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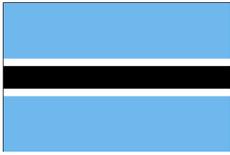
# UNDP-UNEP POVERTY-ENVIRONMENT INITIATIVE



## Policy Brief

# Support to smallholder arable farmers in Botswana: agricultural development or social protection?

Results and policy implications from a Poverty and Social Impact Analysis



BOTSWANA

### Key Messages

- ISPAAD packages have been delivered to predominantly poor beneficiaries, however there has been substantial leakage to larger farmers and tractor owners
- Seed and fertilizer distribution and the promotion and use of appropriate tilling techniques and farming systems need to be tuned to land suitability conditions and relevant characteristics of agro-ecological zones
- As an agriculture development programme, ISPAAD has to-date generated sub-economical returns on investment and would in its current form be unsustainable in the long term
- However, if redesigned ISPAAD has the potential to effectively support agricultural and rural development incl. the aspirations of female-headed households, and help eradicate poverty

### Introduction

In Botswana, small holder farming is still the dominant livelihood activity in the rural areas, and a substantial source of employment, food and income. However, the small holder arable agricultural sector has persistently under-performed due to harsh agro-ecologies and erratic weather conditions characterized by low soil fertility, recurrent droughts, and unpredictable weather patterns associated with climate change. Infrastructure deficits and unfavourable trading conditions have further compounded the fate of the poor and vulnerable. Government interventions have been motivated by objectives to achieve household and national food security by supporting agricultural development and incorporating an element of social protection of farmers against agricultural risks, vulnerability and market failure. In 2008, the Government initiated the Integrated Support Programme for Arable Agriculture Development (ISPAAD) to support and develop the agriculture sector.

In 2012, UNDP-UNEP Poverty-Environment Initiative (PEI) Botswana commissioned a Poverty and Social Impact Analysis of ISPAAD with the aim of analysing the performance of the programme, with particular focus on key programme activities and the impact on poor people, vulnerable groups and the environment. This Policy Brief presents findings from the analysis, conclusions, policy implications and recommendations.

### Poverty and Social Impact Analysis of the ISPAAD programme

The objectives of ISPAAD are to increase grain production, promote food security<sup>1</sup> at the



household and national levels, commercialize agriculture through mechanisation, facilitate access to farm inputs and credit, and improve extension outreach. It aims to improve farm output and productivity by enhancing farmers' access to essential inputs which include seeds, fertilizer, draught power, credit, cluster fencing, potable water and agricultural services.

Citizen or resident farmers aged 18 years and above with proof of ownership or access to arable land are eligible to benefit from ISPAAD. Farmers are provided with free seeds of open pollinated varieties of major grain crops (maize, sorghum, millet and cowpeas) to plant a maximum of 16 hectares and free fertilizer up to a maximum of 5 hectares at a rate of 200 kg/ ha on condition that they row plant and have access to fertilizer applicators. Government assists farmers with draught power and associated implements for arable farming either through Agricultural Service Centres or private contractors. Farmers are assisted to plough,

<sup>1</sup> Food security is met when "all people, at all times, have physical, social and economic access to

sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO, 2002)

harrow, and row plant a maximum of 5ha for free. In addition, farmers could be assisted to plough/harrow/row plant additional hectares from 6th to 16th ha at 50% subsidy. Government-set prices are: Pula 400/ha for ploughing, Pula 350/ha for minimum tillage, Pula 150/ha for harrowing and another Pula 150/ha for row planting. Farmers who use animal draught power also qualify for the subsidies provided operations are carried out correctly.

The 2012 PEI Botswana commissioned Poverty and Social Impact Analysis of ISPAAD examined the performance of the programme, from 2008 till the 2011-12 cropping season, particularly focusing on key programme activities and the impact on poor people, vulnerable groups and the environment.

## Key Findings

From 2009 to 2011 on average 110,000 people benefited from ISPAAD. About 70% of ISPAAD beneficiaries indicated a monthly income of less than Pula 465.22 (<USD 60) which they derived from dryland and mixed farming as well as other income sources including old age pension and Ipelegeng payments. In comparison, Pula 880.29 is the current adjusted Poverty Datum Line (PDL) for a household of four. This indicates that ISPAAD beneficiaries are predominantly poor and that the majority of households benefitting from ISPAAD fall below the PDL.

Women constituted about 60% of the beneficiaries (see figure 1)<sup>2</sup> and about 63% of ISPAAD beneficiaries were aged 50 and above, with those aged 65 and above making up the largest category at 28% of the beneficiaries. Youth participation in ISPAAD is very low. Only about 8% of beneficiaries aged 18 to 29 years participated in the programme.

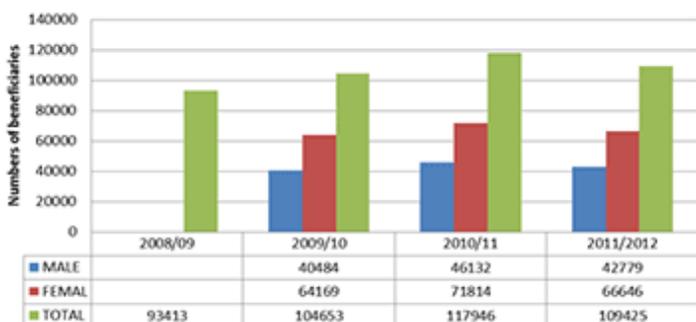


Figure 1 - Source: PSIA-ISPAAD 2012 (BCA Consult, 2012)

<sup>2</sup> Smallholder subsistence arable agricultural is the traditional domain of women and female-headed households. The predominance of women beneficiaries points to the significance of ISPAAD and the need to consider specific requirements of female-headed households in agricultural reform and development.

Approximately 17% of ISPAAD beneficiaries have no formal education, about 48% have primary level education, and 14% have secondary level education.

ISPAAD beneficiaries accessed free seed, free draught power and free fertilizer more than other service packages. Maize is the most popular grain seed accessed, followed by sorghum and cowpea (see figure 2). The choice and distribution of seed is however not based on agro-ecological zone considerations. The majority of farmers received maize seed and grew it in areas not suitable for the crop. This resulted in high incidence of crop failure and a reduction in yield. In 2010/11 just over 6,000 farmers made use of the free fertilizer package (MoA, 2011).

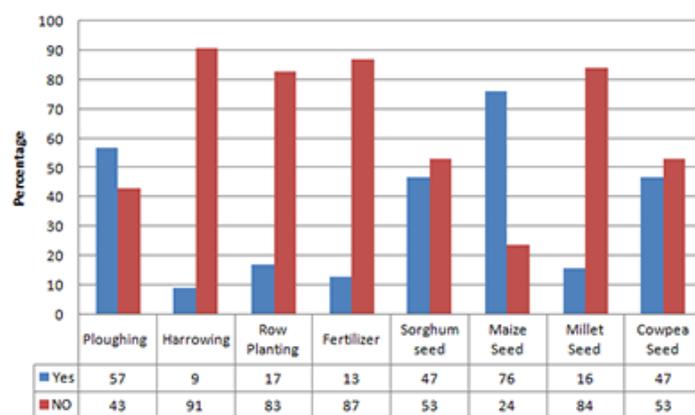


Figure 2 - Source: PSIA-ISPAAD 2012 (BCA Consult, 2012)

The size of most arable lands was relatively small for mechanical ploughing (3 hectares in 2011) even though about 60% of ISPAAD beneficiaries utilized tractor draught power, mainly to produce crops for subsistence purposes.

During 2007/08 (before ISPAAD) 31,000 communal farmers were involved in arable dryland agriculture. Under ISPAAD, 96,000 beneficiaries were registered in 2008/09 and the number increased to 118,000 in 2010/11.

Before ISPAAD, the area planted was 104,000 ha in 2007/08. This increased to 298,000 ha in 2008/09 when ISPAAD started and reached a peak with 377,000 ha in 2010/11. Total domestic grain production during ISPAAD averaged 58,000 tons per year. Productivity remained low and continued to decline during ISPAAD. The national average grain productivity was 320kg/ha of grains against an expected ISPAAD target yield of 1,000kg/ha. Domestic grain production only satisfied about 10 per cent of national staple grain requirement. Botswana imported an average of 300,000 tons of cereal grains per year during ISPAAD (see figure 3).



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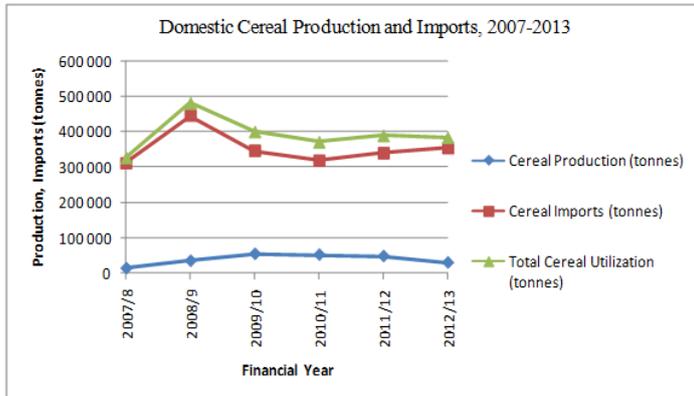


Figure 3 - Source: PSIA-ISPAAD 2012 (BCA Consult, 2012)

ISPAAD had a negative impact on extension outreach. The core business of agricultural extension workers has been overshadowed by clerical and administrative work demands of ISPAAD at the expense of modern technology transfer and advice to farmers.

## Conclusions

ISPAAD packages reached marginalized beneficiaries and households with stated incomes below the poverty datum line. These include the elderly, the uneducated and women. However, given that ISPAAD has not been able to increase grain production and yields these individuals and households remain food insecure and ISPAAD, by itself, is not likely to alleviate these vulnerable groups from poverty.

ISPAAD is not means-tested but rather universally accessible. The eligibility criteria allow all active persons with access to arable land to benefit. This makes ISPAAD a non-discriminatory and very inclusive of all marginalized groups. However, as a result, the programme is prone to underperform and be misused<sup>3</sup> and its long term sustainability could be seriously compromised.

Although the objectives and service packages of ISPAAD programme seem desirable from a national agricultural development perspective, the execution and outcomes of the programme have failed to achieve the intended objectives making it a sub-economical and inefficient intervention from an investment and agricultural development point of view. Food security at both household and national levels has not improved during ISPAAD. Domestic grain production has not increased in terms of both total production and productivity (average yield per hectare).

<sup>3</sup> Some arable fields are subdivided (e.g. amongst family members) into several parcels of smaller sizes so that an entire holding effectively receives a 100% subsidy on seeds, ploughing and fertilizer. These subdivisions inflate the number of "arable farmers".

ISPAAD has had only a marginal impact on commercializing arable agriculture in the country. The programme facilitated access to draught power and farm implements and brought about an increased use of tractor power in primary tillage operations, but very few farmers row planted or used inputs such as improved seeds and fertilizer which are characteristic of commercial farming because they did not have, nor did they have access to, the necessary equipment. Timely access to seed and fertilizer was compromised due to delivery challenges. Traditional farmers also did not benefit from the credit facility because they did not meet the requirements for obtaining loans at the National Development Bank.

Although annual expenditure on ISPAAD rose from Pula 159 million in 2008 to Pula 220 million in 2013 (approximately 80% of the annual budget of the Department of Crop Production), this investment only marginally contributed to the objective of promoting food security. Comparative analysis of average grain production for the period 1982 to 2007/08 and during ISPAAD (2008/09 to 2011) indicates no significant difference in average total production between the two periods.

Almost 70% of the ISPAAD budget goes into funding the ploughing component<sup>4</sup>, 60% of which goes to private tractor owners. Hence, the objective of enhancing mechanised farming seems to have largely benefited private tractor owners.

Annual expenditure on ISPAAD operations exceeded annual proceeds (estimated total value of production) in all the cropping seasons since the inception of the programme. The study shows that the estimated annual proceeds per unit of outlay remained less than unity for the entire ISPAAD period and that the net present value (NPV) of benefits which accrued from ISPAAD operations is negative. In fact, the value of the total agricultural production under ISPAAD is substantially lower than the total cost of the ISPAAD programme with all its packages and benefits.

ISPAAD has taken time away from the core business of extension workers, rather than improving the quality of the extension services, who spent considerable time distributing seeds, measuring fields and preparing payment certificates. A high extension worker-to-farmer ratio meant that most extension workers did not adequately cover their extension areas because of time and transport shortages. Most farmers indicated that they would not see their extension workers more than twice during the agricultural season.

<sup>4</sup> In 2008/09 the ploughing/planting component amounted to 75% of the ISPAAD annual expenditure (MoA/GoB, 2010). In the same year, less than 20% of the farmers row-planted, stating that broadcasting is easier, faster and cheaper (less soil preparation and no need for special implements) and more effective under erratic rainfall conditions.



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## Policy implications and recommendations

ISPAAD provides initial-level free inputs to all beneficiaries which arguably reduces intervention efficiencies. The Ministry of Agriculture may want to consider introducing transitional reducing-balance subsidy support. Government subsidy per beneficiary would be reduced over time while owner contribution is increased over the same period. This would be a cost-sharing measure that would maintain some free inputs (social protection) whilst simultaneously inducing a personal financial commitment from the farmers to ensure maximum returns on investment. The ISPAAD implementation guidelines would need to be reviewed accordingly with the aim of making the programme clearly targeted, means-based and focused on agricultural development with packages offered on an incremental cost-sharing basis.

The Ministry of Agriculture is furthermore advised to reduce high incidences of crop failure due to factors associated with land suitability and climate change considerations by distributing seeds (sorghum, maize, millet and cowpea) according to land suitability / agro-ecological zones. Where feasible, the eligibility criteria should include a minimum arable land size to minimize excessive cost and field subdivisions purported to abuse ISPAAD support.

The study recommends that the Ministry of Agriculture devise efficient means of delivering farm inputs (seed, fertilizer, draught power) and implements (harrows, planters, and fertilizer applicators) at the right time and in the right quantities to farmers. There is need for improved management and coordination amongst packages (fertilizer – planting) whereby consideration be given to bundling ploughing, harrowing, row planting and fertilizer applications into a single package. The private tractor contractor should therefore commit to delivering this single package to the farmer.

There is need for the Department of Crop Production in the Ministry of Agriculture to refocus onto its core business of providing technical knowledge, information and advisory services to arable farmers in order to achieve ISPAAD objectives. The sourcing, delivery and distribution of ISPAAD inputs would best be done by dedicated ISPAAD staff.

The study advises Ministry of Agriculture to undertake a comprehensive review of government policies, programmes and projects to identify linkages and align ISPAAD with those initiatives with similar aims and objectives. This exercise will allow Government to fully exploit existing synergies to derive maximum benefits out of mutually supportive initiatives.

There is need for a regular review and redesign of the ISPAAD programme. The Ministry of Agriculture would need to prepare a comprehensive ISPAAD programme document that clearly specifies all the key design features: outcomes, outputs, eligibility criteria, products offered, performance criteria, targets, assumptions, and an efficient monitoring and evaluation system.

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