ReSAKSS-SA Meeting Report

Monitoring trends and spatial analysis of public spending in agriculture

Report of the technical meeting, Lusaka, Zambia, May 29-30, 2007

Olubode-Awosola Femi, Pius Chilonda and Isaac Minde (editors)



Regional Strategic Analysis and Knowledge Support System for Southern Africa (ReSAKSS-SA)

Meeting Report

Report of the Technical Meeting on

'Monitoring trends and spatial analysis of public spending in agriculture'

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Olubode-Awosola Femi, Pius Chilonda and Isaac Minde

July 2007

International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and

International Water Management Institute (IWMI)

The technical meeting on "Monitoring trends and spatial analysis of public spending in agriculture", was hosted by the Michigan State University (MSU)/Food Security Research Project (FSRP), Agricultural Consultative Forum (ACF), Zambia and Regional Strategic Analysis and Knowledge Support System for Southern Africa (ReSAKSS-SA)

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The ReSAKSS-SA aims to identify and assess strategic options for agricultural growth particularly poverty alleviation in southern Africa. ReSAKSS-SA supports review and learning processes in the region to contribute to the successful implementation of agriculture and rural development strategies with particular emphasis on Comprehensive Africa Agriculture Development Programme (CAADP) and Southern Africa Development Community Regional Indicative Strategic Development Plan (SADC RISDP). ReSAKSS-SA is jointly implemented by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and the International Water Management Institute (IWMI), in collaboration with the International Food Policy Research Institute (IFPRI), regional and national partners.

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Abbreviations

AETS	Agricultural Expenditure Tracking System
AIMS	Agricultural Information Management System
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
AU	African Union
CAADP	Comprehensive Africa Agriculture Development Programme
CGIAR	Consultative Group for International Agricultural Research
COFOG	Classification of the Functions of the Governments
COMESA	Common Market for Eastern and Southern Africa
FAO	Food and Agriculture Organization of the United Nations
HSRC	Human Science Research Council
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IFPRI	International Food Policy Research Institute
IITA	International Institute for Tropical Agriculture
ILRI	International Livestock Research Institute
IWMI	International Water Management Institute
MDG	Millennium Development Goal
MPRSP	Malawi Poverty Reduction Strategy Paper
NEPAD	New Partnership for Africa's Development
PPLPI	Pro-Poor Livestock Policy Initiative (FAO)
PRSP	Poverty Reduction Strategy Plan
ReSAKSS	Regional Strategic Analysis and Knowledge Support System
RECs	Regional Economic Communities
RISDP	Regional Indicative Strategic Development Plan
SADC	Southern African Development Community
SAHIMS	Southern African Humanitarian Information Management System
SAKSS	Strategic Analysis and Knowledge Support System
SAKSS-SA	Strategic Analysis and Knowledge Support System for Southern Africa
SAP	Structural Adjustment Programme
SDMX	Statistical Data and Metadata Exchange
USAID	United States Agency for International Development

A synthesis of major outcomes

The technical meeting of the Regional Strategic Analysis and Knowledge Support Systems Southern Africa (ReSAKSS-SA) was held in Lusaka, Zambia and hosted by the Food Security Research Projects (FSRP) and the Agricultural Consultative Forum (ACF). The theme of the two-day meeting was 'Monitoring trends and spatial analysis of public spending in agriculture'. The main objectives of the meeting were to:

- discuss methodological issues and share experiences related to the collection of data on public spending in agriculture and
- launch the implementation of the studies on 'monitoring trends and spatial analysis of public spending in agriculture' for Malawi, Mozambique and Zambia.

One of the main aims was to open a dialogue, with the international research institutes, donors and local collaborators working on relevant issues in the region.

Key outcomes

The meeting brought together 39 delegates from the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), the International Food Policy Research Institute (IFPRI), universities, the Human Sciences Research Council (HSRC), the International Water Management Institute (IWMI), the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), the United States Agency for International Development (USAID), the Common Market for Eastern and Southern Africa (COMESA), the World Bank and the Southern African Development Community (SADC) member states. This high level attendance provided an opportunity for meaningful discussion amongst the different stakeholders on the issues that were raised.

After much deliberation, the meeting concluded that ReSAKSS-SA has an essential role to play in adding value to what the AU/NEPAD has been doing on the Agricultural Expenditure Tracking System (AETS) in Africa. The meeting went on to agree on the way forward in implementing studies to monitor trends and conducting spatial analyses of public spending in agriculture in three pilot countries. Consensus was reached on the following points:

- The AU/NEPAD definition of agriculture has the advantage of simplicity and consistency when making comparisons across different countries. However, it was agreed that the definition needed to be flexible in accommodating country peculiarities.
- Food imports should be taken as a trade off when considering them as public spending in agriculture but they should be disaggregated for trade off analysis.
- Investment that is relevant to agriculture should be counted. To capture this broader data collection should be carried out in the three pilot study countries. The AU/NEPAD counts spending on infrastructure as agricultural if at least 70% of it impacts on agriculture.
- Private sector and non governmental organisation (NGO) contributions to agricultural growth should be taken into account when tracking agricultural investment. There was broad consensus that donor contributions should be accounted for.

Pilot studies for three countries, namely Malawi, Zambia and Mozambique were launched.

Chapter 1

1.1 Opening Session: Welcome remarks, ReSAKSS-SA and the objectives of the meeting

Chairperson: Cris Muyunda, Senior Agricultural Advisor, COMESA

Welcoming remarks

African Union/NEPAD: Ricardo Xavier, Senior Policy Officer in his welcoming remarks extended greetings from the AU to the meeting and thanked ReSAKSS-SA for the invitation to the methodological meeting. The AU is proud to be associated with the spirit of this meeting given its relevance to the AU's key priorities and the importance of agriculture in the African economy. The AU/NEPAD is concerned about the lack of consistent growth of agriculture in Africa and wonders why Africa as a continent spends about \$20 billion annually on agricultural imports, which could rather be spent on research, production, marketing, storage and processing for higher productivity and growth. The AU/NEPAD is tasked with fast tracking the implementation of commitments under the Maputo Declaration to allocate at least 10% of national budgets to agriculture and rural development. To facilitate tracking public expenditure it has defined the core areas of agriculture and rural development relevant to the 10% budget allocation in collaboration with the Member States and the regional economic communities (RECs). The definition is based on the internationally accepted definition of agriculture and related activities given in the classification of the functions of government (COFOG). Agriculture includes crop, livestock, forestry and fisheries sub-sectors. The AU/NEPAD has prepared a technical guidance note and a questionnaire for tracking public expenditure in agriculture and monitoring the trend in the commitment of each country that is party to the declaration. Challenges include the investment priority and maintaining a sustainable healthy environment in the pursuit of targeted agricultural growth.

COMESA: *Cris Muyunda, Senior Agricultural Advisor* expressed sincere gratitude to ReSAKSS-SA, IWMI, ICRISAT and IFPRI for the initiative on monitoring trends in public agricultural spending in southern Africa. The COMESA region takes the CAADP agenda seriously since agriculture supports about 80% of the population. COMESA has contracted resource persons who will be supported by ReSAKSS-SA and the Michigan State University Food Security Research Project (MSU/FSRP) in their efforts to monitor trends in public agricultural expenditure in the region. It is important to identify the sectors that should be the focus of public agricultural spending in order to achieve the 6% agricultural growth target. For example, to date COMESA has identified 20 projects for achieving competitiveness and the Comprehensive Africa Agriculture Development Programme (CAADP) target. It is hoped that this meeting will lead to a consensus that will add value to what has been done by other agencies in the region.

ICRISAT: *Isaac Minde, Senior Scientist (economics),* in his opening remarks raised a number of questions that ReSAKSS-SA hopes to answer in order to add value to what has already been done on the continent by other agencies. ReSAKSS-SA seeks to contribute to information that will inform decision making on where and why to invest in each country of the southern Africa region. Re-SAKSS-SA's agenda also includes knowledge sharing, although the purpose of this meeting is to discuss the methodology for monitoring public agricultural spending.

Official opening:

Richard Chizyuka, Permanent Secretary, Ministry of Agriculture and Cooperatives (MACO), Zambia,

The Permanent Secretary welcomed participants. He remarked that the performance of agriculture in the SADC needed improvement because of its importance in the region's economy. He expressed the belief that if countries showed their commitment to the Maputo declaration by investing at least 10% of their national budgets in agriculture and rural development this might appreciably improve agriculture in the region. He noted that the AU has provided some guidance for implementing agricultural expenditure tracking in African countries. However, he underlined the need for ReSAKSS-SA, as one of the programmes initiated to assess public expenditure and allocation trends in the agriculture sector in the southern African region, to add value to what the AU/NEPAD has done so far. It can do this by providing answers to questions such as how best to allocate this investment and how governments can achieve higher and more sustained returns from these investments. Other questions include what expenditures are most likely to contribute to achieving faster growth rates in agricultural GDP in order to reach the growth objectives in the SADC's Regional Indicative and Strategic Development Plan (RISDP) and CAADP, and what payoff will result from the 10% budget allocation to agriculture?

He emphasised the importance of ReSAKSS-SA's efforts to create a common method for assessing the progress countries are making towards allocating a growing share of their budgets to the agricultural sector. This includes analysing changes in the levels and composition of government and donor spending in the agricultural sector, spatial analysis of agriculture spending to determine its geographical concentration, if any, and its impacts on the goals of accelerating agricultural growth and poverty reduction. He stressed that the purpose of the meeting was to advance knowledge on measuring public expenditure in agriculture. To this end the meeting has two main objectives:

- to discuss methodological issues and share experiences related to the collection of data on public spending in agriculture and
- to launch the implementation of the studies on 'monitoring trends and spatial analysis of public spending in agriculture' for Malawi, Mozambique and Zambia.

The aim is to open a dialogue, within the international research institutes, donors and local collaborators working on relevant issues in the region. The Permanent Secretary emphasised that Zambia will cooperate with ReSAKSS-SA in its pilot study of public agricultural spending in Zambia.

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1.2 **ReSAKSS-SA and objective of the meeting**

Dr Pius Chilonda, Sub-Regional Coordinator, ReSAKSS-SA, IWMI/ICRISAT, gave a brief history and introduction of ReSAKSS-SA. It is one of the regionally focused initiatives by CGIAR centres undertaken in close collaboration and partnership with country, regional and international partners. He outlined the objectives and organisational structure. He brought to the notice of the meeting the challenge presented to the region by declining and variable agricultural growth. ReSAKSS-SA hopes to contribute to addressing this challenge with strategic analysis, knowledge sharing and capacity building through its programme activities. He then

set the pace for the meeting by itemising its objectives, namely to discuss methodological issues and share experiences on collecting data on public spending in agriculture, the rationale and approaches to spatial analysis of public expenditure in agriculture and launching the implementation of the studies on 'monitoring trends and spatial analysis of public spending in agriculture' in Malawi, Mozambique and Zambia.

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1.3 Conceptual and methodological issues

Chairperson - Cris Muyunda, COMESA

Implementing the agriculture expenditure tracking system in Africa

Dr Faustine Nwampe AU/NEPAD/FAO Senior Agricultural Policy Advisor stated that African leaders have agreed to abide by the Maputo declaration on agriculture and rural development as opposed to only agriculture. He highlighted the African priorities that emerged from the consultations with stakeholders. They include increasing investment in the agricultural sector at national level to enhance production, marketing and trade, food security, and research and dissemination of information. He itemised the sources of CAADP funds and gave an estimate of the 2006-2008 budget in millions of US\$, indicating that current investment is estimated at 35% of the total. He stressed that the AETS is important in tracking the flow of funds and establishing the adequacy of public investments in CAADP priorities. He gave a definition of agriculture expenditure and of agriculture but admitted that defining agriculture has been a challenge to the AU, and claimed that agriculture may not be same as rural development. The definition of agriculture is based on the international classification of the functions of government (COFOG) definition, which includes only those activities that are predominantly agriculture based or oriented. In this definition, agriculture includes crops, livestock, forestry and fisheries. Expenditure is considered agricultural expenditure if more than 70% of the cost is related to agriculture. AETS as implemented by the AU/NEPAD is based on actual expenditure based on COFOG for the reporting period of 2002 to 2006 using 2003 as the base year. The ministry of finance is expected to coordinate data collection. He highlighted a number of challenges faced by the AU in implementing AETS including a capacity constraint at continental, regional and national levels. Data is inadequate and the next step will be to get more data on an annual basis. Data interpretation has also been a challenge. The results of AETS as implemented by the AU/ NEPAD to date show that:

- 36 countries have responded,
- seven countries have exceeded 10% expenditure on agriculture in 2005,
- 13 countries are in the range between 5% and 10%,
- 16 countries had agricultural expenditure of less than 5% of their total expenditure,
- a downward trend is emerging in the proportion of countries reporting less than 5% expenditure allocation to agricultural development,
- the number of countries reporting national expenditure allocation between 5% and 10% is increasing and
- there is an upward trend in the number of countries allocating more than 10% of total expenditure to agriculture.

He stated that, given the 2008 deadline, the AU believes that governments should focus on CAADP public expenditure.

Questions and comments:

Question

What is the quality of the data used by the AU in implementing the AETS?

Response

This is one of the challenges faced by the AU. More inputs from stakeholders in elaborating the work and ensuring more quality data is deemed essential to improving the quality of data used in implementing AETS.

Question

Is expenditure going to priority areas?

Response

The AU considers that this depends on the priority of each country based on its comparative advantage, and on socio-political and economic considerations.

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1.4 Can we measure public expenditure in agriculture? Definitions, boundaries and classifications/measuring public expenditure in agriculture

Thom Jayne, Professor of Agricultural Economics, Michigan State University, USA, highlighted that the rationale for tracking agricultural systems is to provide guidelines for monitoring public expenditure trends in agriculture and for assessing shifts in the sources and composition of agricultural spending. The objective of tracking agricultural systems is clear but now the task is to explain how to do it in a meaningful way. There are a number of principles that should be taken into account in measuring or tracking agricultural systems and these are:

- *Principle 1:* Define agricultural sector spending according to internationally accepted standards, namely COFOG. However, very few countries in the region currently use COFOG.
- *Principle 2:* Develop consistent way of counting public agricultural expenditures. In this case it is necessary to agree on what to count and to apply definitions consistently across years and countries.
- Principle 3: Disaggregate by funding source and by recipients or service providers.
- Principle 4: The composition of agricultural spending matters greatly.

The impacts of agricultural spending on agricultural growth depend on the composition of spending hence the need to disaggregate. Examples of each of these methods were also presented.

1.5 Data considerations in measuring public expenditure in agriculture: illustration using the case of Zambia

Dr Jones Govereh, Research Fellow, MSU/FSRP, Zambia, stressed the importance of outreach campaigns in data collection. This includes setting up committees and teams to ensure quality data collection. He stressed that agricultural expenditure should be categorised into dimensions that are meaningful and relevant to policy development. He noted the challenges of assembling, validating and analysing data for measuring public expenditure in agriculture since the data sources may include donors or recipients, funding agents and yellow books. He expressed the hope that ReSAKSS-SA would be able to help with data collection and knowledge sharing.

Questions and comments

Question

Is the COFOG approach not going to limit data collection since the function of government is constantly expanding?

Response

The AU is tracking audited accounts and believes that for consistency's sake it is better to limit the target and give details on what is practically feasible. That is why the AU is excluding some activities and concentrating on those covered by COFOG. This will enhance documentation of what is done and ensure consistency over time and across the countries.

Question

Why is private expenditure not included in the AETS?

Response

The AU insists that tracking private expenditure is difficult. The MSU is measuring government's, not donor's, contributions to achieving the target set in the Maputo Declaration. Counting donors' contributions might result in double counting since the donation might go to government.

2.1 Monitoring trends in pubic spending in agriculture:

Chairperson: Cris Muyunda, Senior Agriculture Advisor, COMESA

2.1.1 Initial trends in public spending on agriculture in Malawi

Daniel Njiwa standing in for Ian Kumwenda, Malawi Agriculture Sector Investment Programme Coordinator, Malawi gave an introduction to agriculture in Malawi, which contributes 36% of GDP and consists of two sub-sectors - smallholder and estate agriculture. Production trends for food crops are showing an increase. He explained that the policy framework for agriculture in Malawi is based on the MDGs, CAADP, and the Malawi Poverty Reduction Strategy Paper (MPRSP). The National Agriculture Policy Framework (NAPF) sets out priorities and is aligned to the MDGs. He showed the preliminary results from the trends analysis of public spending in agriculture using data from the Ministry of Agriculture's public expenditure review. The results show that between 1996 and 2006, public spending on agriculture has been far less focused on agricultural value added. There has been an upward trend in the proportion of recurrent spending in agriculture and a downward trend in the proportion of development spending. Public spending on agriculture as a proportion of the national budget varied but remained below the CAADP target of 10% between 1996 and 2005. There has been a downward trend in donor contributions to the development budget while the government contribution shows an upward trend. The administration, extension management and crop production sub-sectors generally receive priority in that order. In public spending on the agricultural sector, however, attention is shifting more towards crop production and appreciably away from extension management. His preliminary results suggest that agricultural spending in Malawi remains below 10%, contrary to AU claims that it is above 10%.

2.1.2 Initial trends in public spending on agriculture in Mozambique

Emilo Tostao, Assistant Professor, Eduardo Modlane University, Mozambique stated that the working team in Mozambique is still being set up. Instead of presenting comprehensive results he spoke about the challenges that the team will face when it begins work. He stressed that it is hard to get data, while the definition of agriculture remains controversial. There are changes in the classification of budget items over time. Some expenditure is not captured in national statistics. From the preliminary analysis, the share of agriculture in the total budget was 2.5% and 7.4% in 2003 and 2004 respectively. At least 65% of this came from external funding making the agriculture budget heavily dependent on this funding. Of the spending on agriculture, capital expenditure is on average four times more than recurrent expenditure.

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Discussion

Question

To what extent is the definition of agriculture flexible especially given the COFOG approached adopted by the AU/NEPAD?

Response

From the side of the AU/NEPAD there is no flexibility on the definition of agriculture – it includes crop and livestock production, fisheries, and forestry. However, each country can spend on other sectors relevant to agriculture as it deems fit.

Question

What does the definition adopted by the AU/NEPAD mean for differences in the resource base between countries?

Question Why is it that funding has not led to the expected growth?

Response

There is a lag between spending and impact.

Question

How do we raise awareness on the need for data collection? What incentives (positive or negative) are there to make data available?

Response

Yes incentives are needed to get data. At AU level, ministries of agriculture and finance are expected to be the sources of data but the data is not coming in as expected. The AU is collaborating with other partners in data collection.

Comment

The definition of agriculture adopted by the AU is narrow and should be thrown open for further discussion.

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2.1.3 Measuring the growth and poverty reduction impacts of public investments in the agriculture sector

Sam Benin, Research Fellow, IFPRI, USA, raised some conceptual and methodological issues but also acknowledged the problem of data collection. Data are mostly available at national level but getting data at sub-regional level is a problem. He concluded that disaggregated investment data at sub-sector level is needed for comprehensive analysis.

Question

Is it necessary to explore the advantages of ex-ante assessment?

Response

Yes, however ex-ante analysis needs some post-ante analyses.

Question

Is it necessary to explore qualitative analysis?

Response

Yes, qualitative analysis is as important as quantitative analysis.

2.2 Summary

In summary the chairperson for the session indicated that the deliberations had focused on methodological issues. He highlighted a number of issues where consensus is necessary.

- 1. There needs to be consensus on the AU definition of agriculture. This has the advantage of allowing for consistent comparisons across countries. However, there is agreement that there should be flexibility to allow for country peculiarities.
- 2. Another issue is what to count as agricultural expenditure. One question is whether to count food imports. The suggestion is that it could be considered as a trade off especially in the case of shortfalls in local production. But it should be disaggregated for trade off analysis.
- 3. The general idea is that all investment relevant to agriculture should be counted. Therefore broader data collection might be necessary in the pilot countries of Malawi, Mozambique and Zambia.
- 4. Accounting for donor contributions, including those that pass through government, is another issue. The AU recognises donor support but not all donors provide budget support, which might make it difficult to count. In any case it is necessary to quantify donor support.
- 5. What kind of infrastructure spending should be counted as agricultural spending? The AU/NEPAD counts spending on infrastructure, that has at least 70% direct impact on agriculture.
- 6. How to account for private sector contributions to agricultural growth?
- 7. How to account for contributions to agriculture by non-government organisations.

In conclusion, ReSAKSS-SA clearly needs to add value to what the AU/NEPAD has been doing on AETS with respect to the issues raised above.

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3.1 Spatial analysis of public spending in agriculture

Chairperson: Julius Shawa, Director, Policy and Planning, MACO

3.1.1 Why conduct a spatial analysis of public investments in agriculture?

Jordan Chamberlin, Research Scientist, IFPRI, Ethiopia, stated that the main objective of mapping public investment is to make it easier to understand the linkages between investment and outcomes. Spatial analysis also makes it easier to compare the planned investments with the actual investments and this is useful for policy targeting. The relationship between the nature and the location of investments has at least potential importance for development outcomes. Mapping data is a powerful means of communication because it allows for visualisation of the situation and the use of GIS provides a framework for integrating information from a variety of sources. Jordan also presented the results of a study done in Uganda where investments were disaggregated to come up with the benefits for each investment. This showed that agriculture and rural development investments had the highest impact on poverty alleviation compared to other types of investment.

Question

What technology was used for the Kenya study? Was there any consideration of the marginal utility of various technologies?

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Response

Various technologies were used.

3.1.2 Mapping the spill over potential for agricultural technologies in the ASARECA region: a spatial and investment analysis

presented the spatial analysis used by the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) to identify past and ongoing ASARECA projects and to identify the investments required to generate the productivity growth identified in the ASARECA strategic plan for 2006-2015. Spatial analysis was used to identify agricultural potentials, access to markets and population density of the development domain for the East African region. He also indicated the next level of analysis needed to identify the investment needed to achieve the growth target.

Questions/comments

Question

Is it proposed to correlate the agricultural zones with development domains?

Response

Most national programmes are based on agro-ecological zones. ASARECA will inform new programmes about the potential spill over of agricultural technologies.

Question

Based on previous work is there any correlation with population density, ecological zones and development domains?

Response

We don't expect serious disjunctures between these classifications

3.1.3 An approach to the spatial analysis of public investments in agriculture with illustrations from southern Africa

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Adlai Davis, Chief GIS Specialist, Human Sciences Research Council, South Africa introduced the concept of spatial analysis as an approach to geography comprising of three inter-related themes namely spatial arrangement, space-time process and spatial forecasting. He related this to the need for spatial analysis of agricultural investment to understand whether the location of investments meets need and suitability criteria, the changes in investment areas over time and where the investment will be located in the future given the social and environmental conditions. He specified the data required and the required format of data for mapping investment in agriculture. He rounded up by presenting a preliminary mapping of the location of donor investments in Malawi.

Questions/comments

Question

Is consideration given to the political basis for choosing an investment location and to the local organisation dimension of spending in agriculture?

Response

A geographical information system (GIS) might not be able to capture these variables even though they obviously contribute to determining the spatial location of investment and spending in an economy. For example, equity might be an underlying factor, but this would be difficult to capture in a GIS.

Comment

The challenge remains the lack of disaggregated data. It takes a lot of time to generate disaggregated data.

Question

Is there a possibility of getting disaggregated data from the ministries of finance?

Response

Most of this data are aggregated and collective. Data from donors is still the most comprehensive available.

Question

Does spatial mapping add value to the analysis of public investment for policy purposes?

Response

Yes, knowing how government is spending is important in guiding future spending.

Comment

The yellow book may not be helping with the analysis of actual and planned expenditure. The yellow book shows proposed expenditure for previous and current years.

3.2 Closing remarks

In closing the meeting ReSAKSS-SA Coordinator, Dr Pius Chilonda expressed his appreciation for the commitment of the various stakeholders who attended. He also thanked the FSRP/ACF, Zambia for the warm welcome and good hospitality offered to delegates and for hosting them in such a pleasant atmosphere.

Appendices

Agenda

Regional Strategic Analysis and Knowledge Support System for Southern Africa (ReSAKSS-SA)

International Water Management Institute (IWMI) and International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in collaboration with the International Food Policy Research Institute (IFPRI) and the Michigan State University/Food Security Research Project (FSP) and Agricultural Consultative Forum (ACF)

Technical meeting: Monitoring trends and spatial analysis of public spending in agriculture

Venue:Pamodzi Hotel, Lusaka, ZambiaDate:29-30 May, 2007

Participants: IWMI, ICRISAT and IFPRI, MSU, FAO, HSRC, MACO, MFNP, COMESA, MCTI, donors and local collaborators (Malawi, Mozambique Zambia)

Background

The Regional Strategic Analysis and Knowledge Support System for Southern Africa (ReSAKSS-SA) is one of the regionally focused programmes being established in support of the implementation of the Comprehensive Africa Agriculture Development Programme (CAADP), as well as to inform and guide programme design and implementation of other regional strategies in the SADC region, in particular the Regional Indicative Strategic Development Plan (SADC RISDP). It targets the identification and assessment of strategic options for agricultural growth and development in southern Africa, particularly those contributing most to the alleviation of poverty. The ReSAKSS-SA sets out to address three main regional challenges:

- a) The need to increase agricultural growth so as to target an average annual growth rate of 6% as envisioned by CAADP as necessary for attaining overall economic growth, poverty reduction and food security.
- b) The need to enhance the contribution of agriculture to the achievement of the first millennium development goal of halving poverty and hunger by 2015
- c) Assessment of policy and investment alternatives that will yield the highest pay off given that countries in the region have committed themselves to increase national budgetary allocation to the agricultural sector to 10%.

This meeting will focus on monitoring and evaluating public spending in agriculture. In view of achieving the targeted budgetary allocation of 10% to the agriculture sector, several questions arise: Are these pledged resources sufficient for achieving the stated development objectives of economic growth and poverty reduction? How should governments allocate their resources

within agriculture (i.e. across different sub-sectors such as research, extension, irrigation, subsidies, etc) for efficient and equitable outcomes? How can governments achieve higher and more sustained returns from these investments? What sorts of expenditures are most likely to contribute to achieving faster growth in agriculture so as to reach the growth objectives in the SADC RISDP and the CAADP? How can these expenditures be financed?

In order to begin to answer these questions, there is need to develop a framework and use it to compile data on indicators for monitoring and evaluating public spending in agriculture, including data on indicators measuring performance of the agriculture sector and rural welfare (income and poverty). This will not only help assist national efforts to monitor progress towards targeted goals of the agricultural sector strategy, but also help place it within the context of other region-wide shared goals of the MDG, CAADP and SADC RISDP.

Objectives

The meeting has three main objectives:

- 1. to discuss methodological issues and share experiences related to the collection of data on public spending in agriculture that is meant to address the following questions:
 - » What are the levels of government spending in agriculture with own funds and donor funds? How have these changed over time in terms of the level and the direction of allocation? How do these compare with the CAADP target of 10% of the national budget?
 - » How can the information on government spending and allocation in agriculture be assembled and monitored over time?
 - » How can we assess the impact of agricultural spending on growth and poverty reduction? What is the minimum set of information needed?
- 2. To discuss the rationale and approaches to spatial analysis of public expenditure in agriculture
- What of the geographic distribution or targeting of public investments in agriculture? How do these relate to the underlying socio-economic and biophysical factors facing different communities (poverty, malnutrition, population density, access to markets and services, price and production risk, agricultural potential, etc.)
- to launch the implementation of *'monitoring trends and spatial analysis of public spending in agriculture'* studies for Malawi, Mozambique and Zambia

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Day one: 29 May, 2007

Session One Opening session: Chairperson: Pius Chilonda, Sub-Regional Coordinator, ReSAKSS-SA, IWMI/ICRISAT

09:00 - 09:30	Welcome remarks
	Remarks from African Union, Ricardo Xavier, Senior Policy Officer, African Union
	Remarks from COMESA, Cris Muyunda, Senior Agriculture Advisor, COMESA Remarks from ICRISAT, Isaac Minde, Senior Scientist (Economics),, ICRISAT Official Opening Richard Chizyuka, MACO Permanent Secretary – Agriculture,
09:30 - 09:45	ReSAKSS-SA and objective of the meeting –
	Pius Chilonda, Sub-Regional Coordinator, ReSAKSS-SA, IWMI/ ICRISAT

09:45 - 10:15 - Coffee break

Session Two -	Concepts and methodological issues: Chairperson: Richard Chizyuka	l,
M_{\star}	CO Permanent Secretary – Agriculture	

10:15 - 10:50	Implementation of agriculture Expenditure tracking system in African countries by AU/NEPAD/WB/FAO – experiences and challenges
	<i>Faustin Mwape</i> , AU/NEPAD/FAO senior agriculture policy advisor & Ricardo Xavier, Senior Policy Officer, African Union
10:50 - 11:30	Can we measure public expenditure in agriculture? Definitions,
	boundaries and classifications:
	Thom Jayne, Professor of Agricultural Economics, Michigan State University, USA
1130: - 12:00	Data consideration in measuring public expenditure in agriculture: il-
	lustrations using the case of Zambia
	Jones Govereh, Research Fellow, FSRP/MSU, Zambia
12:00 -14:00	Lunch
Session Three	Monitoring trends in public spending in agriculture: Chairperson: Cris
Muy	runda, Senior Agriculture Advisor, COMESA

 14:00 – 14:20 Initial trends on public spending in agriculture in Malawi Ian Kumwenda, Malawi Agriculture Sector Investment Programme Coordinator, Malawi
 14:20 – 14:40 Initial trends on public spending in agriculture in Mozambique Emilio Tostao, Assistant Professor, Eduardo Modlane University, Mozambique
 14:40 – 15:15 Measuring the growth and poverty reduction impacts of public investments in the agriculture sector –

Sam Benin, Research Fellow, IFPRI, USA

15:15 – 15:30 Coffee break

15:30 – 16:30 General discussion

- How can the information on government spending and allocation in agriculture be assembled and monitored over time?
- What is the minimum set of information needed?

16:30 End of day one

Day two: 30 May, 2007

Session Four	Spatial analysis of public spending in agriculture: Chairperson: Julius
,	Shawa, Director, Policy and Planning, MACO

08:30 - 09:00Why spatial analysis of public investments in agriculture? Jordan Chamberlin, Research Scientist, IFPRI, Ethiopia 09:00 - 09:30Mapping the spillover potential for agricultural technologies in the ASARECA region: a spatial and investment analysis Leornard Oruko, Senior Technical Officer Monitoring and Evaluation, ASARECA. 09:30 - 10:00An approach for the spatial analysis of public investments in agriculture, with illustrations from southern Africa. Adlai Davids, Chief GIS Specialist, Human Sciences Research Council, South Africa **Coffee break** 10:00-10:30 10:30 - 11:15Discussion on approaches to mapping public investments in agriculture 11:15 - 12:30Discussion on key variables to be mapped 12:30 - 12:40**Closing Remarks** 12:40 - 14:00Lunch & end of meeting



















W M



Day 1

17

May 29, 2007
Pamodzi Hotel, Lusaka, Zambia
Ву
Faustin Mwape (Dr.)
AU/NEPAD/FAO
AU/NEPAD/FAO Senior Agriculture Policy Advisor

• Building REC, NEPAD, AU Capacities	\$10
Project Preparation Fund	\$11
Land & Water Management	\$12,100
Infrastructure & Trade	\$29,700
• Food security, Safety nets, Emergencies	\$13,400
Research & Technology Dissemination	\$900
Livestock, Fisheries, & Forestry	\$5,000
Implementing the Budget Tracking System	\$2
Policy Analysis, Dialogue & Peer Review	\$12
• <u>Total</u>	\$61,134
Current investment is approximately 35% o	

African Priorities from the Consultations

- 1. Increasing REC & continental capacity to deliver CAADP interventions
- Increasing investment in the agriculture sector at the national level (production, marketing and trade, food security, and research and dissemination)
- 3. Increasing support and coordination for the regional implementation process
- 4. Increasing capacity for continental monitoring and evaluation with links to APRM
- 5. Increasing capacity to document & up/out scale agriculture successes
- Increasing continental capacity to provide technical backstopping to the implementation partners

Sources of CAADP Funds

Funds are expected to come from:

- National Governments have pledged to increase agriculture expenditure to 10% of the national expenditure
- Development Partners have indicated that they will double development assistance
- Private sector: Important in providing private goods
- Beneficiaries: Depends on the level of use
- *AETS is important in tracking flow of funds & establishing the adequacy of public investments in public CAADP priorities.

efinition of Agriculture Expenditure

- 10% of Expenditure measures Govt attention to agric sector
 Rural development is not an independent sector under
- Classification of Functions of Government (COFOG) but its operations are split in many sectors: health, education, transportation, etc
- Based on the COFOG, agriculture includes: crops, livestock, forestry and fisheries.
- University & secondary education are excluded as they are under Education in COFOG but field level training is include
- Include agriculture related expenditures from Ministries of Rural Development, Ministry of Works, etc.
- University and Research Centre agriculture research are included
- Include multi-sectoral projects if more than 70% of cost is related to agriculture, e.g. dams for irrigation and electricity.

omponents of Agriculture Expenditure Tracking Syst

- Annual budget allocations are poor indicators of commitment because the actual disbursements are less than 50% of the annual budget. Actual expenditure is a better measure of commitment.
- Agriculture expenditure tracking is just databridging based on COFOG. The focus is on agriculture expenditure at the payment stage of the budget execution cycle, i.e. cash (not accrual) reporting
- Reporting Period to be covered: 2002 to 2006
 Ministry of Finance is expected to coordinate data collection

Components of Total Expenditure

- Expenditure data covers general government transactions (central & lower levels)
- Public enterprises & financial institutions are excluded but only include additional government funds that are given as capital injection or to cover losses.
- Government institutions (extra budgetary funds) are included: operations are financed through own self generated revenues by an act of law or executive branch decision
- * Debt service payments are included (principal & interest)
- * Recurrent and capital expenditure should be reported separately
- External grants: only include what is reported through the Ministry of Finance because data on what is spent outside the country and government is not known.

- 36 countries have responded
- 7 countries exceeded 10% in 2005
- 13 countries are in the range between 5% and 10%
 16 countries had agricultural expenditures that are
- Down ward trend is emerging in the proportions countries reporting less than 5% expenditure
- allocation to agriculture development • Number of countries reporting national expenditure
- allocation between 5% and 10% is increasing
- Opward trend in the number of countries with more than 10% agriculture expenditure allocations









Conclusion

- Developing the agriculture sector is the responsibility of African governments with development partners only supplementing the efforts.
- NEPAD/AU need the support of RECs and other stakeholders in encouraging their governments to quickly achieve 10% expenditure allocation to agriculture.
- NEPAD/AU need the support of all stakeholders in urging development partners to quickly fulfil their pledge to double development assistance to facilitate up/out scaling of agriculture successes.
- NEPAD/AU need the support of all stakeholders to encourage the Ministries of finance to submit the data to facilitate tracking and share experiences.

Next Steps

Questionnaire is being administered in all 53 countries with World Bank and FAO support. The challenges are:

- Data will continue to be analysed to generate information to enable the AU-DREA to report to AU summits
- >Building national capacity to correctly interpret the questionnaire
- Development and implementation of a computerized data capturing system
- Tracking donor and private sector expenditures in agriculture
- Enhancing data collection to establish effectiveness of agriculture expenditure in attaining desired targets

Measuring Public Expenditures in Agriculture

Jones Govereh, Emma Malawo, T.S. Jayne, and P. Chilonda FSRP / MACO / Re-SAKSS

Re-SAKSS-SA workshop on Monitoring Trends in Public Agricultural Spending May 29-30, 2007 Lusaka Zambia

- The rationale for tracking agricultural expenditures has already been explained
- Now the task is *how to do it* in a meaningful way

Objectives:

- To provide guidelines for monitoring public expenditure trends to agriculture
- To provide guidelines for assessing shifts in the sources and composition of agricultural spending

Broad principle #1

- Agreement that agricultural sector spending should be defined according to internationally accepted standards
- COFOG (Classification of Functions of Government)
- But very few African governments use COFOG

	Classification of Functions of	Classification of Functions of Government (COFOG)					
01	General public services	06	Housing and community amenities				
012	Foreign economic aid	062	Community development				
013	General Services	063	Water supply				
014	Basic research	064	Street lighting				
015	R&D ¹ General public services	064	R & D Housing and community amenities				
032	Fire protection services	083	Broadcasting and publishing services				
036	Public order and safety n.e.c	09	Education				
64	Economic affairs	091	Pre-primary and primary education				
041	General economic, commercial, and labor affairs	092	Secondary education				
042	Agriculture, forestry, fishing, and hunting	093	Post secondary non-tertiary education				
043	Fuel and energy	094	Tertiary education				
044	Mining, manufacturing, and processing	095	Education not definable by level				
045	Transport	096	Subsidiary services to education				
046	Communication	097	R & D Education				
047	Other industries	098	Education n.e.c				
048	R & D Economic affairs	10	Social protection				
049	Economic affairs n.e.c	101	Sickness and disability				
05	Environmental protection	102	Old age				
051	Waste management	103	Survivors				
052	Waste water management	104	Family and children				
053	Pollution abatement	105	Unemployment				
054	Protection of biodiversity and landscape	106	Housing				
055	R & D Environmental protection	107	Social exclusion n.e.c				

Principle #2: Develop *consistent* way of counting public ag. expenditures

- · Need for agreement on what to count
- Apply these definitions consistently – Across years
 - Across countries

Examples from Zambia of activities that might be included or excluded from public agricultural expenditure

Agency paying for activity	Likely to be agricultural-related	Unlikely to be agriculture-related		
Ministry of Lands - Surveying of properties	Survey and demarcation of land for Farm Block Development	Survey and demarcation of land for Commercial, Industrial & other purposes		
Agriculture department – Commemorations	World Food Day	International Women Day		
Office of the President – CP(HQ) Women enterprise development	Procurement of cattle and goats for women in Chibombo	Procurement of hammer mills for women in Chibombo		

Principle #3: Disaggregate by funding source and recepients / service providers

	Primary/Original Funding Sources					
Recipients	S1	S2	S3	S4		
1	A	в			A+B	
2	С				С	
3		D	Е		D+E	
4				F	F	
TOTAL	A+C	B+D	E	F	G	

Ministries, provincial	Primary Funding Sources					Service provided
governments and other recipients	Ministry of Finance	Donars	Local Gost	Co- Pay	Loans	
Ministry of Agriculture	х			х	x	Research, cumsion, training
Ministry of Environ & Tourism	х				x	Research, extension, training
Ministry of Community Dev	x					Agriculture welfare agencies
Ministry of Finance	x	x				Agric dewlopment projects
Ministry of Works & Supply	x				x	Roads on farming blocks
Ministry of Water & Energy	x				x	Dans & Electricity
Ministry of Lands	x					Land surveys in farm blocks
Office of the Vice President	х	x				Agric disaster management
Provincial Government	x	x				Agric development projects

Principle #4: The Composition of Agricultural Spending Matters Greatly

- The impacts of agricultural spending on agricultural growth depend on the composition of spending
- · Hence the need to disaggregate



Expenditure Inves	s for FY 2006: I tment (million k	Recurrer wacha)	nt and
	Government Funds	External Funds	Total
Agriculture:			

Expenditures for Investme	r FY 2006: F nt (million kv	Recurrer wacha)	nt and
	Government Funds	External Funds	Total
Agriculture:			
personal emoluments			
irrigation			
R&D / crop science			
extension			
input subsidies			
etc.			

Expenditures for FY 2006: Recurrent and Investment (million kwacha)

	Gove Fu	rnment nds	Exte Fur	rnal Ids	Total
Agriculture:	recurr	invest	recurr	invest	
personal emoluments					
irrigation					
R&D / crop science					
extension					
input subsidies					
etc.					

	Recurrent	Investment	Total
Agriculture + forestry + fisheries			
Total Ag. Expend:			
Total Govt. Expend:			
Total Ag. Expend as % of Total Govt Exp.			

Thank you

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Jones Govereh, Emma Malawo, T.S. Jayne, and P. Chilonda FSRP / MACO / Re-SAKSS

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2	С				с			
3		D	Е		D+E			
4				F	F			
TOTAL	A+C	B+D	E	F	G			

Ministries, provincial	Primary F	unding So	urces			Service provided
governments and other recipients	Ministry of Finance	Dances	Local Gevt	Co- Pay	Loans	
Ministry of Agriculture	x			x	x	Research, extension, training
Ministry of Environ & Tourism	x				x	Research, extension, training
Ministry of Community Dev	x					Agriculture welfare agencies
Ministry of Finance	x	x				Agric development projects
Ministry of Works & Supply	x				x	Roads on farming blocks
Ministry of Water & Energy	x				x	Dans & Electricity
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Government	wacha)	Total
Funds	Funds	
	Government Funds	Government External Funds

Expenditures for Investmer	FY 2006: F nt (million k	Recurrer wacha)	nt and
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Agriculture:			
personal emoluments			
irrigation			
R&D / crop science			
extension			
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etc.			

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Agriculture:	recurr	invest	recurr	invest	
personal emoluments					
irrigation					
R&D / crop science					
extension					
input subsidies					
etc.					

	Recurrent	Investment	Total
Agriculture + forestry + fisheries			
Total Ag. Expend:			
Total Govt. Expend:			
Total Ag. Expend as % of Total Govt Exp.			

Thank you

Regional Strategic Analysis and Knowledge Support System for Southern Africa (ReSAKSS-SA)

Methodological guidelines on tracking public agricultural expenditure: Data Considerations

> Jones Govereh Food Security Research Project/MSU

OUTLINE

- Recap
- Outreach campaign
- Setting up committee and team
- · Public expenditure data sources
- Validating data records
- Inclusion or exclusion
- · Utility of expenditure accounts

RECAP

- Framework of public spending – Flows
 - Actors
- Different classes of expenditures
 Policy relevant dimensions
- NEXT TASK
 - Assemble, validate and analyze data

		ag	ents		
		Primar	v/Oriøinal Fun	ding Sources	
Funding Agents	S1	S2	\$3	S4	
1	A	В			A+B
2	С				С
3		D	Е		D+E
4	1			F	F
TOTAL	A+C	B+D	E	F	G



Outreach and education

- · Raise stakeholder awareness
- Discuss concept of national agricultural accounts
- · Enlist cooperation in
 - sharing data
 - Identifying bottlenecks in information systems
- · Set up committee and working teams

Setting up Agricultural Accounts Committee

- · High-level representatives of actors
- · Assists in:
 - production & validation of data
 - Communicating findings to other stakeholders

Setting an Agricultural Accounts Working Team

- · Wholly in-house
- Externally-led participatory
- Joint-or client-led

Data sources government budget records

- On-shelf yellow-books
- · Auditing bodies
- Collecting records at source more efficient than from each funding agent
- Collecting data at several levels enables validation of flows
- Central vs local government data assembly

Validating expenditure records

- Requested vs approved

 Requests represents plans
- · Released vs approved
- Supplemental budget
- Audited vs released appropriations

 Audited data 2 or more years behind
- Expenditure tracking surveys - Observe service users

Percentage of funds approved and released by MFNP, Zambia

Year	% Approved	% Released
1992	30	88
1993	69	71
1994	91	38
1995	64	108
1996	83	67
1997	85	56
1998	71	73
1999	64	83

Including or excluding expenditure

- · Functional allocations alone not enough
- · Funding agents either
- "Take-all" or "partial budget" agentsExclude non-agricultural related
- expenditures by "take-all" agents
- Include agricultural related expenditures by "partial-budget" agents
- Thorough knowledge of sector indispensable





INITIALS TRENDS IN PUBLIC SPENDING – Agriculture Sector of Malawi

Dan Njiwa GoM-MASIP

INTRODUCTION

- · Agriculture: 36% of GDP
- · 2 Sub-sectors: Smallholder and Estate
- Smallholder: contributes 80% of agri-value added
- · Agriculture employs 80% of labor force
- Agriculture provides >70% of country's exports
- 85% of Malawians derive livelihoods from Agriculture





















CONCLUSIONS

- Agriculture sector investments are important for improving growth: Malawi's dvt budget:irrigation, FOs, Fisheries/NR, extension, market access etc
- · Recurrent: Subsidy/parastatals/ORT
- Also important Improving food security and employment
- Analysis to understand the causal linkages: between investments and indicators of growth and FS Inevitable.

WAY FORWARD - Mlw

- ADP: Clarifying
 - DEFINITION OF ROLES (Public and NSA's)
 - AGREED POLICY FRAMEWORK In line with
 - CAADP Principles
 - FINALISE AGRI-PER
 HARMONISED M & E
 - FINANCIAL MANAGEMENT
 - PROCUREMENT PROCEDURES
- · In order to achieve FS and reduce poverty

THANK YOU ALL

Initial Trends on Public Spending in Agriculture in Mozambique

Emílio Tostão and Gilead I. Mlay Eduardo Modlane University, Mozambique

Background

- Mozambique policy objectives - PARPA
- National Agricultural Strategy
- Regional policy objectives
 MDG
 - Maputo declaration (10×6)
 Abuja declaration
- > Both domestic and regional objectives provide an

opportunity to invest in agriculture

How r	nuch is being spe	ent on agricultu	ire?	
1.00				
labi	e 1. Share of Agriculture	e on Total Budget		
		2003	2004	
		10^12 Meticais (base=1996)	
Agric and	culture, Forestry, livestock	0.4	1.1	
Tota	Expenditures	14.5	15.3	
exp	anditures	2.5%	7.4%	



How much is Invested in the agricultural sector?

Table 3. Recurrent and Investment budget in Agricultural sector and other key economic sectors

recurrent	Investment	Tatal	Percent
recurrent se=1996) ····	Investment	Tatal	
se=1996)		10141	investment
1			
0.2	0.9	1.1	83.3
0.1	0.9	0.9	94.41
2.2	1.1	3.3	32.3
1.0	0.8	1.8	46.11
5.6	2.5	8.1	31.3
9.0	6.3	15.3	41.01
	6 0.2 6 0.1 6 2.2 6 1.0 6 5.6 6 9.0	6 0.2 0.9 6 0.1 0.9 6 2.2 1.1 6 1.0 0.8 6 5.6 2.5 6 9.0 6.3	0 0.2 0.9 1.1 0 0.1 0.9 0.9 0 2.2 1.1 3.3 0 1.0 0.8 1.8 5 5.6 2.5 8.1 5 9.0 6.3 15.3

How is the budget allocated within the agricultural sector?

Table 3. Allocation of the current budget within the agricultural sector

	2003				2004			
	Personal emoluments	Recurrent charges	Capital expenditure 10110	Total real metical	Personal emoluments s (base=1995)	Recurrent charges	Capital expenditure	Total
Agricultural sector	10.7	5.2	0.3	16.2	11.3	7.4	0.4	19.0
Agricultural research	1.2	0.1	0.0	1.3	1.0	0.3	0.0	1.3
K agricultural research	11%	3%	0%	8%	9%	3%	0%	7%
								6

		2003			2004	
	Domestic	external	Total	Domestic	external	Tota
		1	0 ⁴ 12 meticai	a (base=1996)		
Agriculture, Forestry,	0.1	0.6	0.7	0.1	0.9	0.9
Transports and		0.0	0.7	0.4	0.5	0.9
communications	0.5	0.6	1.1			
Education	0.2	0.4	0.6	0.2	0.5	
Heath	0.1	0.9	1.0	0.1	0.7	0.8
all other	1.2	1.4	2.6	1.1	1.4	2.5
G. Total	2.1	3.9	6.0	2.0	43	6.3
Agriculture, Forestry,						
and Evestock (% Total)	12.6%	87.4%		7.6%	92.4%	
communications (% Total)	43.4%	56.6%		46.9%	53.1%	
Education (% Total)	32.8%	67.2%		20.0%	80.0%	
Heath (% Total)	13.4%	86.6%		14.6%	85.4%	
all other (% Total)	47.8%	52.2%		45.2%	54.8%	
O Total (% Total)	25.6%	64.49		21.4%	68.6%	



Issues/challenges for debate

≻Hard to get data. How to get around the problem

≻How do we define agriculture?

>Change in the budget classification items over time

>Some expenditures not captured in national statistics

 $\succ \mathsf{Political}$ will by local govermrnts: is the process of

collecting data on expenditures driven externally?

≻Public expenditure Vs Government growth



Methodological Workshop on

Monitoring Trends and Spatial Analysis of Public Spending in Agriculture

> 29-30 May 2007 Taj Pamodzi Hotel, Lusaka

Introduction: Why measure the growth and poverty-reduction impacts of public spending in agriculture?

- Each year, African governments and policymakers and their development partners grapple with the same fundamental questions:
 - how to allocate their available resources across different sectors: agriculture, education, health, transport and communications, and energy, programs targeting specific groups of households, etc
 - in agriculture: how much to allocate to research, extension, subsidies, credit, infrastructure (irrigation, MIS, feeder roads, etc)
- The demand for this type of information is on the rise, with recent surges in public spending commitments to agriculture
 - 10% of national budget towards CAADP's implementation
 - MCC: so far 4 African countries (Benin, Cape Verde, Ghana and Mali) have benefited and singed compacts totaling US\$1.425 billion; Eleven more African countries are eligible to benefit

Introduction - cont'd

- The literature on the empirical evidence of public investments is dominated by analyses of individual public investments only These have limited application for prioritizing resources across alternative and often competing investment activities
- The aspect of the literature that deals with prioritization is limited to developed countries and a few developing countries.
- India, China, Uganda and Tanzania (Fan et al); Ethiopia (Mogues et al); Cross-country analysis for Asia, Africa and Latin America (Fan et al)
 primarily due to lack of adequate spatially-disaggregated, time-series
- data in many countries and especially in SSA Generally, the theory is clear on the expected impacts of public
- Generally, the theory is clear on the expected impacts of public investments; but there is a relatively large variation in the evidence on the magnitude of impacts, and to some extent the direction of impacts \Rightarrow due largely to variation in methodologies as well as data

Outline

- Conceptual and econometric framework for measuring the impacts
- Evidence
- Application to CAADP analytical work (the case of Rwanda)
- Concluding remarks



Channel node	Indicators (at sub-national level)
Poverty	Poverty headcount rate
Agriculture production and productivity	Agriculture GDP (AgGDP) per capita, total factor productivity, disaggregated by sub-sector;
Intermediate Outcomes: prices; rural wages; non-ag production; employment; migration; etc	Data obtainable from various national surveys and other secondary sources
Outputs: public capital	Research: Number of improved technologies, scientists Extension: Extension coverage Irrigation: capacity developed, length of canals Infrastructure: Feeder road density Education: Rural primary completion rate, adult literacy
Inputs: different types of public investment in agriculture	 Most challenging, especially regarding sub-national level data that are disaggregated by: development and recurrent spending; sub-sector; function. Data mostly available at national level, but need long time series for robust analysis at this level





nvestment	Central	East	North	West	Uganda
		Benefit	-cost ratio		
Agricultural R&D	23	18	20	32	23
Education	2	3	2	3	3
Feeder Roads	18	25	15	27	21
number of peop	ple lifter out o	f poverty	per million	shillings	spent
number of peo Agricultural R&D	ple lifter out o 40	f poverty 110	per million 309	shillings 106	spent 107
number of peop Agricultural R&D Education	ple lifter out o 40 4	of poverty 110 22	per million 309 31	shillings 106 13	spent 107 13
number of peop Agricultural R&D Education Feeder Roads	ple lifter out o 40 4 26	of poverty 110 22 133	per million 309 31 187	shillings 106 13 76	spent 107 13 84
number of peo Agricultural R&D Education Seeder Roads	ele lifter out o 40 4 26	f poverty 110 22 133	per million 309 31 187	shillings 106 13 76	spent 107 13 84
number of peo Agricultural R&D Education Feeder Roads	ele lifter out o 40 4 26	f poverty 110 22 133	per million 309 31 187	shillings 106 13 76	spent 10 1 8

	Shilling increase in GDP per shilling spent			Poor J out of millio	people pover on shil spent	lifted ty per lings
Elasticities	0.06	0.08	0.13	-2.0	-2.3	-4.6
Irrigation	0.7	2.6	4.5	19	29	42
Extension (R&E)	4.1	6.3	8.6	64	103	139
Roads	1.6	3.0	4.4	12	21	32

Returns to in	vestments – c	ross-country SSA
	Elasticity (% change in TFP per 1% change in spending)	Marginal returns (% change in TFP per 1 billion US\$ increase in spending)
Agriculture	0.0152	9.0
Transport and communication	0.0094	6.0
enin, Nin-Pratt and Radriar	namonjy, 2007	Page 11



- Broad strategic questions from a 'macro' or 'rural development' perspective
 - Is a 6% agriculture growth rate enough to reach MDG1? If not, what is the required agricultural growth rate?
 - How can different sub-sectors contribute to accelerating
 growth?
 - What is the level of agriculture spending needed to accelerate growth in these sectors?
 - What additional investments are needed to support growth in the priority sectors?
 - How much of the required investment can the current
 agricultural budget cover and what is the funding gap?



-	- Andrewson	
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 Sim23: t reduction 	o reach 6% annual growth target in AgGDP results in to 42%, but not enough to meet MDG1	n poverty

i	Annual gr nvestment 20	owth in t, 2006- 115 (%)	Share spending	in total , 2015 (%)
Spending-growth elasticity	0.17	0.366	0.17	0.366
Sim23: 6% AgGDP	35.9	18.4	17.6	6.5
9% AgGDP to meet MDG1	45.6	22.6	34.5	10.0

Concluding remarks

- Different types of public investment have different impacts, suggesting need for sub-sector disaggregated public investment data
- Effects of spending materialize with a lag that can be up to 15 or more years depending on the type of investment and the outcome and so ample time series data needed
- Different types of public investment affect or are affected by other types of public investment, suggesting that:
 - substitutability and complementarity among investments is important
 it may be difficult to attribute impact to any one type of public investment
- sequencing of investments is important

Concluding remarks - cont'd

- The impacts can be assessed at various levels (micro, sector and macro), suggesting need for spatially disaggregated data, and integrated approach
- Causality (endogeneity) issues need to be taken into account in the assessment of the impacts
- There are several conditioning (exogenous) factors affecting realization of impacts, therefore data on these factors are needed as well; disaggregated by sub-sector, space, gender, etc, for unbiased assessment of impacts



Why map public investments?

Some spatial perspectives on disaggregation of investment data

> IFPRI 30 May 2007

×,	HITERNATIONAL FOOD POLICY RESERVCIA INSTITUTE	Jordan Chamberlin
IFPRI*		30 May 2007

Trying to understand the linkages between investments & outcomes

Spatial perspectives

- 1. The spatial nature of investments
- 2. Visualization
- 3. GIS as an integrative framework
- 4. Spatial analysis









investment	Central	East	North	West	Uganda
Agricultural DS D	22	10	-cost ratio	22	22
	23	10	20	32	23
Education	2	3	2	3	3
Feeder Roads	18	25	15	27	21
Agricultural R&D	40	110	309	106	107
Education	4	22	31	13	13
Feeder Roads	26	133	187	76	84

The spatial nature of investments · The benefits that accrue to public expenditures have a variety of spatial expressions - diffuse $\leftarrow \rightarrow$ concentrated - spatial specificity depends on investment type road vs R&D · school vs teacher training

- The spatial nature of investments
- · The relationship between the nature and the location of investments has at least potential importance for dev't outcomes
 - technology spillovers

30 May 2003

30 May 2007

- biotech & AEZ: Wood and Pardey 1997, Alston et al 1995
- infrastructure complementarities
 - corridors, growth poles, SDI: explicit recognition of spatial nature of many kinds of investments
 - how & to what extent is this already taking place?

The spatial nature of investments

- Targeting - objectives versus actual patterns
- Coordination issues - across sectors; across donors

Spatial analytical questions

- · Is there an investment bias?
 - either geographically or thematically (in a way we may perceive through geographic patterns) - spatial equity issue
- · Investment complementarities
 - Are their important interaction effects from services or infrastructure provision? · Torero, Escobal

Why map public investr



Mapping data

- Visualization
 - map are powerful means of communicating patterns
 - basic argument for spatial organization of investment data
- · GIS as an integrative framework
 - through location, we can integrate information from a variety of sources













Is there a bias towards more accessible areas?



Resolution, disaggregation

- The more disaggregate, the better
 - easier to scale up than down
 - options may be limited
- The "rehabilitation" of implicitly spatial data should seek opportunities for locational specificity



Spatial analysis

- · Beyond mapping
 - Variety of quantitative spatial analytical techniques enabled by spatially explicit organization of data
 - These techniques enable new questions to be addressed
 - questions which can only be addressed in a spatial framework

Spatial dependence Spatial autocorrelation



Spatial dependence

· Clustering

- do investments (across sector or investor) tend to be located close to each other?
- do investments seek (or avoid) the same areas?

Do public investments attract private investments?





Exploratory analysis Spatial frameworks for exploratory data analysis echniques related to data reduction and structure detection actor analysis, PCA finding interesting patterns linking & brushing, multivariate ESDA (Anselin et al), GWR (Fotheringham et al)

Why map publi





Final thoughts

- Opportunities beyond CAADP req'ments
- · Need to prioritize indicators

30 May 2007

- · How to address issue of incomplete data?
- Many of the most spatially interesting investments may not be "ag spending" – infrastructure, education, health
- Scope of "public" investments – include non-governmental programs?

Why map public investments?

Some spatial perspectives on disaggregation of investment data



Jordan Chamberlin 30 May 2007



Mapping the spillover potential for agricultural technologies in the ASARECA region: a spatial and investment analysis By

Leonard Oruko ASARECA Senior Technical Officer Monitoring and Evaluation

Presentation at a technical meeting on monitoring trends and spatial analysis of public spending in agriculture, 29-30 May 2007, Lusaka, Zambia

Objectives

- Phase 1:To map the target zones for past and ongoing ASARECA investments (technologies and associated practices)
- Phase 2:To identify the necessary investments required to generate the productivity growth identified in the ASARECA strategic plan 2006-2015

Approach

- Spatial Analysis in the ASARECA Strategic Plan
- Targeting ASARECA R&D outputs to identified Development Domains
- Beyond the commodity sector growth targets: priority investment options for Ag. R&D



The ASARECA Strategic Plan

- 1. Spatial analysis to generate agricultural development domains based on;
 - Agricultural potential
 Access to markets
 - Access to markets
 Population density
- 2. A multimarket model that identifies growth targets for commodities and commodity groups
- 3. Ex-ante analysis employing DREAM model to identify potential returns to regional R&D investment
- The ASARECA Strategic Plan identifies the development domains as the primary units for targeting products and services











Targeting ASARECA R&D outputs to Development Domains

- Review products and services (Technology, Knowledge, Policy options) based on identified criteria for potential target zones
- Review the existing client target zones...poverty maps, development domains, national zoning criteria etc
- Implications for priority setting within the programmatic areas

Categorization of Research Products and Services

- What products and services are to be generated by the current research portfolio (Pipeline)?
- What products and services have been made available to uptake pathways?
- What products and services have been adopted by end-users?

Technology Attributes

- 1. Discrete products: breeds, variety, vaccine e
- 2. Management practices: crop management, animal management-have a direct link with specific technologies
- 3. Combination of technologies e.g. Integrated watershed management, IPM
- 4. How to map knowledge institutions and policies???









Investment Analysis

Investment Analysis

Rationalization of the ASARECA NPPS into 7 Programmatic area

- · Staple Crops
- Non-staple crops
- · Livestock and fisheries
- · Agro-biodiversity and biotechnology
- Natural Resources management and Forestry
- · Policy and advocacy
- Capacity strengthening and technology upscaling

The IFPRI Analysis

- Sets the requisite growth targets
- Identifies the spillover potential of investments
- DREAM-estimates the potential welfare gains from investing in R&D
-???

Next Level of Analysis

- Given the priority areas identified in the strategic plan, what are the necessary investments required to generate the productivity growth?
- What criteria will be used to guide the these investments?
- Besides ASARECA, who else needs this level of analysis?

Specifically for ASARECA

Programmatic and thematic level

- Where should the investment be made (research, dissemination)??
- Where can ASARECA contribute significantly given its core competency?
- What are the priority investments required for in Oilseeds for example (groundnuts, sesame or sunflower)



























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The ReSAKSS-SA aims to identify and assess strategic options for agricultural growth particularly poverty alleviation in southern Africa. ReSAKSS-SA supports review and learning processes in the region to contribute to the successful implementation of agriculture and rural development strategies with particular emphasis on Comprehensive Africa Agriculture Development Programme (CAADP) and Southern Africa Development Community Regional Indicative Strategic Development Plan (SADC RISDP). ReSAKSS-SA is jointly implemented by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and the International Water Management Institute (IWMI), in collaboration with the International Food Policy Research Institute (IFPRI), regional and national partners.

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