



Participatory 3-Dimensional Modelling of Achorichor Catchment, Amudat, Uganda

31st July to 12th August, 2016

Building Resilient Pastoral Communities through Cross-border Livestock Value Chains in the IGAD Region. This project is a partnership between CTA, IIRR and the IGAD Center for Pastoral Areas and Livestock Development (ICPALD).

Report compiled by Julius Muchemi of ERMIS Africa on behalf of CTA



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1 BACKGROUND

1.1 Project, Partners and Trainees

Date 1st August, 2016: Day 1



Over the past 10 years, CTA has been promoting the widespread use of Participatory-GIS (P-GIS) including Participatory 3-Dimensional Modelling (P3DM) practices as useful tools to engage rural communities in resource management and climate adaptation decisions in Africa, the Pacific and the Caribbean countries.

The Technical Centre for Agricultural and Rural Cooperation ACP-EU (CTA) (funding agency) and the International Institute of Rural Reconstruction (IIRR) (implementing agency) hosted a P3DM exercise in Amudat, Uganda. The P3D model covered both

Amudat and Nakapiripirit Districts, a total area of approximately 526 km² – at a 1:10,000 scale (1 cm on the map = 100 m on the ground). The exercise is a part of a wider framework project **Building Resilient Pastoral Communities through Cross-border Livestock Value Chains in the IGAD Region**. The project is a partnership initiative among three organisations: CTA, IIRR and the IGAD Centre for Pastoral Areas and Livestock Development (ICPALD). The implementation of the P3DM was technically supported by:

- **ERMIS Africa**, an NGO based in Kenya, represented by Julius Muchemi who facilitated the P3DM process through an approach that entailed the hands-on guidance of community members and international trainees on the modelling process while building skills for potential replication of the model within their community and beneficiaries.
- **ESSIPS International Ltd** based in Kampala, which supported the GIS component of the P3DM exercise including: the capturing and digitizing of data from the P3DM exercise. ESSIPS is tasked to produce 30 copies of A0 laminated maps featuring the data that was extracted from the model for distribution to local stakeholders and trainees.
- **Vision Care Foundation (VCF)** a local community-based organization representing members of Pokot pastoral community based in Amudat. The duo was charged with the responsibility to provide a link and mobilise the local communities to participate in the exercise.

Jess Phillimore, is an **independent** film-maker to produce a film documenting the perceptions and behaviour dynamics of the local pastoral community

A number of development practitioners participated in the event as trainees. These include:

Uganda

- James Apollo Bakan and James Yetor from Vision Care Foundation based in Amudat;
- Robert Kaliisa, from IIRR office based in Kampala, was in charge of P3DM logistics;
- Dorothy Nanyonjo and Kennedy Adriko, from ESSIPS based in Kampala, were to handle the GIS component of the project;
- Ednah Karamagi and Robert Kibaya, from Communication without Borders (CwB) based in Kampala, coached the trainee in the use of social media.

Kenya

- Charles Lochero from SIKOM PeaceNet Development based in West Pokot. He intends to replicate the P3DM exercise beyond the border in Kenya;
- Vincent Kipkurgor Sibilo representing Endorois People and Lawrence Nyinge Chiro representing Kayas Peoples. The duo were nominated by the Kenya working group on Indigenous Peoples and Community Conserved Territories and Areas (ICCA) spearheaded by SGP/GEF –UNDP. They expressed interested in replicating it within their communities.

Ethiopia

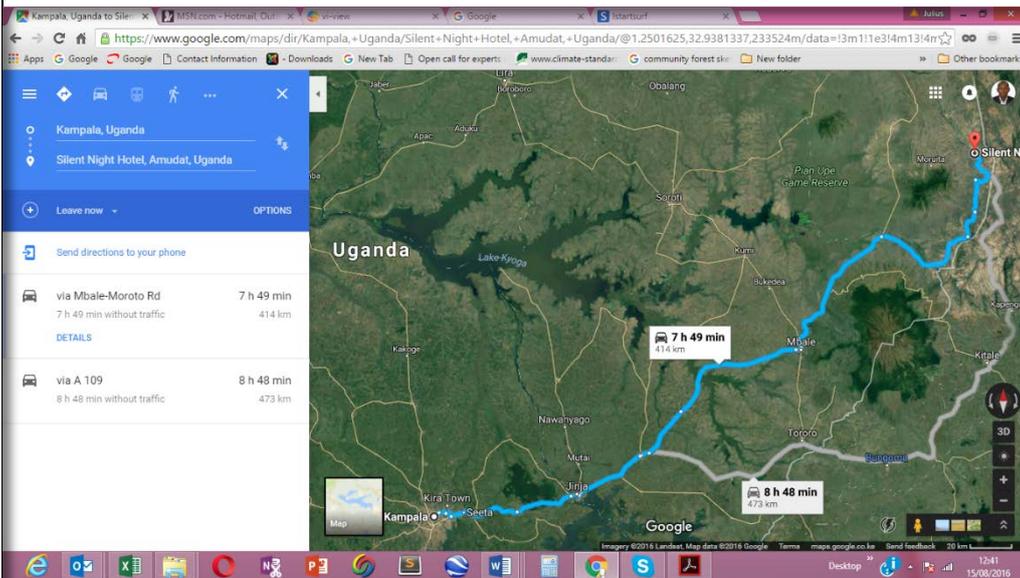
- Oromia Pastoralist Association – OPA based in Addis Ababa.

1.2 Journey from Kampala to Amudat, Uganda



Date 31st July, 2016

The international team set on the morning of July 31st, 2016 to undertake a training on P3DM in the remote and semi-arid parts of Uganda. The journey from Kampala to Amudat would be estimated at 414 km. Kampala to Mbale was tarmac and easy to navigate but Mbale to Amudat was connected by an earthen road (Murrum and soil).



The team travelled in a convoy of 2 Nissans vehicle carrying the international trainee and double cabin pick-up carrying the P3DM supplies. This arrangement allowed the vehicles to travel in a relaxed way without too many passengers squeezing in single vehicle as the journey was long. In addition, the convoy style allowed the drivers to support each other in case of one vehicle having problems like mechanical issues or getting stuck on the wet road. The team had a stopover in Mbale, which is about half the distance, to have meals, buy some personal effects and for the drivers to refresh. It took 10 hours instead of 8 hours to get to Amudat as the earthen section of the road were wet and the truck got stuck.

2 INTRODUCING THE P3DM EXERCISE

2.1 Orienting the trainees

Day 2: Date 2nd August, 2016



The actual mapping exercise commenced on 1st August, 2016. The facilitator, Julius Muchemi from ERMIS Africa supported the preparation of the training venue. This included preparation of two sections: one for conducting the lecture-based introductory sessions of the P3DM and the computer-based social media sessions and the other for the technical construction of the model. To introduce the P3DM exercise the participants were provided with several

background materials including:

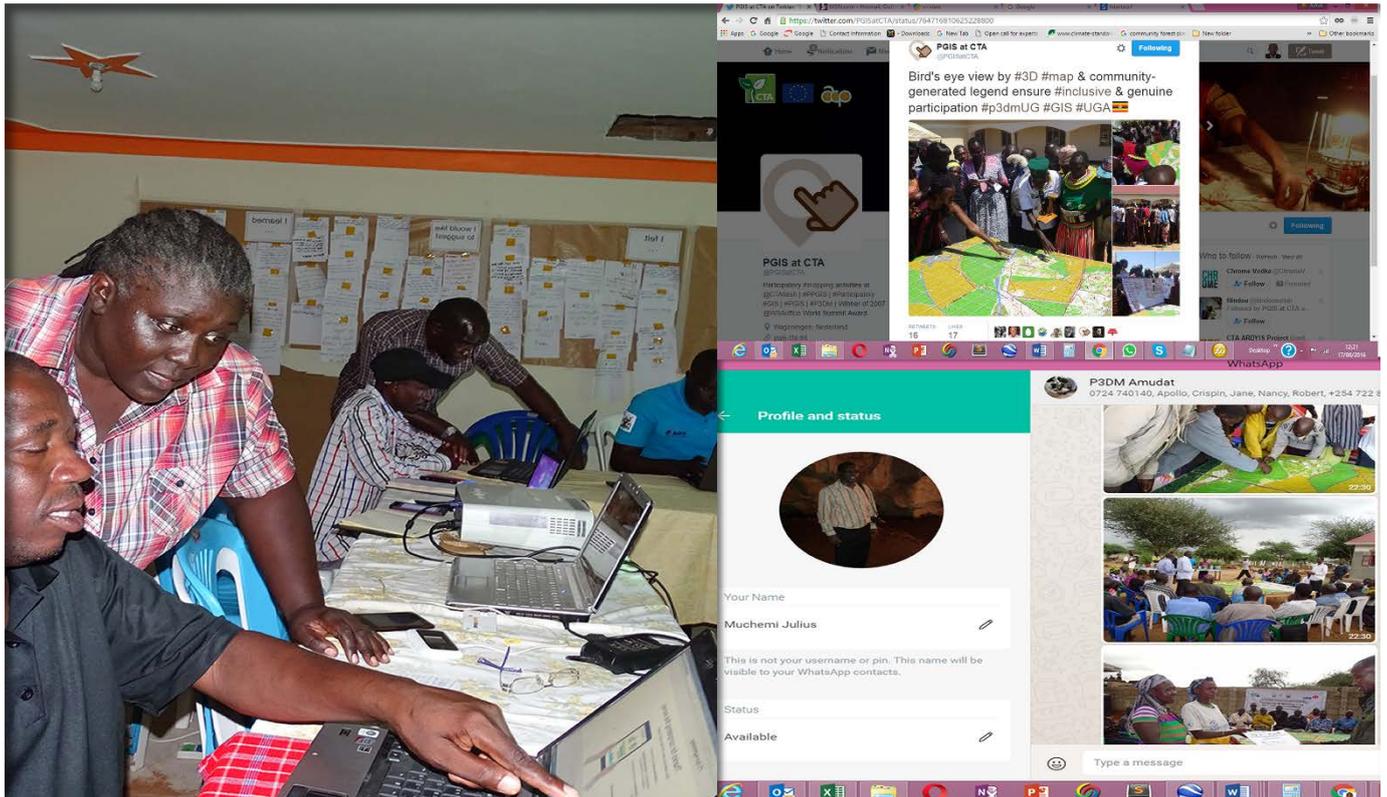
1. **A P3DM manual:** [Participatory Three-Dimensional Modelling: Guiding Principles and Applications](#) 2010 Edition, prepared in recognition of the P3DM having been awarded the '[World Summit Award](#)' Winner 2007 as the best in E-content and creativity.
2. **Publications:**
 - a. Through the Eyes of Hunter-Gatherers: participatory 3D modelling among Ogiek indigenous peoples in Kenya (<https://goo.gl/DFc4ZJ>)
 - b. Participatory Spatial Information Management and Communication in Developing Countries <http://www.ejisd.org/ojs2/index.php/ejisd/article/view/237>
 - c. Tips for Trainers: Democracy Wall by Giacomo Rambaldi (<https://goo.gl/8tLpEd>)
 - d. Practical ethics for PGIS practitioners, facilitators, technology intermediaries and researchers (<https://goo.gl/BIfQsY>)
 - e. List of Additional Resources (http://pgis-tk.cta.int/m01/docs/M01U02_add_resources.doc)
 - f. Sample base map: 20-meter Contour Interval
 - g. Labels: Alphabetic and Numeric

A 'democracy wall' was set-up on one side of the training hall by mounting four large sheets of A0 paper size to allow trainees and other participants to express their views and opinion under the headings: 'I have noticed', 'I have observed', 'I have learnt', and 'I would like to suggest'.

The introductory sessions began with director of Vision Care Foundation welcoming the guests and providing some background information about Amudat trading centre and the areas to be mapped. This was followed by a self-introduction session where the trainees indicate their name, the organization they represent or are affiliated to, and their expectations over the training period. Next was a democratic rules setting to ensure that the exercise was a teamwork governed mutual respect among with respect to sharing of roles and following set work timelines. The trainees were then taken through a 13-day program that that would see the construction of the P3DM and the eventual celebrations for the completed model.

The trainees were then taken through a contextualization session where the overall project '**Building Resilient Pastoral Communities through Cross-border Livestock Value Chains in the IGAD Region**' was elaborated by Robert Kaliisa from IIRR. This was followed by a session where a P3DM video documentary <https://vimeo.com/22123738> was screened. The video that depicted a P3DM exercise in Ethiopia, demonstrate the step-by-step process of constructing the model and how the process has been used in empowering local community to restore and manage their degraded landscape. A question and answer session followed where the trainees raised questions on issues such as: (i) the difference between GIS, Participatory GIS and community mapping; (ii) how these link to P3DM; and (iii) how the process can be progressively shared using social media to the wider development practitioners.

2.2 Hands-on Training on Social Media



The prompt from CTA for near-real-time sharing on the progress of the P3DM exercise using social media and the realisation by a team from 'Communication without Borders' of an eminent gap in skills on social media led to the inclusion of a session to provide hands-on coaching of trainees on the use of social media tools. The team assisted some trainees to access social media accounts for the first time, search for friends, colleagues and acquaintances with a presence over the social media and post updates on the P3DM progress.

While 'Communication without Borders' supported trainees to open personal accounts on a variety of social media, CTA promoted the near real-time sharing of information on the progress of the P3DM exercise using three social media -Twitter (@PGISatCTA with hashtag #p3dmUG), PPGIS Facebook and WhatsApp, to which the trainees contributed.

3 PREPARING P3DM PROCESS

3.1 Confirming and customizing the materials



The materials to construct a high quality, complete and durable must be true-to-type with minimal modifications and adequate. The quantity is calculated based on actual area of the physical model and the horizontal scale size area and vertical scale. Where a model is large in dimensions more materials will be required.

The P3DM aimed at mapping a total ground area of 25km by 21km within the Achorichor catchments at a 1:10,000 horizontal scale where a distance of 1 cm on the model represents a distance of 100m on the ground and vertical scale of 1:333.3 where an elevation of 1cm on model represents a distance of 30.3 m on the ground.

The cardboard sheets supplied by the factories in Kampala measured 55 inches by 33 inches and were 3 mm width. The model was constructed 3 adjoining tables each measuring 99 inches (= 251.46 cm) by 82.5 (= 209.55 cm). The model spans an elevation on 240 meters from an altitude of 1230m to 1470m above sea level.

The trainees were taken through the skills on how to (i) measure, (ii) convert measurement units from feet and inches to mm, cm, m and km; and (iii) conversion of scale. They used these skills to arrive at the above measurements and scale.

The technical requirements for the model included:

Cardboard sheets: measuring 33 inches (= 83.82 cm) by 82.5 (= 209.55 cm)

The P3DM utilised 3 tables

✓ **Table 1:** Lowest contour 1230m – highest 1470m; No. of carton boards required: $(1470 - 1230)/10 = 24$ carton boards + 1 base layer = 25 layers

Table 1: 2: Lowest contour 1250m – highest 1380 m; No. of carton boards

required: $(1380 - 1250)/10 = 13$ carton boards + 1 base layer = 14 layers

Table 3: Lowest contour 1290m – highest contour 1400 m; No. of carton boards required: $(1400-1290)/10 = 11$ carton boards + 1 base layer = 12 carton boards layers

3.2 Orientating Students and Tracing Contours:

Day 3: Date 3rd August, 2016



On the 3rd day students from Pokot Senior Secondary School joined the mapping team to support on the construction of the blank model stage of the P3DM process. The stage started by orienting the students on the P3DM process through the film produced by Jess Phillimore on behalf of CTA: <https://vimeo.com/22123738>.

In addition, the students were coached on how to take measurements using a tape measure; conversion of measurements unit; and cartographic concepts such as scaling (horizontal and vertical), contour interval, and slopes, and gradients among others.

With both the students and trainees equipped with the same skills the construction of the blank model began. Three teams were formed with gender mix with each assigned a single table to work on. They were then guided on the P3DM construction process. First, the team of students and trainees prepared three carbon paper overlays, one for each table. This was done by joining and stitching several carbon paper sheets together to produce an overlay of the same size as the base contour map, the enlarged cardboard sheet and the base table. Second, they traced the contours onto the cardboard sheets, by using the carbon sheet overlay and the base map. This was achieved by creating an overlay of three layers: the base map as the

top most layer (contours facing upward), followed by the carbon sheet with the carbonized layer facing the downward and lastly the cardboard layer upon which the contour lines would be transferred from the first layer through the carbon layer. The tracing was progressively done, starting from the lowest to the highest contour, with each contour assigned to one cardboard layer. This was done for all the three tables. Each cardboard sheet had a complete contour line which correspond with an elevation level on the model and second dotted lines depicting the next contour to guide in layering the next cardboard.

Third, the team cut the cardboard layers along the solid contour lines. The inside piece of the cardboard bearing the dotted line was retained while the outer piece was discarded.

3.3 Layering the Cardboard and Applying Crêpe Paper

Day 4 to 6: Date: 4th to 6th August, 2016:



The team was then guided on layered cardboard onto the tables by (i) placing a first blank base cardboard layer to support the consecutive layers; (ii) sequentially layering the carton board layers according to their contours level starting with the lowest until the highest contour layer; (iii) wood glue was applied on the surface of the cardboard to ensure that they stick to each other, once in a while a nail would be applied to ensure the firmness of the overlaid layers.

Crepe papers were applied onto the surface of the carton board model to produce a white blank model.

The crepe paper assists in the following:

- ✓ Smoothing the contours layers
- ✓ Holding the subsequent drafting and actual paintwork during process of populating the model with community generated information
- ✓ Create an appealing surface for depicting mental maps

3.4 Certification of students

All the students and their teacher were issued a certificate for contributing to the construction of the P3DM.

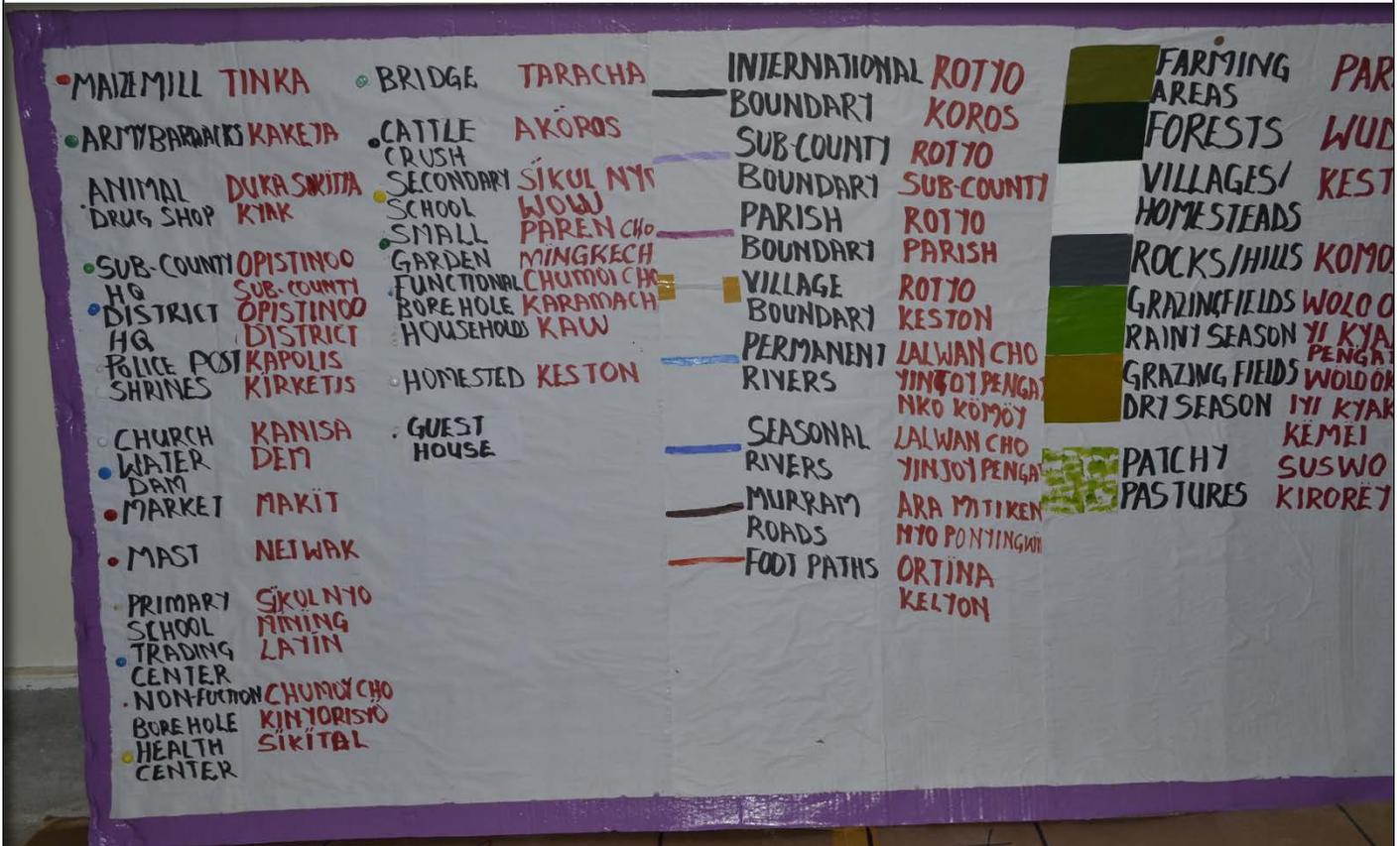
3.5 Students' comments on their experience

Where the school programme allows, students were allowed to visit the post-blank model session to interact with communities as they depict their mental maps. Student assisted in labelling the model as they benefit from sharing with the elders' information on the natural and cultural landscape of their localities.

The students had several issues, as summarized in sub-section 4.3, based on what they noticed, felt and learned. They received a certificate for the participation in the manufacturing of the blank model. In addition, the trainees applauded them for successfully supporting the manufacturing of the blank model.

During P3DM in Amudat, the students benefited from: (i) opening email accounts from their school computers; (ii) being appreciated with certification of participation in the P3DM exercise; (iii) being appreciated with customized T-Shirts with overall project title and logos of the partners in the P3DM exercise; (iv) being invited to the celebration ceremony at the closing of the mapping exercise where they recited poems.

3.6 Documentation Phase: Map Legend



The legend for guiding the depiction of mental maps was prepared through a two stage process. The first stage involved field-based community consultative meetings to allow the community members to identify and brainstorm on the features to be depicted on the model. The second stage entailed a legend refining session to ensure consistency in the use of symbols in line with cartographic features, and the available symbols. The resultant legend had a total of: 23 point features; 8 lines features and 9 area features.

4 COMMUNITY DEPICTING OF MENTAL MAPS

4.1 Depicting mental maps

Day 7 – 12: Date 8th - 12th August, 2016:



The P3DM brought together a total of 61 villages drawn from three administrative parishes that included: Mourita, Achorichor and Amudat. The community mapping stage lasted for six days with each parish working on their area on the model for two days.

This stage started with an orientation of the community on the relationship between the ground and the model. First, the community was requested to identify and illustrate the four principle directions of a geographic compass in their language and a discussion on the implications of these directions to their cultural and livelihood practices and natural observations and events.

Second, the community members were familiarized with the geographic and cartographic orientation of the model. The model was positioned so that the North corresponded to the geographic North so that the other directions faced the corresponding directions.

Third, they sequentially delineated the drainage system, road network, administrative boundaries using yarns.

Fourth, they identified and marked the villages and the respective social amenities, and natural and cultural features.

Fifth, they identified the grazing resources including pasture land and

watering points.

Sixth, the community labelled all the features on the model including line features, areas and points features.

Upon completion the community teams were awarded a certification of participating in the construction of the P3DM.

Moruita Parish

REGION	NAMES OF RIVERS & DAMS	TYPES OF LIVESTOCK AND BREEDS IN AREA	NAMES OF SEASONS & GRAZING AREAS	COMMON DISEASES & NAMES OF TREATMENT	NAME OF LIVESTOCK VENDOR & LIVESTOCK MIGRATION & MARKET ROUTES	FOOD CROPS GROWN IN AREA	NAME OF LIVESTOCK VENDOR & LIVESTOCK MIGRATION & MARKET ROUTES
DISTRICT: NAKADIRIPIT SUB-COUNTY: MORUITA PARISH: MORUITA NAMES OF VILLAGES: 1. Moruita T.C. 2. Karamoja 3. Karamoja 4. Karamoja 5. Karamoja 6. Karamoja 7. Karamoja 8. Karamoja 9. Karamoja 10. Karamoja 11. Karamoja 12. Karamoja 13. Karamoja 14. Karamoja 15. Karamoja 16. Karamoja 17. Karamoja 18. Karamoja 19. Karamoja 20. Karamoja	Seasonal Rivers: 1. Nakalele 2. Cholal 3. Kopalor 4. Kopalor 5. Kopalor 6. Kopalor 7. Kopalor 8. Kopalor 9. Kopalor 10. Kopalor 11. Kopalor 12. Kopalor 13. Kopalor 14. Kopalor 15. Kopalor 16. Kopalor 17. Kopalor 18. Kopalor 19. Kopalor 20. Kopalor Permanent Rivers: 1. Choson 2. Chesabunin Names of Dam: 1. Kapiranga 2. Chesabunin 3. Adobit Pupatia	Types of Livestock: 1. Cows 2. Goats 3. Sheep 4. Donkeys 5. Camels Local Cattle breeds: Angorian Cheptilyog	Names of seasons: Wet seasons March - September Dry seasons October - February Grazing Areas: Wet seasons 1. Karamoja 2. Karamoja 3. Karamoja 4. Karamoja 5. Karamoja 6. Karamoja 7. Karamoja 8. Karamoja 9. Karamoja 10. Karamoja 11. Karamoja 12. Karamoja 13. Karamoja 14. Karamoja 15. Karamoja 16. Karamoja 17. Karamoja 18. Karamoja 19. Karamoja 20. Karamoja Dry seasons 1. Karamoja 2. Karamoja 3. Karamoja 4. Karamoja 5. Karamoja 6. Karamoja 7. Karamoja 8. Karamoja 9. Karamoja 10. Karamoja 11. Karamoja 12. Karamoja 13. Karamoja 14. Karamoja 15. Karamoja 16. Karamoja 17. Karamoja 18. Karamoja 19. Karamoja 20. Karamoja	Common diseases in the area: 1. Blizz 2. Ngorian 3. Louxor 4. Chemology 5. Lolo 6. Lamotaka Names of Diseases: 1. Blizz 2. Ngorian 3. Louxor 4. Chemology 5. Lolo 6. Lamotaka Control & Treatment: Traditional drugs 1. Herbi Modern drugs: 1. Novidium 2. Ethidivory 3. Terra Lyline 4. Capsule 5. Dip 6. Ngohelime 7. Ngohelizime	Name of Villages in Range: 1. Konyao 2. Losam 3. Nalameri 4. Kikwawa 5. Kanyulekion 6. Kasai 7. Chesabunin Name of Livestock Migration Routes: 1. Konyao 2. Cholal 3. Lobunin 4. Kosiha Name of Livestock Market Routes: 1. From Amudat to Karamoja (Karamoja) 2. From Amudat to Mbale 3. From Amudat to Soroti	Food Crops Grown in Area: 1. Maize 2. Beans 3. Sorghum 4. Cassava 5. Groundnuts 6. Onions 7. Tomatoes 8. Millet Food Crops brought from other areas: 1. Maize 2. Sorghum 3. Beans 4. Cassava 5. Onions 6. Tomatoes 7. Millet 8. Rice 9. Mabeke	Advocacy Groups: 1. Duma 2. I.R.R 3. I.R.R 4. I.R.R 5. I.R.R 6. Mercy Corps 7. Save the children 8. Withungho life Mobile Networks: 1. M.T.N 2. Airtel 3. Safaricom Livestock Markets: Amudat

4.3 Democracy Wall on comments from Students

I noticed	I discovered
<ul style="list-style-type: none"> ➤ That creating a map does not require a lot of skills but can be created with little knowledge as long as you have an idea ➤ The way of sketching a map by using contour lines ➤ New learning techniques and new faces ➤ It's good to work as a team ➤ East Africa is united and friendly ➤ Areas of Karamoja/ Amudat region ➤ Geography is a good subject and make people know many things about their environment ➤ The different elevations in our area on the map 	<ul style="list-style-type: none"> ➤ I am able to sketch my own map ➤ Had work pays ➤ Amudat has many tributaries ➤ Achorichor is a pastoral area ➤ Amudat has a lot of resources like gold in Kadam ➤ A way of making a map extract ➤ It's good to cooperate with each other ➤ How to come up with a good map from boxes ➤ Mapping can make a person to know his or her area in large ➤ That I can do something in my life ➤ How to cut the map for easy combining ➤ Discovered many friends
I felt	I Have learned
<ul style="list-style-type: none"> ➤ Like gaining the programme of mapping so that I may learn more about the other places where I have never reached ➤ I would continue with the team so that I can acquire enough knowledge ➤ So good when I was drawing the contours ➤ So good to meet with visitors ➤ Happy meeting and learning new things ➤ Free and nice because we cooperated together 	<ul style="list-style-type: none"> ➤ So many things that can make me pass geography like map interpretation, converting that can improve my performance ➤ How to calculate scales and give directions ➤ Working together saves time ➤ How to construct and draw contour lines and how to use wood glue well ➤ Calculate the distance between areas ➤ How to draw maps

- | | |
|--|---|
| <ul style="list-style-type: none"> ➤ This kind of training should be carried then so as to encourage better performance in secondary schools ➤ So happy with the cutting out of contours ➤ Felt good in making maps ➤ Good when I was doing work for my community and this made me to meet different kind of people from various areas or communities like Kenya, Ethiopia ➤ Good working with elderly people ➤ Felt that I should continue with this work, it was enjoyable ➤ That the training is more practical ➤ Knowing something better and coming up with a good map ➤ Improve on creating roads for transport network ➤ We should also promote agriculture ➤ Felt pain while cutting the contours ➤ There is some training allowance for students to buy some sugar ➤ Happy of discover the maps of Amudat district | <ul style="list-style-type: none"> ➤ That geography teaches many things in our community ➤ Locations of some areas in Amudat like mountains, valleys ➤ Geography is good because it makes me know different countries and features in our area ➤ To share and work together as a group ➤ The importance of maps ➤ How to sketch the maps and now it's easy for me to draw maps ➤ The more you practice, the more you learn ➤ Education is important in every person's life ➤ We have learnt that we have a lot of valuable knowledge and the project has given us the opportunity to express it ➤ It is amazing to see local communities generating such very important knowledge, we thought that such knowledge is only held by consultants |
|--|---|

I would like to suggest

- To give allowances
- The project to come back again for other people to learn
- Programme should continue because it helps the community to see and know the physical features they have and their uses
- To appreciate you for the training and request that you always remember us
- That we would form a club of mapping in our school so that we improve our geography
- That you spare some time and teach us at school with other students
- Training should continue
- Give us a summary of the presentation
- People should improve in planting trees
- More emphasis should be put across such practical parts of learning
- That I would join your company after school
- Training should continue because it gives us more knowledge and skills on the boundaries of different areas
- This map work should continue with areas that have not been mapped, shouldn't stop here
- Other development partners to replicate the map in other areas where the map did not represent

4.4 Democracy Wall on comments from community members

I noticed (both in Pokot and English)	I discovered (both in Pokot and English)
<p>1. <i>(Kongutwan lo kasikor kwipu pich ompo woptin lapai)</i></p>	<p>1. <i>Kiporunoto kor kingarakech kengutuno tukun cho miti korenyo</i></p>
<p>I noticed that community work brings people together from different directions in the world</p>	<p>Mapping has helped us to know the resources we have in our community</p>
<p>2. <i>(Kongutwan lo ngutuchi ngolion kuweruno pichwalak)</i></p>	<p>2. <i>Kongutwan lo kiporunoto kor ku-karam nyoman. Tingeto ghomio</i></p>
<p>Noticed that we can learn from each other</p>	<p>Have discovered that mapping is very important. It has a lot of knowledge</p>
<p>3. <i>Nyoriogh po pich kukaram nyoman ompo kasi kor</i></p>	<p>3. <i>(Kongutwan lo Tingeto poyi ghomio)</i></p>
<p>Participation is very necessary in the community work</p>	<p>Have discovered that our elders have a rich historical wisdom and knowledge about our landscape</p>
<p>4. <i>Pich lapai cho echon ngo cho mingech kungorokei ompo kiporunoto kor</i></p>	<p>4. <i>Kongutwan lo kerip kor kukaram nyoman</i></p>
<p>All people young and aged can contribute in the mapping exercise</p>	<p>Have discovered that managing land is very important</p>
<p>5. <i>Kongutwan lo mito nguvu nyo po somut ompo kiporunoto kor</i></p>	<p>5. <i>(Kongutwan lo kiporunoto kor kutukun cho karamach)</i></p>
<p>I noticed that mapping is empower local people</p>	<p>Have discovered that mapping is a community resource</p>
	<p>6. <i>(Kongutwan lo mito kingutut ompo kiporunoto kor)</i></p> <p>Have discovered that there is a lot of learning in the mapping and as well as ownership of that resource map</p>

I felt (both in Pokot and English)	I Have learned (both in Pokot and English)
<p>1. <i>Kialumtan nyo karam nyoman ompo pich cho kipkana Ethiopia, Kenya ngo Kampala</i></p>	<p>1. <i>(Kongutwan lo poru kinguttuto kor ortin chopo keston ngo tukun cho miti)</i></p>
<p>I felt good when I met with people from Ethiopia, Kenya and Kampala for this important community mapping</p>	<p>Have learnt that map shows the directions of the villages and the resources which are in that village</p>
<p>2. <i>Kialumtan nyo karam omopowolo owetan opoghisegho kiporunoto kor kesoma tukun cho karamach</i></p>	<p>2. <i>(Kongutwan lo karam kinguttuto kor ompo wolo poro woni wetoi chi)</i></p>
<p>I felt proud because am going to use the map to lobby for good and functional boreholes in my community</p>	<p>I leaned that map is very important and can help and guide young generation in future</p>
	<p>3. <i>(Kongutwan lo karam kedup ket)</i></p>

3. *(Kialumtan lo karam nyoman kesich kalya ngo pungocho tomanyil kesich sus ngo pogh)*

I felt it is necessary to have peace dialogue with the Karimojong such that we have join razing and watering points

4. *(Kialumtan nyo karam ompo pich lapai cho kingoroku ngalechete)*

I felt so good that everyone contributed to mapping exercise

5. *(Kialumtan lee ani mompo skul tomanyil kenyoru kinguttuto kor)*

I felt good as a student to participate coming up with the map. It will increase my geography learning

6. *(Kialumtan nyo karam lo michini pichi po CTA kwip ngalechete koros walak)*

I felt that it would be good for CTA to extend such exercise of mapping to other areas

7. *(Kialumtan nyo karam nyoman otino chokiran wolo lata koro)*

I felt that so good when I was making the contours in the map

8. *(Kialumtan nyo karam lo michini pichi po CTA kwip ngalechete koros walak)*

I felt that it would be good for CTA to extend such exercise of mapping to other areas

9. *(Kialumtan nyo karam nyoman otino chokiran wolo lata koro)*

I felt that so good when I was making the contours in the map

Have learnt that it is very important to plant tress

4. *(Kongutwan lo poghiseho pich kinguttuto kor kesoma tukun cho karamach)*

Have learnt that community can use the map to demand for their services from the duty bearers

5. *(Kongutwan lo michini pich chole yotin ngo poi kwich Kinguttuto kor)*

Have also learnt that men, women, elderly and everybody can produce good map

6. *(Kongutwan wolo kmostoi Kinguttuto kor)*

I learned how to paint in the map

7. *(Kongutwan wolo karam nyoman keto ngallecho kinguttuto kor)*

Have learned that it is good to put all the resources of the village in the map

I would like to suggest (both in Pokot and English)

1. *“Komokan omwoghoi lo karam kwip pichi po CTA ngalechete koros lapai wolo tomanyil kwit”*

I would like to suggest that this good mapping exercise be extended to cover other areas like Karita

2. *“Komokan omwoghoi lo michini pichi po CTA and VCF kwip ngalechete po kiporunoto kor koros walak”*

I would like suggest that CTA and VCF we visit other places where mapping has done progress

3. *“Michini kungarach CTA and VCF kwamtata ngalechete of mutate ket”*

VCF to conduct community sensitization on the danger of cutting trees

4. *“Michini keep kiporunoto kor wolo le keston”*

We be provided with a copy of the map in our village

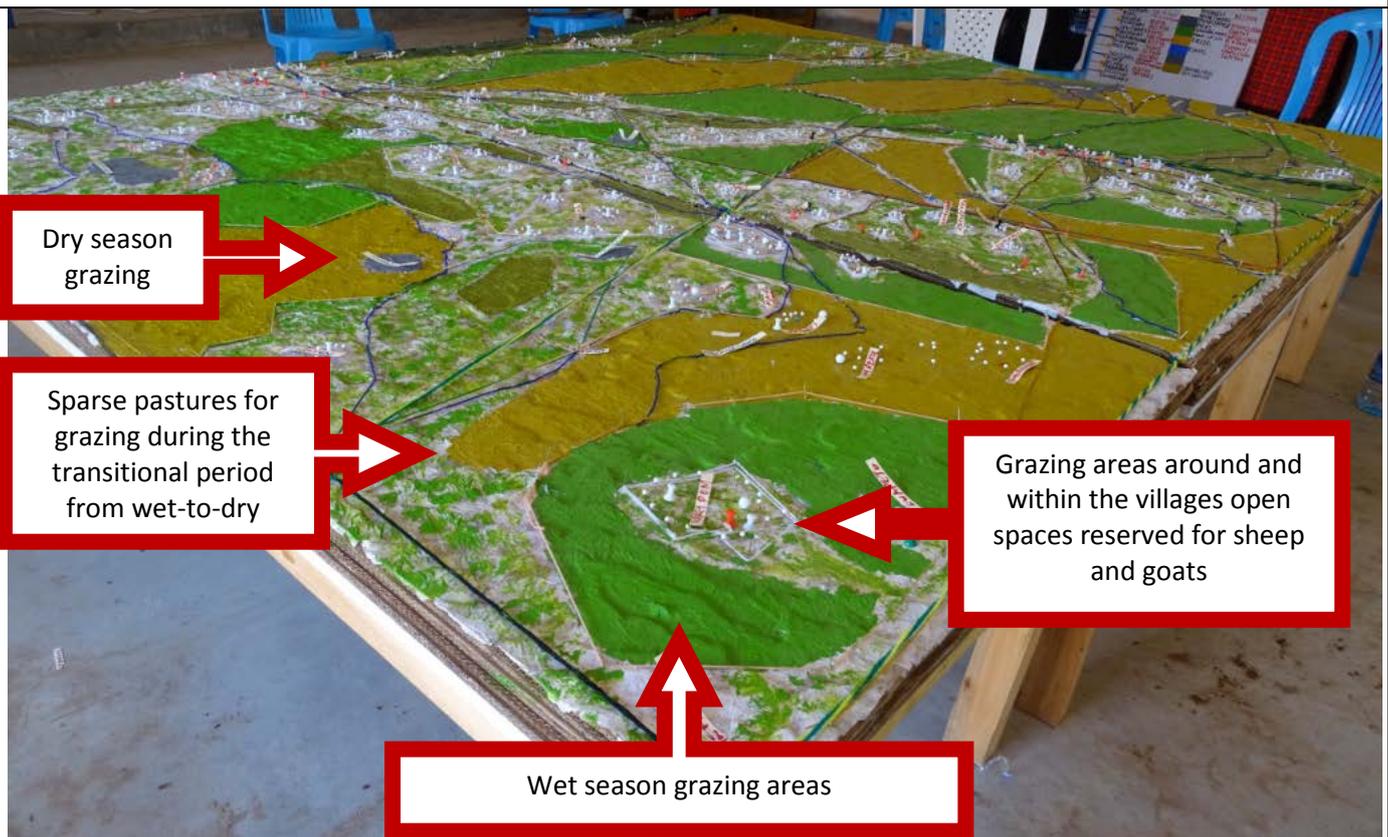
5. *“Karam kengarach nyotin ompo woptin lapai”*

That there is need to encourage our women to participate in other event like the way they have participated in the mapping exercise

6. *“Komokan omwoi lo michini kekatkat anta kedup ket wono kakitero ket”*

I would like to suggest that trees need to be planted in degraded areas

4.5 Discussions



The model depicted the intricate cross-border traditional pastoral governance system of the Pokot communities in Uganda and Kenya. At the heart of this system is an indigenous pastoral are community members with customary land tenure rights over the vast Achorichor catchment landscape. In addition, the Pokot have historically governed and managed their grazing resources – pasture and water thorough a rich body of customary governance structures, processes and rules. The customary governance structures consist of the various social groups (e.g. elders, youths, women) and institution structures (such spiritual leaders and customary leaders who that regulate interaction and coordination among the members). The Pokot spiritual leaders referred

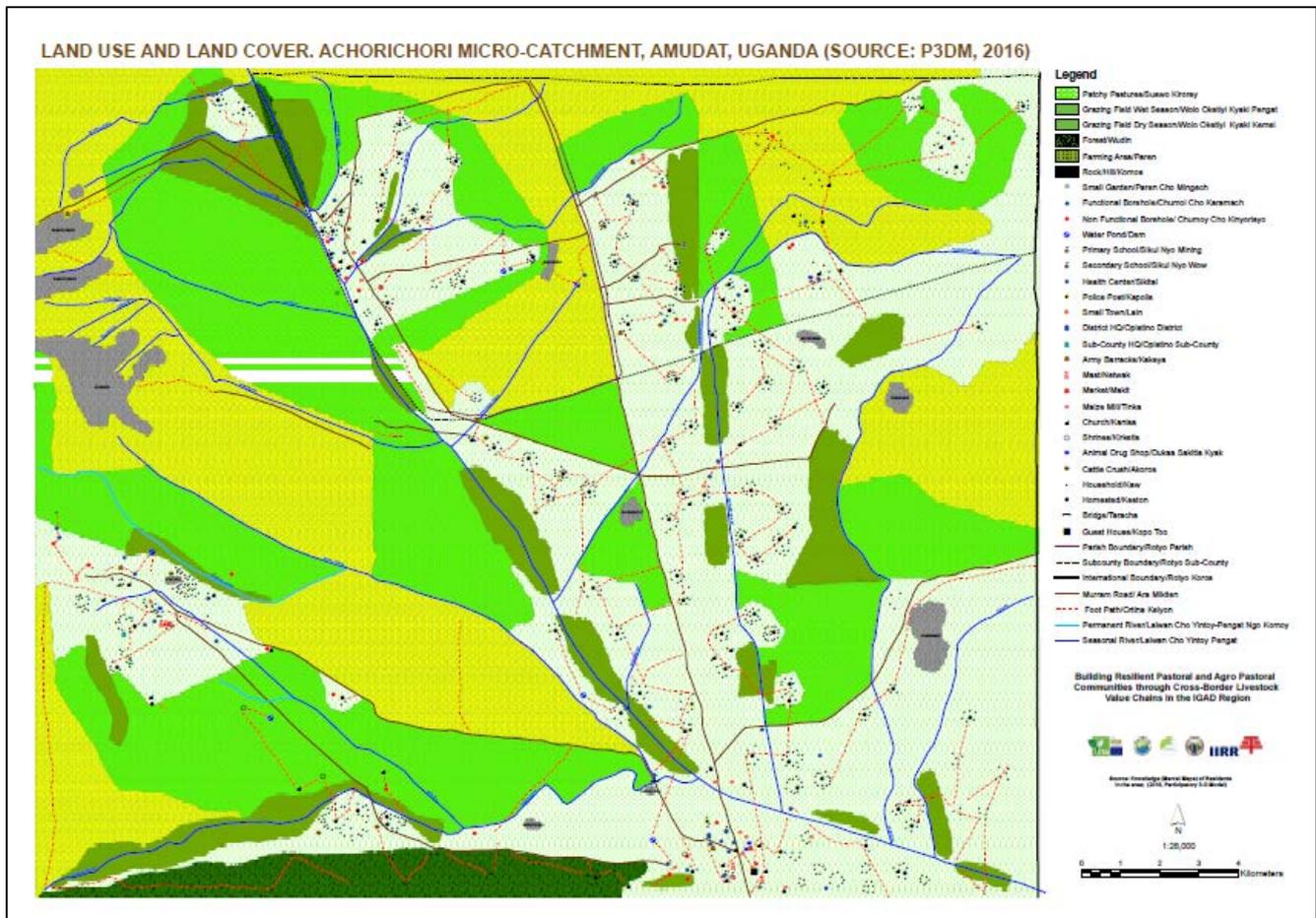
to as 'Oloibon' who could either be male or female members of a specific clan lineage. The Oloibon advise and guides the community on grazing patterns across the landscape through spiritual discernments of potential catastrophes to livestock and related livelihoods. These, they communicate metaphorically using monstrous tales that might encourage, discourage, or compel the community adopt certain grazing practices that they might otherwise not do on voluntarily basis. The Oloibon could lament that he has seen, in dream blood flowing along a certain valley, thus signaling the community about potential attack and raiding of livestock of their livestock by their neighbouring Karamong pastoralist and thus restraining the community from following certain migration routes or grazing in certain areas that experience inter-community conflicts over grazing resources, 'symbols of bones scattered over the landscape' which signifies potential catastrophic livestock diseases that could otherwise lead to livestock death and consequently negatively affect their livelihoods – to this, they would need to avoid grazing in certain areas that might be infested with tick borne diseases or tsetse flies; the symbols could also signify possible occurrence of severe drought resulting from prolonged scarcity of rainfall in which case they would need to sacrifice and appease their gods for rain.

The other governance structure is village elders who belong to certain age sets and worthy of respect in the wider community. The elders translate the advice from the Oloibon into, grazing norms and rules in the forms of prescriptive grazing practices and patterns and penalties of offenders and subsequently institute them into the community's pastoral governance system. The elders solemnize the process through a ceremony where they slaughter a bull as a symbol to promulgate the grazing norms and rules. This is followed by advisory sessions to the young men who look after the livestock and monitoring how their peers observe the instituted grazing practices. Offenders are often severely beaten with sticks which can inflict injuries and could even be chased from the village grazing area together with his livestock.

The Pokot community have distinct socially constructed and shared pastoral roles and responsibilities for men, young boys and women and girls. The men are the owners of livestock especially cows, sheep and goats as well as the enforcer of grazing norms and rules. The young boys move and migrate with the livestock, monitor those breaking the grazing norms and rules, and obvious heirs of their fathers wealth. Women and girls on the other hand milk the cows, remove ticks from the cows, draw water for the livestock, gather herbs for the calves which often graze around the homestead, and perform all the domestic chores like cooking for their husbands and taking care of the children. The entire Pokot pastoral landscape, straddling across the Uganda and Kenya is governed through these governance systems including social structures and roles, grazing norms, rules, and practices.

5 DOCUMENTATION AND SHARING OF PARTICIPATORY DATA

ESIPPS captured and digitized the data entered by the community members on the 3D model. 30 copies of the map in A0 format have been printed, laminated and distributed among stakeholders in Amudat.



The mapped area covers an area of approximately 540 sq. km.

Pokot Family Structure

- Household = 1 wife = (7-12) children = 1 wife + ~ 9 children = 10 members
- Homestead = 2 – 4 (wives) = 3 wives * ~ 9 children = 27 member + 3 wives = 30 members

Population of Amudat town council: 11,750 people (Note: On the 3D model the town is identified but not in detail. Based on the above, the total number of individuals residing on the mapped area has been estimated as follows based on the entries done by the participants in the exercise:

Households 1,059 * 10 people = 10,590, plus:
 Homesteads 105*30 = 3,150
 Amudat town: 11,750
 Total: 10,590+3,150+11,750 = 25,490

Which would correspond to a population density of: 47.2 inhabitants' / sq. km on the mapped area.

Based on 2015 World Bank data the 2015 population density in Uganda is 195/sq. km. According to the national 2013 census estimate, the population density in Amudat district is approximately 70 inhabitants/sq.km. Hence Participatory data are not far from official data for what concerns population.

Noteworthy are some of the data shown on page 21. A total 55 boreholes are present within the mapped area, 47% of which is dysfunctional. There is no bank. There are 17 maize mills, 8 cattle crushes, 5 animal drug shops, 4 human health centres, etc. for the given population. IIRR and VCF may further compare these ratios with national / district rations and use such data for further analysis and advocacy within the framework of the respective projects.

5.1 Participatory data extracted from the P3DM

Number of households and homesteads in the mapped area

ID	Feature	Number of features in the model
1	Household	1059
2	Homestead	105

Number of all other point features

ID	Point Feature	Number of features in the model
1	Army Barracks	7
2	Cattle Crush	8
3	Guest House	1
4	Functional borehole	29
5	Non-functional borehole	26
6	Health Centre	4
7	Small town	3
8	Mast	5
9	Market	3
10	Primary School	9
11	Secondary School	1
12	Water pond	6
13	Shrines	3
14	Police Post	3
15	District HQ	1
16	Sub-County HQ	1
17	Animal Drug Shop	5
18	Church	32
19	Maize Mill	17
20	Bridge	1
21	Small garden	3

Areas covered by different land use/cover

ID	Feature	Area (m ²)	Area (Km ²)
1	Grazing Field Wet Season	145934103.812	145.934
2	Grazing Field Dry Season	140727660.790	140.727
3	Farming Area	39636772.856	39.6367
4	Forest	14826138.596	14.8261
5	Patchy Pastures	196787558.812	196.787

5.2 Bilingual poster for local distribution

With funding provided by CTA, ESIPPS produced 500 copies of a folded bilingual (English and Pokot) A2 poster (420 mm x 594 mm) for distribution among the participating communities and other stakeholders.

Participatory Three-Dimensional Modelling of Achorichori Micro-catchment, Karamoja, Uganda

About Participatory 3D Modelling (P3DM)

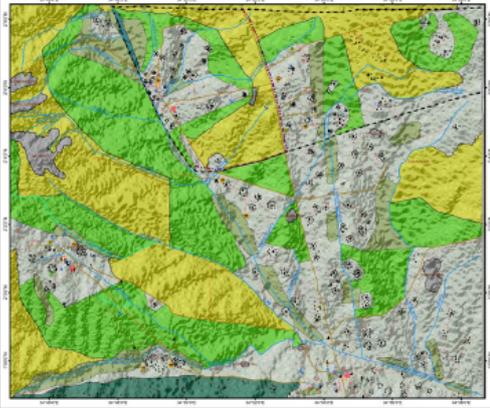
Participatory 3-Dimensional modelling (P3DM) is a community-based mapping process that follows under the umbrella term of Participatory GIS. Developed in the early 1990s in South-east Asia, the technique integrates local spatial knowledge with data on land elevation and sea depth, producing stand-alone, scaled and geo-referenced relief models in carton board or foam. The data represented on the physical model through the use of paint, pins and yarns can be extracted via digital photography and digitised using GIS software.

P3DM helps people in rural areas to document their tacit knowledge, understand its value and transmit this to younger generations. It provides a platform for multi-stakeholder decision making, empowers marginalised groups and strengthens community cohesion. The resulting maps help visualising complex spatially-defined issues and can be used for land use planning, disaster risk reduction, climate change adaptation and community advocacy.

Paraku Kitöt nyo pö woptin sömök (P3DM)

Kitöt nyo pö woptin sömök ki or nyo mukdy kuniktano pich korogwa nko tikin cho mi ori, nyoni ki ngölyon nyo mlaghät okongwa nko ghömchö Gis. Nyo kitöt korogwa 1990s ompö kumpot nyo pö kongosi pö Asia, kipögghayegho kiniktöt nyopö piko kore äskentit wölo sata nyngwibwanta nko lawin pö pögh ompö ngwito. Kigichini kigh nyo ghingyoti, kitömit nko äkporunogh pö komos nko Lashan ompö nynto rana, simants cho äkimo nko simants cho kimudy kept picho okengany äkvet atikpögghayegho Gis.

Ghömcho Kitöt nyo pö woptin sömök kungöröktyo pich cho möngyö äston kumt ki/or kumt kipöchtinöngwa, äkuntit äkoryeny tamanyit kumt panydy cho minakch. Kiku pärayin nyo mukdy pich cho cheng kitut ngal, iten oweyö pich cho äkiket äkikoni ghömchö nyo pö pich ompö kor. Ölini kakuwary kemitt wölo kitöpt kord kemakdy kerpögghayegho ompö kitut, wölo äkipöchtay äkmpöktut, wölo waghiktyer kagh yamot ompö on anta könyis, wölo kimudy kenagha wöghöktut cho sishichö nko wölo äkmpörtyoy ngala kor.



P3DM among Karamoja Pokot people

Cross-border livestock trade in dry land eastern Africa significantly contributes to the enhancement of food security and generation of wealth. It supports the livelihoods of a wide range of actors including pastoralists, livestock traders, transporters and processors.

In this context the International Institute of Rural Reconstruction in partnership with the Technical Centre for Agricultural and Rural Cooperation, a joint organization of the European Union and ACP (Africa, Caribbean and Pacific) group of countries, organised a P3DM workshop to identify key spatial characteristics of the livestock trading routes and marketing practices and bring the different stakeholders (including local authorities) around the same table, share information, discuss challenges and envisage mutually beneficial solutions.

The participatory mapping activity took place in Amudat and focused on the Achorichori Micro-catchment in Karamoja which includes Achorichor, Loro, Amudat and Morula Parishes. The area falls within the belt of livestock migratory movement, farmlands, cross-border livestock trade, grazing lands and water points. The mapped area covers approximately 546 sq. km.

Ghömcho kitöt nyo pö woptin sömök ompö pipö Karamojong nko Pökö

Älgh nyo ökocho kagat ompö koros chole pöröris cho mi kor nyo yamot ompö kongosi pö kor pich cho hawch kitöt nyo wölo wölo äkporunay amoyö nko äkintit. Chikimdy wölo mukdy äkimga pich cho cheng nyo karam iten nyo pich cho yökidy kyak, pich cho öky äkwölyer kyak, pich cho sishichö äkmitenyo päyöghu) ata okongwa, kaghanta okongwa äkmpöktut äkenti iten nyo malakte kagh.

Ghömchoni pö kemitt wölo kitöpt kord äkikigho Amudat äkikpöktön möngot nyopö Achorichor nyo wölo kitöpt kord nyo pärschin chopo Loro, Amudat nko Morula. Korowechete äkwölo wuchini äkwöktety kyak, wölo kitöghy, wölo nyomo pöröris cho öky äkwölyer kyak, wölo ökwety kyak äkighyö pögh. Tiphsh pökore läpoy nyi äkiggho kitöni ki 546 sq. km.

P3DM of Achorichori Micro-catchment, KARAMOJA, UGANDA



Ghömcho Kitöt nyo pö woptin sömök nyo poru wölo kitöptö Achorichor nko tikin cho mi orinyi ompö Karamoja, Uganda.



Note: This map was created by the Pokot communities living in Morula and Achorichor parishes (Karamoja, Uganda) and was digitised by ESIPPS International Ltd as part of the project 'Building Resilient Pastoral Communities through Cross-border Livestock Value Chains in the IGAD region'.

Niktuno Lö: Äkporunogh nyo wölo äkötöpt kord, äkigh pökökt cho möngyö Parishho Morula, Achorichor nko Amudat (Karamoja Uganda) Äkporunogh Kuti picho äkporunogh pich pö ESIPPS International Ltd. Äke karamen nyopö äghayö äpöto pipö kyak korowen äkät ästuntit kyak ompö kwezu pich chole pöröris chomito äpöktu koros cho ghingyöghichini IGAD.

Questions and Inquiries: director@esipps-int.org
Map year: 2016



Ghömcho Kitöt nyo pö woptin sömök nyo poru wölo kitöptö Achorichor nko tikin cho mi orinyi ompö Karamoja, Uganda.

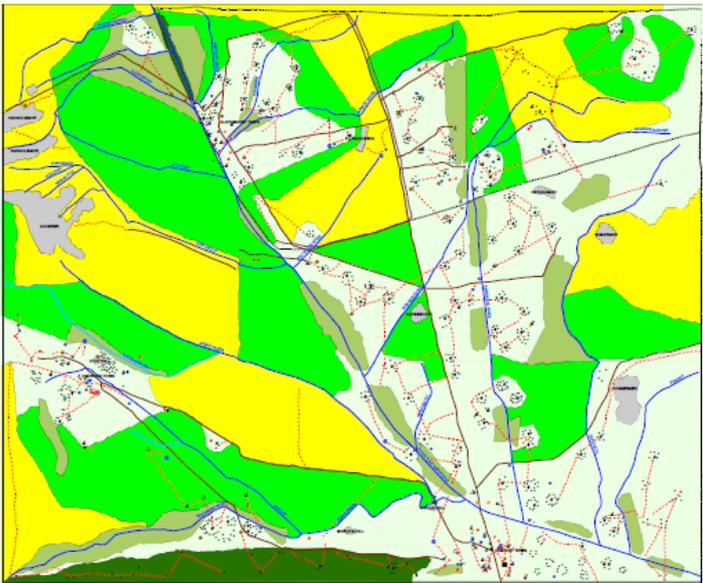
The mapping exercise took place from 1 to 12 of August 2016 in Amudat, Karamoja, Uganda and saw the participation of 82 community representatives and 22 students.

P3DM helped identifying and locating wet and dry season grazing areas, farmlands, forests and patchy pastures. Point items include schools, functional and non-functional boreholes, health facilities, market places, maize mills, police posts but also churches, shrines and small gardens. All places of significance for the participating communities were localised on the model.

Kiniktundöni pö wölo äkötöpt kord äkikigho ästren / äkütuntit 12 arawo Äklyon äkny 2016 ompö Amudat, karamoja Uganda öktpich cho kigh äghayononi ki pich chole 82 chole pipö kor nko möningo sikul chole 22

Ghömcho kitöt nyo pö woptin sömök nyo äkngarak kemitt äro cho pö rop nko äknydy nko wölo äkngardy, wölole wuch nyo wölo mi suswö cho ngöt. Täin walak cho kinimi ki sikultin, chumoy cho karamach ngo cho äknyontid, sikultin, wölo äkwölyegho äkyöle äkik, äkinkoy cho äkngogh pagh, wölo möngyö pöts nko kamsen äkik, äkiktat nko pären cho minakch. Woptin läpoy cho pö ästuntit äkikpö pich pö kor kinim ompö äkötönt.





Legend High nyo porowölo kitöptö tikin chomni ompö pöghayö nyo poru wölo äkötöpt kord

- Paddy (Panicum/Bambusa) Swamp
- Grazing Pasture (Seasonal/Dry Season/Year Round)
- Grazing Pasture (Seasonal/Dry Season/Year Round)
- Forest/Grassland
- Point Location: Police, Churches, Health, Schools, Boreholes, Maize Mills, Police Posts, Churches, Shrines, Small Gardens, etc.
- Road Network
- River Network
- Drainage Network
- Administrative Boundaries
- District Boundaries
- Sub-County Boundaries
- Village Boundaries
- Hamlet Boundaries
- Pastoral Routes
- Pastoral Routes (Dry Season/Wet Season)
- Pastoral Routes (Dry Season/Wet Season)
- Pastoral Routes (Dry Season/Wet Season)

1:25,000



6 KEY OBSERVATIONS AND ACHIEVEMENTS

6.1 Overall Participation

The P3DM exercise trained 12 international development practitioners and saw the participation of over 80 pastoral community member and 21 students from the Pokot Senior School. A total of 562 Km² was mapped by delineating: (i) Boundaries, where only the international boundary between Uganda and Kenya was depicted while the other inter-community boundaries mainly the sub-county, district and parish, were omitted after the mapping community teams between Achorichor and Mourita failed to agree on the actual position due to contrasting narratives among the members; (ii) Grazing areas (wet season, dry season, sparse pasture with transitional grazing areas within and around homestead); (iii) Water Resources (rivers, dams and boreholes); (iv) Social facilities (health, church, market); (v) Cultural features (shrines, school)

Participation in the P3DM exercise was very good noting the high participation by women and youth.

Table 1: Summary of Participants

Category	Males	Females	Total
Students Community Participants	9	13	22
Community participants from 5 th -9 th	59	23	82
Technical staff from partner organizations	11	4	15 excluding 2 drivers
Closing ceremony	149	61	210
	217	97	314

6.2 Participation by Youth and Women

Youth participation -both male and female, in the P3DM exercise was equitable as guidelines to ensure equal representation had been provided to the team that undertook community mobilization activities. Gender consideration were however skewed among the adults with 28% of the participants being women and 72% men. It was noted that most of the women who participated were among the most empowered who included: civic leaders and 'village health workers'. Although women participation was lower compared to men, their participation should be considered however a good sign since majority of the women are less empowered and are culturally marginalized and illiterate.

It was realized during the mobilization that women within the community have very low education level. During community selection some of the women who could eloquently express themselves in public opted to be represented by their husbands or next of kins to participate in the exercise. Elderly females were fewer compared to male elders. There was free participation at all levels for both male and female. The access roads in Achorichori were not accessible and it was expensive and hard for participants from Achorichori. Women were mostly affected. At one time we had to send our vehicle to pick some of the participants.

6.3 Livestock Grazing Patterns

Being a pastoral community, the P3DM had 3 distinct grazing areas: (i) Wet season grazing areas; (ii) Dry season grazing areas; and (iii) Grazing areas around the villages which we mainly reserved for sheep and goats. Although these grazing areas were distributed around the three parishes (Mourita, Achorichor and Amudat), the main grazing was Mourita followed by Achorichor and lastly Amudat.

River Kanyang'areng is the most significant source of water for pastoralists within the Achorichor catchment. The community establishes wells during the rainy season to provide water during the dry season. The eastern parts of Achorichor and the West Pokot areas of Kenya have less grazing resources than the Achorichor catchment and thus communities the former areas rely on Achorichor and Mourita grazing areas. Amudat is the main livestock marketing for both the Achorichor community and those from West Pokot parts of Kenya. Likewise, the Achorichor take their livestock for marketing in Konyao in Kenya.

7 FEEDBACK AND TESTIMONIES

7.1 Partner organizations

7.1.1 International Institute for Rural Reconstruction



The policy makers indicated that given that Pokot communities entirely rely on livestock; thus the map gives a good lens in livestock value chain. They noted that some of the participants who participated might have practiced livestock raiding in the past, but due early disarmament efforts, they are now engaged such business activities as buying and selling of animals some who trade all the way to Nairobi. The map provides a lot of information on where the social services are located and which areas need attention. The map will help the government to direct development partners supporting livelihoods and livestock activities in the district. The map only targeted a small part of our community and needs to be replicated in other areas. They expressed dismay that they never knew that local people would generate such very important knowledge but instead only thought that such knowledge could only be generated by consultants.

The Ministry of Water and Environment indicated that it wasted a lot of money and resources mapping for boreholes in the Karamoja region and hiring of consultants. They observed that if the P3DM was available during the exercise, it would have saved our resources and such money would have been ploughed back to the communities.

The local leaders indicated that the map is a strong tool for unity among our communities. They thanked the national government for the Disarmament process, and observed that they no longer have organized raids and that the Pokot animals could now graze and freely mix with Karamojong animals. In addition, they observed that Pokot animals and Karamojong animals can graze their livestock outside their community boundaries.

IIRR has indicated their plan to utilize the model in the following ways

- ✓ Follow up initiative emerging from the activity that development partners should express interest to support
- ✓ The model to be replicated in other areas in Karamoja
- ✓ Over stocking and overgrazing across the migratory routes in Achorichor area
- ✓ Provide more security and route surveillance in Achorichori since it is the migratory route
- ✓ Presence of invasive species and need for sustainable Rangeland management
- ✓ Peace building and sustainable natural resources management in Mourita and Achorichori Sub counties since the grazing resources are shared by Pokot and Karamojongs
- ✓ Conservation and restoration of river Chosan and Chesaburin. These are the permanent rivers which sustain livestock watering during the dry spell in Mourita for thousands of animals. The catchment areas are currently being degraded and thus restoration activities to be undertaken
- ✓ Support pastoralist cross boarder market linkages and integration of pastoral farmers in the livestock value chain by IIRR and CVF

Robert Kaliisa 2016

7.1.2 Vision Care Foundation



“There were 80 village participants who contributed to the making of the model. The representation of the youth and women was very adequate. All the people that is youth, women and elderly were very active in contributing to the model. The participation was generally good despite the minor challenges such as muddy roads that delayed our participants from Achorichor. The pastoralists and the knowledge holders saw the process as the first of its kind in Pokot community. They saw that the process was participatory since it involved all the village category of people. They benefited because they mapped their resources available and they learned of other resources that they didn't know.

The local authorities saw the process as very useful tool for development. The chairperson of Local Council level V said, that such an initiative is very good since it involved the local communities. He wished that if such initiatives can be applied to all the sub-counties. The P3DM has a great impact on the community because the knowledge of

the elderly people was documented, this has created strong relationships between the community members and the local authorities since such initiatives like the model were developed by the local people and this can be used by the local authorities to lobby the government and development partners to provide social services, such as water supply, schools, health facilities among others to the community.

The participants indicated that they learnt the process of transferring their knowledge to the model. They also learned that the model can be used to lobby for development resources and services. Based on the film from Ethiopia and narratives from Kenya participants, the community observed that P3DM could be used to empower the community in Uganda. The community indicated that they discovered they had many resources in their land that they didn't know. They suggested that such model can be done in other places in Uganda. The community members indicated that they will utilize the model to lobby for development initiatives from government and development partners, by identifying the development gaps within the area. This includes repairs of the broken boreholes and where there is no water dam for their cattle. The community agreed that the P3DM would be stored at VCF offices. The custodian of the model is VCF”

James Apollo Bakan, 2016

7.1.3 ESIPPS International



The 12th of August 2016 will always be remembered by the Pokot community as the day when the P3DModel was launched. A P3DModel is a mapping method based on extracting topographic information from scale maps and then constructing a physical model that is used to locate peoples' spatial memories (CTA, 2010). The P3DModelling activity started on 1st August 2016 and lasted for twelve days, people from different organizations in Uganda, Kenya and Ethiopia together with students and the community members dedicatedly worked hard to come up with the model for Achorichori micro-catchment in Amudat District, Karamoja region, North Eastern Uganda.

Prior to the mapping exercise, a reconnaissance mission to Amudat District was conducted by the lead mapping trainer, Julius Muchemi of ERMIS Africa together with a representative of the organising partners, Robert Kaliisa of International Institute for Rural Reconstruction (IIRR). Two ESIPPS associates participated to start orientation as trainees but with special assignment also to contribute baseline data and digitize the final P3D model that would present the final result.

The actual P3DM began with a brief orientation of the participants on the materials to be used and the procedures to be followed during the exercise by the lead trainer. The following day, a group of students from Pokot Senior Secondary School joined the group. The concentration exhibited and eagerness to learn by the students was overwhelming. The lead trainer engaged the students in scale calculation, an important aspect in geography and mathematics subjects offered at school. Unlike applications of digital mapping software commonly known as Geographic Information Systems (GIS), the participants and students were the source of the knowledge and their manual input during the creation of this blank model could be comparable with GIS outputs. The interaction and cooperation between the students and other participants was amazing that you could never tell the age gap between them. Participants started by tracing contour lines starting from the lowest elevation on carton boards, cutting them out and binding them with glue. This was an interesting experience although consolidating the piled up boards with crepe paper to create a blank model of Achorichori micro-catchment was exhausting. Never the less, motivational names like team Robot, team human were used by some teams to make the activity even more exciting and the blank model was successfully completed. The entire process was captivating; the transition from carton board to the blank model was memorable.



Plate 1: Adriko and Dorothy layering the contour carton boards

With a traditional song and dance, the community members cheerfully entered the activity room, the gaze on their faces when they first saw the blank model was incredible. Men and women, the young and the old, literate and illiterate all

participated in the mapping out of their resources. "This is river Kanyangareng", "this is a health centre" etc. "The boundary is here", "no, it is there" They were neither arguing nor quarrelling. This was the gist of participatory mapping. Despite the fact that there was language barrier, watching them map out their resources showed that everyone knows mapping and there is no need to study GIS at university or college to be able to map your community. In the beginning, both the men and women actively participated until when some men dominated the mapping activity. Some women were distracted by their crying and hungry babies whom they had to tend to. To engage the women more, they were requested to specifically allocate certain features without men involved and this boost their concentration

The room was full of characteristic smell and colour of paint and pins here and there, blue ribbons, brushes, everything was perfectly falling in place. They had done it! They had successfully mapped their resources, homesteads, transportation routes, name it and this showed that it is not the educated who are the custodians of knowledge, the local community did it all. Photo after photo were captured and the map was finally presented to the community. The congregation of was entertained by the Sinai women group who emphasized the importance of educating the girl child although it necessitates selling off their cattle to get funds. They owned the map.

Geo-referencing and digitizing was done, at last an amazing map portraying the knowledge of the Pokot was complete. ESIPPS will forever be grateful to CTA, VCF, ERMIS Africa, IIRR and all those who made this possible and looks forward to participate in many more future P3DM activities.

Dorothy Nanyonjo and Kennedy Adriko, ESIPPS, 2016

7.2 Testimonies from selected International Trainees

7.2.1 Vincent Sibilo, Executive Director, Endorois Welfare Council

Upon returning home, the Kenya ICCA Network asked the Kenyan Participants, Vincent Sibilo from Endorois Indigenous People and Lawrence Chiro from the Mijikenda Kaya, whom it nominated to attend the Amudat P3DM to put together a report on their experience.

“First, i would like to thank the SGP/GEF –Kenya, courtesy of the National Coordinate Nancy Chege and the Indigenous People and Community Conserved Territories and Areas (ICCA Kenya Working Group) for the opportunity and support extended to me to participate in the very important international training on Participatory 3-Dimensional Model held in Amudat, Uganda over the period July 31 to August 13th, 2016. I would also like to extend the same gratitude to the Executive Director of Endorois Welfare Council, Mr Wilson Kipkazi for nominating me from the community to represent them in the event. It was a rare occasion and great honour. As well I would like to thank members of Endorois community for their support in prayers over the period I was away for the training. Big thanks to all!

This was my first experience to fly. It made the trip very enjoyable and exciting. I now stand among the few persons from my community, the Endorois Indigenous Peoples, who have travelled by air! I extend a many thanks for this wonderful opportunity. In addition, it was my time to be out of Kenya. I learnt that Uganda is an English speaking nation. In addition, I observed that most parts of the country are quite green and it supports Agriculture unlike Kenya which expansive semi-arid parts. I also discovered that one of the fellow trainee from Uganda, Robert Kibaya, has a poultry business. At the time of writing this email, I’m making contacts with him on how to start this profit making business.

Second, I wish to thank each of the organizers and the sponsors of the training workshop for roles they played in making the event happens. Travelling from the Mosa Court Apartment in Kampala all the way to Amudat within the Karamoja region was very far. It took us the whole day as some parts of the road was so bad due to earthen, rough and muddy surface. But that was our core responsibility. Having arrived, we would then spend 13 days in a resort in a remote area within Amudat trading centre -The silent night. The entire team included: IIRR Uganda represented by Robert Kaliisa, CWB represented by Robert Kibaya, ESSIPS represented by Adriko, Mr Julius Muchemi our facilitator from representing ERMIS Africa who did a wonderful job. OROMIA PASTORAL ASSOCIATION represented by Gemenchu from Ethiopia, and Phillimore Jesse a film maker from UK.

We began the mapping process and progress through step-by-step activities. I was familiar with some of the steps as was my second chance to participate in a P3DM exercise, with my Endorois community having developed a P3DM model in 2014. Thus, the P3DM at Amudat was aimed to enhance my skills to support the process back with my community. My understanding from the debriefing by the facilitating team was that the P3DM exercise at Amudat was to promote the livestock value chain across Uganda and Kenya. Therefore, we mapped the Pokots

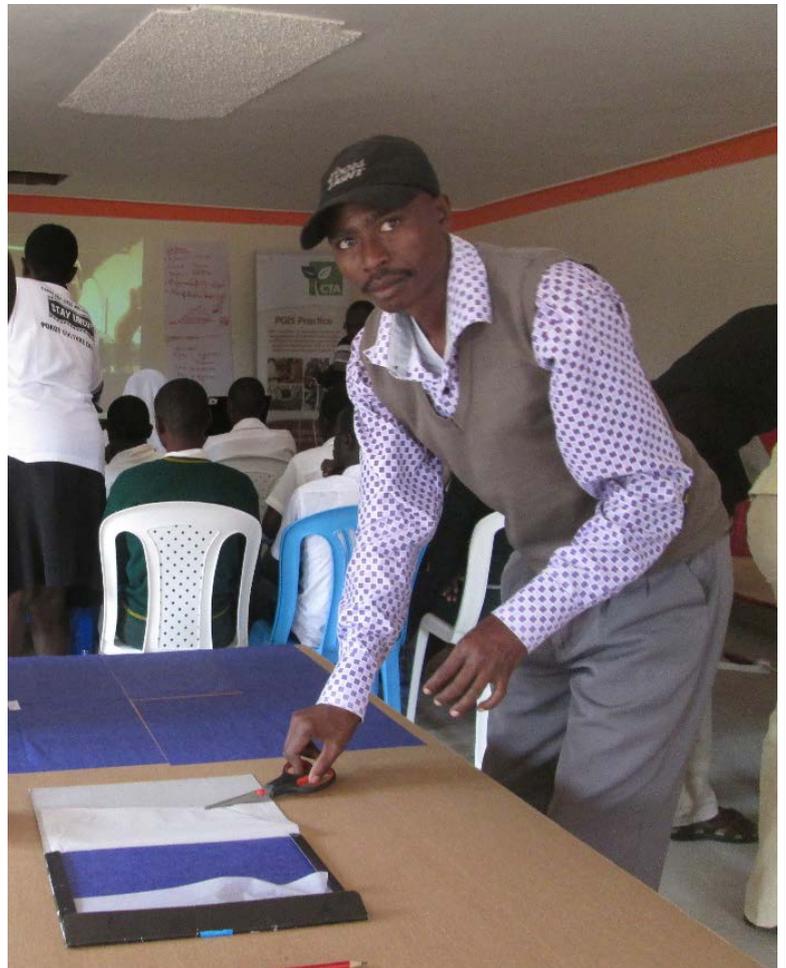


Plate 2: Vincent Sibilo putting together carbon paper sheets for tracing the contours for the P3DM

pastoralist grazing resources that included: pastureland, water resources, and boundaries within the Achorichor catchment and with neighbouring Karamonjog area.

The P3DM exercise was very educative. I learnt a lot from the facilitator, Julius Muchemi of ERMIS Africa; the Pokot community, the school children and the other international trainees. The exercise was very enthusing and one could work the whole day without getting tired. We supported the mapping of two parishes, Achorichor and Morita. Student from Pokot Senior Secondary School did wonderful job. The students and local Pokot community were fully mobilized by local CBO – Vision Care Foundation led by the director James Apollo.

Our facilitator, Julius Muchemi, divided us into three groups, I was appointed a group leader of one of them. In the process I learnt some very important leadership skills like team building and allowing others to express their opinion. Once again i say thanks to all! The P3DM event was very successful with good participation by Pokot pastoralists, students from Pokot Senior Secondary School, government official from Kampala Uganda and international trainees from Uganda, Kenya and Ethiopia.

My advice to the Pokoto Community at Amudat was that after understanding their land through the P3DM exercise, they should work as a team to achieve more from the model. In addition, I indicated that they should avoid rendering the resultant P3DM a ‘white elephant’ a kin to the common expensive projects supported by development agencies but end up never utilized for the intended purpose. Instead they note that much support provided by development agencies and optimize on the utility of the model. In addition, I indicated that with my community we have taken the model very seriously and we plan to finalize what was never accomplish with the support provided by our development partners. Our model was not finalized due to limited financial resources from our development partners. Final documentation was not done and we plan to accomplish this. We have inform the facilitator, Julius Muchemi, about this community’ intent to improve the model. We plan to construct a glass frame to house the model and repair the secure the cultural center from dust which has degraded the model. The Pokot community at Amudat, Uganda could benefit from my tips.

Upon returning home, I organized a community assembly to debrief them about my experience in Amudat P3DM in Uganda. I even showed them my wonderful certificate I received for participating in the international P3DM training workshop. God bless you so much.”

Vincent Sibilo, 2016

7.2.2 Lawrence Chiro Nyinge, Chairperson, Kilifi County Kaya Elders' Council

"I had been nominated by WWF to represent the Kilifi county kaya elders' council (Baraza la wazee wa kaya za kaunti ya Kilifi) to go and learn and see what is transferable and applicable to the kaya scenario. My facilitation to the workshop was courtesy of SGP/GEF Kenya office through the Kenya ICCA Network and WWF. I sincerely thank them for this support.

I began my journey on a Friday morning from Kwale. I traveled by bus to Changamwe in Mombasa, Kenya where I spent the night just to be sure that I got the early morning flight, leaving at 4.00 A.m, for Nairobi. I then connected to Entebbe, Uganda where I was picked by a taxi organized by Mosa court hotel in Kampala, where I would spend the night. The next morning, I we set out for Amudat located somewhere with the Karamoja region. We used a private Nissan van and travelled the whole day all the way to Amudat where we had been booked. We arrived at silent guest house at 9.30 p.m. Here we spent 10 days at the P3DM training workshop.



Plate 3: Lawrence Chiro assisting in construction of information matrix about the Pakot Pastoralists as narrated by the elders

The training began on a Monday morning and ended on Thursday the following week. It was rigorous but very practical and participatory. On some days we had to work until late in the night to ensure that we move as per our plans and avoid carrying work backlogs to the next day's job. We worked as team to produce the model with the from secondary school students. The local community then came to fill in the detailed information that we could not provide as we did know area.

I learnt that the P3DM needs a lot of efforts and seriousness to plan and prepare to ensure the workshop is successful. The logistics must be accurate and the community mobilization must be well done. The facilitator must be well versed with the process. In Amudat, the lead facilitator and trainer handled the training superbly. His knowledge and extensive skills in the exercise were immeasurably high. I realized you do not have to engage many facilitators to make a P3DM workshop successful. His approach on mobilizing and making participants engage with the process were admirable. At any one time, everybody was busy doing something. He absolutely set very high standards in the activity, one that would take very few us to match.

I noticed with interjections of stories, cultural exchanges, jokes and songs, it was fun and lively all to the end. The many photographs which were being taken at every stage and shared made everyone follow what was happening without losing track of the process. As a side activity, we were also given a hands on training in social media to share the progress of the mapping workshop using Whatsapp, twitter and Facebook. It was fun as we shared our experiences and interactions on the social media platform. I also notice that in some instances the community members would vigorously argue but the facilitator would leave them on their own to continue argue until they would settle their different perspectives about the map. The facilitator would then help to find an amicable understanding between the dissenting members. I discovered that training resource kit are very supporting of the learning process. We received individual resource kit to make reference about the exercise. The training resource materials were very rich with information relevant to the mapping exercise including experiences from other parts of the world. Although the training was demanding in terms of hands-one activities, the many small bits of hands-on tasks that were spread throughout made the entire map making process appear simple and enjoyable throughout workshop. And with the many stakeholders involved it brought out a truly diverse dimension of the P3DM in terms of dialogue and action. We had a free hand to try our thoughts regardless of how crude we thought they could be with the facilitator gladly guiding us on the best ways to go about these tasks without showing a sense of disappointment. I also discovered that the local community members and their leadership have a good knowledge of their local resources on their land and its spatial organization and if well facilitated can come out

with 3D models to represent their aspirations on the resources use. The P3DM is very close to reality in the eyes of the community more than the 2D models and therefore very powerful tool for use in lobbying and advocating for policy change in the community development agenda. The model provides, at a glance, the total community resource endowment and service providers who may be helpful in mobilizing resources to promote community development and resources management. The map can also be used as a planning tool to address resource conflicts and other development challenges in a community. It is a good awareness tool for the community on the developmental potentials, challenges and foresights by the community and its partners.

Upon returning to my community in Kenya, I see a very obvious application of this knowledge. This would be to develop P3DM models for Rabai kayas complex as a means to help sensitize and enhance community awareness on the plight of the forests and also as a fundraising tool for community livelihood and conservation projects in the area. Similar work can be done for kayas Ribe, Kambe, Jibana and Chonyi forest complex. Although these sites had their boundaries demarcated, surveyed and gazetted, the maps produced have no obvious meaning to the unschooled community members especially regarding the spatial connectivity of their land and resources thereon. It is therefore of little use to the community members. The challenge is that the P3DM activity is a very costly affair to implement without external support. There is an urgent need to fundraise for the activity among our key partners- WWF, UNDP SGP, County government, CTA etc. Maybe a joint funding would be an easy approach to supporting my community to do a P3DM. The traditional understanding of my community is that cultural and sacred landscapes are greatly intangible heritage but can be mapped by showing the site where they are located. This is crucial to protect and conserve the landscape the cultural and sacred sites are located and for supporting livelihoods and socio economic development of my community. The sooner this P3DM process is supported in my community, the better.

There is a strong conservation culture among the West Pokot peoples on trees harvesting - a philosophy and understanding that needs to be shared among local communities within the East Africa region. This, if well supported with inter-cultural exchanges between the Mijikenda kaya elders and the Pokot may strengthen the diminishing culture on tree conservation through cultural practices and therefore promote the sustenance of kaya forests heritage and the Pokot grazing areas. With distance being a major constraint, documentation of best practices for sharing would probably be the better option. Upon returning I have already held a meeting with the elders' committee and shared my experiences with them.

After the official map presentation ceremony, we began the journey back by road to Kampala hotel. We were held up on the road for over 3 hours as we waited for Lorries to give us way as they were stuck on some bad and wet section of the road. We were scared of spending the night on these section on the road but eventually we arrived in Kampala hotel at 1.00 a.m. The following morning, we were taken to the airport by the Mosa Court hotel. My flight to Mombasa Moi International airport was through Kigali international airport in Rwanda. I enjoyed my flight back and landed at 9.30 p.m. I spent the night in Mombasa as it was too late and travelled by bus to Kilifi on Sunday morning." Lawrence Chiro, representative of Kilifi county kaya elders' council (Baraza la wazee wa kaya za kaunti ya Kilifi)

Lawrence Chiro, 2016

8 CLOSING CEREMONY

Friday, 12th, August, 2016: Day 13:

The closing ceremony was attended by government officials and politicians, international development agencies such as SGP/GEF, NGOs, students, and local communities (Annex 10.1). The event was marked with dances from local traditional dancers, poems from students, speeches from government officials, politicians, international development agencies and the P3DM trainees. The government officials included representatives from the Office of the Prime Minister; Directorate of Water Resources Management Local Authorities. The Small Grant Programme of Global Environmental Facility participated.



9 VIDEO PRODUCTION – “LIFE ON THE MOVE”

CTA commissioned the production of a video documentary which was completed and published online in November 2016. The production is available for sharing and online syndication via Vimeo as it has been released under a Creative Commons license.



English version: <https://vimeo.com/193380336>

French version: <https://vimeo.com/194008966>

10 ANNEXES

10.1 Guests at the P3DM closing ceremony

Name	Position	Organisation
Abubaker Wandera	National Cordinator GEF-SGP	United Nations Development Program
Dr Kato	GEF-SGP	United Nations Development Program
Willison Nkwamya	GEF-SGP	United Nations Development Program
Louis Mugisha	Team Leader Kyoga Water Management Zone	Ministry of Water and Environment
Naduk Florence	Rep Team leader-Karamoja Sub region	Office of the Prime Minister
Dr Kathiya Dominic Lokeris	District Veterinary Officer-	Nakapiripirit District Local government
Hon Yoyo Stephen	Asistant LC 5 Chairperson	Nakapiripirit District
Logit Mark	Rep LC 3 Chairperson Mourita S/C	Nakapiripirit
Akalinguma Levi	District Police Commander	Uganda Police Force
Maj Rutaro	Brigade Commander-Amudat	Uganda Peoples Defence Forces
Nyeko Paul Kawimbo Dickson	Program Lead Economic Recovery and Development	International Rescue Committee (IRC)
Bewayo Nsubuga Stephen	Resident District Commissioner-	Amudat District Local Government
Hon Francis Tuyonga	L.C 5 Chairman	Amudat District Local Government
Metrine Cheptoris	Rep- Chief Administrative Officer	Amudat District Local Government

10.2 Villages that participated in the P3DM exercise

Mourita Sub-County Villages

S/No	Name of Village	Distance from another village
1.	Moruita Trading centre	1 km
2.	Nakamuriai	2 kms
3.	Katukumwok	2 kms
5.	Samugh	2 kms
6.	Utut	2 kms
7.	Lomuu	3 kms
8.	Karengchoto	3 kms
9.	Cholol	5 kms
10.	Munyekere	Far distant and mountainous
11.	Nachukut	Far distant and mountainous
12.	Napudes	Far distant and mountainous
13.	Karinga	4 kms
14.	Kopedur	4 kms
15.	Pelpel	Far distant and mountainous
16.	Sukudik	Far and mountainous
17.	Nakoo	Far and mountainous
18.	Nakolokituk	Far and mountainous
19.	Lemsui	Far
20.	Akokor	Far and mountainous
21.	Ulingiro	Far and mountainous

Achorichor Parish Villages

S/NO	Village Name	No of kilometers from the next village
1.	Apdi	1 kms
2.	Lomerpus	2. 5 kms
3.	Kogwole	1 kms
4.	Babatian	1 kms
5.	Iwakai	1 kms
6.	Lomerai	2 kms
7.	Kakalas	2 kms
8.	Kililing	1 kms
9.	Loitaboket	2 kms
10.	Nachomin	1 kms
11.	Lokwamu	1 kms
12.	Nabukut	2 kms
13.	Locheriakwangan	2 kms
14.	Locholi	2 kms
15.	Akwakipi	1 kms
16.	Akayot	2 kms
17.	Loyep	5 kms
18.	Nakilesha	3 kms
19.	Kalongolereng	3 kms
20.	Kalotukuri	3 kms

