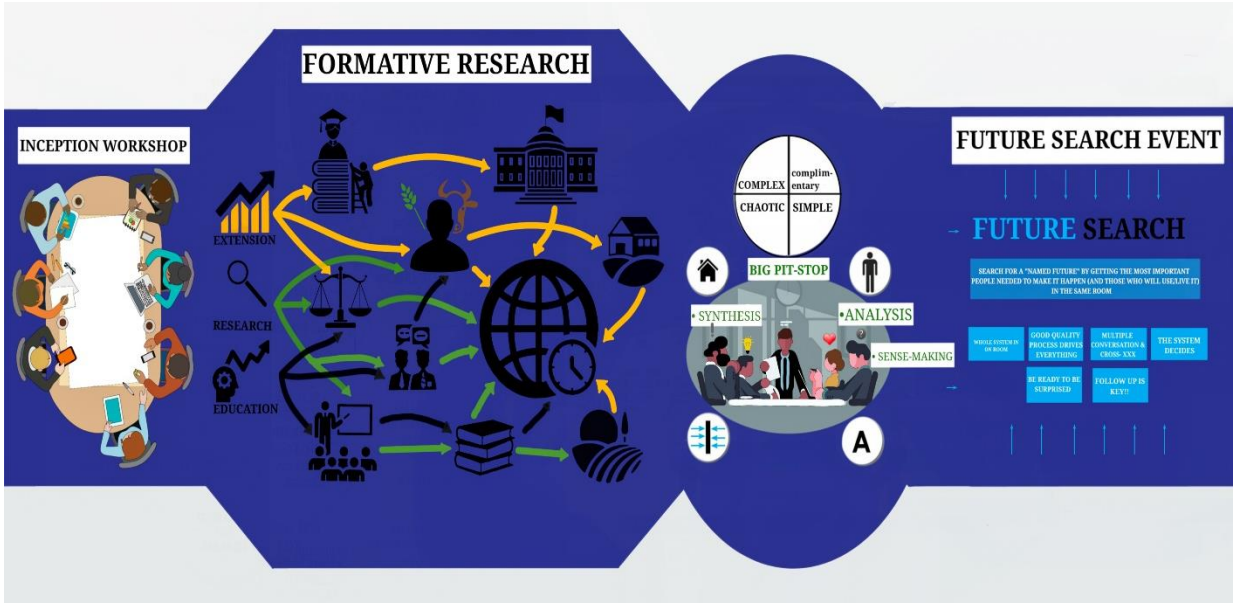
Government of Zimbabwe

Zimbabwe AGRICULTURAL GROWTH Programme

Funded by the European Union

ZIMBABWE AGRICULTURAL KNOWLEDGE AND INNOVATION SERVICES (ZAKIS)

INCEPTION PHASE REPORT



FEBRUARY 2019

A summary of preliminary stakeholder consultations and formative inquiry processes during the inception phase of the ZAKIS initiative

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SAT SUSTAINABLE AGRICULTURE TECHNOLOGY

SNV

ICRISAT INTERNATIONAL CROPS RESEARCH INSTITUTE FOR THE SEMI-ARID TROPICS

COMMUNITY TECHNOLOGY DEVELOPMENT ORGANISATION

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Abbreviations

ACE	Agricultural Centre(s) of Excellence
Agritex	Agricultural Technical and Extension Services
AKIS	Agricultural Knowledge and Innovation Services
	(NB: Also, Agricultural Knowledge and Innovation/Information Systems in other contexts)
COFRE	Committee for On-Farm Research and Extension
CTDO	Community Technology Development Organisation
DAEFT	Department of Agricultural Education and Farmer Training
DR&SS	Department of Research and Specialist Services
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
ICT	Information and Communication Technology
MALWCRR	Ministry of Agriculture, Lands, Water, Climate and Rural Resettlement
PPP	Private-Public Partnership
SAT	Sustainable Agriculture Technology
SNV	Netherlands Development Organisation
TVET	Technical and Vocation Education and Training
UZ	University of Zimbabwe
VC	Value Chain
WHH	Welthungerhilfe
ZAGP	Zimbabwe Agricultural Growth Programme
ZAKIS	Zimbabwe Agricultural Knowledge and Innovation Services

Section 1: Background – why ZAKIS?

1.1 Zimbabwe Agricultural Growth Programme (ZAGP)

Under the 11th European Development Fund, the European Union and Zimbabwe formulated the Zimbabwe Agricultural Growth Programme (ZAGP). The ZAGP (2016-2023), with a budget of EUR 40 million, has the overall objective to contribute to the development of a diversified and efficient agriculture sector that promotes inclusive green economic growth. The ZAGP consists of five outcomes each addressing key constraints:

1: Increased production and productivity of the livestock sector
2: Livestock products have better access to markets and are more competitive
3: Increased public and private investment in targeted livestock value chains
4: Improved agricultural education systems and extension services
5: Institutions strengthened to develop and implement institutional and regulatory framework

The ZAGP recognises that value chains are dynamic, market-driven systems to which support services and coordination are central. Increasing the added-value (including salaries, profits, food value for consumers, tax revenues) and safeguarding sustainability are key elements for inclusive green economic growth.

The ZAGP builds on two main elements for its operationalisation:

(1) Strengthening service provision for developing sustainable agriculture value chains

Service provision to the agriculture sector has eroded over time and is largely ineffective and inefficient in supporting value chain development and rural development in an agriculture and farming landscape that has significantly changed. It is therefore critical to re-think and re-define relevant, farmer-centric and value chain-oriented services and to develop a robust framework for their sustainable effective and efficient delivery.

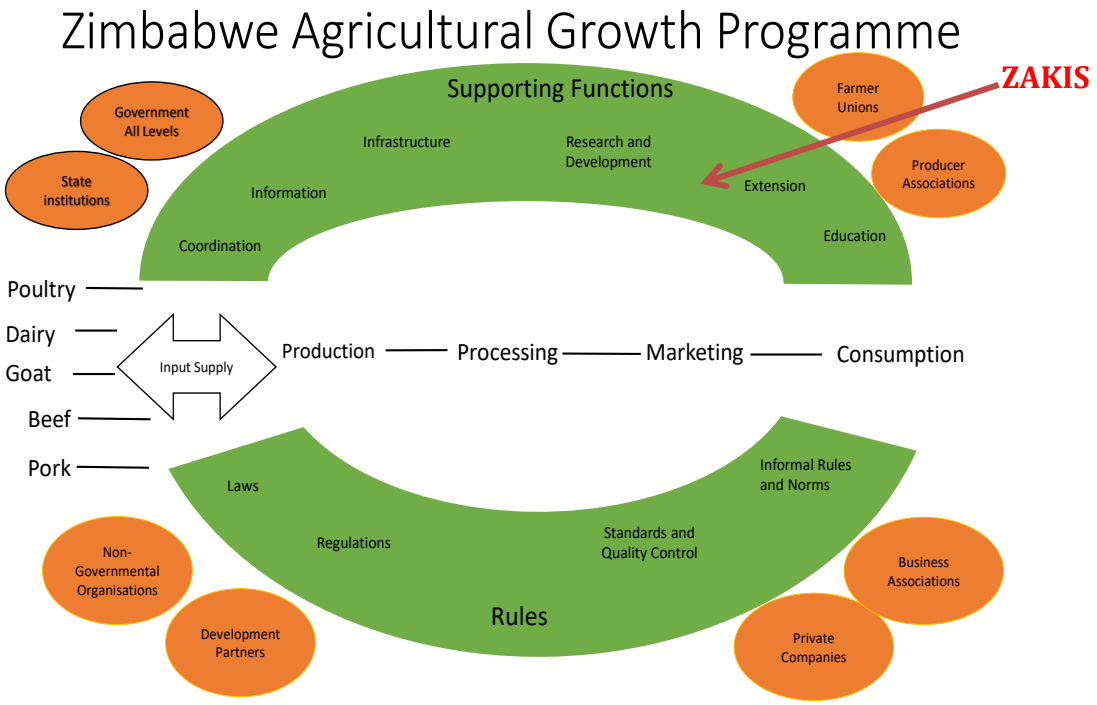
The diversity of the agriculture sector, in terms of farm size, type of operation and socio-economic conditions, requires a multi-stakeholder cooperation and coordination including farmers and farmers union, private sector, academia & NGOs and government. The key services include:

- *Policy and Advocacy:* There is need to strengthen the capacity role of farmers unions and private sector organisations to better fulfil their roles.
- *Knowledge & Innovation:* Fundamental changes in the agriculture landscape, economic decline, brain drain and resource constraints have eroded extension, research and education institutions and their capacity to deliver relevant services. Promoting a farmer-centric, value chain-oriented and demand driven multi-stakeholder framework to sustainably deliver relevant service will be critical for agriculture and rural development.
- *Access to finance* is inadequate in particular for smallholders. Key constraints are high interest rates and unfavourable conditions, lack of collateral and insecurity of tender.
- *Quality & Food Safety* are critical not only for exports but also for consumer protection. Strengthening institutional and regulatory frameworks, policy and standard development and an effective and efficient quality infrastructure are key areas requiring support.
- *Legal support:* There is a massive need in this area which is not catered for at farmer as well as agro-processors' level (contract farming, land use contracts, insurance).

2) Supporting the development of sustainable, high potential value chains

The ZAGP prioritises high potential value chains, which have been identified based on in-depth studies (commissioned by the EU) and include beef, dairy, poultry, pigs and goats.

Figure 1: ZAKIS in the ZAGP structures



1.2 ZAKIS call for proposals

In late 2017 ZAGP launched a call for concept notes, followed by a call for proposals from selected applicants in early 2018, focused on the first operational element described above, targeting Zimbabwe's Agricultural Knowledge and Innovation Services (ZAKIS), entitled "Transforming Zimbabwe's Agriculture Research, Education and Extension Services for the future".

The **global objective** of the call for proposals was: *Contribute to the development of a diversified and efficient agriculture sector that promotes inclusive green economic growth*

The **specific objectives,** and associated **Priority Issues,** were:

Specific Objective 1 - Agricultural Research:

Promote demand-driven, efficient, effective and sustainable research that provides relevant solutions and has rapid and widespread impact on agriculture and rural development.

Priority Issues:

(P1-1): Participatory setting of research priorities with a strong value chains orientation and a focus on young actors and female farmers.

(P1-2): Strengthen the collaboration, coordination and capacity of research institutions to develop implementable, relevant, economic, effective and efficient solutions to key issues of agriculture and rural development including cost of production, productivity, disease control and value chains.

(P1-3): Multi-actor institutional framework to sustainably deliver demand-oriented research, generate and manage knowledge and apply research through extension and education.

Specific Objective 2 - Agricultural Education:

Ensure an inclusive and quality education to develop a skilled and entrepreneurial workforce that contributes to wealth creation and rural development

Priority Issues:

(P2-1): Farmer and young professional-centred, value chain-oriented agriculture education curriculum and methods that meet the needs of young people, farmers, agriculture professionals and private sector.

(P2-2): Strengthened institutional framework and cooperation of academia, private sector, agricultural colleges, TVET and Farmers Union to sustainably provide relevant agriculture education.

(P2-3): Established networking and facilitating function that supports transition from school to employment, promotes lifelong learning and entrepreneurial development.

Specific Objective 3 - Agricultural Extension:

Enable farmers and rural people to improve their lives and contribute to agricultural growth and rural development

Priority Issues:

(P3-1): Participatory, farmer-centric, research-driven and value chain-oriented priority setting and definition of extension approaches to directly meet the needs of the farmers.

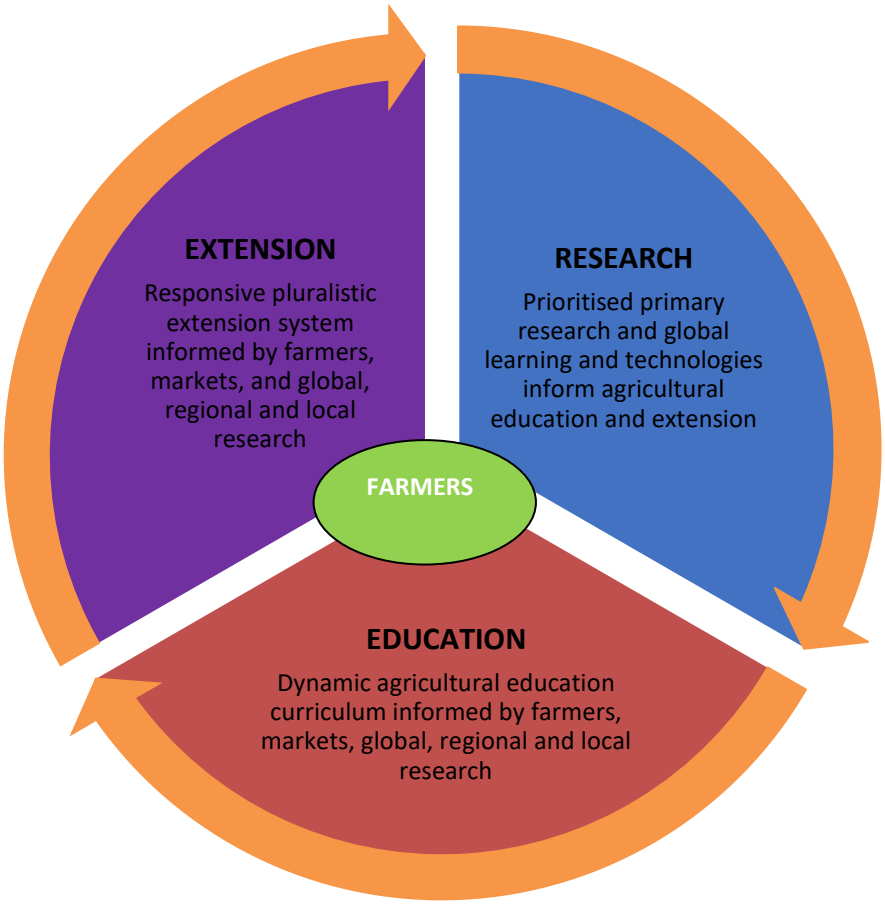
(P3-2): Multi-actor, market-oriented, coordinated institutional framework to deliver relevant extension and advisory services effectively, efficiently and sustainably to the farmer and other value chain actors.

(P3-3): Performance measurement to manage for results and to inform continuous improvement and learning based on joint analysis and sharing of best practises, knowledge and information with research and education.

1.3 ZAKIS Consortium and the ACE Concept

A consortium of local and international agricultural specialist NGOs, comprising WHH (lead), SNV, ICRISAT, CTDO, and SAT, came together to develop a concept and proposal for ZAKIS. The central premise for ZAKIS in this proposal was oriented around Agricultural Centres of Excellence (ACE) as a focal point for integrated knowledge and innovation services, bringing together agricultural research, education and extension. The total budget for this project is EUR6,6M, of which the EU contributes 6M, and WHH and partners contribute EUR600,000. The project duration is 52 months, from August 2018 to December 2022.

Figure 2: Integrated Knowledge and Innovation Services



The goal of the ACE concept is to **establish an integrated, dynamic, market-oriented, and farmer-centric agricultural knowledge and innovation services system that meets the needs of modern agriculture in Zimbabwe**.

ACE recognises and promotes the **essential interconnectivity of agricultural education, research and extension** for ensuring that relevant and up-to-date knowledge and innovation permeates the system at all levels, with continual feedback from farmers to inform and refine the focus and direction of agricultural services and systems.

The ZAKIS consortium, working in partnership with the Ministry of Agriculture, Lands, Water, Climate and Rural Resettlement (MALWCRR)[1], will establish two fully equipped Agricultural Centres of Excellence one serving the north of the country and prioritising crop, horticultural and relevant livestock value chains; the other serving the south of the country and prioritising large and small livestock value chains and drought tolerant small grains. In the opening phases of the project, Ministry of Agriculture stakeholders selected the following physical locations for establishing the flagship ACE sites:

- North: Chibero College (linked to Mhondoro and Chegutu Districts)
- South: Matopos Research Station (linked to Matopos and Insiza Districts)

[1] The abbreviated name "Ministry of Agriculture" is used throughout this document to avoid confusion associated with regular changes in the official name of the ministry responsible for agriculture.

ACE will act as **focal points to organise innovation fairs, field days and farmer training workshops,** bringing together all actors along the relevant value chain, including government and NGO extension workers, researchers, agriculture lecturers and students, farmers, financial service providers and agri-businesses. ACE will **leverage the best practice knowledge base** to drive agricultural education that is relevant and responsive to the specific needs of farmers and value chain actors for profitable, market-driven agricultural production.

Each ACE will link directly to farmers through two neighbouring District Agritex offices, which will be capacitated as **District Agricultural Centres of Excellence**. As well as being the district extension hubs, these will serve as the **functional link between education and research at the farmer level**. These district centres will take the lead in demonstrating emerging technologies and coordinating value chain-driven pluralistic extension networks through capacitated extension staff. The district centres will establish district and ward demonstration sites as living, learning classrooms where practical, on-farm events take place and where new ideas and approaches are tested, showcased and further developed by farmers. District centres will host district level events around demonstration sites, which will be an opportunity to bring the private sector closer to the farmers and facilitate relationships along the value chains. **District centres will facilitate farmer feedback mechanisms, ensuring that farmer voices remain at the centre of research, education, and extensions systems.**

The ACE will be the central platform for farmer-led transformative integration across the agricultural knowledge and innovation system. Beyond the two physical ACE sites the system will integrate with the wider agricultural research, education and extension system (i.e., other research stations and agricultural colleges and the national Agritex networks) as well as establishing virtual platforms that facilitate increased access to, and sharing of, emerging information and technology for anyone engaged in research, education and extension at all levels of the system.

The ACE will result in an agriculture research, education and extension framework that is farmer-centric, integrated and market-oriented with dynamic private sector linkages driving innovative technology choices and value chain priorities that reflect the needs of farmers.

Well-functioning ACEs will result in:

- Agriculture research being more farmer-centric and market-responsive, informing agricultural education and extension, and closing existing gaps where there are currently no direct linkages amongst research, education and extension.
- Agricultural extension being rapidly modernised through use of ICT platforms to supplement traditional and on-farm extension, capacitated District ACE and an expanded focus on value-addition, reorienting around the most productive value chains.
- Agricultural education curricula and systems that are dynamic and responsive, addressing issues of food and nutrition security as well as commercialisation, integrating business management and farmer knowledge systems.

1.4 ZAKIS Partners

The ZAKIS initiative uniquely brings together local and international strategic actors to partner directly with government institutional counterparts aligned to organisational areas of expertise, building on strong current relationships, to work together across each component of the knowledge and innovation services system.

Welthungerhilfe (WHH) is the consortium lead and responsible for overall oversight and accountability for the project. At the implementation level WHH will partner with Agritex for the development of the pluralistic extension framework. WHH is well established as a leading organisation supporting agricultural development in Zimbabwe. WHH's *Kurima Mari* e-extension platform is already in use in Zimbabwe and has received positive support and uptake.

International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) will partner with DR&SS for joint oversight, guidance and coordination of the participatory research components of the action. ICRISAT brings global and national research capacity, expertise and research for development, including through the global CG network, best practices in crop-livestock interactions, agricultural technology transfer, smart foods, seed systems, monitoring, evaluation, impact and learning.

SNV (Netherlands Development Organisation) is the lead in institutional capacity building, organisational development, and social enterprise development as well as the business planning and PPP components of the action including market scans and rapid assessments to inform curriculum review and pluralistic extension design. ZAKIS draws extensively on SNV's experiences and tested approaches in value chain analysis and development, institutional capacity building, inclusive business, vocational skills development, evidence-based advocacy and extension training and curriculum development.

Community Technology Development Organisation (CTDO) will work with DAEFT on curriculum review and development components. CTDO is a leading national actor in agricultural development in Zimbabwe and builds on the recent experience of CTDO in facilitating the integration of learning from farmer field schools into the technical curriculum for agricultural colleges.

Sustainable Agriculture Technology (SAT) is the lead on private sector engagement, investment and partnership in support of the ACE. SAT will broker PPPs and provide training and mentorship to targeted departments on the sustainable establishment and management of the ACE sites. SAT will play a key role in developing and rolling out a practical, markets and needs-based pluralistic extension services model. Through training of trainers and provision of resources, equipment & tools of work to public extension service providers, SAT will build capacity of government personnel to develop and enhance their role in providing support to a wide range of high-potential value chains.

FOCUS ON CONSULTATION, PARTNERSHIP & OWNERSHIP

ZAKIS is premised on a mutually reinforcing relationship between the consortium members and their partners in the Ministry of Agriculture, comprising Agricultural Extension (Agritex), Department of Agricultural Education and Farmer Training (DAEFT), and the Department of Research and Specialist Services (DR&SS), together with other agricultural system stakeholders, including farmers groups and the private sector. The approach at all stages of the project development and inception, as well as for the ongoing implementation of the project, has been for a collaborative effort that brings all parts of the system together, gaining consensus and common understanding at each stage, with a focus on ownership and buy-in at every level of the system.

Section 2: International Best Practices in Agricultural Knowledge and Innovation Systems – Orienting ZAKIS in global experiences

Compiled by Kristin Davis, IFPRI (for ZAKIS)

The ZAKIS formative inquiry included a review of existing international literature on approaches for improving agricultural knowledge and innovation systems, and specifically, on knowledge and innovation *services* (especially research, education, and extension). The information will help to inform ZAKIS to improve project design, in conjunction with the formative inquiry processes on the Zimbabwean agricultural innovation system (described in the next section).

2.1 Historical perspectives

The thinking around systems and knowledge services in agriculture and rural development has evolved over the decades (Klerkx et al. 2012). Integrated rural development programmes were used following independence of many African countries in the 1960s (Moris, 1991). Farming systems research and development, a holistic approach focused on interdisciplinary research and extension, was prevalent in the 1970s and 1980s (Norman, 2002). In the following decades scholars focused on the research-extension-education triangle (Rivera, Qamar, and Crowder, 2001). Later, others put farmers at the centre of the triangle. Agricultural knowledge and information systems were then touted as a more holistic approach that put emphasis on a wider range of knowledge actors and on management of information.

According to the World Bank, the agricultural knowledge and information systems "comprise the institutions and organisations that generate and disseminate knowledge and information to support agriculture production, marketing, and post-harvest handling of agricultural products and management of natural resources" (World Bank, n.d.: 1). Agricultural innovation systems thinking became important in the 1990s in development circles. Innovation systems thinking has been around a long time (Schumpeter [1934] 1961 as cited in Spielman 2005) but was more recently applied to agriculture (Spielman 2005). Agricultural innovation systems thinking represents the culmination of systems thinking in agriculture to date (Klerkx et al. 2012).

According to Spielman (2005:12), an "innovation system is defined as a set of interrelated agents, their interactions, and the institutions that condition their behaviour with respect to the common objective of generating, diffusing, and utilising knowledge and/or technology." An innovation is any new knowledge introduced into and utilised in an economic or social process (OECD, 1999 in Spielman, 2005).

2.2 Key elements of agricultural knowledge and innovation services

Following Spielman's definition of an innovation system above, this literature review focuses on the actors, their interactions, and the institutions as key elements of agricultural knowledge and innovation services. However, it further unpacks these elements and gives examples of them from the international literature.

Actors

Many actors interact and have overlapping roles within agricultural innovation. Broadly speaking, however, there are three major categories:

1. Private-sector actors are a major source of innovation. This includes companies, agro-dealers, processors, and transporters.
2. Public-sector actors typically support innovation through an enabling environment and coordination. Innovation actors from the public sector include research, extension, education, and policymakers.
3. Third-sector (nongovernmental organisations or civil society) actors often focus on marginalised people and specialised topics.

From an agricultural innovation systems perspective, there are key actors for innovation to occur. One of these are innovation brokers. According to Winch and Courtney (2007), innovation brokers are organisations that function as intermediaries in networks and help to facilitate innovation processes. Brokers can include extension organisations, nongovernmental organisations, or others. Other authors define brokers as specialists (individuals) who combine science with knowledge of business and/or innovation (Ekboir and Rajalahti, 2012). Either way, innovation brokers are critical for the innovation process.

Actors (but also organisations and even the system) need capacities and capacity to innovate (Davis and Sulaiman, 2014). According to FAO's corporate strategy on capacity development (2010), capacities are needed at the individual, organisational, and system level. Capacity issues are noted in the following sections. For the actors (as individuals or even organisations), especially lacking are the functional or "soft" skills that are needed by knowledge providers in addition to their technical knowledge. Davis and Sulaiman (2014:11) detail a long list of the functional capacities needed (for extension services, but these are needed by other actors as well):

- **Community mobilisation** (organising producers and rural women into different types of interest/activity groups)
- **Farmer organisation development** (organising, sustaining, and federating farmer organisations to take up new extension and advisory service tasks in agriculture and linking them to new source of knowledge and services)
- **Facilitation** (facilitating discussions, enabling consensus building and joint action, accompanying multi-stakeholder processes)
- **Coaching** (guided self-reflection and expert advice for improvement)
- **Reflective learning** (organising experience-sharing workshops and facilitating learning)
- **Mediating in conflicts** (by improving dialogue and helping to reach agreement)
- **Negotiating** (helping to reach a satisfactory compromise or agreement between individuals or groups and developing negotiating capacity among other stakeholders)
- **Brokering** (creating multi-directional relationships among the wide range of actors)
- **Networking and partnership development**
- **Advocating** for changes in policies and institutions
- **Leadership** (capacity to inspire and motivate)
- **Managing resources** (human and financial)
- **Critical thinking**
- **Problem solving**
- **Self-reflection** and learning from mistakes
- **Service mindedness**
- **Accountability**
- **Responsibility**
- **Dedication/commitment**
- **Working in multi-organisational and multi-sectorial teams**
- **Working with rural women and using gender sensitive extension approaches**

Organisational capabilities can be built through new incentives, training, mentoring, multi-stakeholder forums, and innovation brokers (Ekboir and Rajalahti, 2012: 27). The box (below) talks about how to instil capacities for innovation within organisations.

Whirlpool – How to instil innovation capabilities

The company Whirlpool instilled innovation as a key competence through

- Training program to change mindset and instil skills
- Innovation mentors and advisors
- Innovation boards
- Innovation days
- Sophisticated IT

(Ekboir and Rajalahti, 2012)

Interactions

The interactions between actors are also important when considering agricultural innovation systems. Information, inputs, outputs, and resources can flow between innovation actors. Thus, linkages and coordination and information flows are important.

Agbamu (2000) looked at seven countries and presented different forms of institutional linkages between research and extension. Linkage can happen through joint identification of research needs, on-farm experiments, joint evaluation, committee meetings, and farmer participatory action. Agamu concludes that the recipe for effective linkage includes policy change, institutional reorganisation, and institutional strengthening (see capacity strengthening comments above). The box below discusses three models linking research, education, and extension.

Linking research, extension, and education

Teagasc – the Agriculture and Food Development Authority of Ireland – is the national body providing integrated research, advisory and training services to the agriculture and food industry and rural communities. Teagasc also provides agricultural education through a network of public and private colleges. The structure of Teagasc includes a research directorate, knowledge transfer directorate (which includes education), and operations directorate (which includes authority affairs, ICT, finance, and human resources).

The *United States "Land Grant" model* is often touted as a good example of research-extension-education linkages. It is called land grant because the federal government set aside land for the universities to set up institutions that helped rural farmers using nonformal education and eventually linking to research demonstrations and setting up the US extension system. The land grants have the university and associated extension offices and research stations as a mechanism to link the three institutions. Furthermore, many staff in the university system have joint appointments of teaching, research, and extension. Farmer advisory committees also help to make the research and extension relevant to clientele.

The *Nigerian Agricultural Extension Research and Liaison Services (NAERLS)* runs the Research-Extension-Farmer-Input-Linkage-System. REFILS brings together research, extension, the private sector, and farmers to ensure new research is used and to guide the course of future research. The World Bank's National Agricultural Research Project initially funded REFILS from 1995 to 2000 with good performance, primarily defined by strong communication channels between researchers, extension, and farmers. However, following the ending of World Bank funding, REFILS performance declined, due both to lack of funding and coordination (Huber et al., 2017: 18; CTA, 2011).

Coordination happens at different levels: The macro or national level, meso, sectoral, or regional level, and micro level (organising farmers). Examples at the macro level include science and technology councils; meso level includes agricultural sector apex research councils or commodity boards; and micro level includes farmer groups (Ekboir and Rajalahti, 2012). Effective coordination requires committed leadership with the right capacities; incentives; an enabling environment; actor capacities; and organisational change (Ekboir and Rajalahti, 2012).

National Extension Coordination under the African Forum for Agricultural Advisory Services (AFAAS)

AFAAS supports the emergence of extension forums (country fora or CF) where stakeholders identify priority areas of concern that can be addressed through collaborative information sharing, joint activities, and partnerships. The CF assist extension actors to relate to each other within a framework of a set of agreed principles, rules, and well-defined roles and responsibilities. This is the prerequisite for the extension services to be embedded within the national agricultural innovation system so that they are continuously aware of the factors in the system that influence their effectiveness. The CF enable the stakeholders monitor the performance of the system and identify the issues that they need to respond to. The general objectives of supporting CF are:

- Strengthen capacity of extension stakeholders to lead advisory service development
- Proactively and responsively support the CF to mobilise, reflect, and learn about how to improve advisory service provision within an agricultural innovation system framework
- Act as the arms of the country CAADP implementing organs in linking with extension stakeholders

In Zimbabwe, a CF was initiated in 2015 with a stakeholder workshop with support from the European Union through the Zimbabwe Extension Support and Training Project being implemented by GIZ/SAT/Ministry of Agriculture, Mechanisation and Irrigation Development. Since then the forum has stalled due to movement of key persons and changes at AFAAS.

African Forum for Agricultural Advisory Services

Flow of information is an important interaction, especially regarding farmers. Most people assume that farmers' knowledge comes from research through extension (public, private, or civil society). However, agricultural knowledge and information research in Kenya (Rees, et al., 2000) showed that the major sources of farmer knowledge were local (neighbours, markets, community organisations). Barriers to information flow from the more formal organisations (e.g. research and extension) to farmers included inadequate human resources, poor leadership, and lack of resources to mobilise farmers.

Other factors essential for innovation interaction include resources, trust, motivated facilitators, behaviour change of individuals and organisations, monitoring and evaluation, and incubator programmes to foster private firms (Ekboir and Rajalahti, 2012). Capacities – the ability to partner, collaborate, foster alliances, and jointly monitor and evaluate – are also critical.

Institutions (Policies, incentives, enabling environment)

The last key element of an agricultural innovation system is institutions, defined broadly as the "rules of the game"—that is, incentives, regulations, and laws. Laws facilitate transparency (Ekboir and Rajalahti, 2012). Responsibilities for policymaking, implementation and financing should be separate, but this does not often happen in reality (Rajalahti 2012). All actors need to have a clear understanding of innovation processes.

Incentives are a key element of institutions. Incentives lead people to innovate, to communicate, and to collaborate. Without incentives it is often difficult to get different actors to work together. Incentives can be monetary or non-monetary (Bitzer, 2016). They can also work positively (rewards) or negatively (disincentives). Public extension in developing countries has been characterised as having poor incentive systems (Swanson and Rajalahti, 2010). According to Bitzer (2016), factors that lower motivation in extension include low remuneration, lack of rewards and promotion systems, low status and recognition, lack of operational funds, lack of professional development, lack of encouragement from leaders, performance measurement systems, and top-down structures. In addition, job risks and gender-related factors inhibit motivation.

Innovation capabilities are the skills to build and integrate internal and external resources to address problems or take advantage of opportunities (Ekboir and Rajalahti, 2012: 16).

2.3 Agricultural Centres of Excellence

One key element of innovation systems are centres of excellence, or innovation hubs, where the different actors come together to diagnose problems, share information, conduct joint activities, and learn together.

According to Sukanya Roy and Richa Kejriwal from the company Zinnov in their blog "Tussle for Excellence," a centre of excellence is a place where the highest standards are maintained. They further quote the Software Engineering Institute of the Carnegie Mellon University definition of a centre of excellence as "a premier organisation providing an exceptional product or service in an assigned sphere of expertise and within a specific field of technology, business, or government..." (Roy and Kejriwal, 2018).

Agricultural centres of excellence (ACEs) are a key element of the ZAKIS design to establish an integrated, dynamic, market-oriented, and farmer-centric agricultural knowledge and innovation service system that meets the needs of modern agriculture in Zimbabwe. In the ZAKIS project the ACEs will include two physical sites that connect, showcase, and disseminate cutting edge research and dynamic agricultural education, linked directly into extension, farmer field trials, and feedback systems.

According to the ZAKIS project, some elements of the proposed centres of excellence include

- Demonstration of links amongst research, education, and extension
- Showcasing latest technology
- Leadership in farmer-centric agricultural research
- Continuous updating of training curricula informed by research
- In-service training for extension agents on research outcomes
- Updating pluralistic extension system with new local, regional, and global learning
- Public-private partnerships
- Sustainable business model/viable business model
- Location on existing college or research station
- Linked to local farmers
- Replication of learning at other research and education centres
- Review of policies and recommended improvements
- Virtual element

There are several spin-offs or related institutions in the literature, including innovation platforms (Schut et al., 2018; Lynam, 2012) and agribusiness incubators.

Innovation platforms bring together diverse stakeholders from different sectors to jointly diagnose and solve specific problems. The objective is to innovate (introduce and use new knowledge) (Schut et al., 2018). Innovation platforms are often project-based (Lynam, 2012). This often causes them to focus on quick solutions to technical problems rather than more deeply-rooted institutional or process innovations. Innovation platforms are used for the following reasons (Schut et al., 2018):

1. Demand articulation
2. Inclusive and participatory action
3. Operationalising experimental learning
4. Institutional support
5. Network brokering
6. Capacity building
7. Innovation process management
8. Knowledge brokering

Agribusiness incubators support small-scale agribusiness and strengthen capacity through learning by doing (Davis and Heemskerk, 2012). They accelerate successful development of entrepreneurial activities and help to develop new products. Incubators can provide training, mentoring, technology testing and demonstration, networking, policy advocacy, and infrastructure (www.infodev.org as cited in Ayers, 2012). For incubators to work, the management and board must be strong, there must be a comprehensive business plan, and there should be access to finance for clients (Ayers, 2012). Science parks can also be used to incubate (Spielman, 2012).

Centres of Excellence in Higher Education

With support from the World Bank, the Eastern and Southern Africa Higher Education Centres of Excellence Project (ACE II) was established in 2016. Excellence in these higher education institutions means that the ACE II project will support centres of excellence in institutions of higher education in the participating countries and strengthen their capacity to deliver quality post-graduate education and build collaborative research capacity. It will also focus on producing excellent training, applied research, and knowledge transfer in priority sectors such as agriculture. This implies that key elements of centres of excellence include capacity building, research, and knowledge sharing.

World Bank, May 2016

According to the World Bank (Spielman, 2012: 283), certain investments are needed to make these types of participatory multi-actor platforms work. These include:

- Researcher capacity to work in innovation systems; to be able to diagnose systems and facilitate group processes
- Partner skills; farmers, extension, universities, private sector all need skills to design partnerships, build trust, and communicate effectively
- Bringing people together; operational funds are required for committees, meetings, and collective action
- Innovation brokers; facilitators are needed to bring people together and reduce competition
- Incentives for participation such as operational costs and joint research and development costs
- Value chain analysis and development to identify constraints and opportunities.

2.4 Recommendations for ZAKIS

The information above has a number of implications for improving innovation systems, and in particular, agricultural centres of excellence.

1. **Actors**. The right actors need to be brought to the table, and in particular, to the centres of excellence. *The centres of excellence need to be a space where everyone feels ownership and have the sense that they are valued*. The ACEs should be used to strengthen capacity of the various actors based on needs. Innovation and entrepreneurial skills are especially needed, as well as other functional skills such as communication and partnering. ZFAAS should be supported to ensure sustainability of extension coordination and priority setting post-project.
2. **Interactions**. Interactions between actors must be stimulated and supported. This means *that trust and confidence must be present or built*. It means *incentives are needed* for the various actors. The centres of excellence should have resources to bring people together to diagnose, test, and share. ACEs should have *management and oversight that is respected and participatory*. They should link to sources of finance or provide financing for activities. A major interaction that the ACEs are involved with should be the *sharing of information and knowledge*. It is important for communication and outreach strategies to be in place and to use a variety of mechanisms to reach out, depending on audience preferences for how to receive information.
3. **Institutions**. *Policies must be enabling*. Not only national-level policies are needed, but *organisational-level policies are important too*. This means, for example, that organisations support their employees to work outside their normal silo and collaborate with other institutions. The centres of excellence should *provide personal incentives to those participating* such as funding for activities or the opportunity to participate in research, training, or joint publications. The ACEs *need to develop means of instilling excellence* in the work that comes out of it. This could be through benchmarking of international best practices, through quality control mechanisms and oversight, and through continuous monitoring and evaluation and learning.

Section 3: ACE Inception – bringing together ZAKIS systems

In February 2018 a broad consultation workshop was hosted by the ZAKIS consortium at Gwebi Agricultural College, during the design phase of the project. This brought together key stakeholders for developing AKIS in Zimbabwe. Participants included Agritex, Zimbabwe Farmers' Union (ZFU), Commercial Farmers' Union (CFU), Department for Agricultural Education and Farmer Training (DAEFT), Marondera University, Midlands State University (MSU), Africa University (AU), AgriSeeds and the Department of Livestock. The day included a keynote address from Professor Mandivamba Rukuni.

The primary purpose of this workshop was a preliminary consultation with key stakeholders to understand the various perspectives on transforming Zimbabwe's agriculture, research, education and extension services for the future, with a view to building consensus both on the priority issues and the way forward for designing a transformational intervention for AKIS in Zimbabwe.

Participants organised themselves into two groups based on their preliminary response to the idea of building an integrated AKIS system for Zimbabwe. The first group, the 'Sceptics', were those who felt that such an outcome was unlikely to be achieved, whilst the second group, the 'Optimists' were those who felt that there was scope for achieving a more dynamic, integrated and forward-looking system.

SCEPTICS…the problems we face:	***OPTIMISTS…how we can succeed:***
NO COORDINATION amongst the three departments; working in silos with no coordination structures; No coordination with NGOs – come in and do their own programmes. **STRUCTURAL CHALLENGES** constant organisation change, cabinet reshuffles, staff redeployed, name changes. **'WE TEND TO BUILD AND DESTROY OUR OWN INSTITUTIONS'** – Agritex/Arex, LPD/Agritex – through all these changes farmer is not being consulted on what she needs. **EXTENSION STAFF** – problems since 'fast track' cadetship system, problems of upskilling this cadre, no resources for induction, in service training. **RESEARCH** – not compelled to share or disseminate – no journals, no magazines; not farmer-centric, no dissemination at this level… no central library **POOR FARMER ORGANISATIONS** – used to be levies for commodity associations, structural challenges in unions (federation minus ZFU); No policy to support farmer organisations in having a voice **POLICY** – no real policy; policy that was there was the sector approach that really stopped people from working together; policy hasn't updated to new context – where there is policy, it is not reinforced **RESOURCES** – not enough subsidy for inputs; no mobility for extension staff; within the ministry a lot of money used at central level - very bureaucratic, needs to be rationalised. Current facility for levies to fund from farmers is not working, not coordinated.	**NEED MARRIAGE BETWEEN RESEARCH/ EXTENSION/EDUCATION/FARMER** – driving research topics based on real problems that farmers are struggling with; specialist extension needs to be linked to research **FARMING SYSTEMS HAVE CHANGED** – currently a lack of specialisation in the curriculum – turning out generalists (because of limited resources). Growth of the market will drive the need for more specialists. **EXTENSION** – frontline officers are not trained enough when they come out of the colleges. Calibre of lecturers? Lack of passion? Need people with the right skills and attitudes – also need incentives – people with a genuine interest in agriculture. **RESEARCH** – what would drive researchers to publish in Zimbabwe? Nothing peer reviewed and benchmarked externally in Zimbabwe – all looking to publish outside. Education and extension also need to do research - to be curious and research oriented – what type of extension works? What type of education works? **CURRICULUM REVIEW** – consult the 'consumers of the graduates'; How can curricula serve farmers in a way that is market-oriented; functional links between academia-farmers-industry **EXTENSION** – still premised on the notion that extension is more informed than farmers, but this is no longer always the case! Need more participatory research with farmers and extension **POLICY** – importantly, the issue is not only policy but IMPLEMENTATION **RESOURCES** – how can we fund this? – some from government, key industries, different projects becoming self-sustaining, farmer levies/commodity associations (problem of weakness of farmer unions) **Success stories: Tobacco sector** – well integrated value chain –well paid for, tobacco farmers funding research; also COTTON used to be; COFRE was a good platform

3.1 Priority themes for ZAKIS

In fact, the themes that arose between the two groups were not always different; in both instances, there was a recognition that certain aspects of the current system were not functioning in a productive way, and that creative solutions would be needed to core problems if AKIS is to succeed.

Both groups agreed on the main themes to carry forwards, which were integrated into the project design:

1. **CONNECTING** – *marriage between research/extension/education and private sector – needs to be meaningful, with agreement of priorities and mutual interests of all stakeholders.*
2. **LINKAGES** *across the system, including private sector (financing, markets, services), industry associations and commodity associations, and strengthening the role of unions.*
3. **INNOVATION** – *current status is 'research for the sake of research' but not applied or helpful on the ground. We need to develop pathways for market proven technology for uptake. Information is not knowledge until the point of action; we need to connect education and research to the consumer and the consumer needs to be informing what education and research are doing.*
4. **PARTICIPATORY APPROACHES** – *all development should include active participation of citizens – same for research, education and extension – integrated approach for the ultimate benefit of the farmer. What are these approaches and how do we do it? E.g. research into what methods are being used by NGOs so that we can draw on these to see what is working and how we can integrate these approaches.*
5. **SYSTEMS APPROACH** – *we are strengthening a system, not separate entities….*

Linking the AKIS role to the Science Agenda for Agriculture in Africa (S3A)

S3A prioritises three key themes:

1. INTEGRATING…

- *Research, extension education*
- *Local partnerships*, state and non-state agencies

2. CONNECTING…

- *Farmers, producers, entrepreneurs, consumers* (customers are no longer just farmers – it is the whole system)
- *Social capital, technical and institutional innovation* – agriculture is no longer an autonomous economy. Most manufacturing is still agro-based, but there are no linkages between industry associations and farmer commodity associations – industry associations will import what they need; they are not talking to commodity associations.
- *Co-creating and collective action by farmers*

3. STRENGTHENING…

- *Basic sciences*
- *Skills, facilities, and policy environments*
- *Capacity to address new and evolving challenges*

Professor Mandi Rukuni, Keynote Speaker

3.2 Conclusions from the inception workshop

What are the conditions for these linkages to work ….and what strategies can drive this functional integration?

a. **Acknowledge and define new landscape** – the agricultural landscape has changed, but policy has not evolved with this. Need to look at what we have and how it can be made to work with the new system. We also need policy consistency; see where the policies are contradictory.

b. **Structure of the ministry** – doesn't facilitate integration. Previous efforts to come up with a coordinative structure have not been implemented. It is important to get this right as a mix-up at HQ also results in mix-up at farmer level. E.g., there used to be three or four different extension officers with different specialisations (livestock, crops, irrigation etc), which resulted in confusion at farmer level. Even within ministry, departments are acting within silos, e.g., education used to come under research, but was then separated into different departments. There used to be some level of sharing, e.g. used to have researchers coming to lecture in colleges.

c. **Advocate for innovation platforms** – to bring together all actors within value chain involved in a particular sub-sector to break down silos.

d. **Mindset change** of people working in the system – attitudes and behaviour. We are all working for a common goal and need to set aside difference and separate agendas. We also need to look at how we are recruiting students into the system and prioritise people with a passion for agriculture.

e. **Amplify farmer voice** – farmers need to be at the centre at all levels; we need to make farmer voice meaningful. At the field level, farmers have knowledge to share and they need to be able to articulate their needs. Currently Agritex are the ones who communicate to farmers, but the system is not working. We need unions for farmers to speak with a common voice and for increased farmer participation in membership organisations. We need improved two-way communication – when farmers unions were well organised, they used to be an easy channel for two-way information.

f. **ICT** – can facilitate easier collaborations amongst research, education, extension – we need to embrace technology at all levels. E.g., Currently ZFU/Econet have established a two-way communication system (bundled with Econet's EcoFarmer platform) where ZFU sends educational information to farmers, and farmers are able to respond and send their questions to ZFU. ZFU then directs the question to the relevant government department to get the answers. Farmers pay 50c per month to subscribe.

g. **Motivation** – e.g., research has no financial motivation to reach the farmers ("pocket motivation")

h. **Economic model for this system to work** – can't be reliant on donors – needs to find its usefulness in a market that is ready to pay for it, i.e., through sustainable business models – but we also need to remember the environment (balance between private sector and national interest….)

i. **Innovation** – 'economically successful invention' with a participatory focus, meeting the needs of the markets/farmer. E.g., in Asia there was a value system around Farmer Field Schools, a national interest in this model, with high quality of farmers winning awards as lead farmers, which was integrated as part of the extension service, with strong networks for communicating outcomes from demo plots etc and knowledge spread through farmers. People would even pay to get to these lead farmer's farms to see what systems were working and how.

j. **Appreciate demographic makeup of farmers** – e.g., currently commercial farmers go to Agritex and ask for solutions; small scale farmers wait for Agritex to come to them with solutions.

k. **Demand-driven extension** – currently some farmers are growing beyond the capacity of extension. Farmers shouldn't be dependent on extension – need to be able to access information.

Section 4: Formative Inquiry – Understanding the current status of AKIS in Zimbabwe

Following acceptance of the proposal and signing of contracts with the EU, the ZAKIS partners set about conducting an extensive formative inquiry, covering key stakeholders in agricultural education, research, extension and policy. The team conducted 18 focus group discussions, 26 key informant interviews, 8 key informant online surveys, and 4 site visits over a period of six weeks in October and November 2018. This was complemented by a literature review, which included the Ministry of Higher and Tertiary Education National Skills Audit Report (2018), TVET Scoping Study (2018), and the new draft Agricultural Policy Framework (2018-2030).

What does the Draft National Agriculture Policy Framework (2018-2030) say about AKIS?

Currently research, education and extension services are fragmented, do not have a value chain approach and do not address the challenges of smallholder farmers.

We need to create a more robust, vibrant, inclusive and sustainable agricultural sector using an institutional model that embraces:

- partnerships at all levels;
- the principle of subsidiarity;
- the need to monitor and evaluate actions for sustainability and impact;
- sharing lessons and good practices to improve policy and practice

Must be anchored in good governance and driven through sustainable funding models.

NAPF emphasises **joint planning and implementation strategies for agricultural research, education and extension** in order to enhance the use of limited resources; improve relevance, timeliness, and effectiveness of knowledge, technology and innovation services.

The policy promotes integration of institutions by creating multi-stakeholder agricultural knowledge and innovation platforms [AKTIPs] at national, provincial and district levels. AKTIPs will achieve joint research agenda prioritisation, execution and evaluation of interventions which are:

- Demand-driven and responsiveness to the needs of value chain actors;
- Inclusive for stakeholders to be critical participants in decision making;
- Equity of all participants as partners in agricultural research, education and extension;
- Consensus orientation where priorities are agreed upon by all stakeholders, particularly the end-users of the knowledge and innovation services;

4.1 Formative Inquiry: Emerging Themes

The 'Big Pit Stop'

The ZAKIS team regrouped after most of the interview data were analysed to establish common themes arising from the interviews, focus groups, surveys, literature review and site visits. The 'big pit stop' was a space to stop, reflect on what we have discovered / gathered so far and jointly decide what it means for ZAKIS and especially the next step in the formative phase, which was the Future Search. Specifically, this process was designed to:

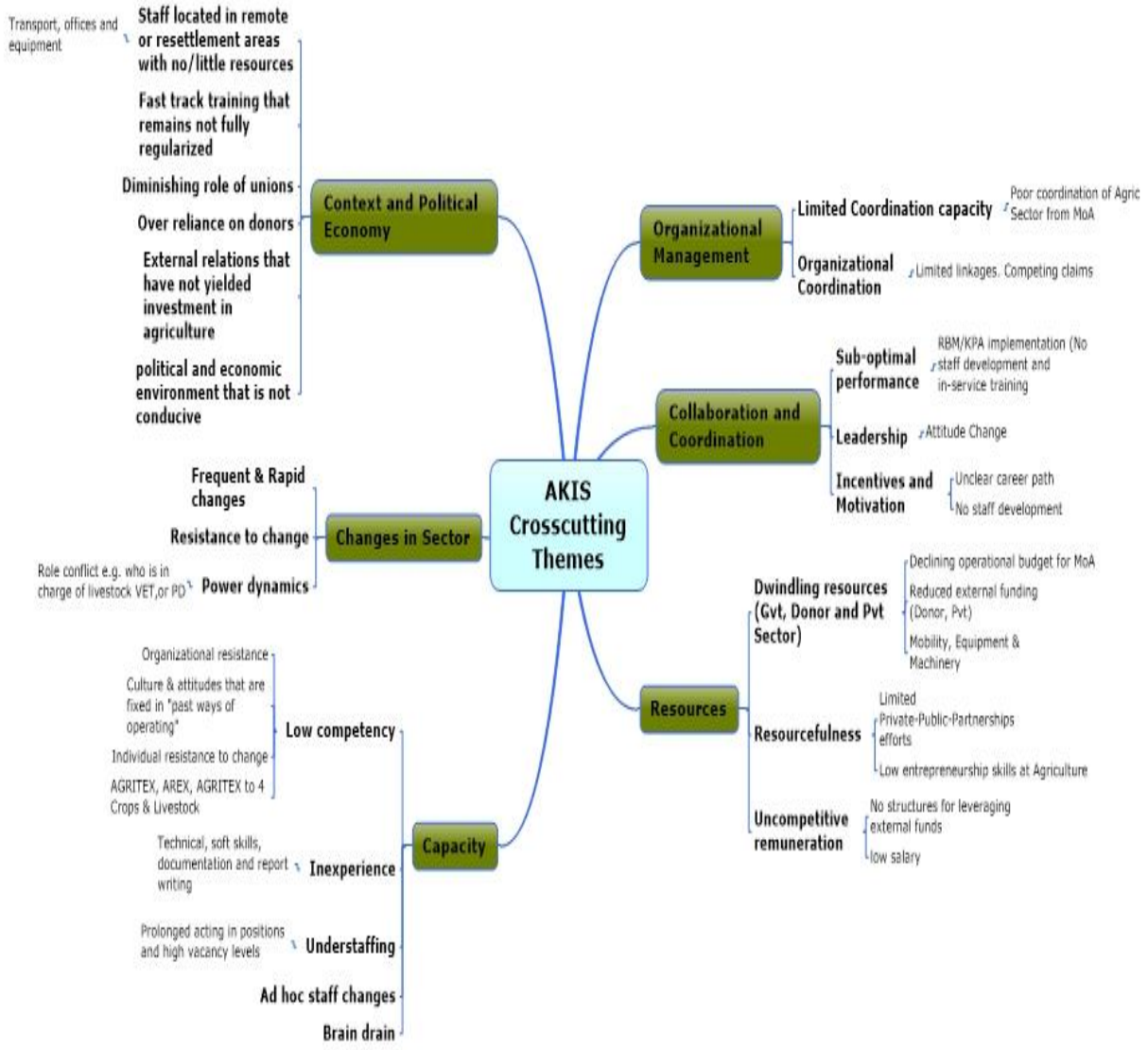
- Analyse and make sense of the data gathered from multiple perspectives so that as full a picture as possible is gained (collectively) about the issues that will need to be managed, addressed, tackled if ZAKIS and the ACEs are to succeed;
- Generate driving questions and key design elements of the Future Search exercise; and
- Decide on the most helpful way of sharing data / analysis with stakeholders

The team then used this analysis to group the emerging data into thematic visual presentations covering the core emerging themes:

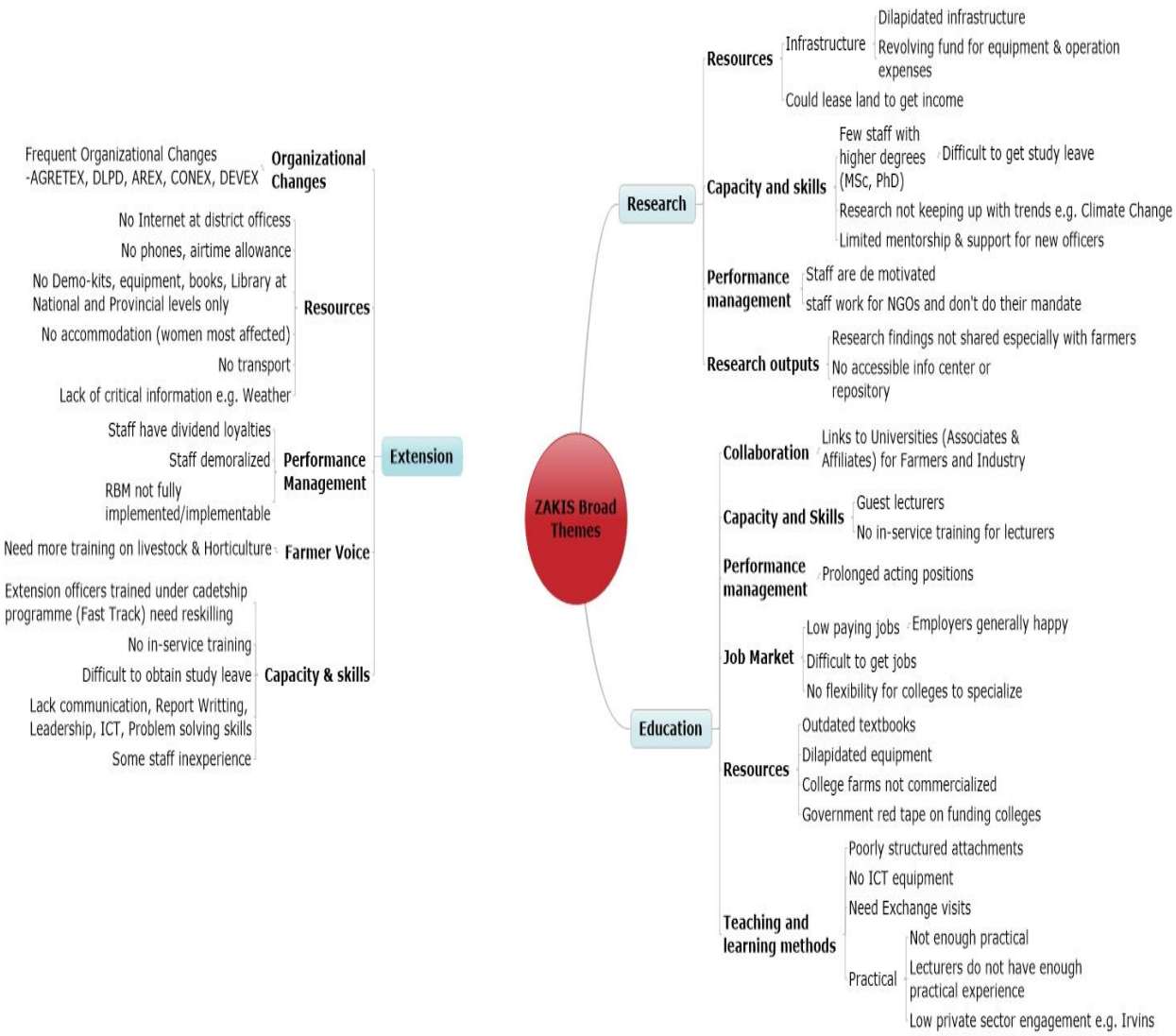
1. Broad themes that were specific to the different AKIS functions (research, extension, education) and cross-cutting themes across all of the AKIS functions, including:
    - Context and political economy
    - Organisational management
    - Changes in the sector
    - Collaboration and coordination
    - Resources
    - Capacity
2. Inadequate coordination between the AKIS departments (research, education, extension)
3. Lack of alignment of policy with large scale changes in the Zimbabwean agrarian landscape
4. Sub-optimal capacity, skills and attitudes
5. Little or no government resources
6. Low performance at all levels
7. Positive and negative forces for change
8. Stakeholder mapping
9. Good practices and opportunities

The visual summaries were presented during the first day of the 'Future Search' event held on 29th-30th January 2019 (described in more detail in Section 5). During this event, stakeholders from each of the core departments, together with farmer representatives, private sector, and development organisations, were given an opportunity to review, comment on, and discuss the summaries presented, identifying any gaps and highlighting specific issues. The visual summaries were then updated based on any new information or significant discussions from stakeholders and are presented over the next few pages, highlighting key points that arose during the discussions.

1. CROSS CUTTING THEMES & BROAD THEMES FOR RESEARCH, EXTENSION, EDUCATION



These two mind maps (above and overleaf) show the overlapping themes that cut across each of the three knowledge and innovation services, as well as the specific issues related to education, extension and research. There are similar core themes cutting across the entire system: human resource capacity and development challenges; limited resources at all levels; changes in the sector; organisational resistance to change; low coordination between departments; and inadequate collaboration between government, private sector and NGOs. One participant highlighted that a lot of donor support had been directed at extension, but less to education and research. A good practice example was also highlighted of funding support from the Rockefeller foundation that supported six Masters students through University of Zimbabwe, who have gone on to work at high levels within the sector and do good work, but this was an isolated example. The college system was felt to be particularly lacking in terms of supporting soft skills and entrepreneurial mindsets, as well as offering opportunities for specialisation, including post-graduate opportunities for those who want to specialise later on.



Cross-cutting themes

*"There is **no collaboration**, I see one organisation who will do one project and another organisation will come and do the same project."*

*"One thing that is coming out clearly, research findings are not being shared, they are published in foreign publications; **we need our own journals to publish our research**."*

*"There is **low private sector engagement**. For instance, Irvines Chickens could give guest lectures and practical experience to students on poultry, they are practical experts."*

*"The Results Based Management system doesn't work. **How can we be measured when we have no resources to do our work**?"*

*"Imagine, **we have 18 faculties of agriculture all teaching only 3 subjects**"*

Future Search Participants

2. INADEQUATE COORDINATION (RESEARCH, EDUCATION, EXTENSION)

A key theme that arose was poor coordination amongst research, education and extension. An institution known as COFRE (Committee for On-Farm Research and Extension) was frequently mentioned as a previously successful model for coordination between research and extension in particular. However, it was a donor created project and did not survive beyond the project funding. Some felt it created parallel structures, rather than successfully embedding within the existing systems. This is an important lesson for ACE, not to fall into the same trap of low sustainability of donor funded initiatives.

One of the main issues that arose relating to coordination was not only policy but also frequent restructuring, along with limited resources, incentives and motivation. Overall, there was the feeling that there is no leadership driving coordination or addressing these limiting issues, the notion of the different departments 'working in silos' was a common theme. However, policy remains essential: coordination amongst research, education and extension must begin at the policy level or else it does not work.

Farmers unions were also mentioned as having potential for facilitating coordination, but the unions themselves are fragmented and lack their own effective coordination mechanisms.

Good practice example

"Agritex was doing both livestock and crops with different directors (but now it is more coordinated into one unit) …so if we have extension, research and education under one director it is better."

Future Search Participant

3. *LACK OF ALIGNMENT OF POLICY WITH LARGE SCALE CHANGES IN ZIMBABWEAN AGRARIAN LANDSCAPE*

A major finding of the inquiry was that the policy has not responded to, or adapted to align with, the complex changes in the agrarian sector over the past two decades. The main theme that emerged in this area was a feeling that government has not responded because of lack of resources, but also political expediency and a ministry structure that does not match the agrarian system. There has also not yet been any systematic land review or audit that can inform the needs for enabling policies.

The role of government

There is too much expectation on what government can do to agricultural development…we need to change our expectations of what government can do.

*Need to make a distinction between **having** a government policy and **implementing** a government policy.*

Future Search Participants

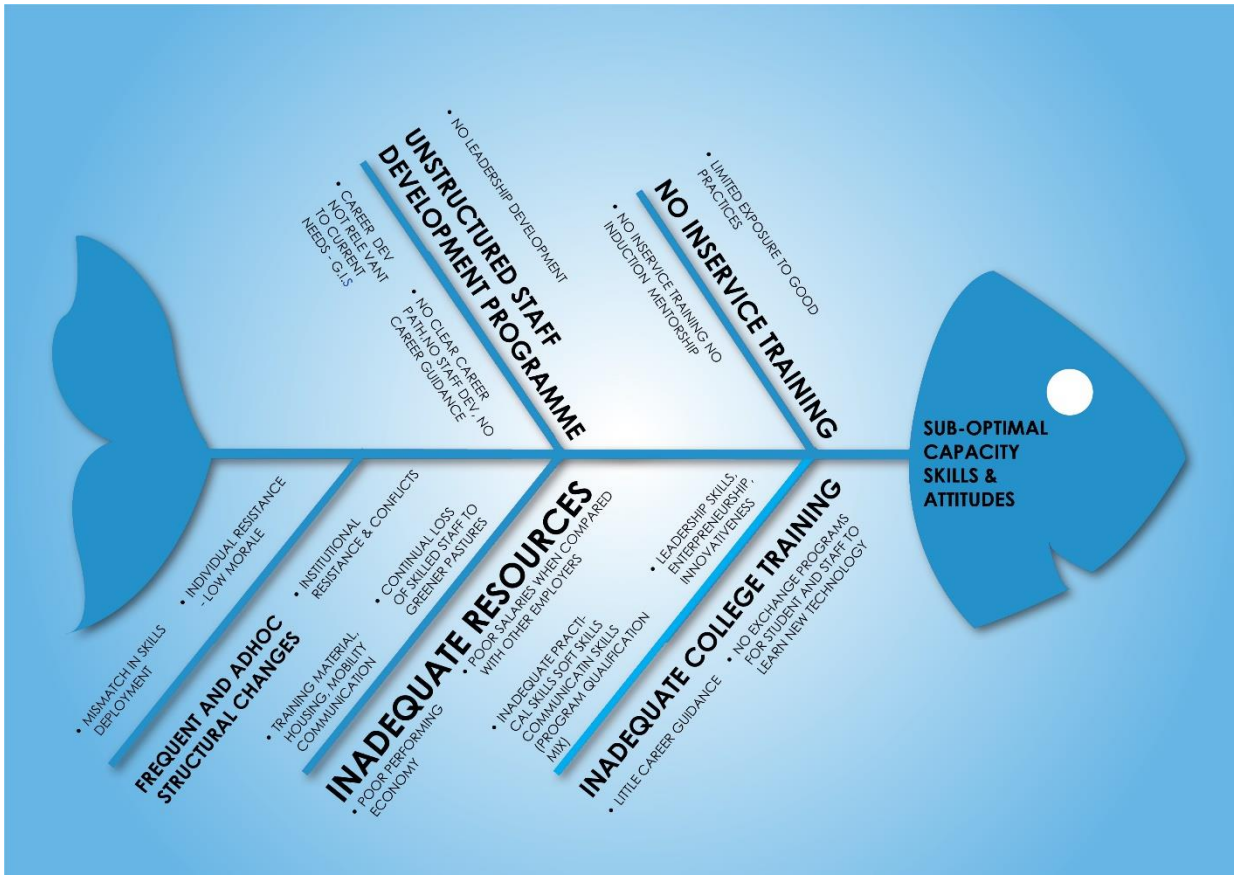
The issue of lack of resources was brought up to be a constraint that was affecting government in responding to the change in agrarian contexts; the declining fiscal allocation to the Ministry of Agriculture was an issue. The figures reviewed during the inquiry showed that the Ministry of Agriculture's operational budget has decreased. Related to this issue is the problem of "brain drain", and particularly the loss of experienced commercial farmers. These farmers were willing and had means (collateral) to invest in farming. Conversely, however, some participants expressed a feeling that government has spent far *too much* money on agriculture since 2000, but with no result.

In terms of political expediency, the issue of the fast track land reform programme is significant, and the subsequent changes in the landscape that took place from 1999 onwards. When comparing policy to agricultural practices on the ground, it is not fully responsive to the post-land reform landscape. For

example, there are areas which were previously fully commercial farming areas where farmers have been resettled onto smaller landholdings, but there is insufficient extension coverage for these areas. The Ministry structure was also felt to have been slow to align with the farming practices on the ground, where most smallholder farmers are operating mixed agriculture systems, whereas at the ministry level crops and livestock were treated as separate units (until recently).

There was a feeling that there had been a lack of progressive development within the Ministry of Agriculture, for example, there is no ICT for the extension or agriculture units, although there was debate over whether this was attributed to lack of resources or lack of pollical will.

4. SUB-OPTIMAL CAPACITY, SKILLS AND ATTITUDES



Two key perspectives emerged when looking at skills and capacities. On the one hand, there was a feeling that agricultural college graduates were ill equipped, especially those that had come through the Cadetship Training Programme ("fast track programme"), and that there was subsequently inadequate in-service training, support and motivation. Soft skills, computer literacy, and exposure to new technology were identified as key skills that were missing. The need for updating the agricultural college curriculum was highlighted, along with the need for standardisation and benchmarking across the multiple colleges and universities offering agricultural courses. Others felt that corruption was an impediment in human resource allocation, with people promoted based on personal connections and relationships rather than merit or performance.

Conversely, however, there are also highly trained, skilled and motivated people within the system, whose capacities are stifled due to lack of resources, such as inadequate labs, infrastructure and equipment.

Performance and Attitudes Issues

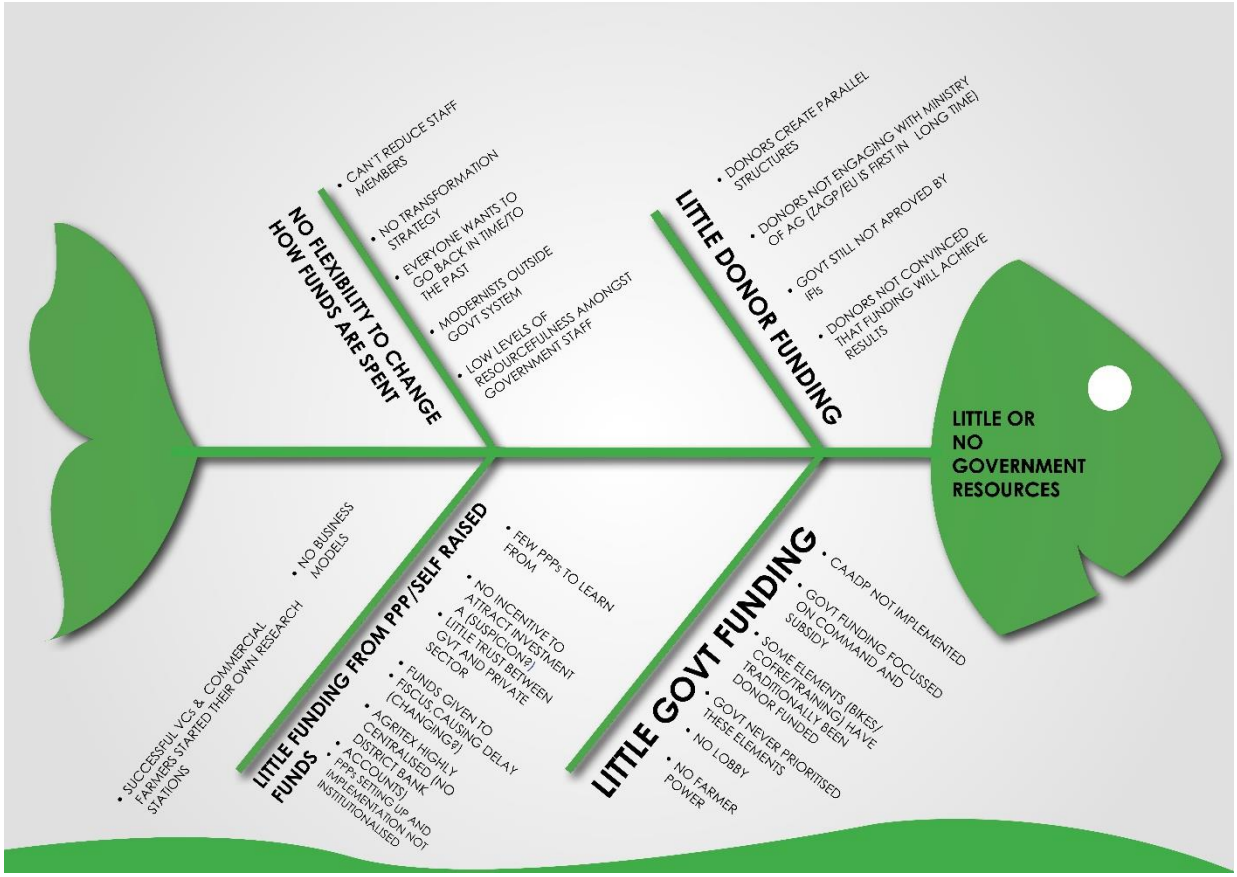
"I think attitudes probably needs a fishbone on its own, to say how do you address these attitude issues and what are the key issues. I think sometimes what we are observing in the field, and it is very difficult to generalise, because there are some very motivated performers out there despite the minimum resources, they are innovative, they are doing everything right."

"The cadre that we are getting from the colleges is too theoretical, as practical attachments are now difficult to come by for students."

"Why are these officers regarded as poor performers when they are in government, but when they are in NGOs they become performers?

Future Search Participants

5. LITTLE OR NO GOVERNMENT RESOURCES



The lack of government resources was an unsurprising cross cutting issue. The inquiry sought to understand how this is this experienced: What kind of things hinder adequate resourcing? How do other actors influence resourcing? Is there room for revenue generation within public organisations? Is this being effectively exploited? The four key points that emerged were: (1) Public-private partnerships are underutilised; (2) Development partners and donors can be part of the problem; (3) Entrepreneurial attitude and readiness to change are much needed; and (4) limited resources need to be carefully targeted.

Overall there was felt to be little or no governmental resources beyond staff costs and relatively little donor funding, with no flexibility across the system to change how funds were spent, and limited PPPs or self-raised funds. Limited government resources has meant, for example, that the government is failing to meet its obligations under the Comprehensive Africa Agriculture Development Programme (CAADP) regional agreement on agricultural development planning. Government funding is focused on command and subsidy rather than stimulating entrepreneurial investment.

In some instances, lack of creative or innovative thinking was highlighted as a limitation for maximising the limited resources available, such as using WhatsApp or text messaging platforms for sending messages to farmers. Others noted that in the past farmers themselves used to fund research and demand services, whereas now farmers are more passive recipients of services. There was also a low utilisation, and low institutionalisation, of PPP opportunities attributed to a lack of trust between the public and private sectors. Government has no clear-cut framework for interested partners who want to approach a department, resulting in lengthy approval processes that are not in keeping with commercial timeframes. At the same time, institutions such as research stations and colleges have land or farms that are underutilised, with potential for these institutions to commercialise their own farming operations and retain the profits to plough back into institutional development.

6. LOW PERFORMANCE AT ALL LEVELS

Low performance, cutting across departments, institutions and at the individual level, was another consistent theme across the inquiry. Whilst lack of resources was a significant limitation for performance, this was not the only issue. Soft issues like culture, attitudes and resistance were also highlighted, along with lack of incentives for effecting any change. Lack of resources is also not just about money, but also included training, recognition for achievement and opportunities for progression. At the level of the wider agricultural system, factors inhibiting optimal performance included lack of regulations, lack of standards and quality assurance for agriculture training programmes by different services providers.

Lack of incentives, recognition and reward

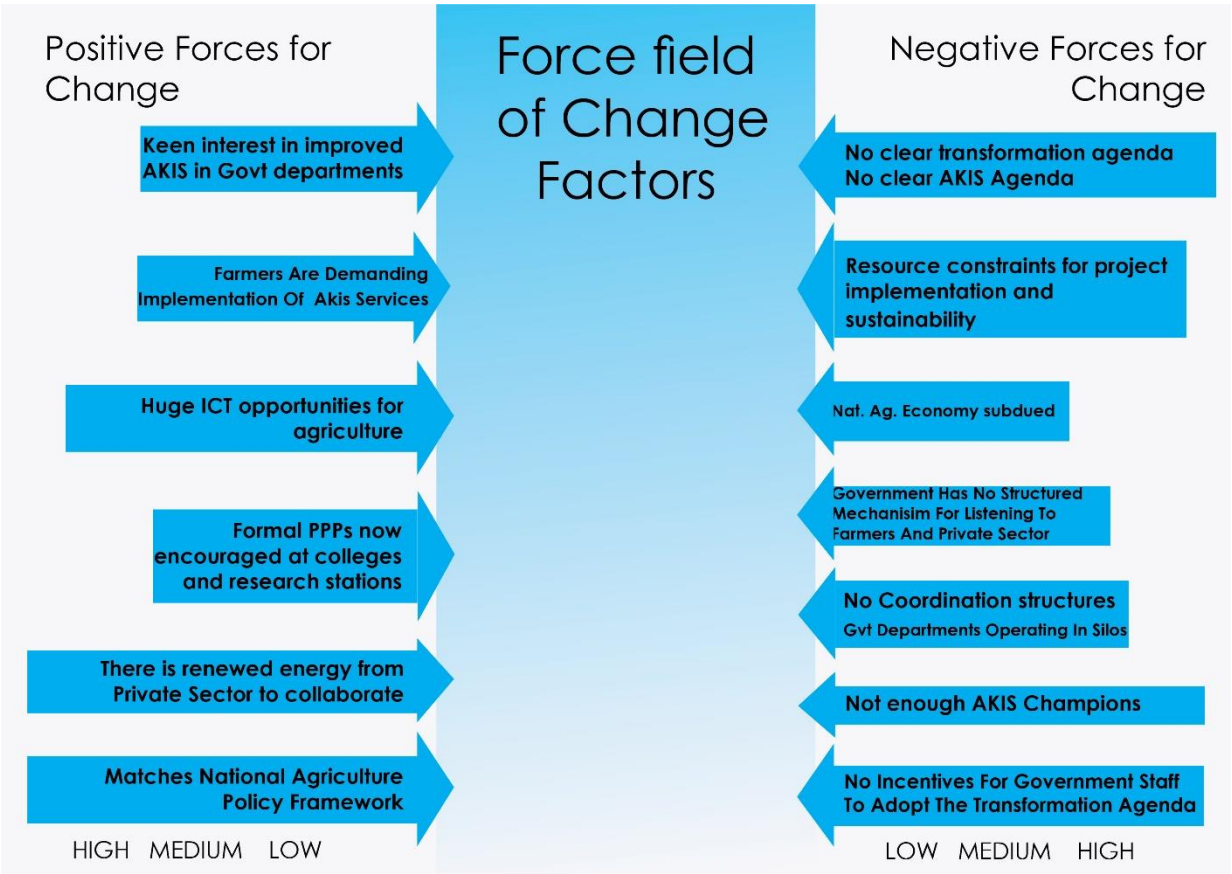
"I think part of the problem may be related to performance evaluations systems. They do not acknowledge individual excellence. ***You are promoted because of the number of years you have been sitting on a chair when you have actually done nothing.*** *There is no incentive as part of the system that integrates your reward system, even non-monetary reward systems and acknowledgement made by government"*

"From what I see, the thing which is missing there is lack of a ***defined progression within the system****. Where like, if you are a high performer, you can progress."*

"University lecturers are promoted based on what they have published and the ***standards of publishing have nothing to do with solving practical problem****s. So, the research is not action-oriented as it were. So, the incentive of doing action-oriented research is not there."*

Future Search Participants

7. POSITIVE AND NEGATIVE FORCES FOR CHANGE



The force field analysis illustrates the positive and negative forces for change: factors that drive and enable change, and forces that limit and prevent change, in this instance specifically looking at the modernisation of AKIS for Zimbabwe. The conflicting dynamics emerging from the analysis show that the project environment is complex, but not impossible. There is need for relationships, collaborations and ownership by the three key government departments. For this to work we need political will for change and leadership. On the positive side, there was a feeling that farmers themselves wanted improved AKIS, whilst on the negative side the biggest constraint was the lack of a transformation agenda, characterised by rigid policies, no mechanisms for farmer or private sector feedback into the system, and the need for mindset for change at all levels. The different departments are currently operating in silos. Whilst AKIS champions were felt to be most likely found at the 'front line', there was also a constraint of resources and incentives for Agritex officers to 'run with the ball' and a lack of creativity amongst officers, who just wait for things to happen, with no funds for change. For the private sector investment was seen as high risk, matched with a lack of skills and frameworks for establishing PPPs within the government system. However, there was one positive example shared of an innovative PPP where private sector leveraged the capacity of extension staff, whereby Agriseeds worked with Agritex to establish 22 demonstration or learning sites. Agritex supported pre-planting preparations and planting, and will continue monitoring the sites, supported by an NGO partner. Agriseeds funded the resources for Agritex officers to reach the communities to establish and monitor the demonstration sites.

Overall there was a broad feeling that the idea of integrated AKIS can work easily at the field level, but that a long-lasting paradigm shift at the senior levels of the ministry would be harder to achieve. Ultimately, the initiative can only effect real and lasting change if senior staff are ready to own and drive it.

Coordination and linkages amongst stakeholders

"But the coordination failures are less about institutional failures and more about the attitudes of the players…we have 3 directors who want to work in isolation and do not want to be coordinated by another director"

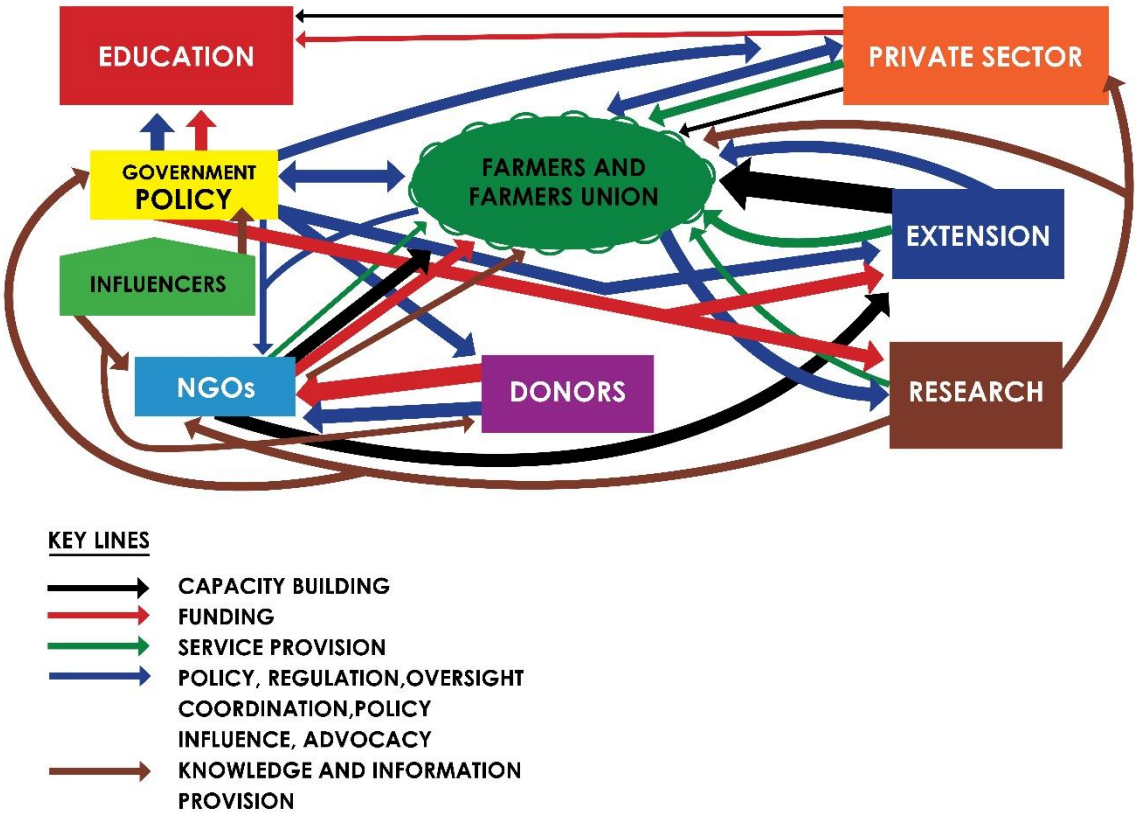
"There is need for a coordinated agricultural business system to link farmers to markets. With this, farmers will not continue growing crops without markets."

"I think the Ministry of Agriculture must reach out to private sector and plan such events, where the private sector can come and exhibit their products. Seed companies like SeedCo, Agriseeds and others can select say 20 farmers each to attend form across the country."

"I think there is need for government structures and farmers union groups to work together in a more coordinated effort with the private sector coming in to support."

Future Search Participants

8. STAKEHOLDER MAP



The stakeholder mapping focused on the relationships and interactions (such as flow of information, resources, inputs) between actors, and the power structures of the various actors in the agricultural sector. The stakeholder map helps to highlight strengths, weaknesses and opportunities within the current dynamics in the sector. For example, the private sector is not well linked, apart from some examples of private sector partnerships with colleges. The different farmer groups appear to be benefiting from all of the different actors. Donors as a group have visible power as key funders. Overall however, the level and depth of strategic interaction between the different actors could be strengthened.

The stakeholder analysis generated a lot of discussion. Participants highlighted the lack of coordination between these various stakeholders: "*If we are looking at the farmer as the ultimate beneficiary of all those organisations, I think there is a tendency by all those organisations operating in silos, they are approaching the farmer as individual organisations*."

Similarly, the farmer voice in driving these systems was also lacking: *"Farmers are being served by all those but they are at the bottom on your chart, they should be up there [in the middle], in that picture it appears farmers are being done a favour, currently farmers have no voice they don't have a voice, I think that's the weakness in this whole arrangement. We are guessing what farmers want. They are not even saying what they want."* Overall, it was thought that farmers were often underestimated in their capacities to learn, adapt and innovate for themselves: "*"Farmers are not there to be controlled, they are running a business, they are raising their families, farmers are not naïve that's why a lot of refined research technologies go there in their nice ways and they are rejected."*

Others noted that there was a significant opportunity to harness technology to improve linkages: "*We would want a platform whereby (with the) press of a button they can access information, on my phone I have pictures from farmers asking me on herbicides, pesticides, how to deal with armyworm and what to buy and they also ask on calibration. Most farmers now have smart phones so if we can have those platforms strengthened, maybe to have a group with Agritex officers who can give responses."* In fact, the front line Agritex officers were seen as an underutilised resource, who could contribute a lot more to the system as the critical linkage between research and education and the real-life needs of farmers: "*The frontline extension worker is at the bottom of the pyramid and normally he doesn't feed into the system for planning purposes, I think that's a resource underutilised…a frontline extension worker plays a critical role, they interface with the farmer, they drink from the same pot, they sit there, they understand the critiques and everything."*

Stakeholder Analysis

"I think there is the weakest link between the education part and extension. Education is just concentrating on education but there is no follow up on their products, they need to follow up, see how they are performing."

"What I have seen is a situation whereby there is a clash of people claiming "ownership" of the farmers, sometimes the products they bring to the farmers are very variable but usually the institutions with money are the ones the farmers tend to listen to."

"In the past research and extension was very linear, almost like a relay race and everyone knew their roles going to the farmer, and the farmer knew exactly who is delivering what but now everybody is in a marathon, they are running their races in different directions and along the way they are bumping into each other. In that confusion farmers have been inundated with more options."

9. GOOD PRACTICES AND OPPORTUNITIES

In addition to the many problems and limitations identified, the inquiry also sought to identify and learn from good practices and opportunities within the system. These are illustrated in the Idea Tree. Good practice examples included some innovative private-public partnership arrangements, such as Kushinga Phikelala, the tobacco sector investment in Chaminuka College, and the Kaguvi Dairy Centre of Excellence, or the ART Farm self-sustaining business model. Some examples of coordination of AKIS were also included, such as the Crop Science Society, bringing together research and innovation. Potential non-monetary incentive systems were also highlighted such as 'best extension worker' competitions, use of champion lead farmers, and opportunities for personal development and studying. Some additional good practices and learning were also highlighted during the Future Search Event:

- N**ational agriculture competitions** e.g. National Irrigation Competition for communal and A1 farmers. This competition both motivates and allows farmers to learn from one another.
- **Collaboration with public and private sector:** There has been increasing interests from mining companies and they have been heavily involved in various agriculture activities, e.g., MIMOSA that has been funding breeding projects for cattle; ZDIT which has a PPP with Kaguvi Dairy Services, which is going well; Fambidzai Permaculture Centre, which focuses on agro ecology; Selby farm is doing education and extension programmes that are providing farmers with relevant information for marketing their produce.
- **Universities' engagement in agriculture projects:** Interesting examples of university initiatives included: Marondera University is doing outreach programs with Agritex; Africa University is doing a piggery project and working with primary and secondary schools in agriculture capacity building; Chinhoyi University of Technology is producing semen for artificial insemination; Bindura University embarked in a project where they developed broiler feed from moringa.

Section 5: Future Search – a shared vision for AKIS and ACE in Zimbabwe

FUTURE SEARCH is an organisational development tool used to establish a shared vision and produce a roadmap with clear roles and responsibilities for achieving that vision.

Future Search refers to a range of tools used to guide organisational change management processes in a way that is positive and visionary, rather than challenging and threatening. Future Search brings the whole system into the room, with a focus on the future and establishing common ground for moving forwards towards a shared vision.

Objectives of the ZAKIS Future Search Event

- To obtain additional insights, endorsement, clarifications and perspectives on what we have discovered so far [*through sharing the formative inquiry outcomes, as described in Section 4*];
- To gain buy-in and commitment from the most important actors; and
- To elaborate a shared vision for how market-led, farmer-centred AKIS might look like and what this means for the detailed design and implementation of the ACE, with clear expectations from different stakeholders.

"Bringing the whole system into the room"

Future Search participants included representatives from:

1. Policy level (Government /Ministry)
2. Development Organisations (Donors, NGOs, UN)
3. Market / Private Sector
4. Farmer Groups
5. Research
6. Education
7. Extension

5.1 Vision for the future of ZAKIS

The Future Search event started with sharing the findings from the formative inquiry, with an opportunity for stakeholders to add additional thoughts and insights, as presented in the previous section of this report. Having gained consensus and a common understanding of the challenges and opportunities from the current system, the rest of the event focused on looking forwards to define a shared vision for the future of AKIS and ACE in Zimbabwe.

Future Search participants were challenged to imagine a vision for agriculture in Zimbabwe in the year 2033 and to share their visions in groups. Each group then nominated some members to leave and visit the other groups ('pollinators') and bring back different ideas, whilst four members remained in each group to present their visions of the future to the visiting pollinators. Through this process, a common vision for the future of agriculture in Zimbabwe emerged.

Visioning ...Close your eyes and imagine…

Imagine a future Zimbabwe 15 years from now. The year is 2033. The economy has turned around, recovered, grown and is the talk of Africa. Agriculture works and works for EVERYONE. Young people lead in many critical sub-sectors of the economy and agriculture in particular. Technology, appropriate and sustainable mechanization and digitalization is the norm in Agriculture. No one knows what food-insecurity means. Farming is a viable means of making a living and farmers do well, and are proud to be farmers.

What you see, feel, and hear? What do different actors do? What does success look like?

"I saw tracts and tracts of land being put to good use and all year-round production."

"I saw rolling fields of rice and maize growing in summer and I was flying in my chopper"

"I saw Zimbabwe getting those research excellence awards in agriculture for example after adopting new and emerging technologies, strengthened regulatory capacities that guarantees quality, standards and safety"

"I saw cargo planes exporting agricultural produce."

"We will have real farmers producing quality produce for exporting. Farmers who know what they are doing. Most of the farmers we have now will have left it to the real farmers"

"Agriculture will be commercialised, we have moved away from subsistence. Agriculture will be profit driven"

"There will be good roads in the farming communities so that farmers can get their produce to markets, transporters can collect"

"The private sector will be playing a much bigger role not only providing markets, but funding research and innovation that will increase production"

"All farmers will have security of tenure, freehold farms that they can use as collateral"

"We will have agriculture tourism, people will come to learn from us and they will pay to come"

"Access to information, value for money, income and profitable commercial young farmers"

"Centres of excellence in every region in the country where farmers can access to information and where they can get a solution to their challenges"

"A country relying more on technology, with a few specialized farmers and all the other people being absorbed into other sectors of the economy"

"We are saying that extension work is to be highly modernized because a lot of the farmers are highly educated so we do not see extension workers riding motor bikes anymore in our vision"

"Government will only be producing policy frameworks to enable private sector to fulfill opportunities rather than play the controlling role"

Five key themes emerged of a shared vision of a modern, productive and competitive agricultural system for Zimbabwe. These five key themes are shared in the table overleaf, with specific examples from the group visioning exercise included under each thematic area.

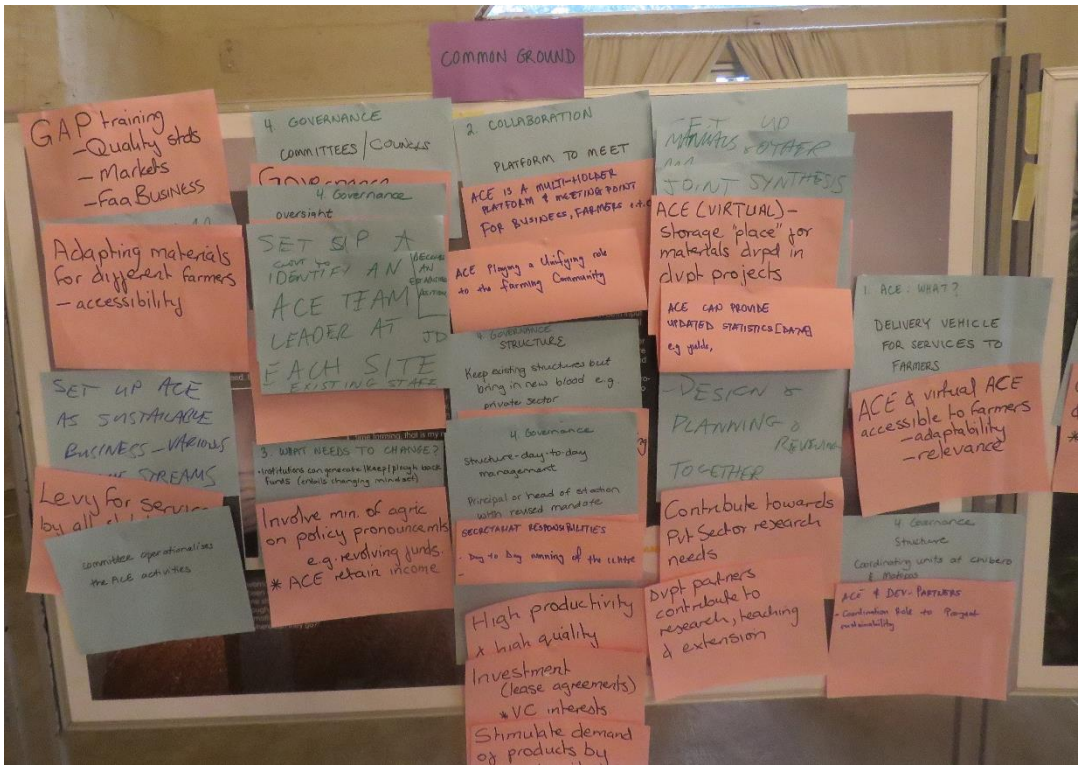
Five critical themes emerged from the Visioning:

INSTITUTIONAL CAPACITY Education/ research/ extension Commercial orientation Working with private sector Skills retention	MARKETS Standards across the VC Finance (appropriate) Export / high value VC Processing / value addition	PRODUCTIVITY Industrialisation / mechanisation / technology Climate smart & sustainable Food & Nutrition Security	INCLUSIVITY Youth Gender Unions / Farmer voice	POLICY Enabling environment Land tenure (bankable) Dynamic/responsive Less controlling, more enabling
• Private sector funding research and innovation • Agricultural tourism: people come to learn from us • Research labs with state-of-the-art equipment • Agricultural innovation hubs • Centres of excellence in every region in the country where farmers can access to information and where they can get a solution to their challenges • Relevant agriculture curriculum in colleges and universities. • Using ICT, new and emerging technologies e.g. e-extension • Good working environments where staff are happy and highly incentivised • Learning from farmers too as part of the communication loop, driving research.	• Agriculture is profit driven • Smallholder access to finance • Production meeting international standards • On-farm value addition • Farmers organise partnerships with the private sector • Contract farming for quality assurance • Farmers are making money	• Specialised agricultural zones with specialist services • Pest management • Specialist farmers creating jobs • High maize yields • Smart agriculture using ICT • Renewable energy use • Mechanised agriculture • Adopting new and emerging technologies • Pest free zones	• Capacitated and successful youth • Young farmers have access to information for profitable farming • Young farmers have MBAs in farming • Farmers have a passion for agriculture • Gender inclusiveness in planning and monitoring and evaluation	• Farmers have security of tenure • Freehold farms that can be used as collateral • Ministry of Agriculture as a regulator only (small ministry) • Regulatory capacities that guarantees quality, standards and safety • Government producing policy frameworks to enable private sector to full fill opportunities rather than play the controlling role.

5.2 Vision for the ACE: Finding commonality amongst public and private actors

The next stage of the Future Search focused in on the Agricultural Centres of Excellence (ACE) and what was needed for them to play an effective role in bringing together extension, research and education in a way that will support, enable and drive the vision for a dynamic and productive agricultural sector in Zimbabwe. Participants were separated into interest groups, with government stakeholders working together (research, extension, education and policy makers) and private/non-public actors (private sector, unions, farmers, development organisations) working in a separate group. These groups debated the key factors for the success of the ACE concept, and then extrapolated from their discussions the most important factors to put forward to the rest of the group. These summary points were displayed with the private/non-public sector ideas on the right-hand side and the public sectors ideas on the left-hand side. All participants we then challenged to identify common themes or ideas between the two groups and to bring them into the centre in a section marked as 'common ground'. In fact, many areas of overlap emerged between the two different groups, establishing broad agreement on a vision for the ACE that would meet the needs of all stakeholders.

Figure 4: Identifying common ground: Public sector ideas in blue and private/non-public in pink



Participants agreed on the following key considerations for successful and sustainable ACE systems:

1. **ROLE OF THE ACE**
   a. Farmer centred, multi-stakeholder platform.
   b. Delivery vehicle for services to farmers – focus on accessibility, adaptability and relevance to farmers.
   c. Multi-stakeholder platform that brings everyone together; unifying platform for different groups.
2. **MARKET ORIENTED:** Informed by gap analysis for the market needs and farmer capacities.

3. SUSTAINABILITY:

a. Sustainable business systems
b. Levy for services
c. Virtual ACE can have advertising
d. Government allocates a budget
e. Using the ACE as an aggregation centre for inputs and outputs (e.g. cattle pens, private sector inputs sales), private sector demonstrations
f. Make it attractive and tangible – relevant to all, make people rally around
g. Commercial centre for outgrower schemes

> *"We need independent farm managers to run our [college] farms on a commercial basis…we are trying to, we are proposing that because that's another weakness where there is low production because there is no incentive for somebody doing production on a commercial basis. If he is given the powers to hire and fire labour in the farm there, he can do wonders because he will be trying to meet targets"*

4. GOVERNANCE:

a. Committee/council – at the national level with the directors of the three departments (Specific structure/s and Terms of Reference need to be agreed as a priority)
b. Board of stakeholders with VC sub-committees
c. Advisory council
d. ACE team leader at each site
e. Strategic committee – Private sector and farmers
f. Accountability- audit, management committee
g. Coordination between Chibero and Matopos
h. Director of ACE works in collaboration with head/principal (seconded from civil service)

5. ACE STRUCTURE

a. Work with or create linkages to existing structures but also bring in new blood
b. Capacitate existing staff to be excellent ("*if we try and put new people in place who is going to pay for those people*?")
c. Principal / head of station with revised mandate – for day to day management of the ACE
d. NB TVET centres currently have board of trustees, but the ag colleges do not – could be an option for learning /adapting from the TVET structure

6. PRIVATE SECTOR

a. PPPs
b. Create information for fundraising and development (information as a product)
c. Stimulate demand for products by private sector
d. Investment (lease agreements)
e. Private sector contributions to the ACE: Training time; Employment; Engage interns; Contribute to curriculum review

7. **POLICY CHANGES**

   a. ACE needs to be able to keep and reinvest its income, run revolving funds
   b. Modify (broaden) mandate of Chibero and Matopos
   c. Semi-autonomous in the short-term; Autonomous in the long term (own bank account)

8. **COLLABORATION**

   a. Design and planning together (Ministry of Agriculture departments) and other actors (e.g. development partners) for research, teaching and extension; contribute to private sector research needs; joint projects from ACE strategic plan; all three departments have staff/units that contribute to the virtual ACE
   b. Joint planning and reviews, regular meetings and presentations of technical papers, field days, open days
   c. ACE as a central facility for training and developing staff across all three departments
   d. Researchers, extension and education having joint work in farmer fields
   e. Engage universities in farmer-centred research addressing needs that arise in the field

> *"People should have freedom of movement to go into the centre of excellence, access information and go back and bring in farmers any time"*

9. **KNOWLEDGE MANAGEMENT**

   a. Joint synthesis - manuals and materials to be created across all three departments
   b. Virtual ACE as a repository for materials developed by development partners
   c. ACE can provide updated statistics e.g. yields
   d. Adapting materials for different groups
   e. ACE should showcase the latest technology – demonstrate proven research – not repeat research work being done on research stations or by private sector

> *"DR&SS used to have what we call the information centre and over the last year they have been talking of about a knowledge management system and we actually have some people allocate for knowledge management but they don't have any specific terms of reference now to utilise this"*

Section 6: Moving Ahead…On your marks; Get ready; GO!

The stakeholders agreed on a three-stage process for moving forwards to establish the ACE to deliver this vision, starting with establishing the institutional and oversight structures, then establishing needs-based systems, and finally active implementation of ACE activities, including sustainability mechanisms from the outset.

ON YOUR MARKS…

Institutionalized advisory committees (national and one for each centre) – involving all the key stakeholders

Timeframe: 6 weeks

GET READY…

Needs assessment & strategic plan for each ACE to inform work plan and budgets:

- Infrastructure
- HR, governance and management
- Farmer needs
- Market needs
- Extension
- Education
- Research
- Policy

Timeframe: 6 months

GO!

Implementation – activities, field days, on-farm trials; sustainability:

- Launch of ACE **Timeframe: 6 months**
- Virtual ACE operational **Timeframe: 6 months**
- Investment happening/PPPS signed **Timeframe: 6 months**
- Ongoing:
  - Activities including ACE trials, on farm trials, field days, visits to the centre
  - Income generated
  - Long term partnerships
  - Institutionalization of ACE into government structures (Budget / staff allocated)

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