GIS Techniques for M&E of HIV/AIDS and Related Programs
eLearning Course Participant Study Group
Summary Report
October 6-17, 2014
http://www.globalhealthlearning.org/user?destination=community/79354

BACKGROUND

To enhance learners' understanding of the main concepts in the *GIS Techniques for M&E of HIV/AIDS and Related Programs* course and develop the skills needed to use QGIS, the K4Health Project and the course author Becky Wilkes, MS, GIS Technician for the MEASURE Geospatial Team, facilitated an online, time-bound, cohort-based learning event in which learners were able to receive virtual technical assistance from the course author as well as learn from each other by discussing questions, challenges, and successes in gathering and formatting geographic data, designing and producing maps, and working with spatial analysis tools.

The purpose of the study group was to:
- Help explore and discuss any course concepts learners may find challenging as they move through the material
- Examine possible future related course modules or face-to-face trainings
- Elicit and share relevant, practical programmatic experiences related to GIS
- Elicit suggestions for improvement

The formal study group ran from October 6-17, 2014. Prior to each day's discussion, the course author asked participants to read a session of the course and work through the practical exercises as best they could. Then the author posted a few discussion questions to the online forum. Then the participants were invited to visit the online learning space to reflect on the discussion questions, ask questions, and share experiences related to the practical exercises as well as how they have and/or plan to apply what they have learned from the course into their jobs.
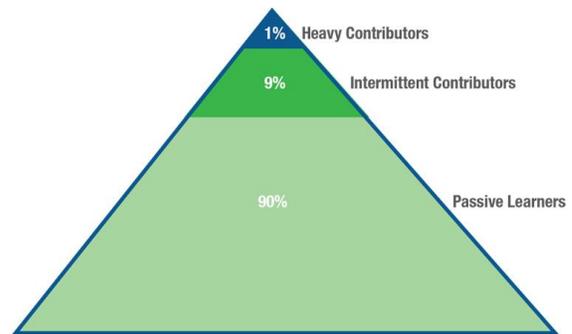
Discussion statistics
Number of participants: 73
Number of participants' countries: 22
Number of contributions: 42 by 17 active participants
% of contributions from developing countries: 100%
Number of countries contributing: 9; Botswana, Ethiopia, Ghana, India, Nepal, Nigeria, Rwanda, Tanzania, and Uganda

This participation rate of approximately 24% (17 of the 73 participants) is exceptionally high according to emerging research from the Nielsen Norman Group which suggests that in most online communities 90% of members are passive learners, while 9% of members contribute a little and 1% of members account for most of the contributions and interactions[1].

MAIN THEMES AND GUIDING DISCUSSION QUESTIONS

The following summarizes the main themes that were shared in response to the study group guiding discussion questions.

Post 1.
Questions related to Session 1: The GIS Advantage
1. What are some of the advantages of using a GIS to view and analyze data? What questions can geographic data help answer?
2. How does formatting data for use in a GIS facilitate data linking?
3. Can you provide examples of how you might use (or have used) geographic data to strengthen your own local and country health systems?
4. Relating to Practical Exercise (widget): What special considerations have you learned to take into account when using a GPS receiver? Do you have any advice for your colleagues concerning GPS data collection?

Emerging themes and issues
Words of appreciation and introductions were shared. A participant apparently misunderstood the delivery of the study group and thought that it was going to operate more like a "live" webinar, so additional guidance was provided as to how the study group would operate—posts made only occasionally over the course of the 2-week period. There was an inquiry made by a participant concerning shapefile creation and suggestions from other learners. In addition, another participant shared good notes about using GPS receivers in field and several participants shared insights as to advantages of GIS for planning and resource allocation, and for interpretation and analysis of data.

Post 2.
Questions related to Session 2: Getting Started with GIS Software and Data
1. What makes data "geographic"? Give some examples of geographic identifiers you might be able to use in your own work. Describe any data collection issues you may have had in the past and if relevant, how you solved these problems.

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[1] Nielsen, J. October 9, 2006. "The 90-9-1 Rule for Participation Inequality in Social Media and Online Communities." Nielsen Norman Group, http://www.nngroup.com/articles/participation-inequality/.

2. Why is metadata so important? Why is it important to know what projection you are using to collect and/or display your data?
3. If you have used any mapping software in the past, please share the name of the software, a brief description of its capabilities and/or limitations, and how you have used it. Would you recommend it to others? Why or why not?
4. Relating to the Practical Exercises: Were you able to download and install the QGIS software? If not, please share any troubles, so that we can try to help. Please share your opinion of any features of the software that strike you as relevant or useful to the group.

Emerging themes and issues
Several participants shared the pros and cons of QGIS vs. ArcGIS, acknowledging challenges with downloading QGIS due to slow bandwidth, no administrative access for installing software, and using a mobile phone and not a PC for the installation. In addition, a few participants also shared their experiences using EpiInfo from CDC. Discussions around limitations to the use of GIS software were also had; mainly focused on the cost of software in the case of ArcGIS and difficulty obtaining data. Several users discussed what makes data "geographic", as well as the importance of metadata.

Post 3.
Questions related to Session 3: HIV/AIDS Data Sources
1. Were you able to successfully download the QGIS exercise instructions AND the associated data files (stored on Dropbox)? If not, please share any troubles, so that we can try to help.
2. Relating to Exercise 3a (Joining Tables): When using a CSV (comma-separated-values) file with QGIS, why do you need to specify a "field type" for your data table? Why do both a CSV and a shapefile have an attribute table? Please let us know if you had any trouble joining your data files.
3. Relating to Exercise 3b (Making a Map): How does classifying data using the "equal interval" method versus the "quantile" method change the look of your map? What considerations should you make when choosing choropleth map colors?

Emerging themes and issues
A couple of participants requested additional help with QGIS as they began working on their maps. One wanted information on using more symbols and colors, while another needed help editing and prepping their data from an outside source. Two participants then shared the maps that they were able to produce, which was exciting to see. Another participant asked for specific help downloading coordinates from GPS unit, and another responded with helpful advice, explaining that he was from the same country, and provided his phone number to the participant for further help. It was exciting to see all of this engagement as the participants got further into the uses of the QGIS software.

Post 4.
Questions related to Session 4: Essential GIS Techniques
1. Relating to Exercise 4a (calculating new variables): Why might you need to calculate a new variable (field) before creating your map? Please let us know if you had any trouble creating the new variables suggested in the exercise.
2. Relating to Exercise 4b (multi-indicator maps): What purpose is served by creating a "centroid layer" for your map? Try changing the number of classes for one or both of your variables. Experiment with different colors and symbol sizes. Feel free to share your results with the group.

3. Relating to Exercise 4c (map composer): The map composer window is used to create publication-quality, printable maps. What happens to the size of your map (relative to the size of the paper) when you change the scale of your map? Why is it important to create a title and legend for your map? What format did you chose (or will you chose most often) when exporting your map? Why?

Emerging themes and issues
The final post attracted clarification on taking the exam, next steps, and ways to keep in touch. The study group facilitator provided further instructions for those who had trouble downloading the large QGIS package so that they might download a more compact version. No one responded so we do not know whether or not this resolved the issue. However, we did receive feedback from an enthusiastic participant who was able to learn about QGIS and successfully produce maps as a result of participating in the study group.

POST-STUDY GROUP SURVEY RESULTS

N of surveys completed	14 – Countries represented: Ethiopia, Ghana, India, Nigeria, Rwanda, Tanzania, Uganda, USA, and Zimbabwe
% who felt that the discussion definitely met its goal of generating meaningful, relevant, and timely conversation about effective techniques for using GIS in HIV/AIDS and related programs?	86%
% who found the discussion useful	100%
% who shared information from the discussion with others	83%
% who posted a message in the study group	64%
Suggestions for improvement	*"To extend more days on the study as some of us have less access to internet connection."* *"I WISH THAT THE STUDY GROUP DISCUSSIONS OR ACTIVITIES COULD BE ALWAYS THROUGH THE GROUP EMAIL"* *"There is a time when Becky became more practical in responding to my question by sending me her maps she has developed which simplified my work and gave me courage. This should continue."*

For the full report on the post-study group online survey results, see Appendix on page 7.

LESSONS LEARNED AND POSSIBLE NEXT STEPS

We were successfully able to meet the purpose of this study group, specifically sharing relevant, practical programmatic experiences related to GIS as well as exploring and discussing any course

concepts learners may find challenging as they move through the material. For example, a participant from India shared with the study group his production of a map as a result of participating in the study group; he explained: *"It was a great experience. In the begging of the course I was a bit skeptic as I have some experience with Database Management but not with Maps. During the course progress I found it very interesting. In the end I achieved a great learning on Maps and a friendship with Becky. Thanks to Becky, whenever during the course progress I felt motionless in any issues, Becky was there with me to pull out of it. Together, we able to produce some good Maps. Now I am planning to show out project progress through Maps, in our next project review meetings."* Another participant from Uganda who posted a sample map shared similar appreciation for the opportunity to participate in the study group: *"This is my greatest achievement in this course. It seems everything is possible with QGIS. I have been referring my clients to those with ArcGIS thinking that QGIS cannot do it. See what I have produced in a few minutes after your notes."*

While some participants had no problems installing QGIS software, there were many others who encountered challenges. Given the relatively manageable number of participants, Becky was able to provide individualized assistance to participants and uncovered other versions that were compatible for low bandwidth settings and accessible via mobile devices that she shared with all participants.

We also witnessed participants responding to each other's questions. In response to a question about how to import data from Excel into GIS, another participant shared *"Almost everything is possible with QGIS 2.4. For this question you need to go through exercise 3.1 again. It is possible for you to create your own CSV file in Excel. Just click on save as and select CSV file type. Then you can go through the steps in 3.1. Second, since you are also from Uganda, we can team up and work on these projects."*

In discussing what went well and suggestions for improvement, the study group facilitator/course author, Becky Wilkes of MEASURE Evaluation, reported that the templates from the Gender and HSS study group helped a lot in preparing for the study group. The advanced planning, specifically producing a detailed schedule and list of possible guiding discussions questions, allowed her to spend more time responding individually to participants' posts and troubleshooting their challenges with installing the QGIS software. Since this study group really intended to teach a new skill (i.e., how to use QGIS), a lot of Becky's facilitation time was spent individually responding to participants so that they would be encouraged to continue with the course and not get overly frustrated by any software challenges. This was do-able due to the number of active participants. It is possible that if this study group contained more active participants it may have been overwhelming for one facilitator to manage. In addition, the study group facilitator/course author provided excellent suggestions for minor platform enhancements to the navigation and usability of the community functionality that would make facilitation online even easier (e.g., a way to see a list of just the new posts). New posts are currently marked "new" at the top of each one, but a facilitator must still navigate to each thread to see if anything has been added.

It is interesting to note that the post-study group survey respondents included those who did not post in the study group as well as those who did. This is good to see, especially since 100% reported that the

discussion useful. So, it appears that participants who simply read the posts ("lurkers") still benefited from the study group discussion. Of those who didn't post to the study group, two respondents explained that they had network issues and everything that they wanted to know was already posted and treated. Of those who reported difficulties posting, again they reported network issues and time, but nothing related to the actual platform functionality and usability. However, the survey respondents did provide a few suggestions to improve future study groups, which are highlighted in the table on the page 4.

In the future, MEASURE Evaluation is interested in exploring the feasibility of conducting periodic follow-ups with the study group participants to further explore if this is a good way to build GIS capacity. K4Health and MEASURE is interested in possibly following up with participants to see how their knowledge retention and GIS capacity may differ from those who took the GIS Techniques course completely asynchronously. We could follow-up with those who have successfully completed the final exam of the course and then assess whether or not they were able to install the QGIS software and use it to produce any maps.

Summary and Recommendations
- Study group was successful; it met its goals.
- Positive feedback on survey, even from those who were passive observers.
- Advance planning and agenda-setting made it run smoothly and on-time.
- Number of active participants good for providing individualized help.
- Minor platform enhancements were suggested.
- Suggestions for improvement included providing longer completion time for those with limited internet access, providing more examples, and more lengthening hands-on activities.
- Possible periodic follow-ups to check future progress and capacity.
- Possible study of how user experiences where enhanced through participation in the online study group.

APPENDIX: FULL SURVEY RESULTS

1. In which country do you work?

#	Response Date	Country:
1	Oct 29, 2014 12:18 PM	Ghana
2	Oct 27, 2014 12:56 PM	Zimbabwe
3	Oct 25, 2014 3:42 PM	Tanzania
4	Oct 24, 2014 6:46 AM	Ethiopia
5	Oct 24, 2014 3:04 AM	India
6	Oct 22, 2014 2:09 PM	Ethiopia
7	Oct 21, 2014 2:07 PM	RWANDA
8	Oct 21, 2014 12:51 PM	Uganda
9	Oct 21, 2014 11:50 AM	Nigeria
10	Oct 21, 2014 9:32 AM	NIgeria
11	Oct 21, 2014 9:20 AM	NIGERIA
12	Oct 21, 2014 9:11 AM	Tanzania
13	Oct 20, 2014 4:34 AM	Uganda
14	Oct 14, 2014 2:34 PM	USA

2. Please describe the type of organization in which you work.

#	Response Date	Response Text
1	Oct 29, 2014 12:18 PM	I work with the Ghana Health Service, the main stakeholder and implementing service of health programs.
2	Oct 27, 2014 12:56 PM	Self Employed
3	Oct 25, 2014 3:42 PM	Non governement Organisation
4	Oct 24, 2014 6:46 AM	International Nongovernmental organization
5	Oct 24, 2014 3:04 AM	NGO
6	Oct 22, 2014 2:09 PM	International Non Government Organization
7	Oct 21, 2014 2:07 PM	PARTNERS IN HEALTH,RWANDA
8	Oct 21, 2014 12:51 PM	I work in an organization that works in the area of HIV/AIDS and OVC
9	Oct 21, 2014 11:50 AM	Financial Organization
10	Oct 21, 2014 9:32 AM	Partinaship for reviving routine immunization in northern nigeria Marternal New born Child Health (PRRINN-MNCH) is a DFID founded project also an international Non governmental organisation, that help in ingreted service delivery, operational reseach, longitudinal survery, SDSS, and MCH, for further details please check www. prrinn-mnch.org
11	Oct 21, 2014 9:20 AM	I work with a non governmental organisation. (NGO)
12	Oct 21, 2014 9:11 AM	National Blood Transfusion Service
13	Oct 20, 2014 4:34 AM	Ministry of Gender Labour and Social development in the OVC unit
14	Oct 14, 2014 2:34 PM	MEASURE Evaluation

3. Please tell us why you signed up to participate in the GIS Techniques study group.

#	Response Date	Response Text
1	Oct 29, 2014 12:18 PM	To get new ideas and share some personal experiences on GIS
2	Oct 27, 2014 12:56 PM	Do improve myself in all areas pertaining the GIS Techniques
3	Oct 24, 2014 6:46 AM	I am working in the position of M&E advisor and I want to extend my career in research, so I belive that GIS is helpful for my routine work as well as my future career
4	Oct 24, 2014 3:04 AM	Since I am working Monitoring & Evaluation Officer, it will be easier for me to present area wise program achievements.
5	Oct 22, 2014 2:09 PM	To get shared experiences via discussion,Q & A...
6	Oct 21, 2014 2:07 PM	IN ORDER TO HAVE OVERVIEW WITH OTHERS
7	Oct 21, 2014 12:51 PM	As a learning session and and as well refresh on the previous training
8	Oct 21, 2014 11:50 AM	I interested in M&E and always want to equip myself, this medium seems like the best way to do so.
9	Oct 21, 2014 9:32 AM	I singed up in GIS because I like the study and is part of my organisational work, we do pilot sensus, baseline survery, that consist of GIS work, I have basic knowledge of GIS machine, so I want more of it because is very intrested to me
10	Oct 21, 2014 9:20 AM	I joined the GIS techniques study to acqoire more knwonledge about data and how to represent them in maps.
11	Oct 21, 2014 9:11 AM	I like to participate in GIS Techniques Because i would like to more techniques in GIS
12	Oct 20, 2014 4:34 AM	To perfect my skills in GIS and to share experience from other GIS users

4. Did you complete the course:

Answer Options	Response Percent	Response Count
Yes, before the study group began.	42.9%	6
Yes, as part of the study group.	21.4%	3
No, I started the course and plan to complete it.	35.7%	5
No, I started the course but don't plan to complete it.	0.0%	0
No, I didn't even start the course.	0.0%	0
	answered question	14
	skipped question	0

5. Please rate your satisfaction with the amount of discussion:

Answer Options	Response Percent	Response Count
There was the right amount of discussion	78.6%	11
There was too much discussion	7.1%	1
There was not enough discussion	14.3%	2
	answered question	14
	skipped question	0

6. Please rate your satisfaction with the amount of discussion:

Answer Options	Response Percent	Response Count
The discussion definitely met its goal	85.7%	12
The discussion somewhat met its goal	14.3%	2
The discussion did not meet its goal	0.0%	0
answered question		14
skipped question		0

7. Did you find the discussion useful?

Answer Options	Response Percent	Response Count
Yes	100.0%	14
No	0.0%	0
answered question		14
skipped question		0

8. What specifically did you find useful about it? Select all that relate to your experience.

Answer Options	Response Percent	Response Count
It clarified concepts in the course	100.0%	12
It provided me with additional examples	83.3%	10
It provided me with additional support and training to be able to complete the practical exercises	75.0%	9
It provided me with additional resources and references	83.3%	10
It provided me with an opportunity to ask questions that I had	58.3%	7
It provided me with an opportunity to learn from others dealing with similar issues	83.3%	10
Other (please specify)		2
answered question		12
skipped question		2

Other included: Guidance of the Project coordinator was really very helpful to me.
I found those videos in the course very useful and friendly use.

9. Why wasn't the discussion useful? Please provide suggestions for improvement.

#	Response Date	Response Text
1	Oct 24, 2014 7:36 AM	NoNE

10. Which part of the course itself did you find most useful?

Answer Options	Response Percent	Response Count
Session 1 (The GIS Advantage, Using a GPS Receiver)	16.7%	2
Session 2 (Getting Started with GIS Software and	8.3%	1

Data, Installing and Exploring QGIS)		
Session 3 (HIV/AIDS Data Sources, Joining Data to a Map, Displaying Data on a Map)	41.7%	5
Session 4 (Essential GIS Techniques, Calculating New Variables, Creating Multiple-Indicator Maps)	33.3%	4
answered question		12
skipped question		2

11. Is there any area in which you felt you could use additional training?

#	Response Date	Response Text
1	Oct 27, 2014 1:00 PM	Session 4 - Essential GIS Techniques, will need more practical examples to improve my knowledge on the subject
2	Oct 25, 2014 3:45 PM	No
3	Oct 24, 2014 7:36 AM	NO
4	Oct 24, 2014 6:50 AM	No
5	Oct 24, 2014 3:09 AM	Use of database files in GIS.
6	Oct 22, 2014 2:12 PM	NA
7	Oct 21, 2014 2:14 PM	ESSENTIAL GIS TECHNIQUES,CALCULATING NEW VARIABLES,CREATING MULTIPLE-INDICATOR MAPS
8	Oct 21, 2014 12:01 PM	Essential GIS Techniques, Calculating New Variables, Creating Multiple-Indicator Maps)
9	Oct 21, 2014 9:42 AM	Joining data to map, and creating multi indicator map
10	Oct 20, 2014 4:38 AM	Creating your own shape files e.g from GPS

12. If you could, what would you change about the course? Select all that apply.

Answer Options	Response Percent	Response Count
Make course shorter	0.0%	0
Make course longer	45.5%	5
Include more examples	81.8%	9
Other (please specify)		1
answered question		11
skipped question		3

Other include: Training in the field.

13. Did you post a message in the study group?

Answer Options	Response Percent	Response Count
Yes	64.3%	9
No	35.7%	5
answered question		14
skipped question		0

14. If so, how did you find posting?

Answer Options	Response Percent	Response Count
Easy	100.0%	8
Difficult	0.0%	0
	answered question	8
	skipped question	6

15. Why didn't you post a message?

#	Response Date	Response Text
1	Oct 27, 2014 1:01 PM	Access to intenet was hard due to newtork problems
2	Oct 21, 2014 12:03 PM	Everything I wanted to Know was either been treated or Posted.

16. What was difficult about posting?

#	Response Date	Response Text
1	Oct 27, 2014 1:01 PM	Network problem connection
2	Oct 22, 2014 2:13 PM	tIME
3	Oct 21, 2014 12:03 PM	Nothing

17. Did you download or read any of the additional reference materials recommended during the discussion?

Answer Options	Response Percent	Response Count
Yes	80.0%	4
No	20.0%	1
Not yet, but I plan to	0.0%	0
	answered question	5
	skipped question	9

18. Did you share any information from the discussion with others (colleagues, friends, etc.)?

Answer Options	Response Percent	Response Count
Yes	83.3%	10
No	16.7%	2
	answered question	12
	skipped question	2

19. Please let us know if you have any suggestions for future study group discussions or activities.

#	Response Date	Response Text
1	Oct 27, 2014 1:01 PM	to extend more days on the study as some of us have less access to internet connection
2	Oct 24, 2014 6:51 AM	No
3	Oct 24, 2014 3:14 AM	This is a practical subject, It depends on the individual to nurture the exposure from the study for wider use.

4	Oct 22, 2014 2:13 PM	NA
		I WISH THAT THE STUDY GROUP DISCUSSIONS OR ACTIVITIES COULD BE ALWAYS THROUGHT
5	Oct 21, 2014 2:26 PM	THE GROUP EMAIL
6	Oct 21, 2014 12:03 PM	None
7	Oct 21, 2014 9:43 AM	Its well establish to my assessment
		There is a time when Becky became more practical in responding to my question by sending me her maps she has developed which simplified my
8	Oct 20, 2014 4:40 AM	work and gave me courage. This should continue.