Summary: scaling up

On Wednesday 6th February 2019, SIWI hosted a small experts meeting at Alpine Attitude in Pretoria as part of the TIARA initiative, to discuss scaling up rainfed agriculture in Africa. This is a short summary of the meeting moderated by Katherine Madden on behalf of SIWI.

Getting started

Drivers and definitions

Anton Earle, Director, Africa Regional Centre, SIWI opened the meeting with an overview of SIWIs activities in Africa and an explanation of why SIWI is interested in rainfed agriculture. He reminded participants that 95 per cent of Africa's agricultural land is rain-fed and depends on infiltrated rainfall water, stored in the upper layers of the soil and is available to plant roots. Approaches to maximising rainfed agriculture have been available for decades and are based on well-established scientific findings that have been proved throughout the world. Yet enhanced rainfed agriculture is not happening at the scale required to meet the Sustainable Development Goals 1, 2 and 6.

Massive investment is required yet 95% of public investment in agricultural water is in irrigation. Irrigation is important, but the majority of Africa cannot benefit from irrigated solutions and this investment imbalanced must be addressed. Anton encouraged participants to think differently and help SIWI unpick the question of scale and see how it can be best addressed, stimulating food production locally, creating jobs and contributing to economic growth, contributing to Africa's growth and wellbeing as a whole.

TIARA activities

Xanani Baloyi, Programme Officer, SIWI introduced Transforming Investments in African Rainfed Agriculture (TIARA) is an emerging advocacy effort to scale up green water and enhance rainfed agriculture across Africa through financial investments and political leadership. Led by Stockholm International Water Institute (SIWI), Stockholm Resilience Centre (SRC) and the Sustainable Development Goals Center for Africa (SDGC/A) , TIARA aims to i) understand the challenges and opportunities of implementing green water solutions; ii) enable high level leadership and political commitments on green water and iii) unlock public and private investments in green water across Africa.

Xanani gave an overview of TIARAs activities around stakeholder mapping and garnering the opinion of experts in the field, convening dialogues and discussions e.g. June 2018 workshop, Africa Water Week in Gabon, CIAD workshop in Addis knowledge development, communication and advocacy developing the website, talking about TIARA in the regional forums and establishing interest & commitments meetings/workshop. See PPT.

What do we mean by scale?

The first activity found participants working in groups to define scale and understand what it means to different people. Group discussions led by Ashley Hufft, SDGC/A, Palesa Motaung, Independent Consultant / SIWI and Sylvester Mpandeli, WRC. Feedback emerged around a number of key questions – why, what, how, where, when…..

Why scale?

- 95% agriculture = rainfed, low productivty means hunber, high imparts, cost effective solution, green water increase use through catpure, storage and maintence.
- Government ambitions to increase irrigation but impossible without rainwater
- Demand increased food production to be met by more efficient, more suitable food production, more unsustainable food production and land usage
- Population increase and food imports
- Ethiopia's agricultural led industrialization – efforts to modernize agricultural sector so can be an input to industrialization. Is rainwater harvesting modern? Traditional vs modern?
- Aligns with strategy of countries' around poverty reduction.
- Micro and macro-economic benefits

What does scale mean?

- Impact for example "countries can produce enough to feed themselves" or "contribute to agriculture value chains from selling surplus"
- Need: Changed farming systems to enhanced rainfed – more reliable water supply e.e. soil structure improved, harvesting water etc.
- Scaling knowledge – two or three messages out to multiple audiences (policy makers, ministries, multiple people to align programs around messages. Then trickles down to extension workers through manuals)
- Decreasing risk - fertility improvement – more efficient management of soil, efficient use of water, agr-forestry – trees, enhanced green water, minimizing tillage

How to scale:

- Rain water harvesting – roof gutter, jojo tanks technologies – incomplete infrastructure, lack of funds, using one size fit all solution
- Catchments – size of dams is a barrier and pumping capacity, number of famrers accessing
- Infiltration systems / furrows / terraces – barriers are siltation, poor maintenance.
- Focus should also be on other inputs involved in rainfed agriculture such as knowledge, fertilizers, agro-forestry information, data awareness programme, unemployment, climate change, health etc. Bring on board other partners to handle these other issues/inputs
- But then need to target change in institutions – need to look at the whole chain in terms of support and facilitation. Government to extension worker.
- Private sector also cannot be ignored in terms of technology and inputs and bringing this information / knowledge into this dialogue.
- Carefully chose targeted pilot areas – success stories to scale
- Don't start from scratch – need to map what has been done, synthesis from what has been done, help define where we are working, what is criteria

Who - audience

- Consider tackling it from the emergent farmers (semi-commercial) and going down to the lower level type of farming.
- Changing norm that farmers' currently using through rainwater harvesting. Reaching a certain threshold to provide security food security. # in Zambia is 250,000. Not ALL.
- Reaching a tipping point – enough farmers for country to be food secure

Where to scale?

- In all parts of Africa except deserts

- Location and context are important, are there places where both irrigation and green water can be applicable
- Depends on donor requirements and country to country by national interest
- Drylands Project – agro-pastoralist zones, rainfall, poverty index, potential of land in terms of contribution to production (soil type etc). Defined hot zones.
- Find carefully chosen initially targeted pilot areas – success stories

Measuring scale – example indicators

- Number of farmers adopting change
- Number of consistently food secure households
- Increase in yield, per hectare and by area
- Number of youth choosing to farm (and to sell surplus)

Recommendations

- Don't reinvent the wheel
- Scale knowledge and technologies
- Government must buy in and declare green water as priority
- Critical roles also played by donors

What do we know about scale?

This session will cover what we already know about enhanced rainfed agriculture practices and the risks and constraints to scaling up. Building on three expert presentations, participants will identify barriers and opportunities and where possible explore mitigation measures and strategies for action.

Community - Stephen Hussey, Director, Dabane Trust – see supporting powerpoint

- Situation
  - Limited rainfall – 7/8 months of dry season and then 3/4 weeks between precipitation.
  - Farmers have cleared the land and now facing bakes soil with conditions not suitable for growing. Need to keep moisture in the soil
- Re-introducing traditional systems that work (its not a new topic), no infrastructure required, is no machinery or equipment cost
  1. Infiltration pits and trenches
  2. Planting in basins (potholes)
  3. Use of ground cover to minimise evaporation
  4. Use intercropping methods
- But it's not easy. Constraints to implementation experienced include
  - lack of acceptability, conflicting advice from site officials (disconnect between policy and grassroots knowledge, conservatism and high degree of labour intensity
- Some solutions
  - Need to adopt a citizen science approach to implementation: this is about behaviour change –
  - Invest in people rather than technology – costs are for transport and training not technologies
  - Publicity and show what works / set up demonstration plots
  - Work with as many farmers as possible / same area / time

Programme - Elea Papaemmanuel, Programme Manager, IDH – see supporting powerpoint

- IDH / Sustainable Trade Initiative, HQ in Netherlands, facility for public / private partnerships, working in 40 countries, predominately government funded, 12 sectors, 12

landscapes, 600 partners, focussed on sustainable production and trade / green and inclusive growth at scale in commodity sectors and sourcing areas.
- Working in the cotton value chain, for more sustainable production / creating livelihoods, knock on effect of improved farming felt in family, health, water use….
- Cotton is critical in Mozambique with 100,00 plus farmers but extremely low productivity and major risks associated with climate change. Working to manage land for cash crop and food production
- Context specific models are important – the case of Mozambique for example which cannot afford to have an imported or replicated model – need specific solutions. Need for a home-grown model addressing the inconsistent rainfall pattern
- 1.3 million euros, 600 farmers over 5 years, has been impact – immediate productivity improvements, 2nd crop established, access to energy,
- Need for maintenance component to be strengthened on the intervention and overall model – have a business case for maintenance and clarity on the duty bearer.

Region - Maimbo Malesu Programme Coordinator, Water Management, ICRAF

- ICRAF / World Agroforestry Centre, research institute that focusses harnesses the benefits of trees for people and the environment. Headquartered in Nairobi, ICRAF has 6 regional programmes in Sub-Saharan Africa, Asia and Latin America
- Look at rainfed agriculture alongside other approaches / bundle where appropriate e.g. with conservation agriculture and agroforestry
- Climate smart agriculture, satellite data – growing periods are changing, 30-45 days increase in West Africa, 30-45 days reduction East Africa
- ICRAF mapping of countries looking at precipitation and potential evapotranspiration – how many months opportunities for growing and where the potential of enhanced green water is
- Unsustainable land use - majority is typically cropland (should be forests) unsustainable
- Changing behaviour is hard: case study conservation agriculture in Zambia – 20 year effort to demonstrate conservation agriculture can be scaled by small holder farmers by 2012, there are 250,000 farmers practicing…but this took serious effort, training, education etc.
- Principles of conservation agriculture - Permanent ground cover, Minimum soil disturbance, crop rotation.
- Interventions must significantly elaborate on an exit strategy where knowledge transfer to farmers is guaranteed
- Model must encourage/convince the farmer that the work they put in will be cost effective-results

Commercial farmer - Len Abrams, Independent Consultant / SIWI

- Emerging evidence that commercial farmers are looking differently at green water
- Farmers are facing financial and economic pressures, implications of climate change and higher environmental awareness.
- Improving soil health through: minimal or zero soil disturbance, diverse cover crops, and livestock integration
- Results – maintained or improved yields, lower input use and improved resilience. One farmer is selling off his large tractors because soil is now healthy and alive / doesn't need it

Ensuring impact at scale

This session looked at the range of factors needed for enhanced rainfed agriculture to succeed including incentives, subsidies and barriers and effectively engaging of a wide range of stakeholders

Incentives, subsides and barriers / Len Abrams, Independent Consultant / SIWI

- Explore which public policies need to be in place from local level through to national and regional and agree with the group around which issues might have the most impact on scaling rainfed agriculture.
- Group identified that government role is critical but don't necessarily know the answer – additional research in this area required.
- Need to think about a political hook to engage decision makers / government officials on - food security / jobs / water shortages
- Extension services – long standing role in the community – could be retrained to deliver green water management. Need clarity on the practices that work / don't work.
- Governments role in engaging and enabling business to act / deliver in this area.

How can 'investments' be used as an enabler, and how can we address its counterpart 'risk' / Anya Eilers, Associate, GGGI

Stakeholders

- Farmers: smallholder, subsistent farmers (higher risk for both the project and the farmers), emergent, semi-commercial farmers (lower risk for both the project and the farmers)
- Donors: e.g. AfDB, can contribute to the establishment of a fund (first level of risk mitigation)
- National government: Will lead policy reform and budget allocations, provides second level of risk mitigation, service delivery companies that provide agricultural inputs
- Private sector: acts as an aggregator, supports the role out of technologies, imperative for a sustainable business model
- Cooperatives/MFIs: can provide loans for inputs/technologies, in some regions, farmers must be a member of a cooperative in order to access a loan
- NGOs, civil society
- Local authorities, Important to get their buy-in as the communities have a high level of trust in them
- Local leaders/champions, Key role of the catalyst, imperative for the success of the project

If we had the money, where could it be used?

- Structure a fund, or a sub-fund in an existing facility that will act as the first level of risk management. The fund will also generate its own revenue over the course of the program.

- Bundling rain-fed agriculture in with the existing programs of MFIs or existing micro-insurance programs (World Vision has one for example)
- Technology and physical infrastructure should only be a small portion of the total investment. A greater portion should be investment in instructional infrastructure and capacity enhancement. This on the other hand lowers the involvement of the private sector, making a sustainable business case tricky.
- Recommendations:
- Use a blended financing approach: private, public and donor money
- Develop business and funding models for both different areas and different types of farmers (emergent and smallholder).
- In the business model, also consider the impact of a pure loan versus pure subsidy versus hybrid loan/subsidy model
- Start the project operations with the type of farmer that shows the most sustainable business case, which may well be the emergent farmers.

Starting the piloting with the emergent farmers could have the following benefits:

- The risk will be lower, which will likely encourage more investment.
- Emergent farmers could provide some of their own capital in the form of a loan, with additional subsidies as necessary.
- While the program is being piloted, more data can be collected which will increase investor confidence in the future.
- As the program begins to include more farmers, the increase in target population will reduce the investment and management cost per capita, thus lowering the entrance barrier for smallholder farmers.

Scaling principles

This final session invited participants to work in pairs, reflect on the issues highlighted during the day and design a set of scaling principles for TIARA.

Summary	Key points
Map and build on existing initiatives and approaches	– There is a great deal of synergy and knowledge which needs to be brought together – Need to map existing policy, situation, programmes in identified areas. – There is need to mapping all of the work that has been done on the policy areas as we all as the case studies
Position with other approaches	– Fit within global themes of restoration, climate change and livelihoods – This initiative is important for mainstreaming climate change, environmental mitigation and adaptation
Develop green water evidence base	– Awareness raising on green water – Benchmarking at regional level – Use evidence (good data) – Fact sheets – taking stock of what is happening / what worked etc. –
Create a strong business case	– Financial and economic analysis business model – A credible business plan needs to be developed to convince donors and financiers
Establish a strong network	– Develop a network of service providers of expertise – Identify, build and link networks (service providers)
Ensure broad stakeholder reach	– Mapping of key stakeholders – Bring in agri people who are advocates of CA

	– With a focus on future and sustainability – involve youth.
Take a market based approach	– Use markets and value chains approach – PPP model – Market / private sector and the role they have to play
Integrate solutions & approaches	– Focus on mechanisms to scale up practices, to implement policies, to monitor budgets – Build knowledge, policy, public expenditure, CA/ Greenwater technologies, jobs – Rainfed agriculture should not be implemented on its own but as a package for the farmer with other risk mitigation strategies (such as micro insurance)
Systematically engage government	– Think about role of government for sustainability, policy enabling, capacity building – Government role – we don't know enough about what to expect – Advocacy – there is a need to prepare the public sector in area you are working in – awareness, education, persuasion, lobbying
Customise solutions	– Consider the particular institutional arrangements for financing in each different context – Options by context – One size does not fit all – tailored / site specific solutions needed – Advocacy among small holders in a way that is unique to their situation – Citizen approach – ownership of the programme
Effectively segment the market	– The emerging farmers should be targeted before smallholder famers, during which time the risk and investment cost per captia will decrease
Design finance solutions for scale	– Financing effectives I important (accountability, efficiency, transparency) – A large proportion of financing must be invested into strengthening institutional set up – Blended financing – Blended financing including financing from multi – lateral, bilateral government is necessary to reach scale
Role of TIARA	– SIWI to act as a convenor of groups which all have a piece of the puzzle / bring them together – TIARA continue to do the three things it set out to do – knowledge, advocacy and financing

Participants

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