





Feed the Future Innovation Lab for Small-Scale Irrigation (ILSSI)

TRAINING REPORT

Integrated Decision Support System (IDSS)

Local Capacity Development Training

13 - 17 February 2023, Arba Minch University, Ethiopia

20 - 24 February 2023, University of Rwanda, Musanze, Rwanda

6 – 8 March 2023, Prairie View A&M University, USA

15 - 19 May 2023, University of Ghana, Ghana



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1 Introduction

In February and March 2023, the USAID Feed the Future Innovation Lab for Small-Scale Irrigation (ILSSI) at Texas A&M University (TAMU) organized capacity building workshops in Ethiopia, Rwanda, and the USA. These workshops focused on the Integrated Decision Support System (IDSS) and its three component models: the Soil and Water Assessment Tool (SWAT), the Agricultural Policy Environment eXtender (APEX), and the Farm Income Simulator (FarmSIM).

The training in Ethiopia was hosted by the Arba Minch University Water Technology Institute (AWTI) from February 13 to 17, 2023. Following that, another training took place in Rwanda from February 20 to 24, 2023, at the University of Rwanda (UR)-Busogo campus in Musanze district. This training was hosted by the University of Rwanda (UR), College of Agriculture, Animal Sciences, and Veterinary Medicine (CAVM), and the Rwanda Agriculture and Animal Resources Development Board (RAB), in collaboration with Texas A&M University.

The third training program was hosted by the College of Agriculture and Human Sciences (CAHS) at Prairie View A&M University (PVAMU) in Texas, USA, from March 6 to 8, 2023. All three programs followed a similar structure, including opening and closing ceremonies, plenary sessions, detailed training on the individual models, and the integration of the models. Please find the program outline in the annex.

The IDSS training at PVAMU was followed by a two-day conference on "Water, Climate and Food Security for students, early career scientists and graduate students from Historically Black Colleges and Universities and Minority Serving Institutions. The details of the conference can be obtained via this link: <u>Conference on Water, Climate, and Food Security for</u> <u>Students and Early Career Scientists - College of Agriculture and Human Sciences (pvamu.edu)</u>.

The trainings in Ethiopia and USA were fully funded by the Feed the Future Innovation Lab for Small-Scale Irrigation (ILSSI) at Texas A&M University while that in Rwanda received part funding from the Feed the Future Innovation Lab for Livestock Systems (LSIL) at the University of Florida and ILSSI. Financial support for the conference was provided by USAID.

2 The IDSS training at Arba Minch University, Ethiopia

Deep in the heart of Ethiopia's southern highlands, the vibrant city of Arba Minch played host to the five-day training on the IDSS. The training, held at Arba Minch University (AMU), attracted seventy-four participants from research institutes, academia, and NGOs. Thirtyseven participants received training in SWAT, twenty-seven in APEX, and ten in FARMSIM. The program was facilitated by trainers from Texas A&M University and Bahir Dar University (BDU) in Ethiopia, with the BDU trainers having received prior training on the models from Texas A&M University. The training program commenced on February 13, 2023, with an opening speech by Dr. Demelash Wondimagegnehu, the Director for Academic Affairs at AWTI. Dr. Wondimagegnehu acknowledged Dr. Alemayehu Chufamo, the Academic Vice President of Arba Minch University, the facilitators from Texas A&M and BDU, as well as Mr. Ermias Alemu, the AMU Alumni President. He expressed gratitude to the participants for their motivation and hoped for a successful training program.

Dr. Chufamo, in his opening speech, emphasized the importance of working with the latest tools and technologies in agriculture and food production. He highlighted the capacitybuilding aspect of the training and its potential to enhance decision-making in the field. Dr. Chufamo appreciated the facilitators, organizers, and the AMU Alumni president for their contributions and officially declared the program open.

Mr. Ermias Alemu shared his remarks, expressing his satisfaction that the discussions held in 2015 to bring the IDSS training to Arba Minch University had come to fruition. He stressed the significance of IDSS tools in agricultural research and food security. Mr. Alemu was pleased with the diverse participation of researchers and industry professionals and expressed optimism about the program's outcomes.

The IDSS team presented the research and local capacity development programs of ILSSI and the Innovation Lab for Livestock Systems (LSIL) and provided a summary on the theory and application of the three models to the participants. They also showcased a case study from the Robit Watershed in Ethiopia, illustrating the integration of the three models.



Dr. Demelash Wondimagegnehu giving the welcome address of the IDSS training (Photo credit: AMU, Ethiopia).



Dr. Dr Alemayehu Chufamo giving his opening speech at the IDSS training (Photo credit: AMU, Ethiopia).



Group photo taken after the opening ceremony of the IDSS training in Arba Minch. (Photo credit: AMU, Ethiopia).

During the five-day training event, from the afternoon of Day 1 to the end of Day 4, the participants received practical training on their chosen individual models.



Photo taken during the APEX individual session in Arba Minch. (Photo credit: AMU, Ethiopia).

On the final day, all participants from different model classes collaborated in groups to practice the integration of the three models. This group exercise facilitated the exchange of knowledge and skills acquired throughout the week. The trainers conducted a comprehensive review of the models and addressed participants' questions and comments. Each participant was awarded a certificate of completion. In his closing remarks, Dr. Chufamo, thanked the organizing committee, trainers, and trainees for their hard work. He also encouraged the participants to apply their newly acquired knowledge in their respective fields.

Through a combination of engaging lectures and hands-on training, participants gained valuable insights into the three models, while forging new connections and exchanging ideas

with fellow professionals. Based on feedback received from the trainers, the workshop was deemed a success.

The IDSS trainers had the opportunity to engage in several other activities during their visit to Ethiopia. One of these was a meeting with Dr. Chufamo and other leaders in the research and grant management programs at AMU to discuss potential collaborations, further strengthening the partnership between Texas A&M University and their Ethiopian counterparts. On another day, the trainers were taken on a tour to the Arba Minch crocodile ranch, a unique opportunity to experience Ethiopia's diverse flora and fauna firsthand. These additional experiences added depth and richness to the overall program and provided a chance for the trainers to learn more about the country's culture and environment.

3 The IDSS training at the university of Rwanda, Musanze

Fresh from the success of their training in Ethiopia, the IDSS trainers travelled to the north of Rwanda to deliver a similar training in the town of Musanze. Against the stunning backdrop of the towering mountains and lush greenery of the University of Rwanda-Busogo campus in Musanze, the team of experienced scientists led a group of enthusiastic learners through an immersive five-day (February 20-24) training course on the three computer models. The trainees were fifty-two in number and comprised of thirteen women and thirty-nine men. They were made up of graduate students, researchers, faculty and staff from the UR, the Rwanda Agriculture and Animal Resources Development Board (RAB), Ministry of Agriculture, non-government organization projects, private sector companies and other institutions of higher of education.

The workshop program began on February 24th with a welcome address given by Dr. Marguerite Mukangango (Lecturer at UR- and coordinator of the IDSS workshop in Rwanda) who started her speech by warmly welcoming all present and expressed her excitement for the training program. Dr. Mukangango set the tone for a positive and productive learning environment, encouraging participants to engage actively in the training. She thanked the sponsors/partners, trainers, organizers and all who made the training possible and highlighted their support and commitment to the development of the field.



Dr. Marguerite Mukangango giving the welcome address of the IDSS training in Rwanda

Following Dr. Mukangango's welcome address, the floor was handed over to Dr. Guillaume Nyagatare the Principal of CAVM to formally open the workshop. He began by welcoming all the trainers and trainees to the workshop. He expressed his hope that the training would be both fruitful and enjoyable for all participants, and that the knowledge and skills gained during the workshop would be useful for their research. He stressed the importance of the workshop, and hoped the moment would be remembered for its usefulness in advancing scientific knowledge and improving the quality of research conducted at the university and beyond.

Dr. Nyagatare was happy to note that one of the facilitators of the workshop was a past student of UR, and he used this as an example of the important connections that can be made through education and training. He then officially declared the workshop open and wished all the participants a productive and enjoyable week of learning.

The IDSS team presented the research and local capacity development programs of ILSSI and LSIL and provided a summary on the theory and application of the models in addition to a case study from the Robit Watershed in Ethiopia.



Dr. Guillaume Nyagatare giving his opening speech at the IDSS training in Rwanda



Group photo taken after the closing ceremony of the IDSS local capacity development at the University of Rwanda. (Photo credit: UR, Busogo).

From the afternoon of the first day to the end of the fourth day, the training on each of the models was conducted in parallel and the trainees received hands-on training on the models. On the fifth day, all participants gathered to learn about the specifics of each model and their integration through case studies. They also formed groups and exchanged knowledge on what they had learned during the past days.



Photo taken during the SWAT individual session at the University of Rwanda (Photo credit: University of Rwanda)



Photo taken during the APEX individual session at the University of Rwanda (Photo credit: University of Rwanda)



Photo taken during the FARMSIM individual session at the University of Rwanda (Photo credit: University of Rwanda)



Group session on February 24 showing the participants practicing on the integration of the models.

The closing remarks were given by Dr. Nyagatare during the afternoon of February 24. He expressed his appreciation to the funders of the training, Texas A&M University and the host University, UR. He congratulated the participants for their achievement and encouraged them to use the models in their research activities. He also thanked them for showing interest in the models. Each of the participants was then presented with a training certificate and the training ended.

4 The IDSS training in Prairie View A&M University

Following their successful training programs in Ethiopia and Rwanda, the IDSS trainers continued their journey of transformative training at Prairie View A&M University (PVAMU), a Historically Black Land Grant University (HBCLGU) located in Texas, USA. The training was hosted by the College of Agriculture and Human Sciences (CAHS) of the University.

Over the course of three immersive days (from 6th to 8th March 2023), the team led a group of eager learners from the University and other historically black universities through an intensive training on the three IDSS models (please see Annex 2 Table 3 for the participant list). The program offered participants a unique opportunity to enhance their skills and knowledge while building connections and exchanging ideas with fellow professionals from a shared background.

The training targeted graduate students and early career scientists from 1890 HBCLGUs with backgrounds in economics, agronomy, water resources, hydrology, and engineering. Thirty-one participants joined the training, distributed in the 3 classes as follows: 14 joined the SWAT class, 12 in the APEX class, and five in the FARMSIM class.

The workshop began on March 6 with a welcome address by Dr. Ali Fares, Professor of Water Security at the CAHS, Dr. Kwaku Addo, Associate Dean of Academic Programs and Department Head of CAHS and Erdogan Memili, Professor and Executive Associate Director of Research for the College and its Cooperative Agricultural Research Center (CARC). Dr. Fares played a critical role in coordinating and collaborating with other individuals and to ensure the success of the program. It was through discussions with that the workshop was hosted at the university.

In their address, the three professors provided a brief history of PVAMU and introduced the various research programs offered, particularly in the College of Agriculture and Human Sciences (CAHS). They expressed their delight in having the participants at the university and encouraged them to explore the college and its resources. They concluded by encouraging them to take advantage of every opportunity the three days at PVAMU would offer.

Following this, Dr. Gerard D'Souza, Dean and Director of land-grant programs at the CAHS delivered the opening remarks, providing words of encouragement for the participants. He extended a warm welcome to all attendees and trainers to the university, highlighting the importance of the workshop. Additionally, he expressed gratitude towards the organizing committee, led by Dr. Fares, for their hard work and dedication in making the event possible.

Next to speak was Dr. Nicole Lefore, the Director of the Feed the Future Innovation Lab for Small Scale Irrigation (ILSSI). In her speech, she provided an overview of the different innovation labs available with an emphasis on ILSSI. She explained the concept of Small-Scale Irrigation and highlighted the direct relationship between small scale irrigation and nutrition, as well as resilience to climate change. Dr. Lefore also showcased some of the results of modeling studies in Ghana and discussed the role of models in addressing global discussions on climate change and water risks. Finally, she encouraged the participants to take the training seriously and urged them to think about how they could apply the models in their research.



Dr. Gerard D'Souza (left), delivering his speech while Dr. Ali Fares (right) looks on.



Dr. Nicole Lefore, Director of ILSSI delivering her speech.

From the afternoon of Day 1 to the morning of day 3, the participants received hands-on training and theoretical knowledge on their selected models. On the afternoon of the third day, there was a plenary session where the workshop facilitators demonstrated the integration of the three models using case studies from Ghana and Ethiopia. Additionally, a question-and-answer session was held, allowing participants to seek clarification on any aspects of the models.

Following the workshop activities, the participants and trainers enjoyed a tour of the PVAMU farm and facilities. Subsequently, a joint reception for both training and conference participants took place. During the reception, participants were presented with their training certificates, acknowledging their completion of the workshop.



Photo taken during the SWAT individual session at the Prairie View A&M University (Photo credit: Seifu Tilahun, IWMI, Ghana)



Group photograph of the participants and facilitators of the IDSS training in Prairie View A&M University

5 The IDSS training at the University of Ghana, Accra

The University of Ghana (UoG) hosted the international training workshop on the Integrated Decision Support System (IDSS) from May 15th to May 19th, 2023, in Accra, Ghana. The training was conducted under the Feed the Future Innovation Laboratory for Small Scale Irrigation (FtF-ILSSI) with Texas A&M being the lead institution for the project. Since 2014 as part of its mission, the FtF-ILSSI has organized 19 similar workshops in East Africa, West Africa, and the USA. The just ended workshop in Ghana marked a significant milestone as the 20th edition.

The training was conducted by practicing scientists from Texas A&M University, alongside scientists from Bahir Dar Institute of Technology - Bahir Dar University, Ethiopia. Together, they facilitated the comprehensive training centered around three core models.

The models are:

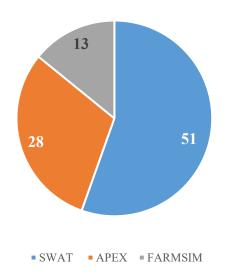
Soil Water Assessment Tool (SWAT) – targets hydrologists, agricultural engineers, and water resource professionals. The SWAT model (<u>SWAT | Soil & Water</u> <u>Assessment Tool (tamu.edu</u>)) is a small watershed to river basin-scale model that simulates the quality and quantity of surface and ground water and predicts the environmental impact of land use, land management practices, and climate change.

- Agricultural Policy/Environmental eXtender Model (APEX) this model, accessible at <u>EPIC/APEX | EPIC & APEX Models (tamu.edu)</u>, caters to agronomists, animal scientists, soil scientists, crop production specialists, and those concerned with evaluating environmental impacts at the farm or field scale.
- Farm Income Simulator (FARMSIM) geared towards agricultural economists or individuals with a firm grasp of economic principles, this model provides insights into the economic aspects of farming practices and interventions. Details of the model are available at <u>FARMSIM: A Farm Income Simulator | Texas A&M AgriLife Blackland</u> <u>Research & Extension Center (tamu.edu)</u>.

The three models served distinct purposes but were synergistically integrated to provide a holistic assessment of the impacts resulting from diverse interventions in the realms of food and agriculture.

Despite being the 6th time, the workshop was being organized in Ghana, this edition set a remarkable record with an unprecedented number of participants. A total of 92 individuals (Annex 1, Table 1) successfully completed the training, surpassing all previous records since the workshop's launch ten years ago. This attendance signifies the largest cohort of participants to date, underscoring the workshop's enduring success throughout the 10 years it has been conducted across 6 countries: Ethiopia, Côte d'Ivoire, Ghana, Rwanda, Tanzania, and the USA.

Out of the 92 participants, 21 were females, and 71 were males. The distribution among the three training courses was as follows: SWAT (51 participants), APEX (28 participants), and FARMSIM (13 participants) (Figure 1). Annex 2 shows the outline of the 5-day training workshop.



Participant distribution among models at the IDSS training in Ghana

The opening ceremony was held on the 15th of May, graced by esteemed members of University of Ghana, including the Provost of the College of Basic and Applied Sciences (CBAS), Prof. Boateng Onwona-Agyeman, the Dean of the School of Physical and Mathematical Sciences, Prof. Sandow Mark Yidana, and the Head of the Earth Science Department, Prof. Larry Pax Chegbeleh. The coordinator for the workshop, Dr. Yvonne Sena Akosua Loh, Senior Lecturer at the Department of Earth Science was also present and ensured that the event was conducted successfully. Dr. Loh gave introductory remarks and introduced and invited the esteemed members to share their remarks, setting the tone for the event.

Prof. Onwona-Agyeman, delivered the welcome address, expressing gratitude to the sponsors, organizers, and facilitators of the workshop. He also thanked the participants for making it to the event. In his speech, the provost emphasized the critical role of water in the face of climate change and stressed the need to utilize water resources to achieve nutritional security in the region. He also highlighted the necessity of developing irrigation techniques based on scientific data and analysis. The provost underscored the pivotal role of universities in preparing countries and regions for the challenges posed by climate change and emphasized the increasing demand for well-trained scientists equipped with appropriate methods to plan and monitor water and natural resource use. He highlighted the importance of analytical models such as the Integrated Decision Support System in making evidence-based decisions on resource allocation in the agricultural sector and conservation. In conclusion, the provost expressed the University's pleasure in partnering with FtF- ILSSI to host the training on the models, highlighting the institution's commitment to fostering scientific expertise and promoting sustainable water management and irrigation practices in Ghana.

Professors Yidana and Chegbeleh took turns and gave inspiring speeches that not only introduced the significance of the training but also encouraged participants to pay close attention to the valuable knowledge and insights shared throughout the program.



Group photo of trainers and training organizers taken after the launch of the IDSS local capacity development training at the University of Ghana. Individuals from left to right are Prof. Larry Pax Chegbeleh (Head of the Earth Science Department, UoG), Prof. Sandow Mark Yidana (Dean of the School of Physical and Mathematical Sciences, UoG), Dr. Tewodros Assefa (SWAT trainer, Bahir Dar University), Dr. Fati Aziz (APEX trainer, Texas A&M University), Prof. Boateng Onwona-Agyeman (Provost of the College of Basic and Applied Sciences, UoG), Dr. Yvonne Loh (Lecturer, Earth Science Department, UoG), Dr. Fasikaw Atanew (SWAT trainer, Bahir Dar University), Dr. Jean-Claude Bizimana (FARMSIM trainer, Texas A&M University) (Photo credit: Daniel Faraday)



Group photo taking after the launch of the IDSS training in Accra, Ghana (Photo credit: Daniel Faraday)

Following the opening ceremony, the participants embarked on their individual training courses, which spanned from the afternoon of the first day until the evening of the fourth day. During this period, the participants received comprehensive theoretical knowledge and practical hands-on training on the three models.

On the fifth day of the workshop, all the participants reconvened for model demonstrations and integration sessions. The facilitators showcased each of the three models individually, providing practical demonstrations to highlight their capabilities and real-world applications. Following the individual model demonstrations, a presentation on model integration was delivered, showcasing case studies from Ethiopia and Ghana. The integration session provided participants with valuable insights into how these models can work together synergistically to address complex challenges in the field of water resource management and agricultural planning.

After the model demonstrations and integration session, the participants were put into groups comprising members from each of the three training courses. These groups engaged in productive discussions to share their learnings from the workshop, focusing on both the individual models and their potential integration. This collaborative activity fostered knowledge sharing, encouraged the exchange of ideas among participants, and promoted a multidisciplinary approach to problem-solving.



Photo taken during the group session on May 19, 2023.

A question-and-answer session was conducted, allowing the trainees to seek clarifications and further insights from the facilitators. In recognition of their successful completion of the training, certificates of participation were awarded to all the trainees. The facilitators, in turn, received certificates of recognition and souvenirs from the University of Ghana as a token of appreciation for their contributions to the workshop. The training workshop at the University of Ghana was highly successful, providing participants with valuable theoretical insights, practical training, and collaborative activities. The record-breaking attendance and positive feedback received from participants highlighted the workshop's effectiveness in enhancing participants' skills and knowledge.

Over the course of the ten-year training initiative, over 1,300 participants comprising graduate students, Professors, Research Scientists, NGOs, and policy makers benefited from the workshops. The impact of these workshops is evident in the success stories of numerous participants who have successfully applied the acquired knowledge to achieve their goals. Among these participants, several have transitioned into the role of trainers, sharing their expertise with others. An example can be found in the facilitators of the training at the UoG, where three out of the four trainers, namely Drs. Fasikaw Atanaw, Tewodros Assefa, and Fati Aziz, underwent training on the models in 2015, 2016 and 2016, respectively during the FtF-ILSSI project. This progression showcases the transformative power of the workshops, as participants evolve into knowledgeable trainers themselves, perpetuating the cycle of knowledge dissemination. The IDSS training workshops have proven to be a remarkable initiative, and we anticipate their continued success in the future.

6 Conclusions

Overall, the training courses conducted in Ethiopia, Rwanda, USA, and Ghana were highly successful, highlighting the significance of collaboration and innovation in the field of computer modeling. The workshops offered participants a range of valuable experiences, including hands-on training and engaging discussions. Through these activities, the trainees had the chance to learn, improve their skills and expand their knowledge in the suite of models presented.

Annex 1: Workshop Agenda for Arba Minch University (Ethiopia), University of Rwanda, and the University of Ghana

<u>DAY 1</u>

- 8:30 9:30 Registration
- 9:30 9:35 Opening remarks
- 9:35 9:50 Welcome address from host
- 9:50 10:20 Icebreaker participants introduction
- 10:20 10:35 IDSS team Introduction to ILSSI IDSS (Model Integration)

10:35 – 11:00 Health Break + Group photo

- 11:00 11:30 SWAT overview
- 11:30 12:00 APEX overview
- 12:00 12:30 FARMSIM overview

12:30 - 13:30 Lunch time

13:30 - 14:30 IDSS Team - Case study ILSSI-IDSS (Robit watershed) and discussion

14:30 - 15:00

15:00 – 17:00 Individual Workshops SWAT/APEX/FARMSIM

DAY 2 - 4

8:30 – 17:00 Individual Workshops SWAT/APEX/FARMSIM

10:30-11:00 Health Break

12:30-13:30 Lunch

15:00-15:30 Health Break

<u>DAY 5</u>

8:30 - 10:00 IDSS model integration (Theory)

10:00 - 11:00 IDSS model integration (Hands on - Demo)

11:00 – 11:20 Health Break

- 11:20 11:30 Form groups
- 11:30 12:30 Group work IDSS (Hands on)
- 12:30 13:30 Lunch time
- 14:00 17:00 Workshop closing

Annex 2: Workshop Agenda for Prairie View A&M University

<u>DAY 1</u>

- 8:00 AM Information session to check on software etc.
- 9:00 AM Opening remarks (PVAMU leadership; ILSSI project director)
- 9:30 AM Group Photo
- 9:45 AM Panel discussion: Introduce each model, application, capabilities (TAMU trainers)

10:30 - 10:45 Health Break

- 11:00 12:00 Plenary: Panel Introduce each model, application, capabilities (TAMU trainers)
- 12:30 13:30 Lunch
- 13:00 15:15 Parallel training hands-on for each model: Theory, datasets, running models

15:15 – 15:30 Health Break

15:30 – 17:00 Parallel training on each model

DAY 2

8:00 – 11:00 Parallel training on each model

11:00 – 12:15 lunch

- 12:15 15:15 Parallel training
- 15:15 15:30 Health Break
- 15:30 17:00 Parallel training on each model
- 17:00 19:00 Dinner

<u>DAY 3</u>

- 8:00 10:30 Parallel training on each model
- 10:30 10:45 Health Break
- 10:45 12:00 Parallel training
- 12:00 13:00 lunch
- 13:00 14:40 Parallel training
- 14:45 15:00 Health Break
- 15:00 16:00 Demonstrate how models are integrated and data/results fed into each other for answering research and development questions.

Q&A session

Closing

16:00 – 18:00 Tour PVAMU Farm and Facilities

18:00 – 20:00 Joint reception for training and conference participants.

Participants receive training certificates.

Annex 3: List of Participants

Table 1: Participant list for the IDSS training in Arba Minch, Ethiopia

	Soil and Water Assessment Tool (SWAT)						
N°	Full Name	Gender	Institution	Email contact			
1	Mr. Abeanezer Lukas Bassa	М	AMU AWTI	abeanezer.lukas@amu.edu.et			
2	Mr. Abebe Hegano Hemacho	М	Jinka Agricultural Research Center	abehegeno@gmail.com			
3	Mr. Amare Gojjam Geremew	м	Arba Minch Agricultural Research Center	N/A			
4	Ms. Asamen Birara Asnake	F					
5	Mr. Banteamlak Kase Abebe	М	Dilla University	N/A			
6	Mr. Belete Meketaw Ali	М	AMU AWTI				
7	Mr. Berhanu Wegayehu Abebe	М					
8	Mr. Beyene Senedu Yebrie	М	AMU AWTI	beyenesenedu@gmail.com			
9	Mr. Birhanu Wolde Gindi	м	Arba Minch Agricultural Research Center				
10	Mr. Demisachew Yilma Gashaw	М					
11	Mr. Destaw Akili Areru	М					
12	Ms. Eaden Ollo Olandiya	F					
13	Ms. Emebet Assefaw Negash	F	Wollo University	eassefaw84@gmail.com			
14	Mr. Gebeyehu Tegenu Mola	м	EIAR: Debre Zeit Agricultural Research Center				
15	Mr. Getachew Enssa Sedeta	М	AMU AWTI				
16	Mr. Mandefro Chala Debela	М	Wolaita Sodo University	mande2000@gmail.com			
17	Mr. Markos Habtewold Adebo	М					
18	Ms. Marta Mekite Begashaw	М	AMU AWTI				
19	Mr. Medhin Madebo Mada	М					
20	Mr. Mesfin Amaru Ayele	М	AMU AWTI				

21	Mr. Muluken Abera Robi	М		
22	Mr. Selman Hassen Adem	М		
23	Mr. Solomon Gezie Kebede	м	EIAR: Debre Zeit Agricultural Research Center	solomongk28@gmail.com
24	Mr. Solomon Mathewos Boltana	М		
25	Mr. Yilak Taye Bihon	М		
26	Mr. Yilma Kidanie Beyene	М		
27	Mr. Zemede Landu Yilma	М		
28	Ms. Fekerte Seyoum Demissie	F		
29	Ms. Rediet Sisay Nigatu	F		
30	Mr. Mengistu Tumayro Yankassa	М		
31	Mr. Zemenu Addis Teklemedhin	М		
32	Mr. Aklilu Alemayehu Kassaye	М		
33	Mr. Kbrom Berhe Hagos	М		
34	Mr. Ebrahim Seid Endris	М		
35	Dr. Getachew Bereta Geremew	М		
36	Mr. Sufiyan Abdulmenan Ousman	М		
37	Dr. Demelash Wondimagegnehu Goshime	м	AMU AWTI	demelashwon@gmail.com
	Agric	ulture Poli	cy Environment EXtender (APEX)	
N°	Full Name	Gender	Institution	Email contact
1	Mr. Aklilu Getahun Adema	м	Wolaita Zone Livestock and Fishery Resource Department	aklilugetahun853@yahoo.com
2	Mr. Amanuel Madda Menna	M	Boditi City Municipality	amanuelmadd23@yahoo.com
3	Mr. Atinafu Tunebo Lafebo	M	Jinka Agricultural Research Center	atnetu2008@yahoo.com
4	Dr. Demelash Wendemeneh Bekele	M		
5	Mr. Demiso Daba Dugassa	М	AMU AWTI	demisod390@gmail.com
6	Mr. Fekadu Nigatu Melaku	М	AMU CAS	fnigatf@gmail.com
7	Ms. Feven Zewdie Zekarias	F	Wolita Sodo University	favazekarias37@gmail.com

8	Mr. Hailematiam Molla Ashagre	М	AMU AWTI	hailemariammolla25@gmail.com			
9	Ms. Kulla Kutama Guyawo	F	Wolaita Sodo University	kullakutama123@gmail.com			
10	Mr. Mesfin Reta Aredo	М	Madda Walabu University	mesfinreta.mr@gmail.com			
11	Ms. Nazrawit Samuel Kalbe	F	AMU AWTI	nazrawitsamuel3438@gmail.com			
12	Mr. Nebiyu Waliyi Tekesa	М	AMU AWTI	nebiyu.waliyi@amu.edu.et			
13	Mr. Sisay Samuel Gella	М	AMU Gircha	sisaysam2009@gmail.com			
14	Mrs. Tsedalu Alemu Gemechu	F	AMU CAS				
15	Mr. Tesfasilassie Girma Mugoro	М	Haramaya University	tesfamugoro25@gmail.com			
16	Mr. Tewahdo Teshome Amare	М	ECDSWCo: Livestock and fisheries experts	tewateshe@yahoo.com			
17	Ms. Yenealem Gemi Mekuria	F	Arba Minch Agricultural Research Center	gemiyenealem@gmail.com			
18	Ms. Yitayish Goshu Shiferaw	М	AMU AWTI	yitugoshu21@gmail.com			
19	Mr. Zerihun Sinta Sherico	М	AMU CAS	zesishe2003@yahoo.com			
20	Mr. Terefe Zewdie Tsige	М					
21	Mr. Alemu Adame Medasho	М					
22	Mr. Hailu Delessa Bekele	М					
23	Mr. Misbah Abidela Hussein	М					
24	Mr. Ayalke Belete Amsie	М					
25	Dr. Samuel Dagalo Hatiye	М					
26	Mr. Melkamu Ateka Derebe	М					
27	Mr. Edmealem Temesgen Ebstu	М					
	Farm Income Simulator (FARMSIM)						
N°	Full Name	Gender	Institution	Email contact			
1	Mr. Abyot Seifu Gebre	М	The Federal Democratic Republic of Ethiopia Charities and Societies Agency				

2			ECDSWCo: Socioeconomic and	
	Mr. Alemayehu Chalchisa Gutema	М	Environmental study sub proses	alemayehuchalchisa84@gmail.com
3	Mr. Asmera Adicha Adala	М	Jinka Agricultural Research Center	
4	Mr. Belete Petros Kurubo	М		
5	Mr. Bizuayehu Admasu Gilitu	М		
6	Mr. Demoze Eshete Kasahun	М	AMU AWTI	
7			The Federal Democratic Republic of Ethiopia Charities and Societies	
	Mr. Endale Teklu Gebrehana	М	Agency	
8	Mr. Mallicha Hargesa Raro	М	Borana University	
9	Mr. Temie Alehegn Mengeitie	М		
10	Mr. Kelifa Ahmed Kerebo	М	AMU	kelifaa31@gmail.com

Table 2: Participant list for the IDSS training at the University of Rwanda

	Soil and Water Assessment Tool (SWAT)						
N°	Full Name	Gender	Institution	Email contact			
1	Ernestine Umuhoza	F	RAB	ernestine.umuhoza@rab.gov.rw			
2	Emmanuel Hakizimana	М	Atlantic international University	ehakizimana2016@gmail.com			
3	Jean Baptiste Rwigema	М	Individual Consultant	rwigemajb63@gmail.com			
4	Clotilde Uwera	F	IPRC-MUSANZE	uwaclot@gmail.com			
5	Olive Uwayo	F	Kenyatta University	olivenuwayoo@gmail.com			
6	Olivier Ndayitegeye	М	RAB	olivier.ndayitegeye@rab.gov.rw, ndoliv2006@yahoo.fr			

7	Emmanuel Musabyimana	М	RAB	emmanuel.musabyimana@rab.gov.rw
8	Felix Nzeyimana	М	RAB	elogenzeyi@yahoo.f
9	Tom Kalangwa	М	RAB	Kalangwatom88@gmail.com
10	Jean Baptiste Niyigaba	М	RAB	niyigaba111@gmail. Com
11	Claude Migambi	М	RAB	migambiclo84@gmail.com
12	Chantal Uwimana	F	RAB/Musanze	uwimacha1@gmail.com
13	Emmanuel Murwanashyaka	М	RAB/Nyagatare station	emmushyaka@gmail.com
14	Calter Muhawenimana	М	Rwanda Water Resources Board	<u>caltex17@gmail.com;</u> <u>caltr.muhawenimana@rwb.rw</u>
15	Eric Derrick Bugenimana	М	UR/CAVM	buderrick22@gmail.com
16	Marie Gorethi Akimana	F	RAB	gakimana001@gmail.com
17	Desire Ihumure Birunda	М	UR-CAVM	ihumure1000@gmail.com
18	Andre Chuma	М	RAB	chumaandre@gmail.com
19	Eustache Nshimiyumurwa	М	Gabiro Agribusnes Hub Ltd	enshimyumurwa@gah.rw
20	Alain Munyandinda	М	RAB/ SPIU World Bank & KOICA Funded Project	alain.munyandinda@rab.gov.rw
	Agri	culture Po	olicy Environment EXtende	r (APEX)
N°	Full Name	Gender	Institution	Email contact
1	Daniel Hategekimana	М	Agriculture with Innovation Company limited (Agriwin)	hategekimanadaniel8@gmail.com
2	Emmanuel Mbonigaba	м	Rwanda Youth in Agribusiness(RYAF)	emmanum95@gmail.com
3	Eric Minani	М	BLESSED DAIRIES Ltd	ericnelly2@gmail.com
4	Aloys Musabyisoni	М	RAB	aloys.musabyisoni@rab.gov.rw
5	Emmanuel Nsanzumukiza	М	UR-CAVM	emmynsanze0@gmail.com
6	Brigitte Uwajeneza	F	UR-CAVM	brigineza94@gmail.com
7	Enock Ndayishimiye	М	UR-CST	ndayisenock92@gmail.com
8	Willy Mwiza Kazimbaya	М	RAB	willy.mwiza@rab.gov.rw
9	Juliet Umwali	F	Horizon SOPYRWA	juliet.umwali@sopyrwa.com

10	Jacob Massai Thima	м	IRAD-Cameroon, University of Maroua	J.Massai@cifor.icraf.org
11	Chrispin Kabeja	М	RICA/Bugesera	ckabeja@rica.rw
12	Oswald Shyiramabere	М	RAB	oswald.shyirambere@rab.gov.rw
13	Taofeek Tope Adegboyega	М	UR-CMHS	t.adegboyega@ur.ac.rw
14	Revocate Niyigaba	М	Rwanda Improved Seed Company Ltd (RISCO LTD)	niyigabarovocate495@gmail.com
15	Duncan Cheriuyot	М	RICA/Bugesera	dcheruiyot@rica.rw
16	Ildephonse Munyeshyaka	М	UR-CAVM	ildemunyeshyakaaa@gmail.com
17	Assinapol Ndereyimana	М	RAB	assinapol.ndereyimana@rab.gov.rw
18	Jean Chrysostome Usengumuremyi	М	RAB	usengajean 12@gmail.com
19	Aline Clementine Ingabire	F	RAB	aline.ingabire@rab.gov.rw
20	John Bosco Talemwa	М	RICA/Bugesera	jbtalemwa@rica.rw
21	Sylivestre Habimana	М	UR/CAVM	shabimana@gmail.com
22	Jules Maurice Shema	М	UR-CAVM	shema.jules64@gmail.com
23	Marguerite Mukangango	F	UR-CAVM	mukangango2@gmail.com
		Farm Ir	ncome Simulator (FARMSIN	1)
N°	Full Name	Gender	Institution	Email contact
1	Andre Ndagijimana	М	IFAD/RAB	andre.ndagijimana@rab.gov.rw
2	Antoine Nyirigira Ruzindana	М	RAB	a_nyirigira@yahoo.fr
3	Aimable Gatete	М	RAB	gatete.aimable@gmail.com
4	Mutimura Mupenzi	М	RAB	mupenzimutimura@gmail.com
5	Seraphine Twikirize	F	UR/CAVM	selaphinetwiki@yahoo.com
6	Helene Ndindabo Tuyisenge	F	UR-CAVM	tuyisengehelene@gmail.com
7	Felicitas Esnart Mukumbo	F	RICA/Bugesera	fmukumbo@rica.rw www.rica.rw
8	Grace Uwera	F	UR/CAVM	uweragrace83@gmail.com
9	Benjamin Muligande	М	KIIWP/SPIU IFAD-RAB	benjamin.muligande@rab.gov.rw

Table 3: Participant list for the IDSS training at PVAMU

	Soil and Water Assessment Tool (SWAT)							
N°	Full Name	Gender	Institution	Email contact				
1	Christian Larson	М	Lincoln University	larsonc@lincolnu.edu				
2	Atanu Mukherjee	М	Kentucky State University	atanu.mukherjee@kysu.edu				
3	Kusum Tamang	М	Lincoln University	kusum.tamang106@my.lincolnu.edu				
4	Alhadi Ahmed	М	University of Maryland Eastern Shore	asahmed@umes.edu				
5	Dev Gurung	М	University of Maryland Eastern Shore	dpgurung@umes.edu				
6	Atikur Rahman	М	PVAMU	atrahman@pvamu.edu				
7	Annette Kenney	М	UMES	alkenney@umes.edu				
8	Jacob Brown	М	Kentucky State University	Jacob.Brown@kysu.edu				
9	Ganga Paudel	F	Kentucky State University	ganga.paudel@kysu.edu				
10	Keith Bucca	М	UMES	kjbucca@umes.edu				
11	Maheteme Gebremedhin	м	Kenctuky State Univeristy	maheteme.gebremedhin@kysu.edu				
12	Ruben Doria Garcia	М	Tuskegee University	rdoria 9733@tuskegee.edu				
13	Habtamu Workneh	М	NC A & T State University	haworkneh@aggies.ncat.edu				
14	Joshua Asiamah	М	Lincoln University	joshua.asiamah856@my.lincolnu.edu				
		A	griculture Policy Environment EXtender (APEX)				
N°	Full Name	Gender	Institution	Email contact				
1	Addisie Geremew	М	PVAMU	aygeremew@pvamu.edu				
2	Bhawana Ghimire	F	Tennessee State University	bghimire@my.tnstate.edu				
3	Cansu Oksel	F	Tennessee State University	coksel@tnstate.edu				
4	Rhyan Knight	М	University of Maryland of Eastern	rkknight@umes.edu				
5	Nigus Demelash	М	PVAMU	ndmelaku@pvamu.edu				

	Melaku			
6	Anoop Valiya Veettil	М	PVAMU	avveetil@pvamu.edu
7	Binita Thapa	F	PVAMU	bithapa@pvamu.edu
8	Lashunda Hodges	F	Southern University	lashunda_hodges@suagcenter.com
9	Solomon Geleta	М	Lincoln University of Missouri	geletas@lincolnu.edu
10	Babu Valliyodan	М	Lincoln University of Missouri	valliyodanb@lincolnu.edu
11	Arjun Thapa	М	North Carolina A & T State University	athapa@aggies.ncat.edu
12	Gebrekidan Tefera	М	Prairie View A&M University	gwtefera@pvamu.edu
12	Gebrekidan Tefera	M	Farm Income Simulator (FARMSIM)	gwtefera@pvamu.edu
12 N°	Gebrekidan Tefera Full Name	Gender		gwtefera@pvamu.edu Email contact
			Farm Income Simulator (FARMSIM)	
N°	Full Name	Gender	Farm Income Simulator (FARMSIM)	Email contact
N°	Full Name Jayant Lohakare	Gender M	Farm Income Simulator (FARMSIM) Institution PVAMU	Email contact jalohakare@pvamu.edu
N° 1 2	Full Name Jayant Lohakare Lynn Olisa	Gender M F	Farm Income Simulator (FARMSIM)InstitutionPVAMUPig farmers AssociationLincoln University, Jefferson City, Missouri	Email contact jalohakare@pvamu.edu thecounselingagency@gmail.com

Table 4: Participants list for the IDSS training at University of Ghana

	Soil and Water Assessment Tool (SWAT)							
No	No Name M/F Institution Email Address Phone Number							
	Emmanual Aquakum			agyekumemmanuel945				
1	Emmanuel Agyekum	М	WACCI, UG	@gmail.com	+233 55 493 9615			
	Richard Atibila Achaa		GIDA, Ghana	richard.ayambila@gida.	+233 20 697 1000			
2	Ayambila	М	GIDA, GIIalla	gov.gh	+235 20 697 1000			

3	Ing. Gabriel Appiah	м	CSIR, Ghana	gappiah@csir.org.gh	+233 24 351 3746 / +233 26 251 3746
4	Charles Quansah	М	Hydrogeology MPhil, UG	charlesniiafadi@gmail.c om	+233 27 444 1169 / +233 55 269 6116
5	Eric Ameamu	М	Earth Science Graduate, UG	Eameamu001@st.ug.ed u.gh	+233 24 880 6976
6	Christabel Ohemeng	F	Earth Science Graduate, UG	Cohemeng002@st.ug.ed u.gh	
7	Agbo Kwabena Michael	М	L400, UG	mkagbooo7@gmail.com	+233 54 428 5187
8	Bismark Awinbire Akurugu	м	PhD Student, Researcher, UG/WRI	bismarkakurugu@yahoo .com	
9	Doreen Kapiri	м	Earth Science Graduate, UG	doreenkapiri17@gmail.c om	+233 54 042 9031
10	Mario Kugre Danban	F	CSIR, Accra Ghana	mariodanss@yahoo.co m	+233 20 053 1101
11	Amedzro Yaw Kennedy	м	Geophysics Graduate, UG	kyamedzro@st.ug.edu.g h	+233 55 045 4119 / +233 50 453 3064
12	Stephen Ardey Mensah	м	MPhil Agricultural Eng., UG	samensah028@st.ug.ed u.gh	+233 55 420 0937 / +233 50 481 7798
13	Perpetual Napoga Nin- yenle	F	Agricultural Eng. Graduate, UG	perpetualnapogah@gm ail.com	+233 54 710 6345
14	Darkwa Alfreda Nana Yaa	F	L400, Geophysics (Major) Student, UG	anydarkwa@st.ug.edu.g h	+233 55 239 972
15	Marilyn Sedem Naayo	F	MSc. Student in Geophysics, UG	msnaayo@st.ug.edu.gh	+233 55 411 1342
16	Michael Aziriba Mbah	м	Earth Science Graduate, UG	mbamichael1357@gmai I.com	+233 54 597 3408
17	Mandy Edinam Dzomeku	F	PhD student, Water resources, KNUST	mandydzomeku@gmail. com	+233 24 312 5005
18	Portia Danjuma	F	Earth Science Graduate, UG	portiadanjuma@gmail.c om	+233 54 045 6350
19	Gyebi Harriet	F	Earth Science Graduate, UG	gyebiharriet8@gmail.co m	+233 59 477 1042

20	Dr. Millicent Obeng Addai	F	Lecturer, Geography Dept., UEW	moaddai@uew.edu.gh	+233 24 613 0257
	Deland Vistor Ashasha		Hydrogeophysicist at GeoEnergy	rovicagbogbo.uk2019@	+233 54 750 9670 / +233 59
21	Roland Victor Agbogbo	М	Well Drilling Services, Ghana	gmail.com	605 0788
	22 Nana Ekua Besima Garbrah		Hydrogeologist at Gyafad Drill,	nanabesimag@gmail.co m	+233 54 074 9337
22		F	Ghana		
	Robert Makafui Agorde		MPhil Agricultural Eng. Graduate,	rmagorde@st.ug.edu.gh	+233 05 498 5081
23		Μ	UG		
24	Agyekum Emmanuel Atuobi	М	Earth Science Graduate, UG	atuobi867@gmail.com	+233 55 287 8580
	Addo Oduro Stephen, PhD		PhD in Environmental Science, UG	saddo_oduro@st.ug.ed	
25	Addo Oddi o Stephen, Fild	М	FID III Environmental Science, OG	u.gh	+233 24 497 1772
26	Adisatu Iddrisu	F	PhD, Environmental Science, UG	aiddrisu036@st.ug.edu.	+233 24 263 5366
20		F		gh	
27	Eric Somuah	м	MSc, Earth Science, UG	ericsomuahboateng@ya hoo.com	+233 24 349 7417
27				faeoppong001@st.ug.ed	
28	Felix Elvis Oppong Antwi	м	Earth Science Graduate, UG	u.gh	+233 57 799 7002
29	Patricia Granaham	F	Principal Technologist CSIR-WRI	pgranaham@gmail.com	+233 24 341 9443
				Kofi.n.acheampong@gm	
30	Kofi Nkunim Acheampong	М	CEO, STANBEST LTD.	ail.com	
	Dr. KOFFI Kouakou Valentin		Lecturer at Université Jean	unlank of Quahaa fr	
31		M Lord	Lorougnon Guédé, Côte d'Ivoire.	valenkof@yahoo.fr	
32	Precious Kwaku Blege	М	Lecturer, UDS, Ghana	pkblege@uds.edu.gh	+233 50 661 6213
			Assistant lecturer in Environmental		
	Emmanuel Yaw Addo		Management, Korforidua Technical	Emmanuelyaw.addo@kt u.edu.gh	+233 57 881 4776 / +233 59 411 2573
33		М	University	u.euu.gii	411 2373
	YAMEOGO Tatiana Stella		Ph.D Candidate, climate change	yameogo.t@edu.wascal.	+226 70 330 212 / +226 76
34	Kiswendsida	F	and water resources, Burkina-Faso	org	251 422
	Mark Osei-Owusu		PhD in Water resources		+233 50 138 9851 / +233 24
35		Mark Osei-Owusu	М	Engineering, KNUST	oosei11@yahoo.com
	Ebenezer N. K. Boateng			ebenezer.boateng@stu.	+233 50 002 4445 / +233 55
36		Μ	Geography Graduate, UCC	ucc.edu.gh	186 2691

37	Wisdom Kwame Aziemanu	М	MSc student, KNUST, CWSA	wisdomaziemanu@gmai l.com	+233 24 571 8345 / +233 20 055 0280
38	Samuel Berchie Morfo	М	Geological Eng. Graduate, KNUST	mberchiesamuel99@gm ail.com	+233 55 073 6691
39	ALFA Tchakpala Essossinam Matonzibiyou	М	PhD student at WASCAL, Benin	alfa.e@edu.wascal.org	+229 91 32 32 88 / +228 91 77 77 92
40	Deborah Darko	F	Senior Research Scientist, CSIR-WRI	deborah.ofori@gmail.co m	
41	Israel Quashigah Apedoh	Μ	MPhil Eng. Geology Student, UG	iqapedoh002@st.ug.edu .gh	+233 50 260 1875 / +233 24 658 0612
42	Dr. Edward Kofi Ackom	Μ	Department of Earth Science, UG	ekackom@ug.edu.gh	+233 24 157 3664/+233 54 801 9613
43	Alikalifa Sanogo	Μ	Kumasi Technical University (KsTU), Kumasi-Ghana.	alikalifasanogo@gmail.c om	+233 50 404 2474 / +233 20 453 7660
44	Atampugre Gerald	М	IWMI/UCC	G.Atampugre@cgiar.org	+233 24 568 5056
45	Saeed Ibn Idris Kofi Yeboah	М	PhD candidate, Environmental Emgineering Management, UENR	saeedibnidriss@gmail.c om	+233 55 383 6983
46	Eric Kwaku Atidigah	М	Department of Earth Science, UG	erickatidigah@gmail.co m	+233 55 780 1016
47	Ahialey Emmanuel Kekle	М	PhD candidate, Regional Centre for Energy and Environmental Sustainability, UENR Ghana	emmanuel.ahialey.stu@ uenr.edu.gh	+233 24 536 8975 / +233 57 111 4311 / +233 50 780 7849
48	Nasser Dia	М	Master student	dianasser07@gmail.com	
49	Mohammed Abdalla	М	Ph.D student (Irrigation & Drainage Engineering), UDS (TANZANIAN)	mmabdalla80@gmail.co m	+255 77 862 9731
50	Okyere Omane Obed	М	MPhil Student, IESS, UG Ghana	oookyere001@gmail.co m	+233 55 280 9664 / +233 54 135 5403
51	Ofori Stephen Jnr.	М	L400 Student, Earth Science Department UG	sjofori003@st.ug.edu.gh	+233 24 502 8111 / +233 57 617 0321
	Agriculture Policy Environment EXtender (APEX)				

No.	Name	M/F	Institution	Email Address	Phone Number
1	Jackline Amma Timah	F	Earth Science Graduate, UG	jacklinetimah57@gmail. com	+233 54 188 5636
2	Nelson Senunyeme	м	Earth Science Graduate, UG	nsenunyeme@st.ug.edu .gh	+233 24 023 9039
3	Siaw, George Asante	м	Agriculture Graduate, UG	georgeasantesiaw@gma il.com	+233 55 417 7694
4	Xorlali Azimey	F	Animal Science Graduate, UG	xazimey@st.ug.edu.gh	+233 55 905 0324
5	Benjamin Ofori	м	MPhil Crop Science, UG	benjaminofori505@gma il.com	+233 24 590 0130
6	Dr. Fynn Obed Fiifi	м	CSIR, Ghana	obedfiififynn@csir.org.g h	+23350 447 4805/ +23324 447 4805
7	Dr. Jonathan Ampah	М	CSIR, Accra Ghana	joeampah1@yahoo.com	+233 24 418 0718
8	Emmanuel Kosi Apetsi	м	Agriculture Graduate, UG	ekapetsi002@st.ug.edu. gh	+233 24 642 2885
9	Andoh Kwaku Amponsah	М	Research intern, IWMI Ghana	A.Amponsah@cgiar.org	+233 55 834 1844
10	Eli Djomekou	м	Earth Science Graduate, UG	djomekoueli@gmail.co m	+233 55 919 8092
11	Rev. Delali Freedman Woledzi	м	PhD Student, Migration Studies UG	fdwoledzi@st.ug.edu.gh	+233 24 341 4435 / +233 20 611 8239
12	Felix Owusu	м	MSc student in Research & Public Policy, UG	emtfelizoo@gmail.com	+233 24 619 3299
13	Emmanuel Mensah	м	Agricultural Eng. Graduate, UG	emm52496m@gmail.co m	+233 55 460 1359
14	Dr. Daniel Brain Akakpo	М	Lecturer at Dept. Soil Science	dbakapo@ug.edu.gh	+233 24 412 9380
15	Jeff Kodzo Ziwu	м	Agricultural Assistant, Korle Klottey Municipal Assembly	jeffkziwu@gmail.com	+233 57 862 3797
16	Yaw Kisser	М	Sub-consultant Hydrogeologist at WSP Golder, Ghana	kisseryaw@gmail.com	+233 50 790 5011
17	Agyeman Priscila Agyeiwaa	F	Earth Science Graduate, UG	prissyagyes88@gmail.co m	+233 54 168 7780

18	Desmond Kwame Antwi	N 4	LLB Student, Wisconsin Int.	desmondantwi067@gm	+233 24 226 1888 / +233 50 001 3826		
18	Mahamadou Soumaila KONTE	M	University, Ghana PhD student, UDS	ail.com kontemas@gmail.com	+223 66 53 5508 / +254 07 16 58 90 98		
20	John Bright Amoah Nyasapoh	М	PhD student, UG	Jbanyasapoh@st.ug.edu .gh			
21	Samuel Asiamah Nyave	м	MPhil student in Geography, UCC	samuel.nyave@stu.ucc. edu.gh	+233 55 333 9510 / +233 26 865 5981		
22	Vasco Baffour-Kyei	м	MPhil Graduate in Agricultural Economics, KNUST	vasco.baffour- kyei@cwsa.gov.gh	+233 24 626 1714		
23	Ing. Frank Teye Oblim	м	Principal Technologist CSIR-WRI	oblim.teye@yahoo.com / oblimteye@gmail.com	+233 24 328 7180 / +233 50 467 4387		
24	Benjamin Kumah	м	MPhil, Soil Science, UG	bkumah003@st.ug.edu. gh	+233 26 925 8662		
25	Dr. Ing. Peace Korshivor Amoatey	F	Senior lecturer & HoD, Agricultural Eng. UG	pkamoatey@ug.edu.gh	+233 20 738 6044 / +233 55 248 8078		
26	Gnibga Issoufou Yangouliba	м	PhD Student WASCAL	yangouliba.g@edu.wasc al.org	+226 72 62 31 38 / +226 77 22 87 57		
27	Afia Adobea Owusu-Asare	F	Graduate of KNUST, Agric Engineering	adobea_afia@yahoo.co m	+233 55 111 4940		
28	Joseph Maudjorm	М	Technik ohne Grenzen e.V, Accra- Ghana	maudjormjoseph@yaho o.com	+233 20 786 0345		
	Farm Income Simulator (FARMSIM)						
No	Name	M/F	Institution	Email Address	Phone Number		
1	Ajongchiga Ramsey Lucas	м	MSc. Student in Financial Risk Management, UG	ramseylucas7@gmail.co m	+233 55 043 7917		
2	Nsoh, Maxwell Awinikagise	м	Agriculture Economics Graduate, UG	maxwellnsohacademics @gmail.com	+233 55 881 1220 / +233 50 210 7135		
3	Joshua Kwao Oduah	м	MPhil Agribusiness, UG	joshuaoduah95@gmail.c om	+233 55 535 9503		

4	Yao Sedufia Agbenyefia	M	Agricultural Economics Graduate, UG	ysagbenyefia@st.ug.edu .gh	+233 54 627 2389
	Quarchia Jacoph Tottov		MPhil Enviromental Science, IESS		+233 24 474 0426 / +233 20
5	Quarshie Joseph Tettey	М	UG, Teacher of Economics	hoxby25@gmail.com	890 7369
	Nora Senanu			nsenanu001@st.ug.edu.	+233 55 382 3244 / +233 57
6	Nora Senanu	F	Agricultural Eng. Graduate, UG	gh	664 1400
	7 Adelaide Naa Okpoti		MPhil Student, Agricultural	anokpoti001@st.ug.edu.	+233 55 767 7543
7		F	Economics, UG	gh	
	Shaibu Mohammed		PhD Student, Agricultural	mohammedtiyumtabas	+233 20 390 5609 / +233 26
8	Tiyumtaba	М	Economics, UG	@gmail.com	452 1199
	Lawani Adéwolé			lawanimoustapha@yah	+229 96 10 09 52 / +229 95 73
9	Moustapha	М	PhD, WASCAL, UCAD, Senegal	oo.fr	28 88 / +221 76 928 46 18
10	Francis Giffa Attoesi	М	MPhil in Agronomy, UG	fgattoesi@st.ug.edu.gh	+223 20 112 9919
	Philemon Tetteh-Addo		Agrifinance Advisor, Financial	philemon.tetteh-	
11	Philemon retten-Addo	М	Access Consulting Services	Addo@financialxs.com	+233 24 417 8714
	Jallah Upoalsangma Aaron		L400 BSc Agriculture student,	aaronnoble459@gmail.c	+233 55 391 4503 / +233 50
12		М	KNUST	om	131 1900
	Nutsugah Charles Mayuli		Savanna Agricultural Research	mcnutsugah@gmail.co	
13	Nutsugah Charles Mawuli	М	Institute (SARI)	m	+233 20 927 8339