Open Green Map platform study

Prepared for Green Map System by:

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II. Methodology

Qualitative research

We conducted four thirty-minute interviews with active Open Green Map users. Two interviewees were based in the U.S., one in China, and one in Vietnam. The affinity wall technique was used to compile interviewees' responses and identify themes. Notes from the interviews were sorted and grouped based on thematic connections. Findings were generated from relationships revealed on the affinity wall.

Quantitative research

A thirty-six question survey was distributed via email to active Open Green Map mapmakers. The survey turnaround time was short, but thirty-seven people responded. The complete results are included in the appendix to this report.

III. Findings and Recommendations

Finding 1: Green Map's user pool includes a wide range of mapmakers; their varying ages, training, and expertise speak to the platform's flexibility.

We encountered users with no training or experience with mapping software, as well as those mapmakers whose professions prescribed the use of GIS software. Green mapmakers also span several generations, reaching from over fifty years old to those in their twenties; a number of survey respondents even indicated that they had involved children in their recent projects. Finally, Open Green Map users can be found in across every continent. Despite the cultural, linguistic, and experiential diversity, the Open Green Map platform serves its entire community; only one third of survey respondents indicated that they found map creation challenging (see survey Q6).

Recommendation: Implement a lightweight version of the Open Green Map interface.

Because the mapmaking tools are so diverse, they require significant structuring and ordering. This structure does offset potential interface clutter, but it also places a higher effort barrier to the actual creation of maps; it takes mapmakers longer to find and use specific features they're interested in. We suggest that Open Green Map include in its next iteration a lightweight version of the map creation interface. This would include only essential features, unified on a single

page; a mockup of what this interface might look like is included later in this report.

Finding 2: Mapmakers are predominantly motivated by the chance to build community and educate the people around them

Our interviewees told us they were largely interested in engaging a larger community, for the purpose of education or social improvement. Some work with students and others with local populations, to serve the information needs of tourists and consumers and stimulate local action through outreach and education. Of those who responded to our survey, 50% listed neighborhood residents as their primary target users, followed by tourists, consumers, and students (see survey Q20). This service motive is extremely salient in the community, and should be considered in future attempts to harness or influence the Green Map mapmaker community's effort and attention.

Finding 3: Mapmakers place a high value on feedback from their target users, but are unable to aggregate as much as they would like. Green Map currently has minimal support for integrated feedback collection.

Numerous interviewees indicated that they appreciate feedback in any form; it not only validates their purpose, but also informs and guides future map design and mapmakers' understanding of their users' needs. According to our survey results, mapmakers most typically receive feedback verbally, often at public events where they are distributing paper maps. Comments received through Open Green Map's system occur significantly less frequently. In fact, the next most common response to our question as to where mapmakers collected feedback (see survey Q22) was "other," which included such descriptions as "comments on map when required of students," and "haven't gotten any feedback."

Recommendation: Implement a cross-platform comment aggregator for each map.

We suggest including an individual comment section beneath each map on what currently exists as the "view map" page. This comment section would ideally aggregate comments from external sources, including Twitter, Facebook, LinkedIn and personal websites. Its creation would allow mapmakers to receive timely feedback from a wide variety of sources, and follow up with users if needed. We recommend modeling this feature after or using a version of Disqus, a web plugin used for the stated purpose by numerous sites including NPR, the Atlantic, and IGN.

We have included a mock-up of what this could look like in the appendix.

Finding 4: Although mapmakers want to share ideas with other mapmaking teams, the ability to

do this within the Open Green Map platform is limited.

Survey respondents reported a desire for more interaction with other Open Green Map teams. 72% of respondents stated that they wanted to see more interactions among mapmaking teams (see survey Q19). Sharing ideas and sharing technical expertise are among the most common reasons for mapmaking teams to communicate with one another (see survey Q18).

Finding 5: Mapmaking teams value the ability to communicate regularly as they're building their maps, but the Open Green Map platform does not easily facilitate this.

Mapmaking team sizes range from two to twenty people, with most mapmaking teams consisting of two to five people (see survey Q14). Creating an Open Green Map demands collaboration among team members. Several mapmakers told us that in-person collaboration, when possible, is the preferred method of working. When in-person collaboration is not possible, communication by email is the preferred method.

Recommendations: We suggest that Green Map System implement two communication tools on the Open Green Map platform: a forum to encourage interactions among different mapmaking teams, and a discussion board to facilitate collaboration among the members of mapmaking teams.

The forum would be a place for mapmakers to share their experiences, communicate with other teams working in similar geographic regions or on similarly themed maps, or troubleshoot issues they're having. The forum could include social functionality, such as the ability for individuals to "follow" the activities of other mapmakers. To encourage widespread participation in the forums, we suggest implementing a system for recognizing contributions. For more information about building robust forums, see:

Robert E. Kraut and Paul Resnick, *Building Successful Online Communities: Evidence-Based Social Design.*

The discussion board would enable the members of a mapmaking team to communicate with one another in one place when face-to-face communication is not possible. Currently, many mapmakers (78% of those surveyed) rely on email to communicate with others on the their team when face-to-face interaction is not possible; qualitative research revealed that email is serviceable but often cumbersome to use when discussions become long.

Finding 6: We found that Open Green Map mapmakers use social media to promote their maps, but that there is limited integration of social media sites like Facebook, Twitter, Quora, LinkedIn, Google Plus. Additionally, there are limited interactions among mapmakers via social

media sites and on the Open Green Map main site. Few mapmakers use social media sites to create promotional pages for their projects (see survey Q13, Q21, Q23, and Q24).

Recommendation: We recommend using sites like Facebook to create online community to foster sharing and collaboration between members. We also suggest establishing a tutorial section on the Open Green Map site to promote social media use. Furthermore, we suggest that mapmakers share their maps with relevant organizations via social media.

Findings 7a-g:

7a. We found that mapmakers like using a number of Open Green Map's existing tools. Surveyed respondents rated the following features as useful (see survey Q9):

- The ability to embed Open Green Maps
- The ability to toggle icons on and off
- The Map Dashboard tab
- The ability to add lines and areas
- The ability to import and export data

The following features were ranked below average in usefulness:

- The Widget tab
- The Map Team tab

We found in our qualitative interviews that mapmakers like the ability to embed video and photos into their maps. This adds additional functionality of visualizing information, as photos and videos can reveal detailed information about local business and outdoors locations.

7b. Some mapmakers reported being overwhelmed by the large number of icons available to them.

Recommendation: We suggest creating a "most used" or "most popular" icon subset. Users would see this smaller subset on the map creation page, but would still have access to the full icon set if needed.

7c. Some mapmakers reported frustration with the amount of information they needed to enter when creating a new map. 54% of survey respondents found the process of creating a map time consuming (see survey Q5).

Recommendation: For those mapmakers who find detailed information entry tedious, we suggest creating a version of Open Green Map that requires users to enter only the bare essential information to get started mapping. This "light" version of Open Green Map (discussed in more detail under Finding 1 above) would be aimed at non-technical users, and would supplement the more in-depth version of the platform.

7d. Some mapmakers reported frustrations with Open Green Map's visual design. Mapmakers want the ability to adjust the site's color palette and filter map content to make key information stand out.

Recommendation: We suggest adding a feature that allows users to modify a map's color palette as well as a filter option that allows users to filter the icons based on which icons are in use on a given map.

7e. Some mapmakers expressed a desire to perform GIS-style manipulations to their Open Green Maps, such as adding layers and shading regions of their maps.

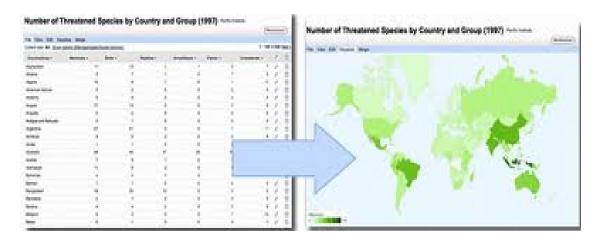
Recommendation: We recommend making the existing line and area tools more prominent, and consider enhancing GIS-style functionality in the future.

7f. A number of interviewees expressed great interest in mobile version of Green Maps. They expressed the need to easily tag locations and businesses in existing maps to enter new information via mobile phone.

External tools recommended for use

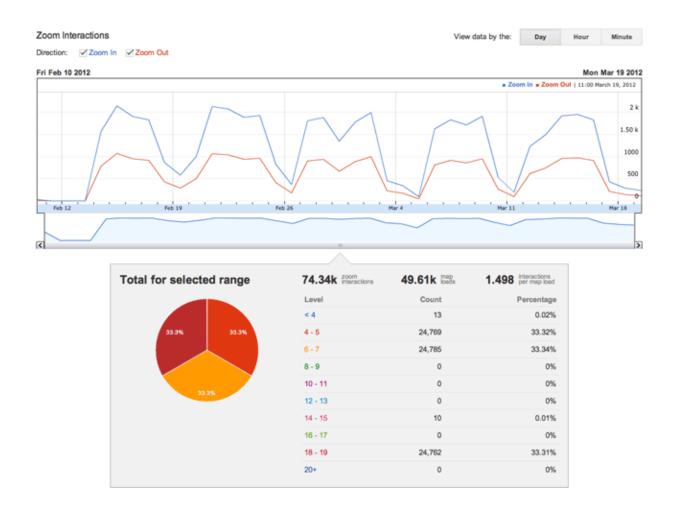
1. Google Fusion Tables

Fusion Tables by Google allow integration of metadata and special data. it allows quick and easy manipulation. it also does visualization in different maps formats. Google Fusion Table has interactive and easy to implement APIs system.



2. Google Analytics for maps

Google analytics can provide insight on what maps are the most popular and who is using what. it tracks a lot of metrics about each site as well. Mapmakers can use analytics to measure impact and the reach of their site.



IV. Limitations of interviews and survey

The research for this report was conducted over three days. Because the time frame was short, the results may be subject to certain biases. The survey sample size was small (37), and the qualitative interview sample size was smaller still (5). Although we attempted to vary the geographic location of survey takers and interviewees, the sample we ended up gathering information from may not be completely representative of Open Green Map's user base.

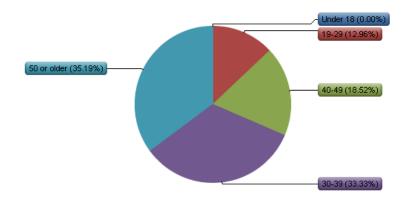
V. Appendix

This appendix is made up of two sections, which are together the basis of our findings. The first section is a report of the results of our survey; it includes the response data for each question, and graphic representations of each. The second section includes the notes we took during our interviews, followed by the coded segmented instances of qualitative data, extracted from our interviews, used in our analysis.

My Report

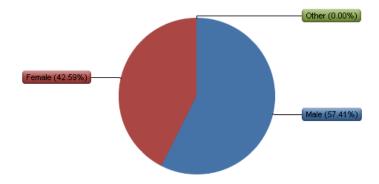
Last Modified: 03/07/2013

1. What is your age?



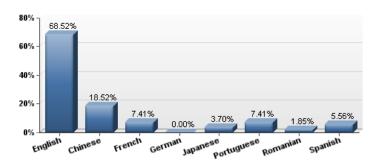
#	Answer	Bar	Response	%
1	Under 18		0	0%
2	19-29		7	13%
3	30-39		18	33%
4	40-49		10	19%
5	50 or older		19	35%
	Total		54	

$2. \ \ \text{How do you identify yourself?}$

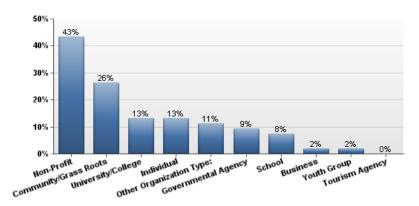


#	Answer	Bar	Response	%
1	Male		31	57%
2	Female		23	43%
3	Other		0	0%
	Total		54	

${\bf 3.}\,$ What language do you use to create a map on Open Green Maps? Select all that apply



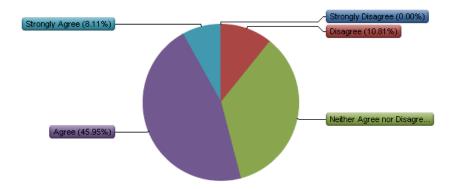
#	Answer	Bar	Response	%
1	English		37	69%
2	Chinese		10	19%
3	French	_	4	7%
4	German		0	0%
5	Japanese	•	2	4%
6	Portuguese		4	7%
7	Romanian		1	2%
8	Spanish		3	6%



#	Answer	Bar	Response	%
1	Business		1	2%
2	Community/Grass Roots		14	26%
3	Governmental Agency		5	9%
4	Individual		7	13%
5	Non-Profit		23	43%
6	School		4	8%
7	Tourism Agency		0	0%
8	University/College		7	13%
9	Youth Group		1	2%
10	Other Organization Type:		6	11%

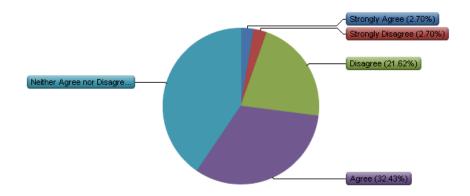
Other Organization Type:	•
IT Consulting & Technology	
house keeper	
grass root	
Civil society organization	
City/public partnership	
Artist Collective	

 $\bf 5. \ \ I$ found the process of creating a map on Open Green Maps platform time consuming.



#	Answer	Bar	Response	%
1	Strongly Disagree		0	0%
2	Disagree		4	11%
3	Neither Agree nor Disagree		13	35%
4	Agree		17	46%
5	Strongly Agree		3	8%
	Total		37	

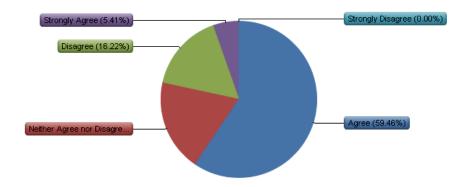
6. I found the process of creating a map on Open Green Maps challenging.



#	Answer	Bar	Response	%
1	Strongly Disagree		1	3%
2	Disagree		8	22%
3	Neither Agree nor Disagree		15	41%
4	Agree		12	32%
5	Strongly Agree		1	3%
	Total		37	

Statistic	Value
Min Value	1
Max Value	5
Mean	3.11
Variance	0.77
Standard Deviation	0.88
Total Responses	37

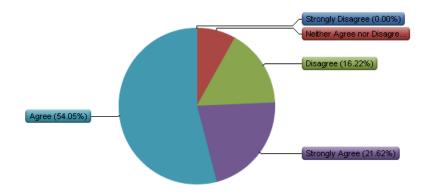
$7. \;\;$ I was generally satisfied with my experience creating the map on the Open Green Map platform.



#	Answer	Bar	Response	%
1	Strongly Disagree		0	0%
2	Disagree		6	16%
3	Neither Agree nor Disagree		7	19%
4	Agree		22	59%
5	Strongly Agree		2	5%
	Total		37	

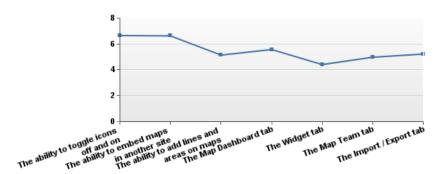
Statistic	Value
Min Value	2
Max Value	5
Mean	3.54
Variance	0.70
Standard Deviation	0.84
Total Responses	37

8. The Green Maps icons cover the concepts and themes I am mapping.



#	Answer	Bar	Response	%
1	Strongly Disagree		0	0%
2	Disagree		6	16%
3	Neither Agree nor Disagree		3	8%
4	Agree		20	54%
5	Strongly Agree		8	22%
	Total		37	

Statistic	Value
Min Value	2
Max Value	5
Mean	3.81
Variance	0.94
Standard Deviation	0.97
Total Responses	37



#	Answer	Min Value	Max Value	Average Value	Standard Deviation	Responses
1	The ability to toggle icons off and on	0.00	10.00	6.62	2.83	37
2	The ability to embed maps in another site	0.00	10.00	6.59	3.10	37
3	The ability to add lines and areas on maps	0.00	10.00	5.11	3.12	37
4	The Map Dashboard tab	0.00	10.00	5.54	3.15	37
5	The Widget tab	0.00	10.00	4.38	3.02	37
6	The Map Team tab	0.00	10.00	4.95	3.04	37
7	The Import / Export tab	0.00	10.00	5.19	2.91	37

$10. \quad \text{Please rank each of the following potential features based on: How useful would you find each when creating, sharing or publicizing a new Open Green Map.}$

#	Answer	Min Value	Max Value	Average Value	Standard Deviation	Responses
1	The ability to add custom icons	1.00	10.00	7.08	2.66	36
2	The ability to edit icon titles	1.00	10.00	6.95	2.49	37
3	The ability to edit icon definitions	1.00	10.00	7.19	2.45	37
4	Other	0.00	10.00	7.75	3.19	12
5	Other	4.00	10.00	7.00	2.10	6

Other	Other	
to be able to label areas	to shade areas by color	
didn't know the three choices above were possible		
The ability to edit multiple sites at once	The ability to import sites from a CSV or XML through a step by step import page	
update with google xml		
dearer instructions		
a list on the side bar of the sites alphabetically by name	walk score of sites from one's home location	
The process to invite or add team member more easier.		
Map printing		
Export image url:s	Better responsiveness of site bubble on the map	
Duplicate entries	Order the layering	
Ability to link directly the details of a specific site on a map when embedded on another website (ie: a more 'dynamic' url)		

$11. \;\;$ On average, how often do you update maps that you've made on Open Green Maps?

#	Answer	Bar	Response	%
1	Never		2	5%
2	Yearly		10	27%
3	Quarterly		6	16%
4	Monthly		4	11%
5	2-3 Times a Month		4	11%
6	Once a Week	•	1	3%
7	2-3 Times a Week		0	0%
8	Daily		0	0%
9	Other		10	27%
	Total		37	

Other

spiratically.

As I am notified of corrections

I am quite new and still experimenting a bit with the Open Green Map

varies from once a quarter to weekly depending on the map

add new sites frequently; thorough update annually

Depends on time and case available.

Really depending on the map

Statistic	Value
Min Value	1
Max Value	9
Mean	4.65
Variance	8.51
Standard Deviation	2.92
Total Responses	37

$12. \ \ \text{How many times in the last year have you updated your MapMaker Profile on greenmap.org?}$

#	Answer	Bar	Response	%
1	Onœ		15	41%
2	Twice		9	24%
3	3-5 times		1	3%
4	Never		11	30%
5	Other:		1	3%
	Total		37	

Other:	
But we have to modify	

Statistic	Value
Min Value	1
Max Value	5
Mean	2.30
Variance	1.83
Standard Deviation	1.35
Total Responses	37

$13. \ \ \text{In the future, which of these following platforms you would like to see integrated into Open Green Map. (check all that apply)}$

#	Question	Very Important	Important	Less important	
1	Google Maps	23	8	2	33
2	Bing	3	7	18	28
3	Open Street Map	7	11	12	30
4	Desktop GIS	8	4	18	30
5	Nokia	2	5	19	26
6	Other:	4	3	4	11

Other:

social media

Facebook type of social networks

ArcGIS

Iphone

Our local city map-app (don't know platform)

Blackberry

how far each icon is from my location

Statistic	Google Maps	Bing	Open Street Map	Desktop GIS	Nokia	Other:
Min Value	1	1	1	1	1	1
Max Value	3	3	3	3	3	3
Total Responses	33	28	30	30	26	11

$14. \ \ \text{How many people were in the CORE TEAM for the last three Open Green} \\ \text{Maps that you created?}$

#	Question	Latest Map Project	Previous Map project	Older Map project	
1	1 person	8	5	2	15
2	2-5 People	25	13	15	53
3	6-10 People	2	0	1	3
4	11-15 People	0	0	0	0
5	16-20 People	0	2	0	2
6	More than 20 people	1	0	0	1

Statistic	1 person	2-5 People	6-10 People	11-15 People	16-20 People	More than 20 people
Min Value	1	1	1	-	2	1
Max Value	3	3	3	-	2	1
Total Responses	11	31	3	0	2	1

$15. \ \ \text{How many people were there in the COMMUNITY that participated in the last three Open Green Maps that you composed?}$

#	Question	Latest Map Project	Previous Map Project	Older Map Project	
1	Up to 10 people	23	11	9	43
2	11-20 people	4	4	2	10
3	More than 20 people	7	4	7	18

Statistic	Up to 10 people	11-20 people	More than 20 people
Min Value	1	1	1
Max Value	3	3	3
Total Responses	26	8	10

16. Who was involved in recent projects

#	Question	Lates Map Project	Previous Map Project	Older Map Project	
1	Children	9	6	10	25
2	Seniors	8	3	5	16
3	Under-served populations	7	3	4	14
4	People new to sustainability	14	7	7	28
5	Low-income communities	5	4	6	15

Statistic	Children	Seniors	Under-served populations	People new to sustainability	Low-income communities
Min Value	1	1	1	1	1
Max Value	3	3	3	3	3
Total Responses	13	9	9	16	9

$17. \ \ \,$ In which way do the mapmakers in your team communicate/cooperate with each other?

#	Answer	Bar	Response	%
1	Face-to-face		28	78%
2	Comments on Green Map		3	8%
3	Emails		28	78%
4	Social media (e.g. Facebook, twitter, etc.)		8	22%
5	Google docs		4	11%
6	Others:		6	17%

Others:
via whatsapp and text messaging
via our website
Huddle Group
phone
map webpage

Statistic	Value
Min Value	1
Max Value	6
Total Responses	36

$18. \ \ \text{For which of the following reasons have you corresponded with other mapmakers (not on your team) in the past 2 years? Check all that apply}$

#	Answer	Bar	Response	%
1	Sharing Ideas		23	64%
2	Ask technical questions		18	50%
3	Network with each others		13	36%
4	Contact for Business Dealings		3	8%
5	Correct information		5	14%
6	Others:		7	19%

Others:
Haven't contact anyone yet
re collaborating
Ask for information.
never comunication
no contact

Statistic	Value
Min Value	1
Max Value	6
Total Responses	36

$19. \ \ l'd$ like to see more social interactions between mapmakers. (Interaction online or in person)

#	Answer	Bar	Response	%
1	Strongly Disagree		0	0%
2	Disagree		1	3%
3	Neither Agree nor Disagree		9	25%
4	Agree		16	44%
5	Strongly Agree		10	28%
	Total		36	

Statistic	Value
Min Value	2
Max Value	5
Mean	3.97
Variance	0.66
Standard Deviation	0.81
Total Responses	36

20. Who are your primary target users? (check all that apply)

#	Answer	Bar	Response	%
1	Other mapmakers		1	3%
2	Policymakers		1	3%
3	Consumers		4	11%
4	Neighborhood residents		18	50%
5	Tourists/visitors		7	19%
6	Students		4	11%
7	Journalists		0	0%
8	Academics		1	3%
	Total		36	

Statistic	Value
Min Value	1
Max Value	8
Mean	4.28
Variance	1.52
Standard Deviation	1.23
Total Responses	36

$21. \ \ \text{How do you promote your maps? Check all that apply.}$

#	Answer	Bar	Response	%
1	Events and conferences		22	61%
2	Distribution of printed materials		17	47%
3	My organization's website		28	78%
4	Email list		18	50%
5	Facebook		18	50%
6	Twitter		9	25%
7	Other Social Media		7	19%
8	Main stream media		1	3%
9	Other:		5	14%

Other:
cal newspaper
dass and during committee meetings
raining course.
eople who visit to the office

Statistic	Value
Min Value	1
Max Value	9
Total Responses	36

$22. \ \ \text{In which way did you get most feedback for the map you created?}$

#	Answer	Bar	Response	%
1	Face-to-face feedback (including events)		23	64%
2	Comments on Green Map		8	22%
3	Emails		15	42%
4	Social media (e.g. Facebook, twitter, etc.)		10	28%
5	Google docs		0	0%
6	Other:		5	14%

Other:
website comments
comments on map when required of students
haven't gotten any feedback
Minimal feedback so far

Statistic	Value
Min Value	1
Max Value	6
Total Responses	36

$23. \ \ \text{How often do you use each of the following social media platforms?}$

#	Question	Never	Less than Once a Month	Once a Month	Once a Week	2-3 Times a Week	Daily	
1	Faœbook	2	2	1	7	8	15	35
2	Twitter	14	5	5	2	2	6	34
3	LinkedIn	8	3	8	7	5	1	32
4	QQ	26	0	0	0	1	1	28

Statistic	Facebook	Twitter	LinkedIn	QQ
Min Value	1	1	1	1
Max Value	6	6	6	6
Total Responses	35	34	32	28

24. How often do you update the Facebook page for your Green Map?

#	Answer	Bar	Response	%
1	Daily		2	6%
2	Weekly		4	11%
3	Monthly		2	6%
4	Quarterly		3	9%
5	Yearly		2	6%
6	I don't have a Facebook page for my Green Map		22	63%

Statistic	Value
Min Value	1
Max Value	6
Total Responses	35

25. Analytics is important about my maps.

#	Answer	Bar	Response	%
1	Strongly Disagree		1	3%
2	Disagree		0	0%
3	Neither Agree nor Disagree		13	36%
4	Agree		14	39%
5	Strongly Agree		8	22%
	Total		36	

Statistic	Value
Min Value	1
Max Value	5
Mean	3.78
Variance	0.81
Standard Deviation	0.90
Total Responses	36

$26. \ \ \text{How many times on average have you exported data from your projects?}$

#	Answer	Bar	Response	%
1	Weekly		0	0%
2	Monthly		3	10%
3	Every six months		6	19%
4	Yearly		8	26%
5	Other:		14	45%

Other:
never
Never
never
don't understand the question
Never
never, source data is elsewhere
not yet but will
never
never
Not regularly.
never
Never

Statistic	Value
Min Value	2
Max Value	5
Total Responses	31

$27. \ \ \$ What purpose have you exported data about your maps for? Check all that applies.

#	Answer	Bar	Response	%
1	I have never exported data from Open Green Map		16	48%
2	Data Analysis	_	2	6%
3	Archiving and Preservation		7	21%
4	Cross-Platform Preservation		3	9%
5	GIS Mapping	_	2	6%
6	Other:		3	9%
	Total		33	

Other: will for data analysis Parse and display in another form on webpage

Statistic	Value
Min Value	1
Max Value	6
Mean	2.45
Variance	2.94
Standard Deviation	1.72
Total Responses	33

$28. \;\;$ Which of the following are you willing to share your map data with? This question is about open data. Check all that apply

#	Answer	Bar	Response	%
1	for non-profits		30	91%
2	For government agencies		24	73%
3	local businesses		12	36%
4	Large online Companies		5	15%
5	Academic institutions		24	73%
6	Others:		5	15%

Others:	
community	
anyone without profit motive	
community groups	
Any related stakeholders.	

Statistic	Value
Min Value	1
Max Value	6
Total Responses	33

$29. \ \ \$ What parts of GreenMap.org's content would you like to have on your website?

#	Answer	Bar	Response	%
4	Your Open Green Maps with legend, sidebar		8	57%
5	Your Print Green Maps (image, legend)		4	29%
6	Linked list of your maps		0	0%
7	Your blog posts		1	7%
8	Other:	_	1	7%
	Total		14	

Other: some selected icon categories most interesting for world citizens

Statistic	Value
Min Value	4
Max Value	8
Mean	4.79
Variance	1.57
Standard Deviation	1.25
Total Responses	14

30. Would you add this global content to your website:

#	Answer	Bar	Response	%
4	Icon Poster / resource		4	29%
5	Widgets with everyone's Green Maps		0	0%
6	Short videos		3	21%
7	Public comment center		0	0%
8	Crowdfunding widget		0	0%
9	Map search button		7	50%
10	Other:		0	0%
	Total		14	

Other:

Statistic	Value
Min Value	4
Max Value	9
Mean	6.93
Variance	5.15
Standard Deviation	2.27
Total Responses	14