Attitudes of farmers toward RESIS output market services	2.451 (1.102)
Attitudes of farmers toward RESIS financial support services	2.060 (0.861)
Attitudes of farmers toward RESIS training services	3.366 (0.936)

Attitudes of farmers toward the RESIS institutional arrangement support	3.515 (0.856)
RESIS implementers have a participatory approach during the RESIS process	2.623 (0.887)
RESIS implementers are efficient and effective	2.858 (0.883)
RESIS implementers fairness	3.799 (0.680)

The results of the multiple linear regression model are shown in Table 4. The model indicates that farmers' level of participation during the implementation stage is positively associated with their marital status, with a statistically significant difference ($p < 0.05$). Regarding the attitudes of farmers towards the RESIS programme, the availability of financial support had a statistically significant ($p < 0.05$) positive effect on the farmers' level of participation during the programme's implementation stage. In terms of farmer attitudes towards RESIS implementers, fairness was statistically significantly ($p < 0.01$) positively affecting farmers' level of participation during the RESIS implementation stage. In contrast, farmers' attitudes towards the role of the RESIS programme in providing robust institutional support had a statistically significant ($p < 0.10$) negative effect on farmers' level of participation during the RESIS implementation stage. Finally, farmers' access to water for irrigation was found to have a statistically significant ($p < 0.10$) positive effect on farmers' level of participation during the RESIS implementation stages.

TABLE 4: Determinants of Farmer Participation across RESIS Implementation Stage in the MIS, MRIS, NIS And TFIS

Independent Variables	RESIS Implementation stage
Age	-0.018 (0.019)
Household size	-0.029 (0.064)
Gender	0.102

	(0.398)
Marital status	0.575** (0.246)
Education level	-0.239 (0.182)
Plot size	0.049 (0.049)
RESIS Knowledge	0.459 (0.388)
Attitude towards revitalised irrigation infrastructure	0.034 (0.243)
Attitudes towards market access by RESIS	0.024 (0.191)
Attitudes towards financial support access by RESIS	0.569*** (0.228)
Attitudes towards training access by RESIS	0.177 (0.250)
Attitudes towards institutional support access by RESIS	-0.539* (0.287)
Attitudes towards the participatory approach of RESIS Implementers	0.018 (0.231)
Attitudes towards the effectiveness and efficiency of RESIS Implementers	0.362 (0.247)
Attitudes towards the fairness of RESIS Implementers	1.294*** (0.350)
Access to water for irrigation	0.767* (0.422)
Y Intercept	2.595 (1.767)
Number of obs.	345
F(16, 328)	3.15
Prob > F	0.000

R-squared	0.1333
Root MSE	3.1085

Note: ***, **, *; significant at 1%, 5% and 10%, respectively. Values in parentheses indicate standard deviation.

4. DISCUSSIONS

Marital status had a positive impact on farmers' participation during the implementation, benefit sharing, and evaluation stages of the RESIS programme (Table 4). According to the results, married farmers are more likely to participate in the RESIS programme during its implementation and during the benefit-sharing phase. The results align with those of Nnadi and Akwiwu (2008), who found that farmers' concerns about household welfare and food security are linked to their marital status, influencing their willingness to participate in agricultural projects. In addition, Haile (2016) found a positive correlation between farmers' marital status and participation in agricultural extension programmes. Farmers who were married had a good understanding, support, and encouragement from their spouses.

Farmer attitudes towards RESIS financial support have statistically significantly positively affected their level of participation during RESIS implementation (Table 4). These results indicate that farmers in all revitalised smallholder irrigation schemes were more motivated to participate in RESIS implementation. Farmers generally were dissatisfied with financial support, scoring 2.060 on an attitude scale (Table 3). From personal communication with extension officers responsible for revitalising irrigation schemes, it was found that most of the time, the government did not provide farmers with cash but instead vouchers to purchase production inputs. Farmers had only been given cash (as a relief grant) during the COVID-19 pandemic. These results align with those of Sithole et al. (2014) and Etwire et al. (2013), who also concluded that farmers can be motivated by access to funds through credit or grants. Mthombeni (2018) found that the funding framework in South Africa was not well-suited for emerging farmers but rather catered to existing commercial farmers. Hence, the government in South Africa introduced the Comprehensive Agriculture Support Programme (CASP) and Ilima/Letsema to cater specifically to food security, subsistence, emerging smallholder, and commercial farmers (DAFF, 2015). Farmers were encouraged to participate in RESIS's implementation stage because of their positive attitudes towards RESIS's financial support, in

agreement with the reviewed literature (Sithole *et al.*, 2014; Etwire *et al.*, 2013), which showed that to encourage farmers' active participation in agricultural developmental programmes, credit or grants should be accessible through financial institutions or government departments.

Survey results revealed that farmers across the four irrigation schemes exhibited positive attitudes toward supportive institutional arrangements (Table 3). Nonetheless, farmers' attitudes towards access to institutional support were unexpectedly negatively affected by their level of participation during the RESIS implementation stage (Table 4). This finding contradicts the existing literature (Sirikwa, 2015; Phali *et al.*, 2020; Mwadzingeni *et al.*, 2020), which suggests that farmers are more likely to participate in collective activities when they have access to supportive and robust institutional arrangements. Additionally, access to functional formal and informal institutions should create an appropriate environment for socialising, interacting, and settling disputes, allowing time to focus on farming operations to produce high yields and incomes (Mwadzingeni *et al.*, 2020). The study's findings indicate that although farmers were satisfied with the institutional support provided by the RESIS programme, this may have been a primary factor in their limited involvement during the programme's implementation phase. It is possible that most farmers elected committees within their irrigation schemes to act on their behalf during the RESIS implementation phase, especially as coordinators or administrators of projects. Strong institutional support may also result in fewer opportunities for individual farmers to participate, but more opportunities for a small group of elite farmers to participate.

In this study, farmers across the four irrigation schemes expressed positive attitudes towards the fairness of RESIS implementers (Table 3). According to Batho Principles, government officials should be mindful of fairness and equity when providing services to smallholder irrigation farmers (DPSA, 2023). This is aimed at ensuring that every citizen is afforded an equal and fair opportunity to access government services. Farmers' attitudes towards the fairness and equity in the allocation of benefits by RESIS implementers statistically significantly positively affected farmers' participation during the RESIS implementation stage (Table 4). Farmers are likely to participate in the RESIS implementation stage if they perceive fairness and equitable treatment by RESIS implementers during benefit allocations.

The study's results also indicated that farmers had an overall access to water for irrigation of 52.75% (Table 4.8). Access to water for irrigation had a statistically significant positive effect

on farmers' level of participation during the RESIS decision-making stages (Table 4). Muchara *et al.* (2014) also concluded that long-term water scarcity discourages farmers from participating actively in collective actions. The current study employed three criteria to assess access to water: reliability, adequacy, and equity. Therefore, farmers' access to reliable, adequate, and equitable water was crucial to their participation in the RESIS implementation phase.

5. CONCLUSION AND RECOMMENDATIONS

This study has determined the variables that influence farmers' level of participation in the RESIS programme during its implementation phase. Farmers' attitudes towards RESIS financial support, their marital status, the fairness of RESIS implementers, and their access to water for irrigation were found to be factors that encouraged farmers to participate in the RESIS implementation stage. However, strong institutional support for revitalised irrigation schemes limits farmer support on an individual basis, allowing elite farmers to be the only ones able to influence irrigation scheme implementation decisions.

The study recommends modifying the implementation guidelines of the RESIS programme to consider factors such as marital status, financial access, fairness, and access to adequate, equitable, and timely water for irrigation. Farmers, on an individual basis, should also be given the opportunity to participate in the implementation of RESIS to ensure their irrigation schemes are revitalised according to their preferences. Because these factors vary from one irrigation scheme to another, guidelines for implementing the RESIS should not be seen as one-size-fits-all. As a result, the implementation guidelines should be determined by the outcomes of evaluating these factors.

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