Embassy of the Kingdom of the Netherlands

SMART WATER FOR AGRICULTURE PROGRAMME

NATIONAL IRRIGATION ACCELERATION PLATFORM (NIAP)

NATIONAL STAKEHOLDER WORKSHOP REPORT

ON:

PARTNERSHIPS FOR SCALING UP SMART WATER SOLUTIONS FOR IRRIGATION: CONTRIBUTING TO THE BIG FOUR AGENDA FOR KENYA

Compiled by NIAP secretariat

Held at Hotel Intercontinental, Nairobi

6th December, 2018

SWA is implemented by: SNV SMART DEVELOPMENT WORKS, Aqua for All, KIT, META, PRACTICA FOUNDATION

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Acronyms

AISWAG	Agriculture and Irrigation Sector Working Group
AVCF	Agricultural Value Chain Financing
ECLOF	Ecumenical Church Loan Fund
GDP	Gross Domestic Product
IAP	Irrigation Acceleration Platform
IFAD	International Fund for Agricultural Development
JKUAT	Jomo Kenyatta University of Agriculture and Technology
KIT	Koninklijk Instituut voor de Tropen –Royal Tropical Institute
MC	Master of Ceremony
NIAP	National Irrigation Acceleration platform
NSA	Non-State Actors
PPP	Public Private Partnership
SWA	Smart Water for Agriculture
WARREC	Water Research and Resource Center
WRA	Water Resource Authority

1.0 Introduction

Smart Water for Agriculture (SWA) is a 4-year program implemented by a Consortium of partners that consist of SNV Kenya, MetaMeta, The Royal Tropical Institute (KIT), Practica Foundation and Aqua for All. The program aims to improve food security through optimized water availability and efficiency by small and medium farmers and businesses. SWA promotes more effective irrigation development jointly with farmers, and interaction, joint learning, coordination and cooperation among stakeholders involved in the development of farmer-led irrigation.

To address the issues of water stress in Kenya and to ensure the uptake of irrigation solutions among smallholder farmers, the SNV-Netherlands through the SWA program in collaboration with the Water Research and Resource Center of Jomo Kenyatta University of Agriculture and Technology, has set up the National Irrigation Acceleration Platform (NIAP). NIAP is a multi-stakeholder consultation framework, which aims to initiate, support and scale innovations around smallholder irrigation in Kenya.

The National Irrigation Acceleration Platform (NIAP) convened a stakeholder workshop which was held in Nairobi at the Hotel Intercontinental, on Thursday, 6th December 2018. The stakeholders included; policy makers, researchers, private sector actors, financial institutions, development partners, tech companies, NGOs and service providers. The workshop was designed to share knowledge and build partnerships for working together in harmony and thus, facilitate contribute towards infusing science, technology and innovation in irrigation and for achievement of the Big Four Agenda, focusing on the pillar of Food and Nutrition Security. The theme of the was Workshop: “Partnerships for scaling-up smart water solutions for irrigation, as an enabler of the Big Four Agenda on Food and Nutrition Security in Kenya”.

1.1 Workshop Objectives

The following were the objectives of this workshop:

1) Convene relevant actors and stakeholders who support irrigation and build partnership for scaling up smart water solutions for irrigation in Kenya,
2) Share knowledge on technologies and best practices for improving the efficiency, productivity and profitability of irrigated agriculture in Kenya
3) Deliberate on stakeholder actions, involvement and contribution towards attainment of the targets on irrigation as an enabler of the Big Four Agenda on Food and Nutrition Security in Kenya.

1.2 Expected Outcomes from the Workshop

The expected outcomes from this workshop were:

1) An understanding of the policy direction for upgrading irrigation development as an enabler of the Big Four Agenda for Kenya,
2) Exposure to cutting edge technologies and best practices (Smart Water Solutions) that enhance irrigation productivity, efficiency and profitability,
3) Linkages to actors and knowledge on other aspects of irrigation development in Kenya (financing, socio-economic, inputs, markets),
4) Building of partnerships that remove "silos" by bridging together irrigation sector actors and stakeholders, so as to work together and facilitate irrigation development as an enabler of the Big Four Agenda on Food and Nutrition Security in Kenya.

1.3 Workshop Opening Remarks and Introductions

The workshop MC Ms. Loice, welcomed the participants to the workshop and facilitated a round of brief introductions from all the participants. The workshop was attended by various partners/organizations comprising of financial institutions, irrigation technology providers, Government institutions, market off-takers, universities, Non-State Actors (NSA), IAPs (Irrigation Acceleration Platforms), Development partners, County representatives exporters of horticultural produce farmers from various counties, international organizations, media representatives among others as detailed in appendix II of this report.

2.0 Keynote Presentations

This section presents the keynote presentation made during the workshop.

2.1 Workshop Welcoming Remarks

By Mary Njuguna - Sector Leader – Agriculture, SNV

Ms. Njuguna welcomed participants to the workshop and explained the roles and programmes that SNV is implementing in Kenya, especially on agriculture, food security, finance and the various partner organizations. She observed that SNV was actively contributing to the Big-4 Agenda especially on the Food and Nutrition Security Pillar.

2.2 Uptake of Smart Water Solutions in Kenya – The SWA Experience

By Eng. Sebastian Oggema Project Manager – SWA, SNV

Mr. Oggema began his presentation by giving a brief of SNV Netherlands a not-for-profit international development organization, working in Agriculture, Energy, and Water, Sanitation & Hygiene. He further showed a documentary film followed by a comprehensive presentation that showed how the SWA programme operates, its various projects, partners, and linking SWA activities and impacts to the Big-4 Agenda, in particular to Food and Nutrition Security.

Eng. Oggema presenting during the workshop

2.3 Introduction to NIAP and Workshop Objectives

By Prof. Eng. Bancy Mati, National Coordinator NIAP and Director WARREC

Prof. Mati made a short presentation introducing NIAP and its background, the activities of NIAP in the Seven months since its formation. She further presented briefs on the five County IAPs, i.e. Laikipia. Machakos, Meru, Nakuru and Uasin Gishu. Prof Mati articulated on the role of NIAP in bringing together stakeholders

for knowledge sharing and partnerships thus contributing to advancement of irrigation, as input to the Food and Nutrition Security pillar of the Big-4 Agenda.

Prof. Mati making a presentation during the workshop

She elaborated more on the workshop objectives as to convene relevant actors and stakeholders who support irrigation and build partnership for scaling up smart water solutions for irrigation, share knowledge on technologies and best practices for improving the efficiency, productivity and profitability of irrigated agriculture in Kenya and deliberate on stakeholder actions, involvement and contribution towards attainment of the targets on irrigation as an enabler of the Big Four Agenda on Food and Nutrition Security in Kenya.

2.4 Remarks by Embassy of the Kingdom of the Netherlands

Ms. Rose Makenzie Agriculture and Policy Officer

In her remarks, Ms. Mackenzie hailed the close collaboration between the Government of Kenya and that of the Kingdom of the Netherlands, especially supporting irrigation as part of the Big-4 Agenda to improve agricultural productivity and food security. She further pointed out that the Kingdom of Netherlands supports many programmes and projects in Kenya, among these being the Smart Water Solutions for Agriculture (SWA). Ms. Makenzie indicated that the Embassy was seeking innovative initiatives which foster structured partnerships in water and agriculture – especially those between concerns in the Netherlands and Kenya which bring value and collective benefits.

Ms. Rose Makenzie Making her presentation during the workshop

2.5 Workshop opening by: Principal Secretary, State Department for Irrigation

Prof. Fred H.K. Segor

In his workshop opening remarks, Prof. Sigor observed that the objectives of the workshop were in line with the initiatives of the State Department for Irrigation, as a key enabler of the Food and Nutrition Security Pillar under the Big Four Agenda. He reiterated that through the Big Four Agenda, the Kenya Government aims to ensure the realization of 100% food and nutrition security. He further stated that this objective is in line with the United Nation's Sustainable Development Goal No. 2 on hunger eradication, improved nutrition and promotion of sustainable agriculture. Specifically, Prof. Sigor pointed out that the Food and Nutrition and Security Pillar is focused on six key outcomes;

1. Reduce the cost of food as a percentage of income from 47% down to 25%,
2. Halve the number of food insecure Kenyans from 10 million 5 million,
3. Halve chronic malnutrition among children under 5 years from 26% to 19%,
4. Increase the contribution of agriculture to GDP from KES 2.7 billion to KES 4 billion,
5. Create 1,000 production SMEs and 600,000 direct and indirect jobs,
6. Increase the average daily income of farmers, fishermen and pastoralists from KES 465 to KES 625.

Prof. Sigor making his remarks during the workshop

Prof. Segor categorically stated that the State Department of Irrigation was an enabler of the two critical objectives of the Food and Nutrition Security pillar outcomes: increasing the annual maize production from 40 to 67 million (90kg) bags by 2022 whose currently annual consumption stand at 52 million bags; and increasing the annual rice production from 112,800 to 408, 486 metric tonnes by 2022. The current annual rice consumption is 538,370 metric tonnes. He further observed that the contribution of his department to maize production will involve expansion of irrigated land under maize production by 10,800 acres by June 2019, as well as expanding irrigated land under rice by 1000 acres by June 2019.

Prof. Segor stated that the National Irrigation Board has commenced the innovative Water Storage for Household Irrigation Programme aimed at harvesting rain-water for micro-irrigation at the household level. The programme, according to the Principal Secretary, involves the construction of 1,000 – 3,000 cubic meters capacity water pans of which 2,400 have so far been constructed in 12 counties. "An additional 2,500 such household water pans are expected to have been constructed by December 2018. Beneficiary farmers will be using the stored water to grow high value crops such as capsicums, carrots, onions and tomatoes." Said Prof Sigor.

He identified the cost and quality improvement of irrigation equipment such as sprinklers and drip kits as some of the key challenges facing the sector and urged the National Irrigation Acceleration Platform (NIAP) stakeholders to propose ways of improving efficiency and productivity not only for Government-owned national

schemes but also for smallholder schemes managed by communities. With irrigation being the highest consumptive user of water compared to other uses such as domestic water and hydro-power, Prof. Segor called for measures geared towards efficient water use for irrigation.

He lauded the efforts being spearheaded by the National Irrigation Acceleration Platform (NIAP) in advancing knowledge sharing, learning and building synergies to promote and upscale irrigation best practices amongst small-scale farmers in Kenya, thus contributing to the attainment of the Government's Big Four Agenda.

3.0 Technical Presentations

This section presents the key highlights of the technical presentations made during the workshop.

3.1 Solar Pumps for Water Extraction and Application: Demand, Supply Chain and Financial models

By Ms. Kinya Kimathi Distribution Manager Future Pump

In her presentation, Ms. Kimathi articulated on Future pump distribution strategy in which she elaborated that as a product manufacturer, future pump works with distribution partners across the Africa and Asia. She further stated that the distribution takes two options namely:

- Tier one and tier two distributors
    - Sell complementary products
    - Have experience importing goods
    - Have after-sales support capabilities.
- Future pump also look for finance providers to link with distributors and complete the package.

She pointed out some of the lessons learnt as detailed in box1.

Box 1: Lessons Learnt

Marketing	*Sales and Distribution*	*Financing*	*Policy*
• **False information** • **Seeing is believing** • **Power of social media and brands** • **Partnering with Government and NGOs**	• Partnering with distributors and stockiest • Training and support • Holistic approach	• Use existing models – distributors • Lack of flexible loans • Lack of good record keeping – farmers • Lack of market knowledge	• Good policies to filter out poor quality tech –ERC • Tax exemption on solar and agricultural products • Efforts to empower youth and local manufacturing

3.2 Water Harvesting and Storage: From a Financiers Standpoint

a) Juhudi Kilimo: By Samuel Tobiko

Mr. Tobiko gave a brief description of Juhudi Kilimo which is a for-profit enterprise that provides agriculture-based, micro-asset financing loan product to assist the smallholder farmers in acquiring productive assets such as dairy cows, chickens and farm equipment.

Mr. Tobiko making a presenation during the wokshop

He indicated that after experiencing high loan default rate due to the prolonged drought season between 2014-2017, Juhudi Kilimo ran a customer insight survey to determine demand for water storage solutions in January 2017. The survey showed:

- 90% of the respondents needed a water tank loan and a majority preferred the Kentainers and Techno brands.

- Despite evidence that there's a high demand for water tanks among our clients, Juhudi Kilimo saw a slow uptake of the product with only 167 sales in 2017.

He further shared Juhudi Kilimo's change of tact in 2018 to an idea that was to couple training and referral program to boost water tank loan sales. He applauded the SNV's SWA program that came in to support staff recruitment, marketing, expert fees and client training. He categorically stated that the change of tact and partnership with SNV's SWA program contributed to:

- Water Tank loans Sales shot up in 2018, registering 200% growth in Water tank Loans;
- 3,067 new clients registered;
- One new product successfully launched from training feedback.

He pointed out some of the lessons that Juhudi Kilimo had learnt from the process include:

- Reliable supplier plus Logistics
- Client Education
- Incentives plus Goodies – An incentive; as simple as a t-shirt, motivates clients and encouragges them to share information with fellow farmers.
- Staff Campaigns – Create awaerness amoung the staff.
- Collect Feedback.

b) Musoni: By Juliet Ongwae

In her presentation, Ms. Ongwae gave a brief history of Musoni micro finance and profile of the average Musoni farmer.

She retaliated that to solve the Water Harvesting and Storage challenge faced by their farmers who she described as farmers looking for opportunities to diversify their enterprises, expand existing farms, and venture into new farming activities, from a Financiers Standpoint, Musoni developed the **Maji Mashinani** product.

She pointed out that the product provides;

- ❖ Flexible loan design to accommodate different solutions and regions.
- ❖ Quick loan turnaround time.

- ❖ Flexible repayment terms – no extra collateral, grace periods matched to farmer cash flow.
- ❖ Repayment based on a money-making enterprise, not necessarily the venture loan is taken out for AVCF services that adapt to irrigation needs and integration of environmental risks into the credit assessment - Incentive program
- ❖ Training the farmers on agricultural and environmental best practices and to new techniques, such as drip and sprinkler irrigation where appropriate
- ❖ Crop/Asset insurance
- ❖ SNV support – Nyeri, Nyahururu& Laikipia

Ms. Ongwae making her presentation

She underscored the Maji Mashinani product that it was designed to overcome and solve:

- Lack of awareness of the Smart Water solutions and their benefits – no demand, behaviour change management
- The need for training on best solution to avoid selecting inappropriate/sub-standard solutions
- Need both input and SWS financing
- SWS loan repayment schedule do not fit the farming cycle

She further added that the Maji Mashinani product provides finance for water harvesting and storage – storage tanks, piping, water filtration, drip irrigation kits, solar water pumps and Soil testing kits among others.

3.3 De-Risking acquisition of SWS (capital assets)

By Farid Wangara - Acre Africa

Mr. Wangara introduced Acre Africa as a for-profit social enterprise involved in:

- Risk management solutions designer linking stakeholders localized solutions such as insurance and climate change adaptation strategies to reduce agricultural and climate risks;
- Licensed insurance intermediary, supporting local insurers to offer smallholder-focused insurance across value chains.

Mr. Wangara making his presentation during the workshop

He pointed out that Acre Africa currently have over 1 Million farmers in Kenya, Rwanda and Tanzania who have insured their crops with insurance products designed by ACRE Africa. Acre Africa studies have shown that:

- Insured farmers invested 20% more in their farms
- Insured farmers earned 16% more than uninsured farmers.

According to Mr. Wangara, Acre Africa's main goal of the process employed is to identify, quantify, manage and control potential sources of losses to agriculture in producers in Kenya, by distinguish between general risk management, which tries to address all types of risks that have been identified, and specific risk management (transfer) that only focuses on risks that can be insured by insurance companies. This they hope will ensure;

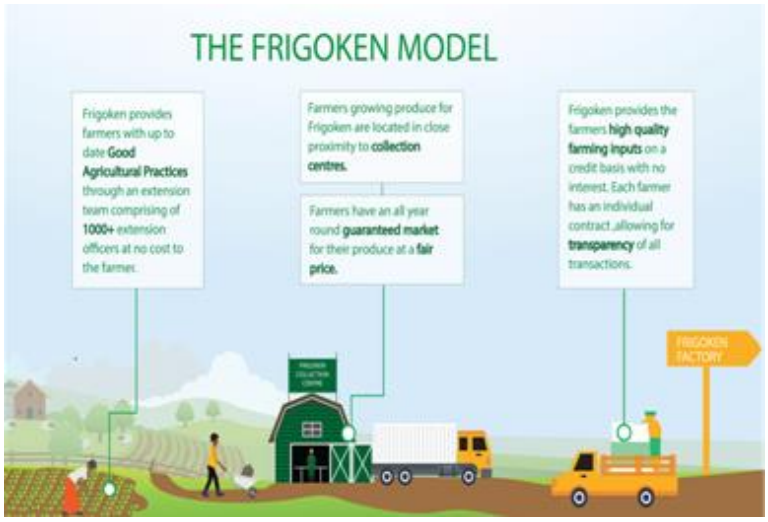
1. **Sustainably increases productivity and income**
   - By developing financial products that improve farmers ability to intensify commercialization of their farming activities
   - Thereby increasing yield and income

2. **Strengthens resilience to climate change and variability**
    - Agriculture insurance products that protect investments in the agriculture sector leading to better adaptability to climate related shocks
    - Risk-based models which examine the relationship of a pest to climate
3. **Reduce agricultures contribution to climate change**
    - Conducting an environmental effect analysis to identify the effects on climate emissions.
    - Partnerships that help smallholder farmers utilise safe and rationale use of chemical pesticides and insecticides.

3.4 Contract farming and its implication for uptake of SWS

By Nushin Ghassim- Frigoken

Ms. Ghassim gave a brief history of Frigoken which was established in 1989 and pointed out that Frigoken is the largest export oriented vegetable processing facility in East Africa. She further added that it is a vertically integrated company driven by an inclusive and sustainable business model, contributing to improving the quality of life of communities it works with.



"Farmers grow produce for FKL only on 180 sqm. per crop cycle; hence are able to grow other cash and subsistence crops, enabling them to feed their families and earn additional income". Said Ms. Ghassim.

Ms. Ghassim making a presentation during the workshop

She pointed out a number of challenges and Solutions in their business model as detailed below:

a) ***Climate change, natural resource degradation*** → declining yield
   1. Working hand in hand with farmers to identify interventions (technologies, techniques) that address these dynamics and increase productivity in a sustainable manner.
   2. Examples of projects:

b) ***Agro –forestry, soil fertility & irrigation*** projects, for example:
   1. Individual farmer targeted interventions. E.g. use of water pans → 10,000+ pans distributed in 3 years;
   2. Community targeted interventions such as piping projects, boreholes, shallow wells, among others

c) ***Competition***
   1. Other market players – side selling
   2. Alternative cash crops – urbanization, higher demand

d) ***Changing demographic of farmers*** – less youth interested in farming

e) ***Infrastructure –*** examples: roads (accessibility to farms especially during rains), irrigation schemes

f) Farmers' accessibility to credit facilities.

4.0 Panel discussions on Opportunities for enabling policy and partnerships for scaling SWS

During panel discussion quite a number of discussions were made addressing various concerns as detailed hereunder:

Question	Response
What prevents farmers from accessing the opportunities presented by the presenters?	- Lack of awareness: Organizations need to train and provide information to farmers on the benefits several of their products. Allow peer to peer information sharing. - From experience working with farmers insurance is not a priority. To improve this farmers need to be educated on the good agronomist practices (capacity building) and use insurance as a mitigation tool.
How Future pump reaches out to farmers?	Future pump is working with distributors with a wide reach and can work with smaller distributors. Future pump also works with county government extension officers and provides them with training on the SPF2 pump.
If Musoni and Juhudi Kilimo will be willing to finance for dam liners if studies to inform on dam liners are done.	- It possible for financial institutions to finance them provided the number are reasonable. - Provided there is standardization, financing dam liners would be possible for financers
If Acre Africa would Work with financial institutions?	Provided there is a full looped value chain financial institutions are willing to fund.
How do you determine who to partner with?	Understand the product and right partners to provide the best quality solution. Partner with an organization that will provide training to the farmer.

The workshop panellist from the left Juliet, Nushin, Kinya, Samuel and Farid

5.0 Break-Out session: The contribution of small and medium scale farmers practicing irrigation to pillar 4 (food security and nutrition) of the big four agenda.

Participants held breakout sessions which discussed how to upgrade irrigation through partnerships, policy, marketing, access to credit.

Group 1	
The big four Agenda proposes to "improve access to credit/input for farmers through warehouse Receipt system and strengthen commodity fund" (established under crop Act (2013) article 9 (1)	
a. Does the commodity fund address the issue of access to credit for farmers?	Warehouse house Receipt is only applicable to cereals and horticulture.
b. If not what are the different systems you would propose to be included under this policy?	1. Inclusion of more products 2. Relevant infrastructure and policy 3. Value addition 4. Capacity building 5. Current innovation in finance 6. Harmonization of policy 7. Guarantee funds e.g. leasing to farmers.
c. What can NIAP do in bringing these systems into Big Four Agenda- relating it also to the setup of agriculture and irrigation sector working group (AISWAG).	1. Broaden membership of NIAP to include civil society, Government, private sector player 2. NIAP to be an active member of AISWAG 3. Develop policy papers and share them with the relevant partners.

d. What are the other policy issues, apart from those focusing on finance that you feel that NIAP can /should address?	1. Awareness creation 2. Market regulation to protect farmers 3. Natural resources management. 4. Farmer led irrigation focus.
Group 2 and 3	
The Big Four Agenda proposes to "place additional 700,000 Acres through PPP (including idle arable land) under maize, potato, rice, cotton, aquaculture and feed production." The agenda also proposes to "Secure investments through PPP"	
a. Are PPPs in the current value chains around these crops working well enough? Are the sufficient to secure the investments required to address the food security and nutrition objective?	Most PPP are not functioning well due to political interferences.
b. If not, what measures do you propose to be included in this policy to improve the value chains and partnership in them? And which additional value chain would you concentrate on?	1. Role definition within a PPP 2. Government should provide a conducive environment for PPP operations; Tax returns, incentive, guarantees, insurance and subsidies. 3. Check and balances mechanisms to facilitate timely feedback and management. 4. Bring partnership for policy improvement 5. Policy briefs with private sector prior to implementation. 6. Framework on aggregation 7. Strengthening of existing value chain 8. Accurate historical data collection.
c. *What can NIAP do in bringing these proposed measures into Big Four Agenda- relating it also to the setup of Agriculture and Irrigation Sector Working Group (AISWAG).*	1. Debate on PPPs by tracking impact, data and resources mobilization. 2. Advocacy 3. Preparing policy briefs on PPPs prior to implementation 4. Framework for aggregation 5. Come up with alternatives to PPPs 6. Tax relives Subsidy and Insurance programs.

Group Discussions Session

6.0 Workshop Resolutions and Way Forward

The following were the workshop resolution and way forward:

1. NIAP requires to work closely with Government since there is opportunity to be part of Agricultrure and Irrigation Sector Working Group (AISWAG), as already, NIAP has put together a strong and diversified stakeholder base. NIAP can grow to become a key component of the Working Group on Irrigation. We need to increase membership of NIAP and make it visible and active nationally.
2. To activate the knowledge sharing the Platform can gather information and ideas that make institutions see the utility of NIAP and information helps to grow the irrigation sector.
3. Work towards supporting policy advocacy for irrigation. This could include identifying a few issues and building evidence/data around them to promote responsive actions e.g. PPP.
4. There are many Government policies that have not been unpacked for stakeholders, and which have a bearing on irrigation. NIAP could facilitate this through the platform.
5. The BIG 4 Agenda has a timeline but it is not clear who or how deliverables on irrigation are being tracked. There is a lot that is happening at individual farms and by private sector that does not enter county or national or NIB reporting. It is imperative to track the changes (both positive and negative) so that that we see if we are meeting the milestones
6. NIAP should make use of County IAPs (Irrigation Acceleration Platforms) where they exist and also push for formation of county IAPs in all the other 42 counties with interest in irrigation development.

7. NIAP members recommend that Kenya should aim to phase out fossil fuel pumping by 2030 – However, this is subject to thorough analysis based on plausible evidence based information.
8. Stakeholders should continue with good partnerships, e.e. on PPP and financial models.
9. There is need for resource mobilization to support the work of NIAP and smallholder irrigation.
10. NIAP should prepare a synthesized brief on the outcomes of this Workshop and send to to the PS-Irrigation.

7.0 About the Organizers

WARREC – JKUAT

JKUAT is an Institution of higher learning established in Kenya under the Universities Act No.42 of 2012, through the JKUAT Charter signed on 1st March 2013. The University's objectives and functions include inter alia, to provide directly or indirectly, or in collaboration with other institutions of higher learning; facilities for quality training, research and innovation in agriculture, engineering, technology, enterprise development, health sciences, and social sciences and other applied sciences, and integration in teaching, research and effective application of Knowledge and skills to the life, work and welfare of the citizens of Kenya. JKUAT has established the Water Research and Resource Center (WARREC) as a center of excellence for research, science, technology and innovation in the broad fields of the water sector. Now WARREC is the host of the National Irrigation Acceleration Platform (NIAP).

SNV

SNV is a not-for-profit international development organization, working in Agriculture, Energy, and Water, Sanitation & Hygiene. Founded in The Netherlands in 1965, SNV has built a long-term, local presence in 38 countries across Asia, Africa and Latin America. SNV's global team of advisors work with local partners to equip communities, businesses and organizations with the tools, knowledge and connections they need to increase their incomes and gain access to

basic services – empowering them to break the cycle of poverty and guide their own development. Through the Smart Water for Agriculture Project (SWA), SNV Partnered with JKUAT WARREC to establish the National Irrigation Acceleration Platform (NIAP).

For more information: http://www.niap.or.ke.

Appendix I: Workshop Programme

Time	Activity	Facilitator
08:00 – 08:30	Arrival and Registration	NIAP Secretariat
08:30 – 08:45	Opening Remarks and Introductions	MC
08:45 – 09:00	Welcome remarks Sector Leader – Agriculture, SNV	Mary Njuguna
09:00 – 09:15	Uptake of Smart Water Solutions in Kenya – The SWA Experience (Project Manager – SWA, SNV)	Eng. Sebastian
09:15 – 09:30	Introduction to NIAP and Workshop Objectives NIAP Coordinator	Prof. Bancy Mati
09:30 – 09:45	Remarks by Agriculture and Policy Officer - Embassy of the Kingdom of the Netherlands	Rose Makenzie
09:45 – 10:00	Remarks by Vice Chancellor, JKUAT	Prof. Victoria Ngumi
10:00 – 10:30	Workshop opening by: Principal Secretary, State Department for Irrigation	Prof. Fred H.K. Segor
10:30 – 11:00	**Health Break (Tea & coffee)**	**All**
11:00 – 11:15	1. Solar Pumps for Water Extraction and Application: Demand, Supply Chain and Financial models	Future Pump
11:15 – 11:45	2. Water Harvesting and Storage: From a Financiers Standpoint	Juhudi Kilimo /
11:45 – 12:00	3. De-Risking acquisition of SWS (capital assets)	Acre Africa
12:00 – 12:15	4. Contract farming and its implication for uptake of SWS	Frigoken
12:15 – 13:00	Panel discussions on Opportunities for enabling policy and partnerships for scaling SWS	MC
13:00 –	**Networking Lunch**	**All**

14.00		
14:00 – 15:15	Break-Out session: The contribution of small and medium scale farmers practicing irrigation to pillar 4 (food security and nutrition) of the big four agenda.	Laurens van
15:15 – 16:00	Presentations from Group Discussions	Group
16:00 – 16:30	Resolutions and Way Forward	Prof. Bancy Mati
16:30 – 16:45	Workshop Closure	MoALF
17:00 – 19:00	Networking cocktail	All

Appendix II: Annex: List of Participants

S.No.	Name	Job Title	Company
1	Hanna Dohrenbusch	Head of Corporate Affairs	Sunculture
2	Kinya Kimathi	Manager	futurpump
3	Yaron Cohen		Amiran Kenya
4	Rose Makenzie	Water	EKN
5	Bernard Mulei	Project Director	DRYDEV/World Vision
6	Faith Livingstone	Project coordinator	IFAD
7	Leah Mukiite	Resource Mobilization	Water Resources Authority
8	Ephraim Kahenya	Lead Farmer	Farmer from Nyeri
9	Bancy Mati	IAP Facilitator	WARREC
10	Wycliffe Oenga Nyang'au	IAP coordinator	WARREC
11	Charity Gichobi	NIAP Associate	WARREC - JKUAT
12	Bibiana Wanalwenge	Communications Officer	SNV
13	Laurens van Veldhuisen	Advisor Sustainable Economic Developm	KIT
14	Sebastian Oggema	Project Manager, SWA	SNV
15	Vandana Thottoli	Advisor, Irrigation Platform, SWA	SNV/KIT
16	Florence Kariuki	Access to Finance Advisor	AquaForAll/SNV
17	Jackline Muturi	Technical Advisor	Practica/SNV
18	Lucy Kirui		Edge Group
19	Charles Oturi		the palladium group
20	Nushin Ghassim	Comunication Manager	Frigoken
21	Andrew Muendo	IAP Facilitator	IAP Machakos
22	Maurice Oduor	Sr. Asst. Director	Ministry of Agriculture and irrig
23	James Messo	JKUAT	
24	Jackline Alinda Ndiiri	JKUAT	
25	Patrick Amunavi (he is from	JKUAT PR office	
26	Gerald Muthomi	managing director	Meru Greens
27	Aboud Moeva	Director, Irrigation Management	State Department of Irrigation
28	Nahashon Mwangi Nduati	Project Manager Agribusiness	ECLOF
29	Junichiro Yamada	Adviser for Irrigation	
30	John Paul Odhiambo Obiero	School of Engineering UON	University of Nairobi
31	Mahjabeen Jesani		Frigoken
32	Mary Njuguna	Sector Lead Agriculture	SNV
33	Eudiah Wanjiru	Engineer	SNV
34	Abraham Mehari Haile	Senior Advisor	MetaMeta/SNV
35	Benard Mwenja	Farmer	IAP Nakuru
36	Farid Wangara	Porfolio Manager	Acre Africa
37	Elizabeth Njoki	Business Development Officer	Syngenta
38	Jean Eyase	Business Development Officer	Acre Africa
39	Samuel Tobiko	Senior Marketing Officer	Juhudi kilimo
40	Sammy Kariuki	Chief Executive officer	Tymax
41	Juliet Ongwae	Chief Innovation Officer	Musoni
42	S Gichane		Ministry of Agriculture and irrig
43	Loice Wachira	Communication consultant	Precise PR
44	Thomas Ochieng	Media	The East African
45	Victor Kyalo	Media	Brandplus TV
46	Daisy Wambua	Media	Brandplus TV
47	Michira Pivon	Media	Urban Radio
48	Charles Sadiki	Media	Live Nation
49	Collines Omondi	Media	Dezignika Kenya
50	Nancy mumbo	Media	Dezignika Kenya
51	Cyrus Kithuva	Media	Dezignika Kenya
52	Niger Adams		LNC
53	Frid Azelwa	Media	MSCA News
54	Charles Tanui	PS personal Assistant	Ministry of Agriculture and irrig

Appendix III: Annex: Opening Remarks by Principal Secretary, State Department for Irrigation

OPENING REMARKS BY PROF. FRED H. K. SEGOR, CBS, PRINCIPAL SECRETARY, STATE DEPARTMENT FOR IRRIGATION DURING THE WORKSHOP ON PARTNERSHIPS FOR SCALING UP SMART WATER SOLUTIONS FOR IRRIGATION: CONTRIBUTING TO ACHIEVEMENT OF THE BIG FOUR AGENDA ON 6TH DECEMBER, 2018

The Vice-Chancellor, Prof. Victoria Ngumi,
The Director WARREC, Prof. Bancy Mati,
Distinguished Guests,
Ladies and Gentlemen,

I feel honored to be invited to Jomo Kenyatta University of Agriculture and Technology to open this very important National Stakeholder Workshop that you have convened.

Ladies and Gentlemen, I note that the Theme of the Workshop is *"Partnerships for Scaling up Smart Water Solutions for Irrigation: Contributing to Achievement of the Big Four Agenda*". I also note that the Workshop brings together participants interested in irrigated agriculture drawn from Policy makers, Development Partners, Researchers, Service Providers NGOs and other stakeholders with the aim of contributing to achievement of the Big Four Agenda.

Ladies and Gentlemen, the objectives of this Workshop are crucial to the State Department of Irrigation. This is because the Department is a key enabler and is deeply involved in preparation of the Big Four Agenda, more specifically, the Food and Nutrition Security Pillar. Through this Pillar, the Government aims to ensure that the country is firmly and irreversibly set on the path towards realization of 100% food and nutrition security. This is also, as you are aware, in line with the United Nation's Sustainable Development Goal No. 2 on hunger eradication, improved nutrition and promotion of sustainable agriculture. It is also in line with the Bill of Rights in the Constitution which provides that every person has the right to be free from hunger and to have adequate food of acceptable quality.

Ladies and Gentlemen, I believe it is important for me to highlight what the Food and Nutrition and Security Pillar aims to achieve. The Pillar is focused on six key outcomes, namely,

1. Reducing the cost of food as a percentage of income from 47% down to 25%,
2. Halving the number of food insecure Kenyans from 10 million 5 million,
3. Halving chronic malnutrition among children under 5 years from 26% to 19%,

4. Increasing the contribution of agriculture to GDP from KES 2.7 billion to KES 4 billion,
5. Creating 1,000 production SMEs and 600,000 direct and indirect jobs,
6. Increasing the average daily income of farmers, fishermen and pastoralists from KES 465 to KES 625.

Ladies and Gentlemen, the State Department for Irrigation is the key enabler in two critical objectives of the outcomes, that is:

1. Increasing the annual maize production from 40 to 67 million (90kg) bags by 2022. Currently, the annual maize consumption in Kenya is 52 million bags.
2. Increasing the annual rice production from 112,800 to 408,486 metric tonnes by 2022. The current annual rice consumption is 538,370 metric tonnes.

The contribution of the State Department to maize production will involve expansion of irrigated land under maize production by 10,800 acres by June 2019. Similarly, the contribution to rice production will involve expansion of irrigated land under rice by 1,000 acres by June 2019. Overall and in order to meet the 2022 maize production target, it is proposed to expand irrigated land under maize by 195,909 acres by 2022. The expansion will come from Bura, Hola, Perkerra, Lower Kuja and other Irrigation Schemes in Turkana such as Katilu. Similarly, the irrigated land under rice will be expanded by 128,500 acres by 2022. The expansion will be realized from Mwea, West Kano, Kimorigo, Kitobo in Taita-Taveta County and Lower Nzoia Irrigation Schemes among others.

More recently, the National Irrigation Board has commenced the innovative Water Storage for Household Irrigation Programme aimed at harvesting rain-water for micro-irrigation at household level. The Programme involves construction of 1,000-3,000 cubic metres capacity water pans of which 2,400 have so far been constructed in 12 Counties. The impact of this Programme is felt in the localities of the pans with produce being bought on the spot. An additional 2,500 such household water pans are expected to have been constructed by December. Beneficiary farmers will be using the stored water to grow high value crops such as capsicums, carrots, onions and tomatoes.

Ladies and Gentlemen, I have highlighted the key deliverables of the State Department with regard to the Big Four Agenda as my contribution to understanding the policy direction for upgrading irrigation development as an enabler of the Big Four Agenda, which is an expected outcome of this Workshop. Further, one of the objectives of the Workshop is to share knowledge on technologies and best practices for improving the efficiency, productivity and profitability of irrigated agriculture. It would be useful therefore, for me to share

with you some key challenges we face in the sector with a view to interest you to propose ways of improving efficiency and productivity.

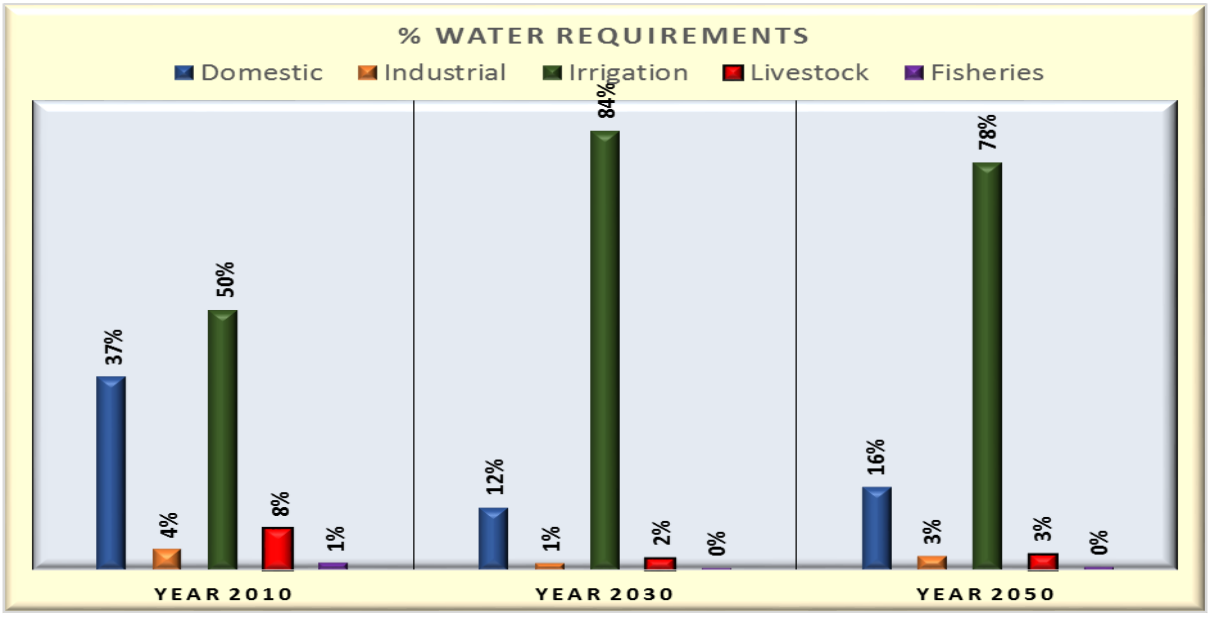
Ladies and Gentlemen, the first challenge is the cost of irrigation equipment and the need for including quality improvement of equipment such as sprinklers and drip kits. When I engage with the private sector especially KEPSA, the recurring theme is that irrigation equipment costs need to come down in order for efficient irrigation technology to be widely available, not only for Government owned national schemes but also for smallholder schemes managed by communities.

Ladies and Gentlemen, the other key challenge that we face in the irrigation sector is inefficient use of water. Per Capita freshwater resources availability in Kenya continues to decrease due to population growth and climate change. If we look at water demand currently and in future, irrigation is the highest consumer followed by domestic water demand (see figure 1 and graph 1 overleaf of water demands). With irrigation being the highest consumptive user of water compared to other uses such as domestic water and hydro-power, any measure geared towards efficient water use for irrigation will have a major impact on water resources availability.

Table 1 Present and Future Water Demand by Subsector in million m ^{3}/year

Subsector	Year 2010	Year 2030	Year 2050
Domestic	1,186	2,561	3,657
Industrial	125	280	613
Irrigation	1,602	18,048	18,048
Livestock	255	497	710
Wildlife	8	8	8
Fisheries	42	74	105
Total	**3,218**	**21,468**	**23,141**

Graph 1



Source: JICA Study Team (Ref. Main Report Part A, Section 6.10 and Sectoral Report (G),

Ladies and Gentlemen, it is against this background that I consider the National Irrigation Platform that is convening this Workshop to be well placed to consider these among other challenges that will emerge from this Workshop and suggest possible solutions. I would also wish to see a draft set of agreed activities emerging out of this Workshop that would serve as a starting point for a useful engagement between us so that we realise our shared vision so well highlighted in the Theme of the Workshop. Finally, I take this opportunity to brief you on the legal and policy status of irrigation in the country. As you are aware, the current irrigation statute dates back to 1966 soon after Independence and is therefore outdated. The new Bill, known as the Irrigation Bill 2017, was prepared, discussed with stakeholders, passed by the National Assembly and is now in the Senate awaiting the Committee of the Whole House after being read a Second time. I expect the Bill to go through the Senate without any major changes. The Act will provide for the development, management and regulation of irrigation as well as support sustainable food security and socio economic development in Kenya. I believe there are opportunities for collaboration once the Law is enacted. I would therefore ask you to secure a copy of the Bill, familiarize yourself with its contents and suggest areas of interest that we can create partnerships.

Ladies and Gentlemen, with those remarks, it is my pleasure to declare this Workshop officially open.

THANK YOU AND GOD BLESS YOU ALL

PROF. FRED H.K. SEGOR

PRINCIPAL SECRETARY