

TRAINING REPORT:

Integrated Decision Support System (IDSS)

Local Capacity Development Training

21 - 25 February 2022, Hotel le Rocher, Yamoussoukro
Cote d'Ivoire

28 February - 4 March 2022, University for Development Studies (UDS)
Nyankpala Campus, Ghana

Submitted to:

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

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1 Introduction

The Innovation Lab for Small Scale Irrigation (ILSSI) at Texas A&M University (TAMU), completed Integrated Decision Support System (IDSS) trainings in Cote d'Ivoire and Ghana. The general objective of the training was to equip participants with tools and methods of evaluating the integrated effect of agricultural management practices on production, environmental sustainability, household income and nutrition, particularly three models and their integration: Soil and Water Assessment Tool (SWAT), Agricultural Policy Environment eXtender (APEX), and Farm Income Simulator (FARMSIM)¹.

The training in Cote d'Ivoire was organized and hosted by the International Center for Research in Agroforestry (ICRAF) at Hotel le Rocher in Yamoussoukro from February 21 to February 25, 2022. In the case of Ghana, the training was organized and hosted by the Department of Environment, Water and Waste Engineering at the University for Development Studies (UDS) in Nyankpala from February 28 to March 4, 2022.

The training followed a similar agenda (see [Annex 1](#)) in both countries:

- opening ceremony and introduction to IDSS with case studies (day 1 morning)
- in-depth-training on the individual models (day 1 afternoon through day 4)

¹ The SWAT model assesses impacts of land and water management practices on hydrology, crop and fodder production and environmental sustainability at watershed/basin/regional scales, while the APEX model evaluates impacts of cropping systems on agricultural production and environmental sustainability at field/small watershed scales. Both SWAT and APEX are biophysical models. The FARMSIM, on the other hand, is a Monte Carlo socio-economic model, which analyzes the impacts of alternative farming practices on household income and nutrition.

- group activity and closing ceremony (day 5)

2 Cote d'Ivoire: IDSS training

Sixty-nine (69) participants from four countries across West Africa attended the training. The number of applications received from women was low, with only seven women participating. The participants came from research institutes, academia and non-governmental organizations (NGOs) and had diverse backgrounds (e.g. hydrology, agriculture economics, and climate sciences). The APEX class had 37 participants, SWAT 20, and FARMSIM 12 ([Annex 2, Table 1](#)).

Dr. Kouamé Christophe, the Country Director of ICRAF in Côte d'Ivoire, opened the workshop in Yamoussoukro with a welcome address, expressing satisfaction that the workshop was finally being conducted after a long delay caused by the COVID-19 pandemic. He acknowledged Dr. Lucien Diby for his hard work and commitment in ensuring that the workshop had been realized, and thanked the ILSSI team and partners for their great job in development capacities. Dr. Kouamé stressed the importance of the models for decision making in projects.

The IDSS team first introduced participants to the research and local capacity development programs of ILSSI and the Innovation Lab for Livestock Systems (LSIL). To enable them to see how the three models work together to solve real life problems, they presented a case study from the Robit watershed in Ethiopia detailing how the model integration works. From the afternoon of Day 1 through Day 4, participants received hands-on training on the individual models that they had selected based on their fields of expertise. During this period, they also learned about the theory behind the models.



Dr. Kouamé Christophe delivering welcome address (Photo: ICRAF, Cote d'Ivoire)



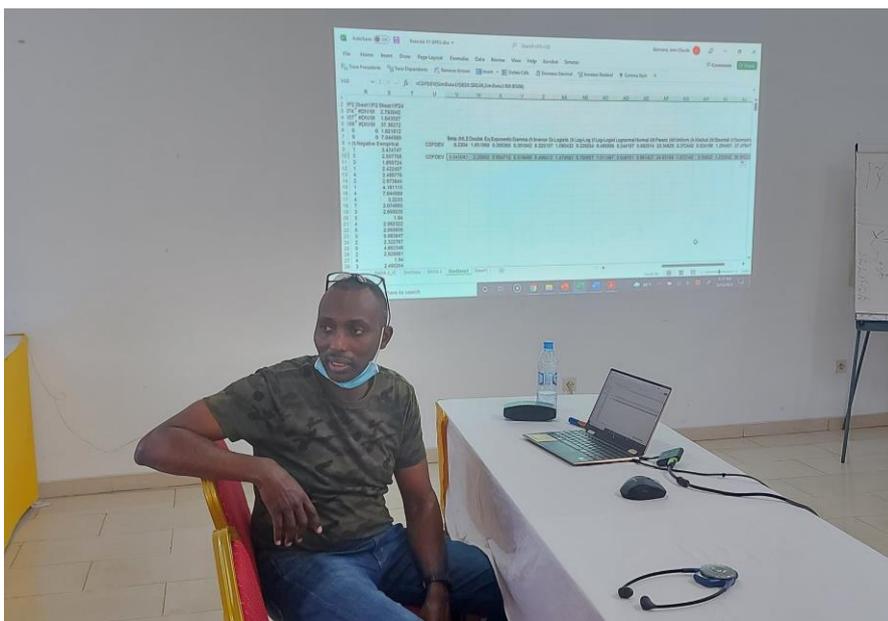
Group photo, Yamoussoukro (Photo: ICRAF, Cote d'Ivoire)



SWAT session, Yamoussoukro, led by Dr. Yihun Dile (Photo: ICRAF)



APEX session, Yamoussoukro led by Dr. Abeyou W. Worqlul (Photo: ICRAF)



FARMSIM session, Yamoussoukro, led by Dr. Jean-Claude Bizimana (Photo: ICRAF)



APEX session, Yamoussoukro with Dr. Fati Aziz (Photo: ICRAF)

On the final day of the workshop, participants from the different model classes came together and practiced the integration of the three models in groups. The groups were formed with at least one participant coming from one of the three model classes. The group practice aimed at enabling participants to exchange the knowledge and skills learned over the week, and to demonstrate how the IDSS integration works.



Group session on February 25 in Yamoussoukro showing participants practicing on the integration of the models.

Dr. Lucien Diby, on behalf of Dr. Kouamé Christophe provided closing remarks; he acknowledged the organizing team, trainers, and interpreters for their commitment and hard work during the week-long training. He also congratulated participants for their achievement and advised them to continue practicing to become expert users of the models. Each of the trainers also expressed their gratitude to the local organizing team and interpreters who worked very hard to ensure the success of the workshop. They gave words of encouragement to participants, and encouraged them to get in touch whenever they encountered problems using the models. Each participant received a certificate.

3 The IDSS training in Ghana

Ghana's workshop participants were 71 in total, including 14 women and 57 men: SWAT, 31; APEX, 23; FARMSIM, 17 participants. The trainees included lecturers, graduate students, and researchers with backgrounds in agricultural economics, engineering, agricultural sciences and hydrology ([Annex 2, Table 2](#)).

Ing. Prof. Ibrahim Y. Seini, Dean of the School of Engineering at the University for Development Studies, welcomed the participants and thanked the organizers and sponsors for choosing to hold the training at the Nyankpala Campus of UDS. He expressed that the training would be highly beneficial to all the participants and the country as a whole.



From left to right: Prof. Isaac K. Tetteh (head of Department, Environmental Science, Kwame Nkrumah University of Science and Technology, Ghana), Dr. Eliasu Salifu (head of Department of Agricultural Engineering, UDS), Ing. Prof. Ibrahim Y. Seini (Dean of the School of Engineering, UDS), Dr. Jean-Claude Bizimana (Texas A&M University), Dr. Abeyou W. Worqlul (Texas A&M University), Dr. Yihun Dile (Texas A&M University) and Dr. Fati Aziz (Texas A&M University). (Photo credit: UDS)



Group photo taken after the opening ceremony of the IDSS local capacity development in Nyankpala. (Photo credit: UDS, Nyankpala).

The opening ceremony was followed by an introduction to the research and local capacity development programs of the ILSSI IDSS team, an education on the theory and application of the three models and finally a demonstration of the integration of the models.



The IDSS team responding to questions after presenting a case study on the integration of the SWAT, FARMSIM and APEX models.

From the the first to the fourth day, the participants received hands-on training on the individual models. On the fifth day, the trainees from all the classes came together and worked in newly formed groups, which included at least one participant each from the different model classes. The discussion focused on what they had learnt throughout the training and on the model integration.



SWAT session, Nyankpala, led by Dr. Yihun Dile (Photo credit: UDS)



APEX session, Nyankpala led by Dr. Abeyou W. Worqlul



Group session practicing the integration of the models

Ing. Prof. Seini closed the training with gratitude to the organisers, sponsors and trainers of the workshop. He congratulated the participants for their achievement and encouraged them to practise what they had learnt during the week. Each of participants was presented with a training certificate, and each of the trainers, a citation and “fugu” smock. Dr. Eliasu Salifu, Head of the Department of Agricultural Engineering, gave the closing remarks with his thanks and acknowledgement of the role of Prof. Raymond Kasei. The trainers thanked the organisers and encouraged the trainees to continue practicing what they had learnt during the week, welcoming participants to reach out for help in application of the models.

4 Conclusion

The feedback received from the workshop participants in evaluations was very positive. The participants of both countries indicated that their expectations had been met. In addition to the knowledge gained, the workshops provided avenues for the participants to network and establish lasting relationships.

Annex 1: Workshop Agenda

DAY 1

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 introduce themselves

10:20 – 10:35 IDSS team – Introduction to ILSSI – IDSS (Model Integration)

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

11:00 – 11:30 Yihun Dile – SWAT overview

11:30 – 12:00 Abeyou Wale – APEX overview

12:00 – 12:30 Jean-Claude Bizimana – 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 Coffee Break

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 Coffee break

12:30-13:30 Lunch

15:00-15:30 Coffee break

DAY 5

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

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

10:00 – 10:20 SWAT demo

10:20 – 10:40 APEX demo

10:40 – 11:00 FARMSIM demo

11:00 – 11:20 Coffee break

11:20 – 11:30 Form groups

11:30 – 12:30 Group work IDSS (Hands on)

12:30 – 13:30 Lunch time

13:30 – 15:00 Group work IDSS

15:00 – 15:30 Coffee Break

15:30 – 16:30 Group work IDSS (Continue hands on & wrap up)

16:30 – 17:00 Workshop closing

Annex 2: List of Participants

Table 1: Participant list for the IDSS training in Yamoussoukro, Cote d'Ivoire

N°	Surname	Names	Gender	Position	Institution	Country
1	MAGONE	Bi Tibe Vincent	M	Doctoral Student	Ecole Doctorale Poly	Cote d'Ivoire (CDI)
2	TOURE	Youssef	M	Student	University of Ibadan	CDI
3	ASSOUMAN	Amadou	M	PHD Student Water resources	Kwame Nkrumah University of Science	Ghana
4	YAO	Blé Anouma Fhorest	M	PhD Student	Université Nangui Abrogoua	CDI
5	ESSEHI	Jean Lopez	M	Chercheur Pédologue	CNRA	CDI
6	PENE	Bi Crépin	M	Scientist & Lecturer/Agricultural Engineering	IUGB	CDI
7	SAMBIENI	Kevin Sinomatohou	M	Doctorant	WASCAL/GRP-CCWR	Benin
8	KOUAKOU	Christopher Jean-De-Dieu	M	Doctorant	EDP/INP-HB	CDI
9	KOFFI	Antoine	M	Etudiant/doctorant	UJLog	CDI
10	N'GUESSAN	Konan Jean-Yves	M	Doctorant	UJLog	CDI
11	YAO	Koffi Leon	M	Phd Student	INPHB/EDP	CDI
12	DJE	Bi Dje Desire	M	PhD Student	UFHB	CDI
13	SEMI	Lou Irie Delima	F	ETUDIANTE	INP-HB	CDI
14	KANGA	Brou Isidore	M	Chef du Service Etudes Météorologiques	SODEXAM	CDI
15	SOUMAHORO	Ahmed Lamine	M	Chef bureau hydrologie	SODEXAM	CDI
16	KOUAKOU	Koffi Abdelaziz	M	Enseignant-Chercheur	Universite Peleforo GON COULIBALY DE KORHOGO	CDI
17	WOLF	Valentin	M	CIM Integrated expert Agroforestry	CIFOR-ICRAF	CDI
18	MIAN	Anatole	M	Data specialist	CIFOR-ICRAF	CDI
19	KOUASSI	Koffi Guillaume	M	Assistant scientist	CIFOR-ICRAF	CDI
20	KONAN	Christopher Marc-Hervé	M	Junior scientist in Climate change	CIFOR-ICRAF	CDI
21	AMARI	AGNEROH Gnagne Jean-	M	Consultant	Indépendant	CDI

22	KOUADIO	Kouassi Richard	M	AssistantTechnique	Bois Tropicaux d'Afrique (BTA)	CDI
23	KOBENAN	Koffi Christophe	M	Chercheur	CNRA	CDI
24	KOFFI	KOUADIO Arsène Dieudonné	M	Enseignant-Chercheur	UFHB	CDI
25	KONAN	Kan Ulrich Urbain	M	PhD Student	INPHB/CNRA/CIRAD	CDI
26	PAGNY	Franck Placide Junior	M	Enseignant-Chercheur	UJLoG	CDI
27	NZUE	kouakou augustin	M	Chef service developpement et environnement	SODEXAM	CDI
28	ETTE	Kassi Franck Nicaise	M	Chargé d'Etudes en Agrométéorologie	SODEXAM	CDI
29	KONARE	Faïké Sarah	F	Chercheur	UPGC	CDI
30	BROU	Kouassi Hervé	M	Enseignant chercheur	INP HB	CDI
31	OUATTARA	Tièba Victor	M	Enseignant-Chercheur	UJLoG	CDI
32	AMANGOUA	Nogbou Ferdinand	M	Chercheur	CNRA	CDI
33	ODOUKPE	Kadio Saint Guillaume	M	Enseignant-Chercheur	Université Félix HOUPHOUËT-	CDI
34	DIANE	Abdoul Aziz Nouké	M	Etudiant	INP-HB	CDI
35	DJOGO	Cho Marguérite	F	Etudiant	INP-HB	CDI
36	KOUASSI	Kouadio Aimé	M	Etudiant	INP-HB	CDI
37	OUATTARA	Dossigue Karim	M	Etudiant	INP-HB	CDI
38	YAO	Regis Donald Antelme	M	Etudiant	INP-HB	CDI
39	WOROU	Omonlola Nadine	F	Agronomist, Program Manager	ICRISAT	Mali
40	BERTHE	Brahima	M	Assistant scientist	CIFOR-ICRAF	CDI
41	BENE	Kouadio Yeboi	M	Agronomist	CIFOR-ICRAF	CDI
42	KOUASSI	N'gbin Ouffouet Békan N'ti Fidèle	M	Junior Scientist Soils	CIFOR-ICRAF	CDI
43	SORO	Kanigui Issouf	M	Junior Scientist	CIFOR-ICRAF	CDI
44	COULIBALY	Kignielman Riflard Luc	M	PhD Student	CIFOR-ICRAF	CDI
45	OUATTARA	Zanga Adama	M	Junior Scientist climate change	CIFOR-ICRAF	CDI
46	SABO	Hamed Bashirou	M	Ingenieur Agronome	INPHB	CDI

47	GADJI	Alahou André Gabaze	M	Chercheur	CNRA	CDI
48	YAO	Saraka Didier Martial	M	Enseignant-Chercheur	Université Peleforo GON COULIBALY	CDI
49	GOUEU	Daniel	M	Ingénieur Agroéconomiste	PPCA	CDI
50	OUATTARA	YERAYOU CELINE	F	PhD Student	CEA CCBAD UFHB	CDI
51	OSSEY	Christian - Landry	M	Chercheur	CNRA	CDI
52	GUEI	Stéphane Hubert	M	PhD Student	Wascal UFHB	CDI
53	KRA	Léandre Junias	M	PhD Student	UJLoG	CDI
54	M'BO	Kacou Antoine Alban	M	Chercheur	WASCAL UFHB	CDI
55	DIBI	Konan Evrard Brice	M	Chef de Programme	CNRA	CDI
56	BOLOZOGOLA	Youssef	M	PhD Student	ICRISAT	Mali
57	GALA BI	Trazié Jérémie	M	Enseignant-Chercheur	UFHB	CDI
Farm Income Simulator (FARMSIM)						
N°	Surname	Names	Gender	Position	Institution	Country
58	DIABATE	Clema Yannick	M	Agricultural Economist PPCA	PPCA	CDI
59	EZA	Soumaley Sylvie Epse Mignan	F	PhD Student Rural Economy	UFHB/CSRS	CDI
60	KOFFI	Assa Dalmat	M	Student	INP-HB	CDI
61	KOUASSI	Nelly Tehua Christelle	F	Student	INP-HB	CDI
62	BADOLO	Felix	M	Agricultural Economist	ICRISAT	Mali
63	COULIBALY	Adama	M	PhD student in Agro-economy	ICRISAT	Mali
64	KOUAME	Kouadio Fernand	M	Junior Scientist socio-Economist	CIFOR-ICRAF	CDI
65	MIAN	Kodjenini Augustin	M	Chef de service agrométéorologie	SODEXAM	CDI
66	ZAHOU	Gnangoh Juvenal	M	Tree Crops Economist	CIFOR-ICRAF	CDI
67	KOUASSI	Allegra Yao	M	Monitoring and Evaluation Manager	CIFOR-ICRAF	CDI
68	YAO	Kouamé Elisée	M	Agricultural Economist PPCA	PPCA	CDI
69	DAO	Daouda	M	Enseignant- Chercheur	UFHB/CSRS	CDI

Table 2: Participant list for the IDSS training in at UDS-Nyankpala, Ghana

N°	Title	Name	Gender	Organization	Country
Agricultural Policy Environment eXtender (APEX)					
1	Mr.	Daniel Aluah	M	UDS	Ghana
2	Mr.	Yara K. Agbemablese	M	UDS	Ghana
3	Mr.	Haruna Abdul-Fatawu	M	UDS	Ghana
4	MISS	Emmanuella Afoblikame	F	UDS	Ghana
5	Mr.	Isaac Boatey Akpatsu	M	UDS	Ghana
6	MRS	Amin Gombilla Khadija	F	UDS	Ghana
7	Mr.	Abdul Wahab Abdul Rauf	M	UDS	Ghana
8	Mr.	Dokurugu Fuseini	M	UDS	Ghana
9	Mr.	Harunu Abdul-Kaisan	M	UDS	Ghana
10	Mr.	Askia Musah Mohammed	M	TATU-FANR	Ghana
11	Mr.	Mohammed Awal Rashad	M	UDS	Ghana
12	MISS	Madjiguene Samoura	F	UDS - WACWISA	Senegal
13	Mr.	William Danquah	M	UDS	Ghana
14	MISS	Chantal Atut Tiku	F	UDS - WACWISA	Cameroun
15	Mr.	John Peter Okoro	M	UDS	Ghana
16	Mr.	Mahama Mohammed Suale	M	UDS	Ghana
17	Mr.	Abdulai Abdul- Razak	M	UDS	Ghana
18	Miss	Hidayatu Adamu	F	UDS	Ghana
19	Miss	Mercy A. Abarike	F	UDS	Ghana
20	DR	Musah Sulemana	M	UDS	Ghana
21	Mr.	Alhassan Fusheini	M	UDS	Ghana
22	Miss	Amina Moro	F	UDS	Ghana
23	Miss	Apuseyine Elizabeth	F	UDS	Ghana
24	Mr.	Hamadou Hassane Abdoul-Aziz	M	UDS - WACWISA	Niger
25	Miss	Ramla Baaba Keelson	F	IWMI	Ghana
26	Mr.	Kekeli Kofi Gbodji	M	IWMI	Ghana
27	Mr.	Fusheini Adam	M	UDS	Ghana
28	Miss	Sherifatu Yakubu	F	WOSAG	Ghana
29	Mr.	Abraham Zakaria	M	UDS	Ghana

30	DR	Abdul-Basit Tampuli Abukari	M	UDS	Ghana
31	Mr.	Karim Abdullah	M	UDS	Ghana
32	Miss	Janet Afia Boadu	F	KNUST	Ghana
33	Mr.	Abdul-Razak Osman	M	UDS	Ghana
34	Mr.	Emmanuel Akurugu	M	UDS	Ghana
35	Mr.	Rashad Ibrahim	M	UDS	Ghana
36	Mr.	Adnaan Ibrahim	M	UDS	Ghana
37	Mr.	Imoro Al-Hassan Baako	M	UDS	Ghana
38	Mr.	Mawuli Yevu	M	SARI	Ghana
39	Mr.	Gilbert Dagunga	M	UDS	Ghana
40	Mr.	Amos Nortey	M	KNUST	Ghana
41	Dr	Andrew Manoba Limantol	M	UDS	Ghana
42	Mr.	Akeem Olaitan Aderinan	M	UDS - WACWISA	Nigeria
43	Mr.	Mohammed Abdul-Wahid	M	UDS	Ghana
44	Mr.	Blege Precious Kwaku	M	UDS - WACWISA	Ghana
45	Mr.	Alhassan Imoro	M	UDS	Ghana
46	Mr.	Adamu Sadick Abubakari	M	UDS	Ghana
47	Mr.	Sulemana Shaibu	M	UDS	Ghana
48	Mr.	Abdul Rahman Lansah	M	UDS	Ghana
49	Mr.	David Sogfaa	M	UDS - WACWISA	Ghana
50	DR	Eliasu Salifu	M	UDS	Ghana
51	Mr.	Patrick Kumah Waliba	M	UDS	Ghana
52	Mr.	Henk Okrah	M	UDS	Ghana
53	Mr.	Asabiya Ayamdor Gideon	M	UDS	Ghana
54	Mr.	Aboagye Emmanuel	M	UDS	Ghana
55	Mr.	Alhassan Abdul-Majeed	M	UDS	Ghana
56	Mr.	Alhassan Mutaru	M	UDS	Ghana
57	Mr.	Akeliwira A. Joseph	M	UDS	Ghana
58	Mr.	Hakizayezu Joseph	M	UDS	Ghana
59	Mr.	Enock Asante Osei	M	UDS	Ghana
60	Mr.	Olaniyan Olajumoke	M	UDS	Ghana
61	MISS	Jennifer Wepiah Natomah Attah	F	UDS	Ghana
62	Mr.	Sintukamazina Innocent	M	UDS - WACWISA	Rwanda

63	Mr.	Niyokwizerwa Vedaste	M	UDS	Ghana
64	Mr.	Erion Bawanbale	M	UDS - WACWISA	Uganda
65	Mr.	Kareem Mariam Olamide	M	UDS	Ghana
66	Prof	Isaac K. Tetteh	M	KNUST	Ghana
67	Mr.	Akangaamkum Terah Alaazi	M	UDS	Ghana
68	Miss	Boye Dorcas Momo	F	UDS	Ghana
69	Miss	Ntow Thelma	F	UDS	Ghana
70	Mr.	Richard Kwame Dogbey	M	UDS	Ghana
71	Mr.	Emmanuel Aikins	M	UDS	Ghana