
CGIAR CSI Baseline Survey

Preliminary Results Summary

Prepared for
CGIAR (CIO) & CSI

Through funding from
HarvestChoice

April 2008

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Section 1. Institutional Development

Questions 1 and 2

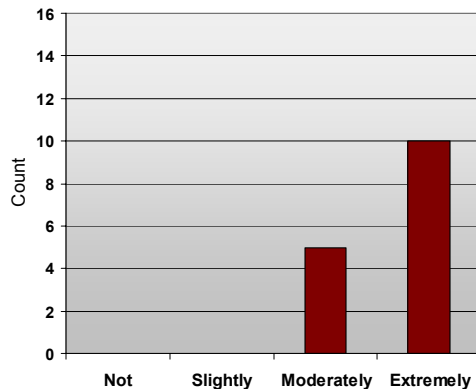
Please enter your name and position or role in the research center.

Summary

- 12 respondents were heads or managers of GIS labs/units or program divisions.
- 3 respondents were scientists or staff.

Question 3

Is geospatial technology beneficial to the success of your center's overall vision and mission?



Question 4

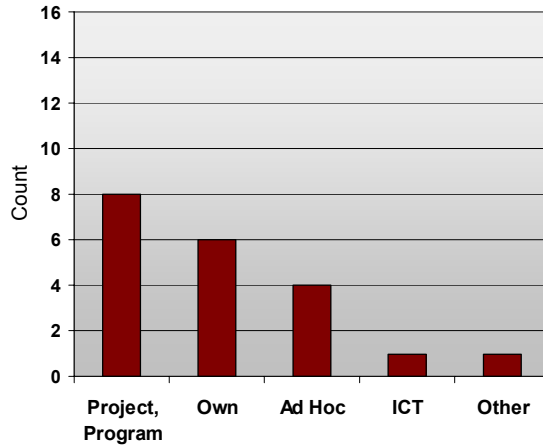
Is your center a formal member of the CGIAR-CSI system?

Summary

- All 16 centers were formal members.

Question 5

How is geospatial support (or services) organized within your center? (Please select all that apply)

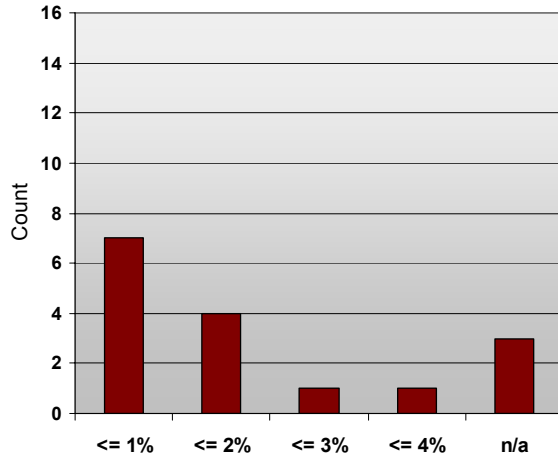


Other Response

... Over the past 4-6 years, each of our research divisions increasingly use maps and spatially-referenced data in their work. Some researchers have developed GIS skills, some have employed research support staff with GIS skills. There are only three FTE senior research staff with GIS skills, and only one of these is actually employed as a spatial analyst/GIS specialist. There are about another 3 FTE research support staff who are GIS specialists - all working in isolation from each other. There is no formal geospatial support/services function apart from IT unit's management of the ESRI (10 seat) license we obtained as part of a CSI deal (& ESRI on-line training), support for the cost and maintenance of an internal GIS server (1 Terabyte - brand new to replace a 200GB server). The former server, shared on an informal basis by the various GIS enthusiasts around the institute was not effectively managed, and very little metadata was generated to support data documentation and sharing (exception was for ICT/KM project).

Question 6

What percentage of the overall center's budget do you estimate is committed to this geospatial support unit/services?

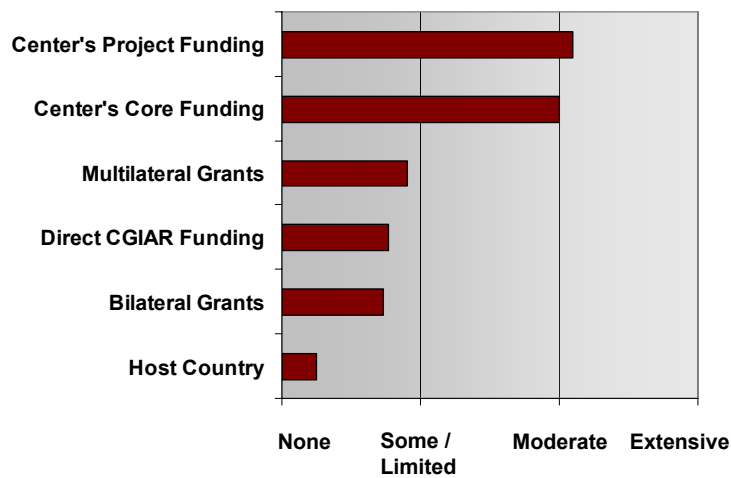


- Confidence level of 12 estimates was below 10%.
- One estimate (2% center's budget) had confidence level of 15%.

Question 7

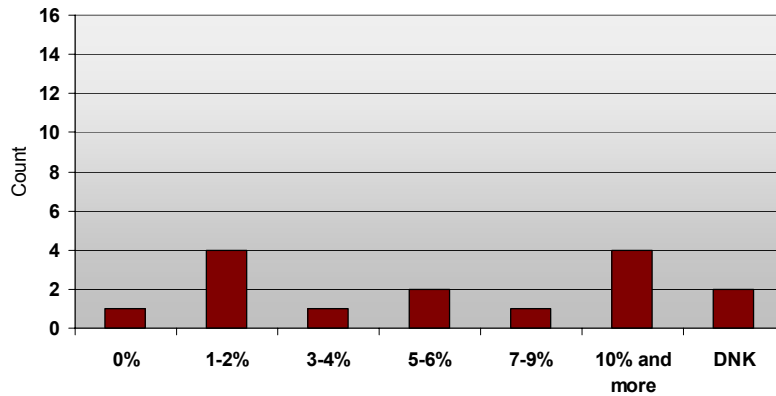
What are the funding sources for this geospatial support unit/services within your center?

(Results are in averages)



Question 8

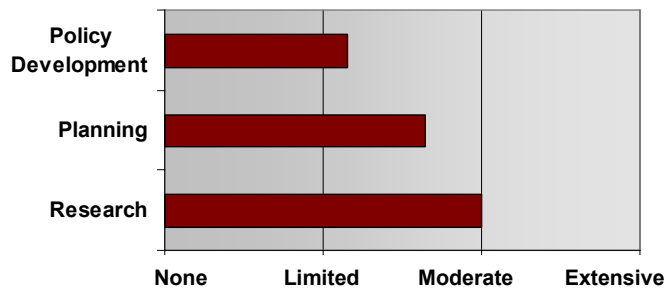
What percentage of this geospatial support unit/services' overall budget is for training (both in technology and its applications in sustainable agricultural development)?



Question 9

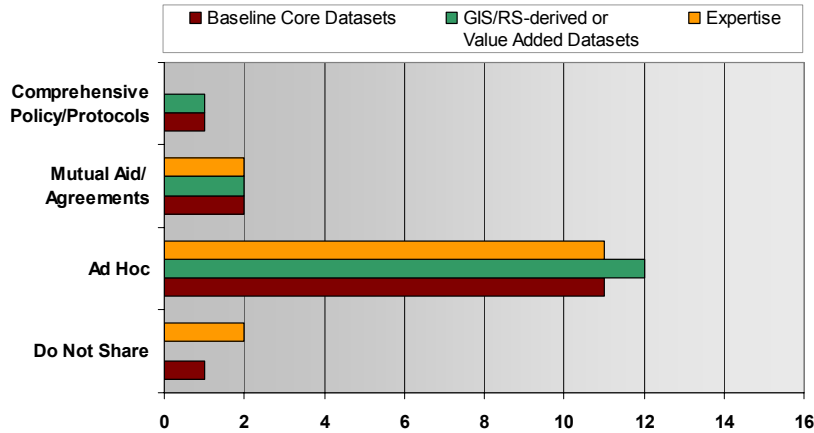
How extensively does your center utilize publicly available mapping services (e.g. Yahoo, Google Map/Earth, MS Virtual Earth) for research, planning, or policy development?

(Results are in averages)



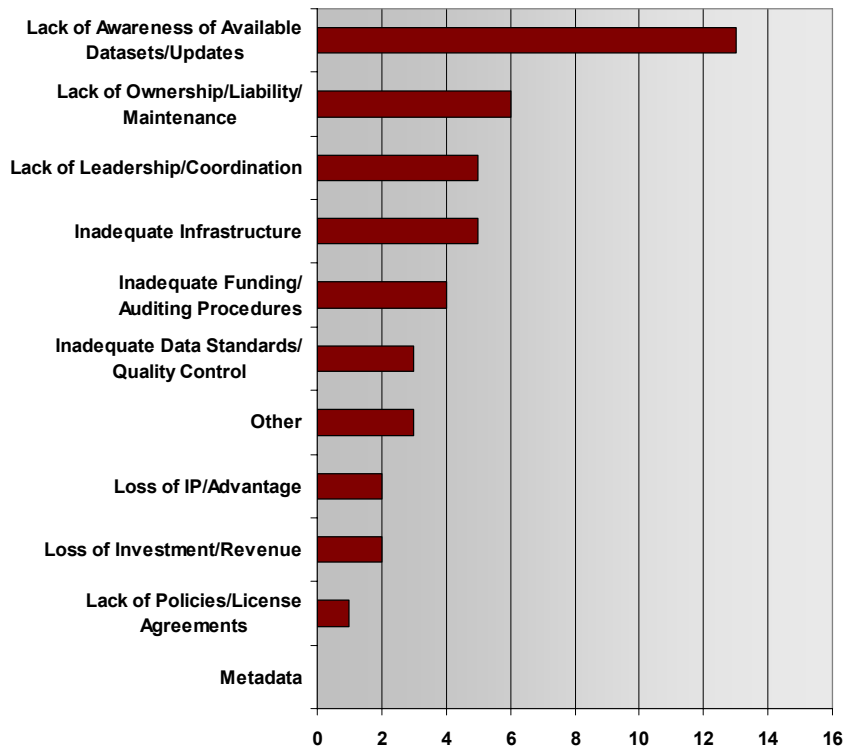
Question 10

What are your center's most common ways of sharing the following within CGIAR?
(Baseline core datasets, GIS/RS-derived or value added datasets, Expertise)



Question 11

What are currently the three most significant limitations to spatial data sharing within CGIAR?



Other Responses

a.

Data sharing works quite well through the GeoNetwork nodes as well as formal and informal networks in the CG.

b.

Too busy with our own work to look at what other centers are doing.

c.

Mostly done scientist to scientist so policies/license agreements not an issue. Recipients are normally other analysts so high level of technical skill and little demand for formal metadata (beyond minimal technical documentation)

Question 12

What are your director(s) and managers' views on spatial technology utilization within your center? What are their concerns and perceived limitations?

Responses

a.

"GIS often lacks focus" (DDG-R, 2004). "Geo-referencing of field data collection, trials, [...] should be systematic and mandatory" (DDG-R).

b.

Directors and managers are well aware of the benefits and use of spatial technologies. The manager of the geospatial lab is generally on board for strategic planning meetings as well as provide input in proposals. Focus is on utilization of spatial technology as a tool to aid R4D in terms of targeting, upscaling etc not so much on spatial technologies as a research field itself.

c.

Utilization of spatial technology is considered as extremely important. The Geospatial facilities are currently being upgraded and expended.

d.

At Research Program Director Level: Extremely strong support (3/4 directors) and very high client demand & use by researchers. Research Administrator level: Neutral DG level: Supportive but limited client Concerns / Limitations: Costs. Would it be cheaper to outsource? Lack of full cost recovery for service support to scientists. Provision of support to all research programs - increase in one particular research area.

e.

Our directors generally view technology utilization as very positive. ... has been a leader in ... and GIScience and Technology. They are sometimes concerned that we are not integrated sufficiently [sic] into the commodity programs of our center. They are very concerned about the current funding environment overall, and how this affects our GIScience and Technology, especially with respect to keeping at the cutting edge regarding hardware, software and human resources.

f.

They see it as very powerful, but know little about how to manage it. The perceived limitations in bioversity are the lack of critical mass.

g.

1. spatial data is still a peripheral activity; 2. it is not given its due; 3. managers do not understand it; 4. they need to leave this to experts

h.

They perceive the importance of the use of spatial technology on targeting, impact assessment and on climate change issues

i.

Some are aware of the potential and are willing to promote its use, but at the same time are concerned about the demand on resources and funding to support the activities.

j.

GIS Unit is under Information Services Group (ISG). We just lost our Director this year, and currently the head of division has been down-graded from Director to Manager which still in the recruitment process. Currently we are in the middle of discussing whether GIS Unit should remain in ISG or move to Research Division.

k.

My directors are very supportive on utilization of this technology and will always showcase it whenever an opportunity comes. The concerns are mainly based on dependency of services offered through this technology on core funding.

l.

They believe strongly in the potential of spatial technology as a power support technology for most of the research carried out in the Center, and they are concerned the technology is currently under-utilized. They are willing to invest more, but can do so only within the context of an expanding budget, not by diverting funds away from other research programs/departments.

m.

You should ask them. Not me, but overall they are extremely supportive.

n.

Very supportive

o.

They (variously) think (a) it has strong potential to improve the effectiveness of (agricultural) development research, (b) it's cool, (c) it's not really much use to many institutional, governance and policy related research issues (e.g., because there's a lot of socioeconomic heterogeneity even in small geographic regions). General feeling that we should be doing more to promote and foster use of spatial data, but unwilling to fund service/training functions from core (non-project) resources.

Question 13

What are current efforts to raise awareness or to train your center's director(s) and managers on benefits of spatial technology and its applications in sustainable agricultural development?

Responses

a.

Injection of geo-spatial technologies in special projects with particular focus on crop breeding programs. Development of an institutional position paper following CCER recommendations.

b.

Courses and seminars on utilization and applications of spatial technologies are frequently given both on more senior and more on technical staff levels. Practical courses on production of spatial data and use of GIS software are more limited to researchers and technicians.

c.

Our (new) management is fully aware of the importance of Geo-spatial technologies for future sustainable agricultural development.

d.

Regular seminars specifically by GIS unit staff, but also by supporting scientists and enabling them include GIS applications in presentations and publications. As an example, at the recent Science Week approximately 70% of presentations featured GIS work. Regular meetings with research program directors and scientists to discuss needs and opportunities.

e.

I don't think they need awareness raising on this point. They would do more to support this area if they had sufficient resources. They know the benefits and the applications in general. Perhaps what they lack is a better sense of some of the specific things we should be doing. For example, we should be doing digital research atlases or linking computational geography to computational genetics. They need specifics.

f.

None, nor do i think it is needed.

g.

1. very little; 2. this is required; 3. more important, we need managers who understand spatial data.

h.

Both DG and DDG-R involved in discussions on applications

i.

Through showing the utility of the products and giving awareness seminars.

j.

GIS Unit, collaborate with some of scientist who used spatial technology, conduct a seminar about the benefit of spatial technology.

k.

We are trying to raise awareness through products which they can easily identify with to develop their interest.

l.

Their awareness is fairly good, from seeing the products, seminars, informal discussions etc. What is still not entirely clear to them is how cost-effective appropriate use of spatial technologies can make agricultural research.

m.

Awareness is raised via useful products. Suggesting a need for training directors strikes me as very strange. My impression is that CGIAR directors have a better grasp of these benefits than the typical GIS researcher in their centers.

n.

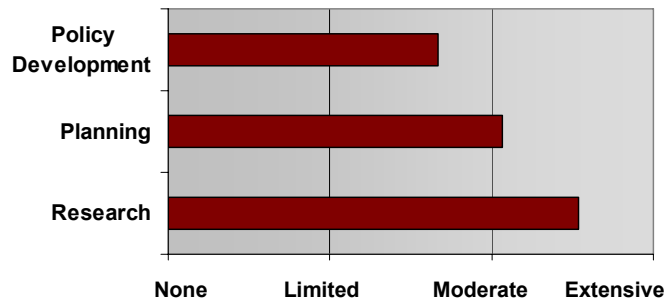
Ad hoc, by greater exposure to research projects that have increasing emphasis on the analytical or presentational/communications aspects of spatial data. With regard to awareness building amongst researchers: Little formal emphasis on mutual learning between researchers targeted specifically to enhanced use of spatial technology utilization (the most action I've seen in the past 2-3 years is the increasing number of field projects that use GPSs in field data work, but unsure if that always translates into analytical or even presentational applications)

Section 2. Technology

Question 1 (14)

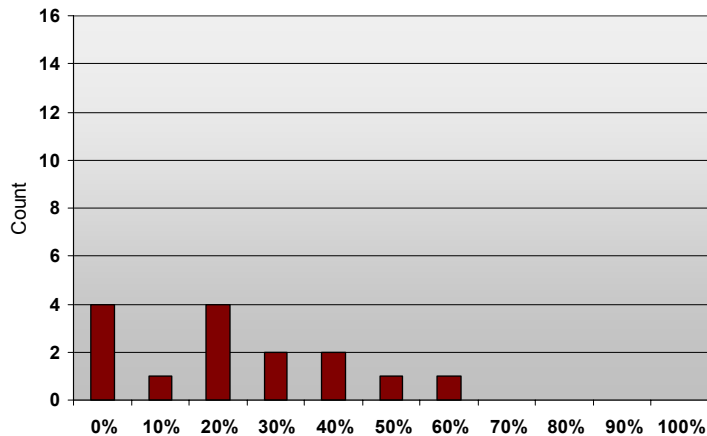
How extensively does your center utilize geospatial data/technology to provide information or advice to decision/policy makers?

(Results are in averages)



Question 2 (15)

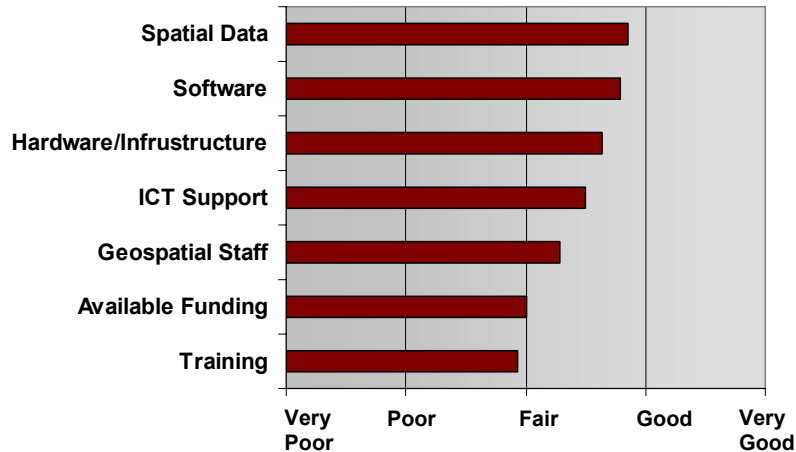
What percentage of the overall geospatial support (or services) within your center is provided by non-CGIAR associated entities (e.g. private companies, universities, foundations, and public agencies combined)?



Question 3 (16)

On the scale from Very Poor to Very Good, describe your center's (headquarters and regional offices combined) resources supporting spatial data and technologies.

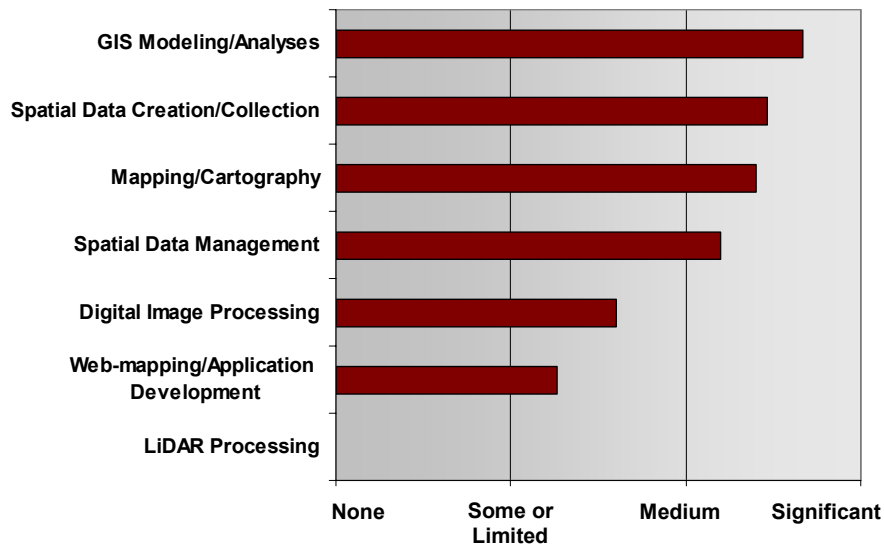
(Results are in averages)



Question 4 (17)

Please describe the type of spatial support and deliverables within your center.

(Results are in averages)

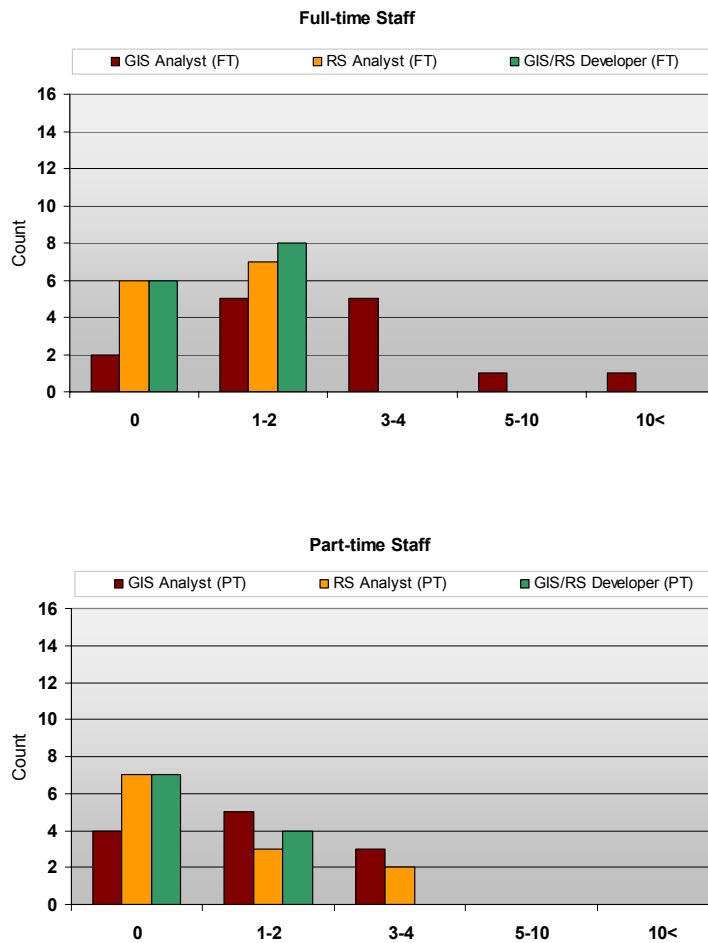


Other Response

Heavy emphasis on GIS in raster domain and modeling applications. Web-based map server under development, but institute-level IT policy limits options for serving spatial data/analyses from institute hosted servers.

Question 5 (18)

How many dedicated (full-time and part-time) geospatial staff/positions does your center have?



Other Responses

a.

We have 3 persons that do digitizing, principally.

b.

One scientific database applications programmer (part-time).

c.

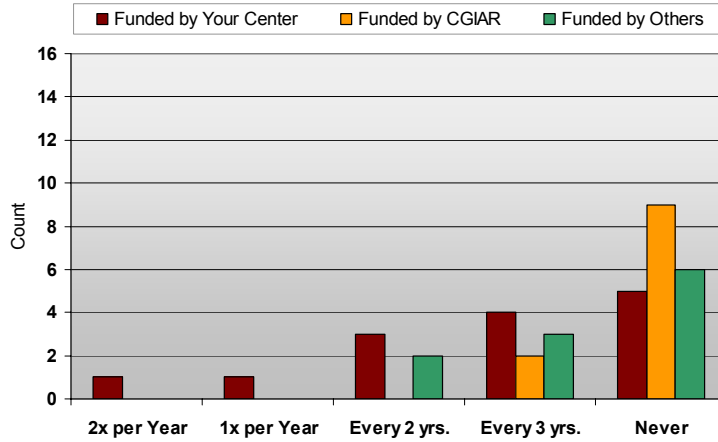
This is probably not a very useful list as you do not distinguish by level/quality of the people.

d.

About to recruit one post doc (RS/GIS) and up to two research analysts (GIS) to add to and related ... Technology Division teams.

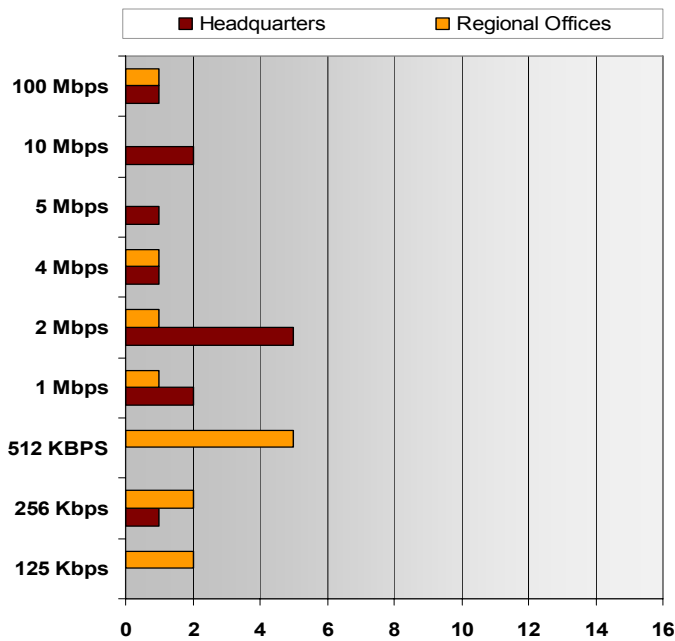
Question 6 (19)

How frequently does your center's geospatial staff receive training on geospatial technology/data or its applications to sustainable agricultural development?



Question 7 (20)

What is your center's bandwidth limit (digital data transfer)? (Please indicate in Kbps or Mbps)

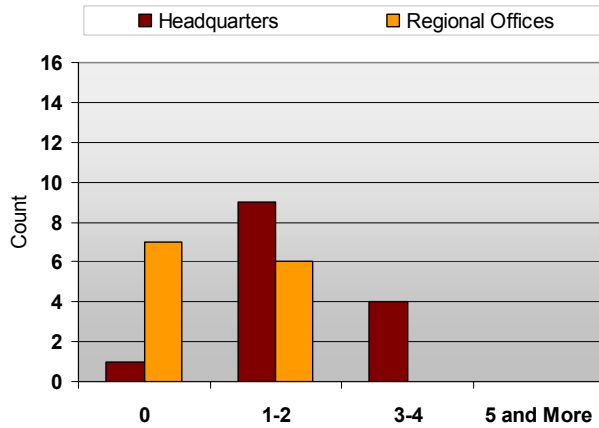


Other Response

- One center indicated 2000 Mbps.

Question 8 (21)

How many physical and dedicated servers (production and development combined) are available for spatial support in your center?



Question 9 (22)

Which of your center's locations (either headquarters or regional office) has the best ICT infrastructure (e.g. bandwidth, servers, and ICT support combined)?

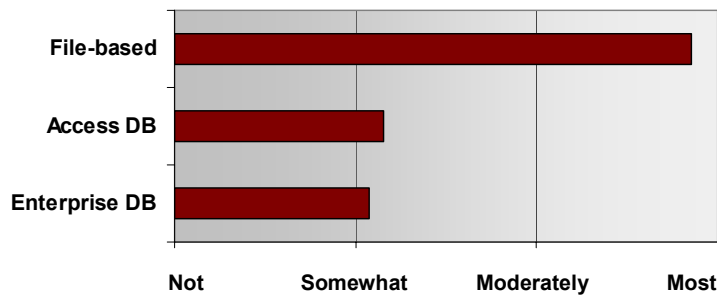
Summary

- Headquarters for 13 centers.
- Bioversity International and Generation Challenge Programs were not applicable.

Question 10 (23)

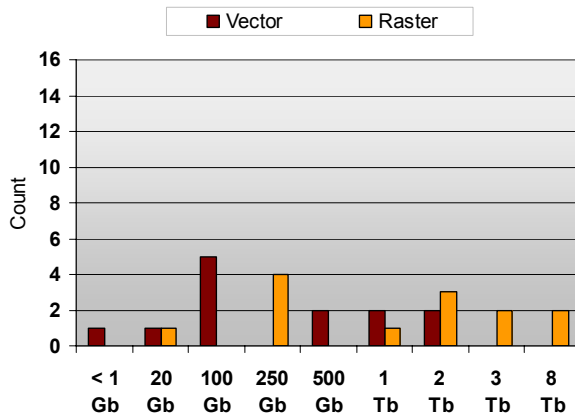
What are the most common approaches that your center uses to store spatial data?

(Results are in averages)



Question 11 (24)

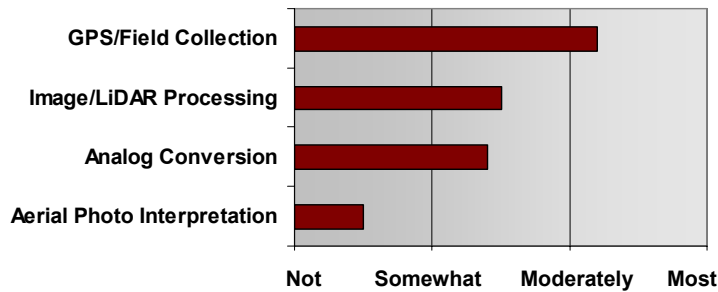
What is your center's current spatial data storage size?



Question 12 (25)

What most common approaches does your center use to produce spatial data?

(Results are in averages)

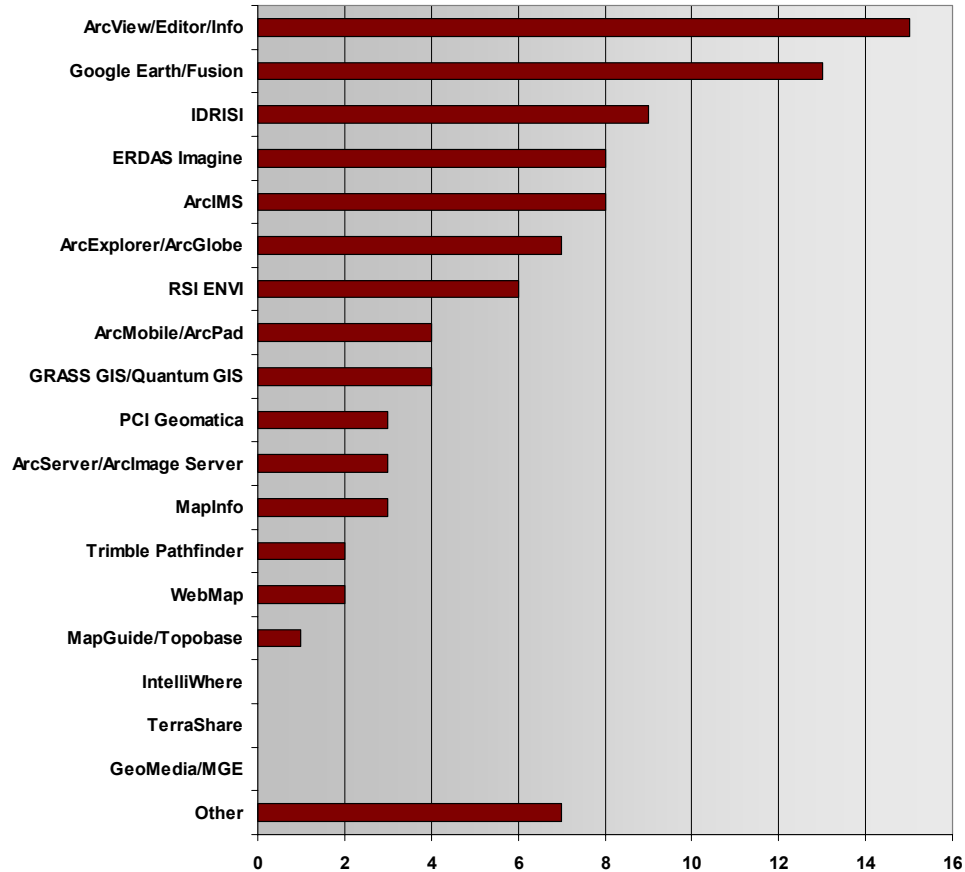


Other Responses

- a. *Some screen digitizing. But much of the data we produce comes from combinations of statistical data that we link to existing data sets, or new data from some kind of processing (not raw satellites images, but often raster data)*
- b. *Spatial interpolation from point data.*
- c. *We are predominantly secondary users of GIS data*

Question 13 (26)

What spatial software or products (providers) does your center use? (Please select all that apply)



Other Responses

a.

Other open source software like DIVA, mapserver, DNR garmin, NASA worldwind.

b.

DIVA-GIS

c.

We also use software products that were made in-house (FloraMap, Homologue, MarkSim) or are otherwise available from partners (DIVA-GIS)

d.

DIVA-GIS GEOCONCEPT R SAS

e.

DEMIS web server, ArcGIS, Surfer, in-house developed software.

f.

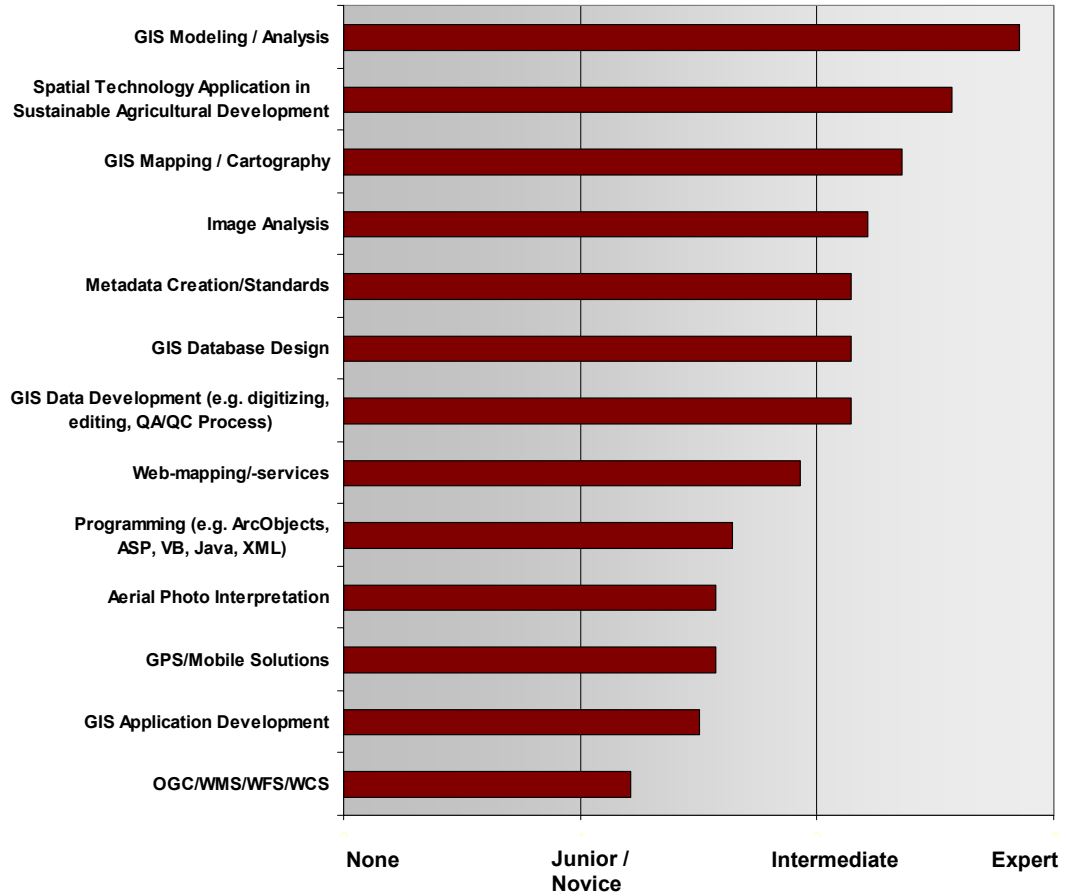
ER Mapper

g.
PostGresQL/PostGIS, DIVA-GIS, R.

Question 14 (27)

What is the highest level of geospatial staff skills within your center (either headquarters or regional offices)?

(Results are in averages)



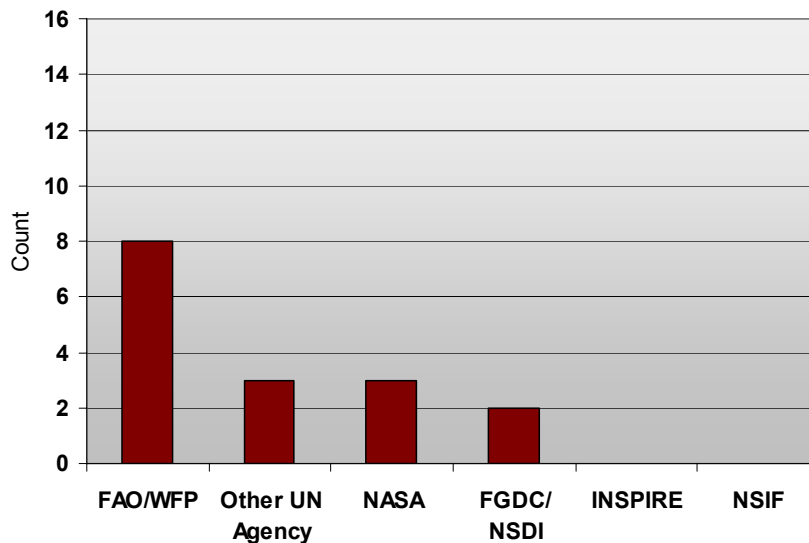
Other Response

The programming one is hard to judge. We have some serious AML programmers. Intermediate Java, ASP - but that person is leaving in 3 months.

Section 3. Data and Coordination

Question 1 (28)

Which spatial data partnership, network, or website (government, private, global, or regional) is the primary source of your center's spatial data?



Other Responses

a.

US GO Agencies

b.

CSI, WorldClim, EU JRC – European Commission Joint Research Center, CIESIN SEDAC – Center for International Earth Science Information Network - Socioeconomic Data and Application Center (response counted as NASA)

c.

It could be USGS. We use MODIS imagery from them. We get all the digital elevation data from NASA. Also Landsat images from NASA. There are probably lots of specialized organizations that we get data from, including University of Columbia (CIESIN - which is a NASA node), Joint Research Center of EC, conservation organizations like the Nature Conservancy. Then a lot of our socioeconomic data comes from censuses and surveys. Biodiversity data comes from genebanks and organizations like GBIF.So, there is no one major provider, but rather a diverse list of providers, each providing a few data sets.

d.

WCMC – UNEP World Conservation Monitoring Centre (response counted as UN Agency), NRI – USDA NRCS National Resources Inventory, GBIF – Global Biodiversity Information Facility

e.

Global Land Cover Facility, Earth Science Data Interface

f.

No single primary source. Much of our data related to climate and land use are self-generated.

g.

No such source; but NASA is very important.

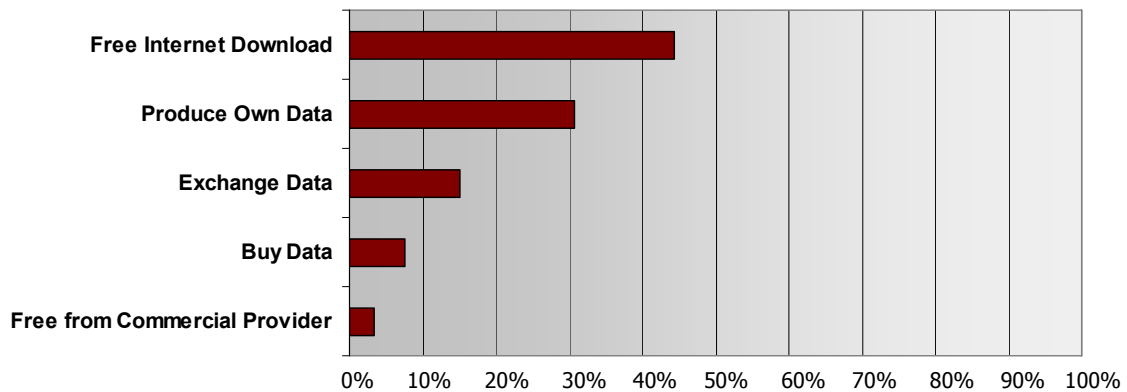
h.

No single supplier is dominant. We often obtain from other researchers and from UN (FAO, UNEP, WMO, WHO), US government (NASA, NOAA, USAID, USGS), other CGIAR Centres, etc.

Question 2 (29)

What percentage of your center’s spatial data is obtained by using each of the following approaches?

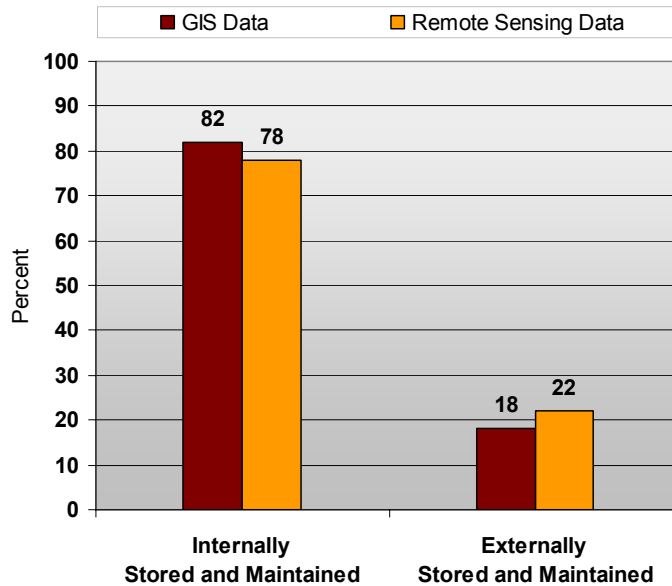
(Results are in averages)



Question 3 (30)

Approximately, what percentage (based on number of individual datasets/layers) of the overall spatial data that your center actively uses is hosted and maintained externally by others?

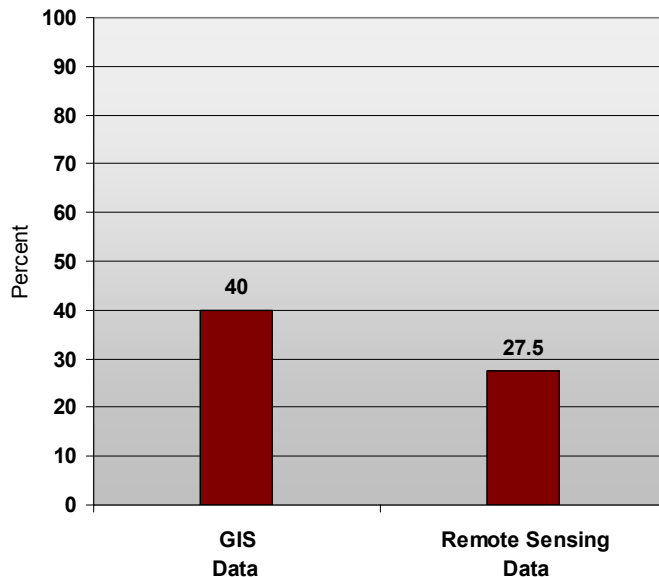
(Results are in averages)



Question 4 (31)

What percentage (based on number of individual datasets/layers) of the spatial data that your center stores and maintains is shared within the CGIAR system?

(Results are in averages - GIS data 14 responses, RS data 12 responses)



Question 5 (32)

What benefits do you see in sharing spatial data within CGIAR? Would you share more spatial data?

Responses

a.

Incentive for joint research ventures. Yes, possibly.

b.

All centers have good collections of spatial data. Sharing amongst CG and other institutions mainly saves time for searching, producing data. Basically we share all our data. Exceptions maybe unpublished research data that will become public domain after a certain period.

c.

Access to more diverse data sets. Improved ability to deal with multi-disciplinary & thematic problems. Improved ability to develop solutions in new regions. Yes.

d.

Yes, we would share more spatial data. The big benefit would be avoidance of lost opportunities because we do not know what others have. One benefit would be some standardizing of methodologies of collection, management and maintenance.

e.

Highly beneficial. Sharing data we can avoid duplication, produce better results more efficiently.

f.

1. Helps in projects of all centers; 2. Avoids duplications; 3. Creates standardized and harmonized data; 4. Helps rapid integration with other data.

g.

Maintaining cost-benefit (reuse) Maximizing external review (Transparency)

h.

1. Reduce duplication of effort in data set creation. 2. More data of various disciplines available for integrating and modeling for natural resource and biodiversity assessment and management We are already sharing all public-domain data sets that we can share

i.

Wider audience can access or spatial database. Yes, we would like to share more.

j.

It would result in reduction in redundancy. i would be more than willing to share more data

k.

It is obvious that the more data becomes available, the more likely a use will be found for them. We are willing to share spatial data within the CGIAR, subject to retaining intellectual ownership rights at Center level and compliance with the specific agreements with partner institutions that helped create the data.

l.

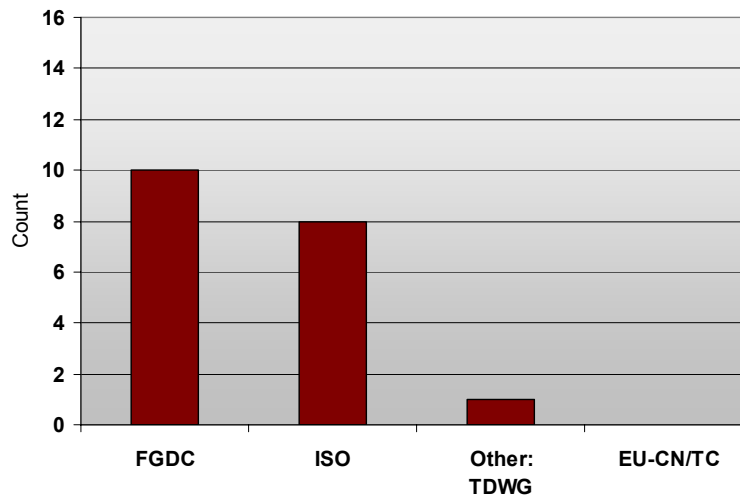
I think it is a really bad idea to spend much time on data sharing specifically within the CGIAR. We should share our data with the world.

m.

Reducing search costs. Greater focus on the specialization of each centre. More effective management and accessibility of data possible (both within and outside CGIAR). More cost effective research and likely outputs/outcomes with greater impact.

Question 6 (33)

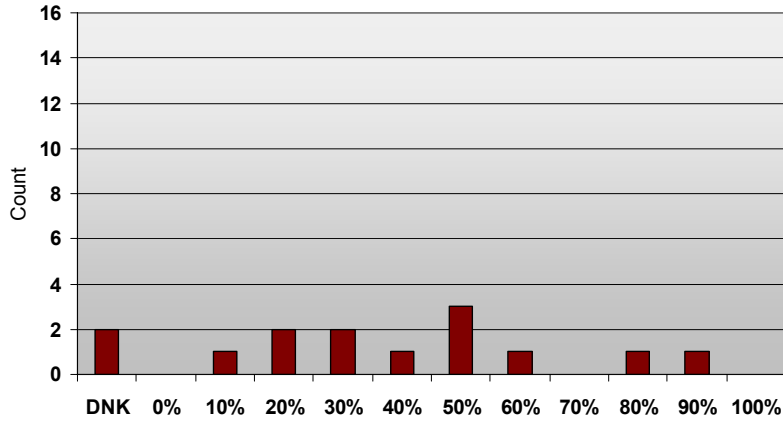
Which metadata standards are you using within your center?



- TDWG – Taxonomic Databases Working Group (GBIF – Global Biodiversity Information Facility)

Question 7 (34)

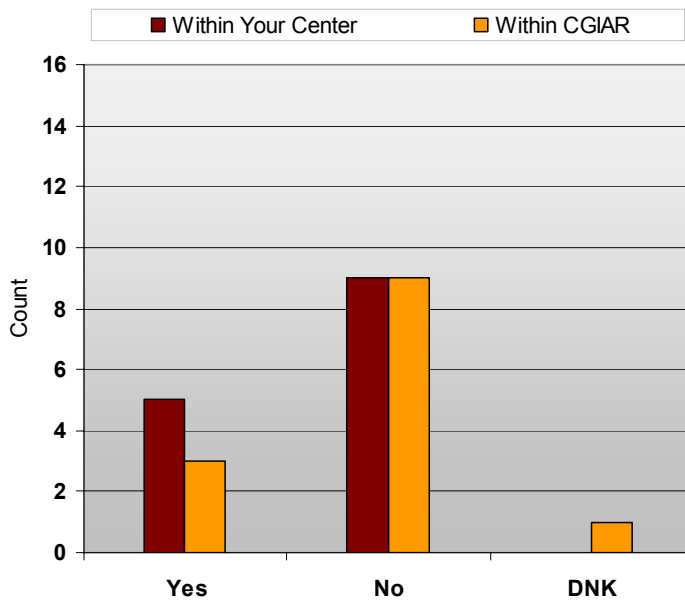
What percentage (based on number of individual datasets/layers) of the spatial data, that your center stores and maintains, has metadata been completed for?



- On average (based on 12 responses) 44% of spatial data stored and maintained by each center has completed metadata.

Question 8 (35)

Is spatial data acquired, managed (e.g. spatial and attribute accuracy, schema/semantics, projection, metadata), and distributed through a single coordination entity (e.g. similar to ICT department) within your center and CGIAR system?



Question 9 (36)

What are the limitations of creating this single data management/sharing authority?

Responses for 'Within Your Center'

a.

Manpower

b.

Time to set it up. Because the benefits of better spatial data management are in the future, we cannot seem to get ahead of the game. Because we are mostly funded by special projects, we do not have time for core data maintenance. It costs us in lost opportunities and decreased efficiency in the future.

c.

Lack of staff, lack of capacity

d.

Management support is required

e.

Funds

f.

Data sets are still largely project-based; lack of resources to centralize data management

g.

Lack of clear policy on the need to have a single clearing house for data acquisition and distribution

h.

There are no problems at Center level: the GIS Unit has the mandate.

i.

This is not something we want

j.

Most researchers prefer an anarchic system, little perception of data as a valued corporate asset worthy of investing core resources

Responses for 'Within CGIAR'

a.

Institutional IP issues.

b.

I don't think it should be managed in one authority

c.

Same as in our individual center. The main problem is that the Center need to boost their documentation efforts, make them more sustainable.

d.

None that I know of

e.

Standard policy required including core funding support

f.

Funds

g.

Lack of coordination among centre, and limitations on infrastructure

h.

There is no need for a single data management/sharing authority at CGIAR level.

i.

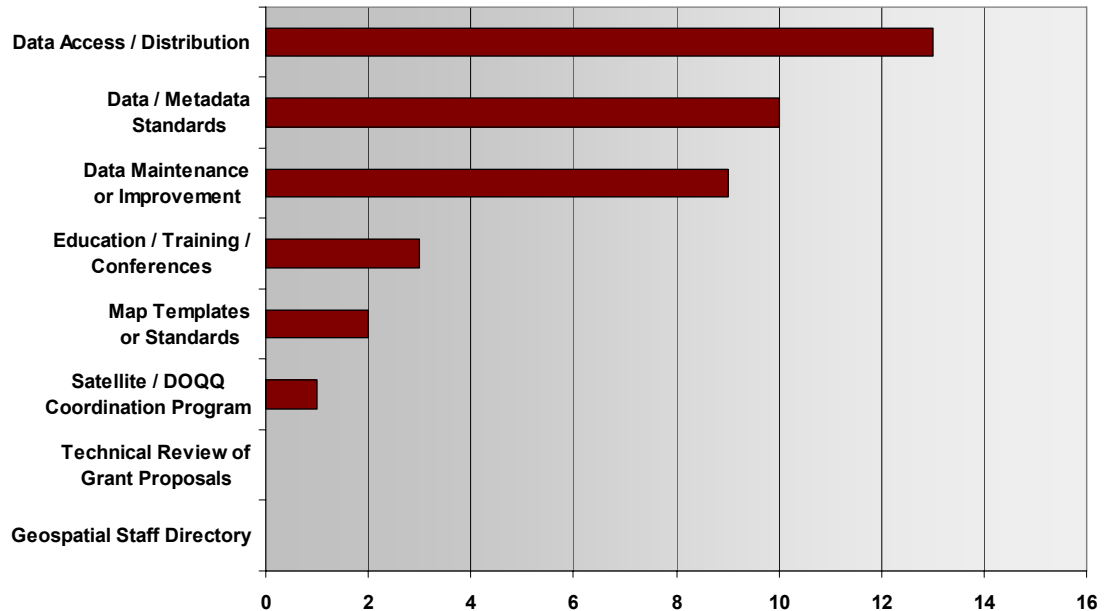
This is not something we want

j.

Most researchers prefer an anarchic system, little perception of data as a valued corporate asset worthy of investing core resources. Plus HIGHLY developed sense of turf protection (donor/CGIAR budget competition) that is a severe disincentive to give any individual centre a CGIAR-wide leadership role, and center's will not want to be "taxed" to pay for a central function

Question 10 (37)

What do you consider to be the three most beneficial functions of this single spatial data management/sharing authority?



Other Responses

a.

Having one metadata authority would be good, but one single node for sharing would be a huge task.

b.

Exposure of geospatial products from CGIAR

c.

I see no need for a single data management/sharing authority centralized at the level of the CGIAR. All the listed functions are best handled at Center's level.

d.

The GIS lab is an informal "portal" to much spatial data in our institute. However, the idea of a single data management/sharing authority is not appropriate at all for a research institute like ours. Having said that, there could be some improvement in long term maintenance and access to a limited number of spatial datasets that we develop and maintain or would be otherwise hard to replace.

e.

Would help "discover" the very large amounts of data that are available through research efforts in CGIAR system and might allow great creativity/synergies in new ways of using these data.

Question 11 (38)

In reference to spatial datasets, what are specific value added capabilities that your center does or can provide to enhance these datasets?

Responses

a.

*Fusion of biological / genetic and environmental data for genotype x environment analyses.
Downscaling of data assimilation paradigms to local spatial scales*

b.

Local knowledge, better access to local data sources e.g. population census data, good contacts to NARS, local and regional networks

c.

Web-based georeferenced database

d.

Crop and farming system specific knowledge and environments associated with them. Multi-disciplinary inputs from scientists for validation. Germplasm, field and crop management data to add reality to spatial modeling results.

e.

Good modeling and processing capabilities to make value added data sets (e.g. SRTM, population surfaces, vegetation indices) 2. error checking and data harmonization

f.

Genetic resource databases of all CGIAR center holdings - knowledge of georeferencing and analysis of point locality GR data

g.

Mosaicked and normalized data. Mega files of 100s or thousands of layers

h.

Quality check through expert network and plausibility

i.

Analyze coral reefs at risk from human activities and climate change Model water availability for aquaculture and impacts of climate change Conduct strategic assessment of aquaculture potential Conduct accessibility mapping in relation to fisheries Conduct poverty mapping in relation to fisheries

j.

We have our own Metadata Editor that is free and can be distributed to those who need it. The Metadata Editor is comply [sic] with ISO and FGDC Standards.

k.

Capacity to improve on secondary data through modeling and analysis to produce products which could directly inform policy formulation. Technical capacity to set up sharing infrastructure.

l.

Spatial modeling and analysis of satellite imagery

m.

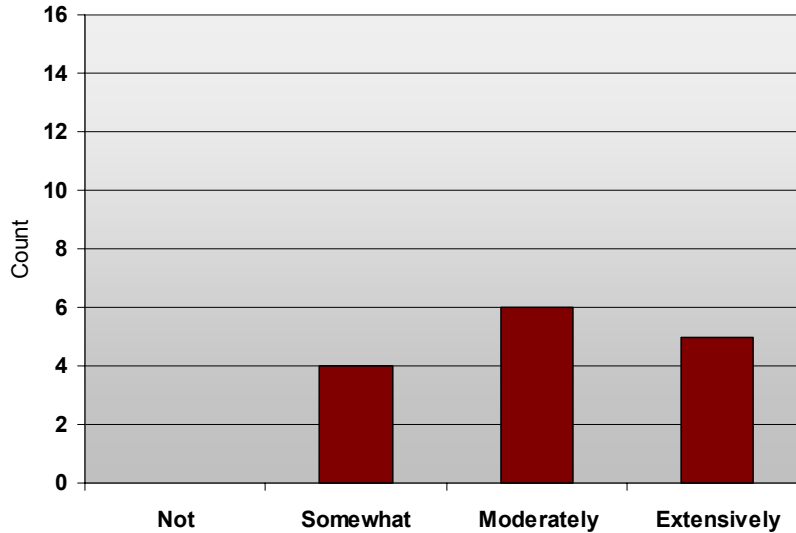
I do not understand the lingo of this question

n.

Adding relevance to datasets - usually through modeling (simple to highly complex) that draws together many data layers, other ancillary data and, often, scenarios of change about policies, investments, markets, environment and human welfare. Each centre has a commodity, thematic or regional specialization that would give them some value-adding comparative advantages

Question 12 (39)

How extensively are these value added spatial datasets/products shared and used within CGIAR? If they are not shared or used within CGIAR, please explain why.



Responses

a.

When we do not share, it is because we want to get some publication or IPR benefits from the data. We need, in the future, to realize these benefits more quickly, so that we can then get the data sets out into the public domain.

b.

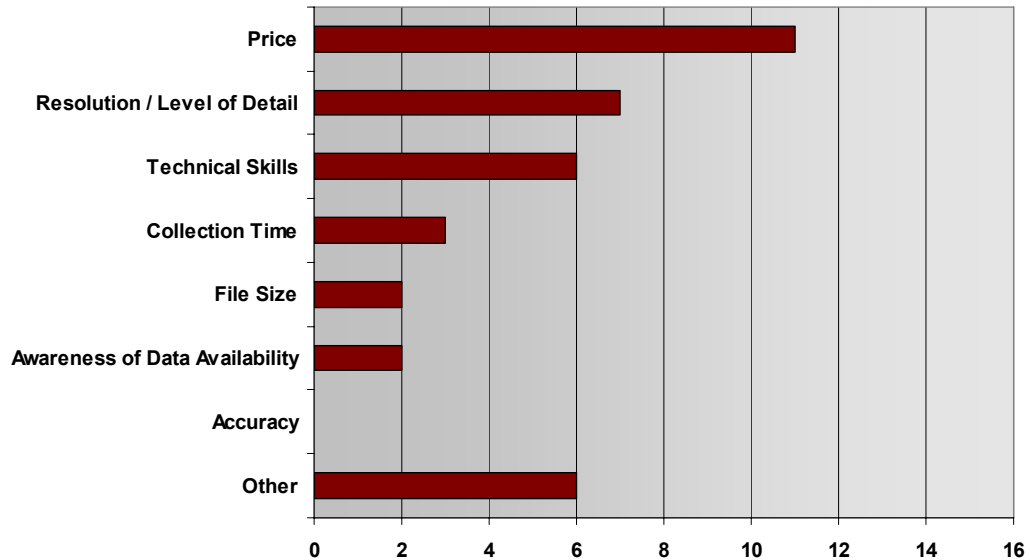
All CGIAR centers need to have a data portal not just a web portal.

c.

Not well documented or "advertised", mainly still through informal peer networks therefore very ad hoc. Nobody wants to spend time, for example, developing metadata for their data products. No severe consequences for not doing that.

Question 13 (40)

What are your center's limitations for utilizing aerial photography or remote sensing data?
(Please select all that apply)



Other Responses

a.

Scarcity of human resources for data processing.

b.

Acquiring cloud-free imagery.

c.

No real needs for managing remote sensing data.

d.

Clouds during potato growing season.

e.

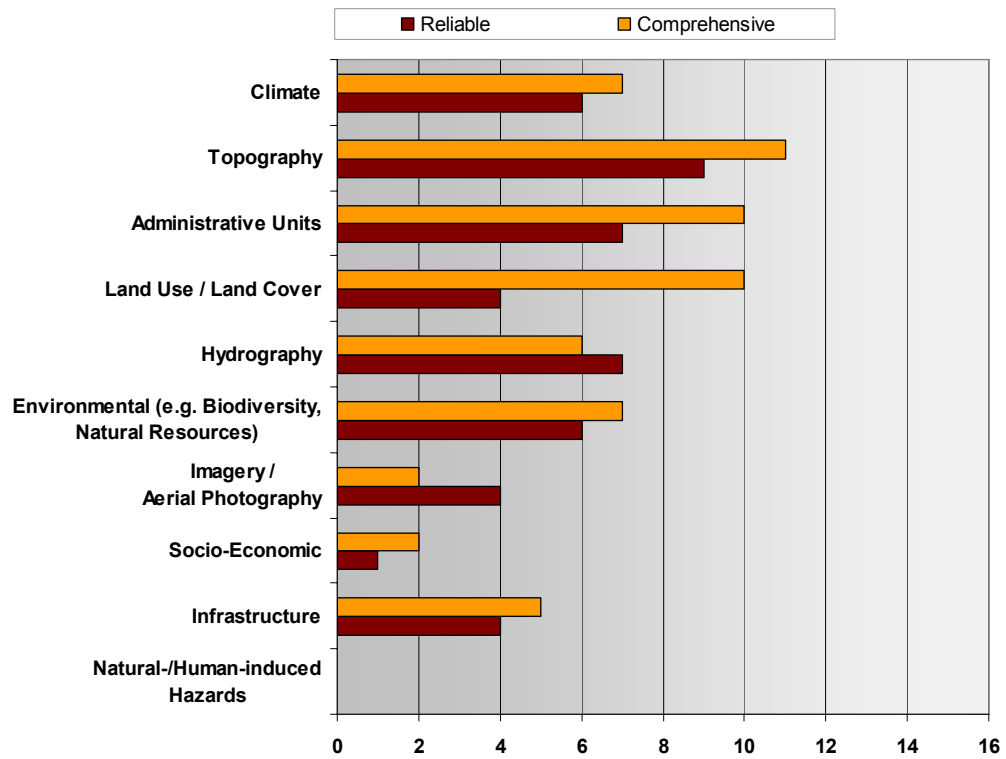
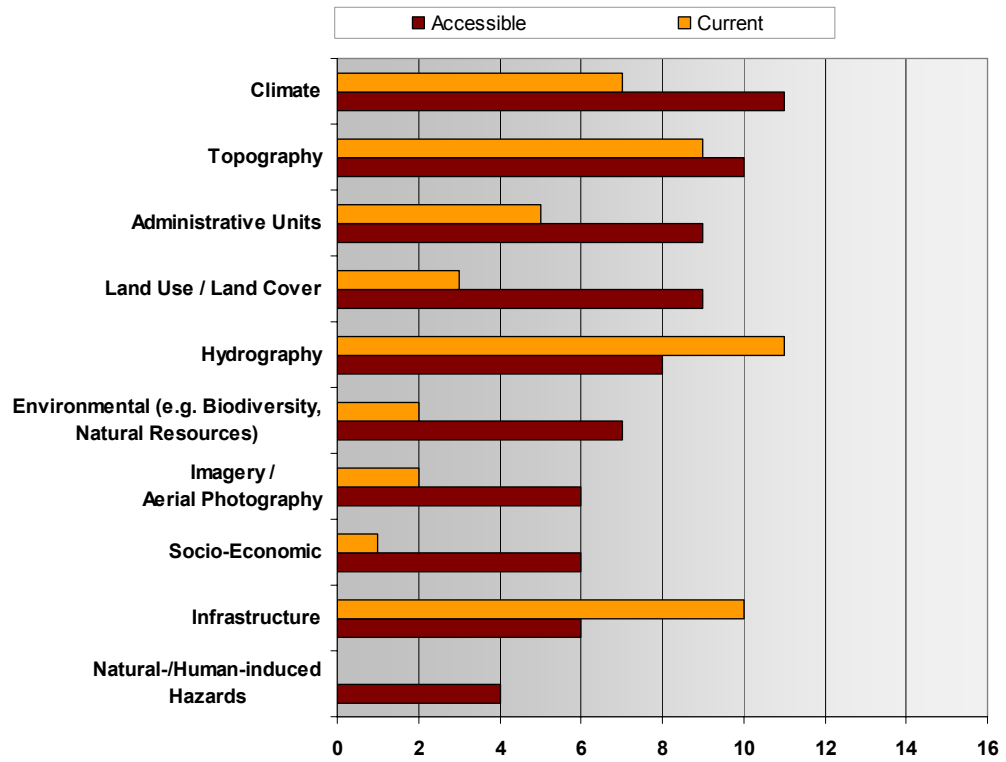
Bandwidth and local data storage capacity, and CPU.

f.

Most RS data does not help in discriminating specific crop types and even has difficulties identifying croplands in many smallholder production areas (especially in sparse savannas and forest margins)

Question 14 (41)

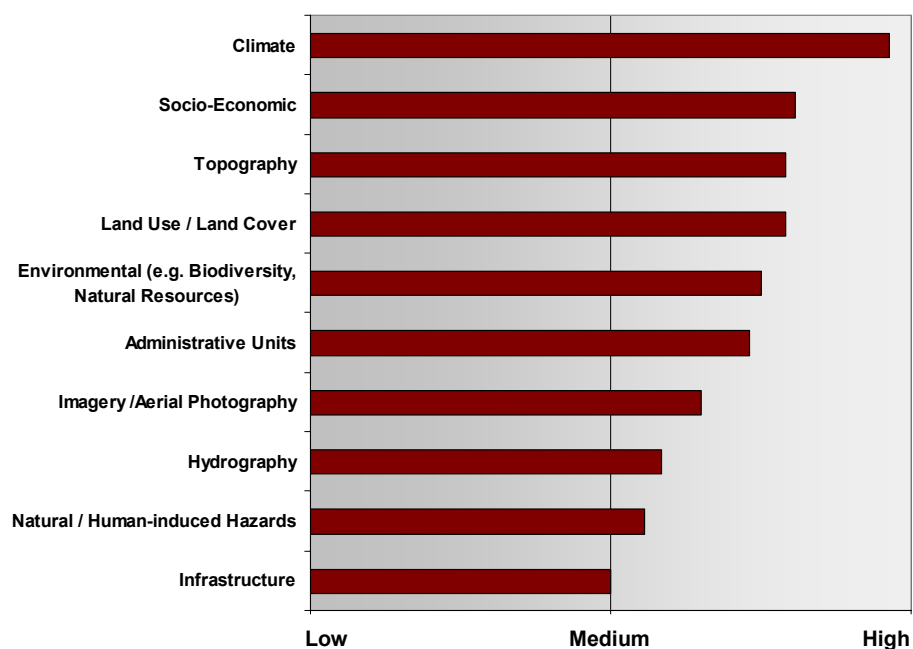
Generally speaking, is the overall spatial data utilized within your center current, comprehensive, reliable, and accessible? (Please check all that apply)



Question 15 (42)

Please describe spatial data currently USED by your center (from internal or external sources).

Importance Level (average response)



Geographic Extent (number of responses)

	Global	Regional-Africa	Regional-Americas	Regional-Asia/AUS	Regional-Europe	National	Local
Infrastructure	6	2	1	-	-	4	1
Hydrography	8	2	-	-	-	3	-
Land Use / Land Cover	6	4	-	-	-	2	1
Administrative Units	7	2	-	-	-	4	1
Environmental (e.g. Biodiversity, Natural Resources)	9	1	-	1	-	2	-
Climate	10	2	-	-	-	2	1
Socio-Economic	4	3	-	-	-	6	2
Imagery / Aerial Photo	4	-	-	-	-	2	4
Topography	7	2	-	-	-	3	1
Natural / Human-Induced Hazards	4	3	-	-	-	-	2

Accuracy Level (number of responses)

	1:24,000 (12 m)	1:50,000 (25 m)	1:100,000 (50 m)	1:250,000 (127 m)	1:500,000 (250 m)	1:1,000,000 (500 m)
Infrastructure	-	2	-	3	1	6
Hydrography	1	1	1	2	1	6
Land Use / Land Cover	-	1	1	2	2	5
Administrative Units	-	-	2	3	1	5
Environmental (e.g. Biodiversity, Natural Resources)	-	-	-	2	3	6
Climate	1	-	-	1	-	10
Socio-Economic	-	1	1	2	-	5
Imagery / Aerial Photo	3	2	2	-	-	2
Topography	1	1	2	6	-	1
Natural / Human- Induced Hazards	-	1	1	1	-	4

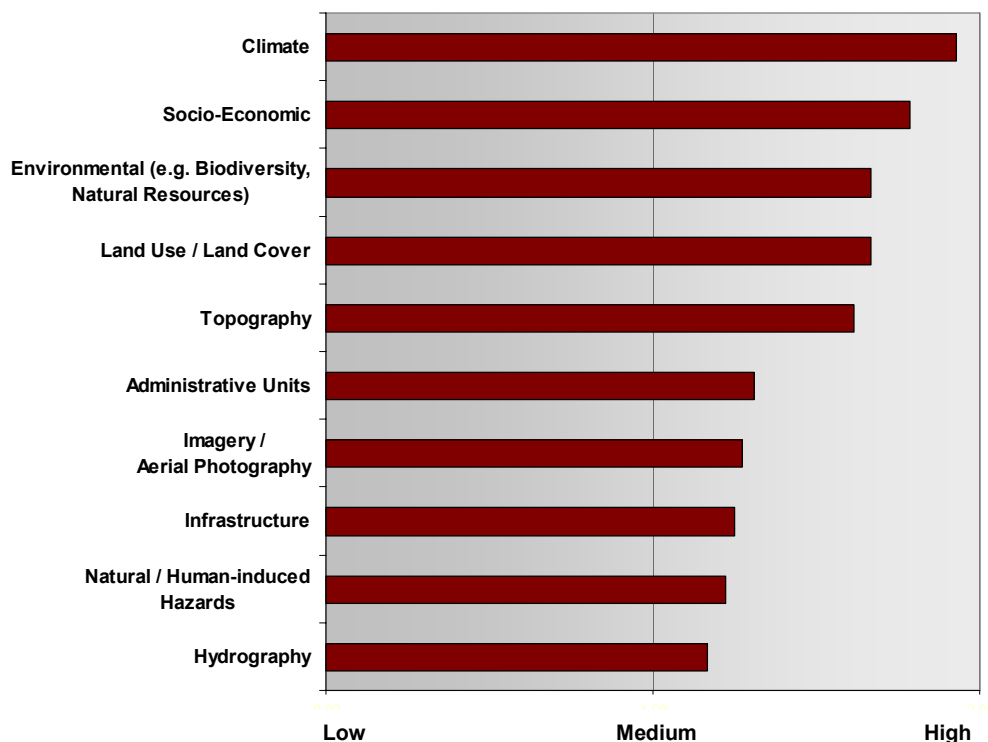
Update Frequency (number of responses)

	2x per Year	1x per Year	Every 2 Years	Every 3+ Years	Do Not Know
Infrastructure	0	2	0	5	4
Hydrography	0	1	0	5	5
Land Use / Land Cover	0	0	2	4	4
Administrative Units	0	2	0	6	3
Environmental (e.g. Biodiversity, Natural Resources)	1	0	0	4	4
Climate	0	3	2	2	4
Socio-Economic	1	3	0	4	3
Imagery / Aerial Photo	0	2	0	2	5
Topography	0	0	0	7	4
Natural / Human- Induced Hazards	0	2	1	1	5

Question 16 (43)

Please describe your center's current spatial data NEEDS, if different than above.

Importance Level (average response)



Geographic Extent (number of change responses)

	Global	Regional-Africa	Regional-Americas	Regional-Asia/AUS	Regional-Europe	National	Local
Infrastructure	1	1	-	-	-	-	-
Hydrography	-	1	-	1	-	1	-
Land Use / Land Cover	-	1	-	-	-	1	-
Administrative Units	-	-	-	-	-	-	-
Environmental (e.g. Biodiversity, Natural Resources)	1	-	-	-	-	-	-
Climate	-	-	-	-	-	-	-
Socio-Economic	1	-	-	-	-	1	1
Imagery / Aerial Photo	1	-	-	-	-	1	-
Topography	1	-	-	-	-	-	-
Natural / Human-Induced Hazards	-	-	-	1	-	-	-

Accuracy Level (number of change responses)

	1:24,000 (12 m)	1:50,000 (25 m)	1:100,000 (50 m)	1:250,000 (127 m)	1:500,000 (250 m)	1:1,000,000 (500 m)
Infrastructure	1	-	-	1	2	-
Hydrography	1	-	1	2	1	-
Land Use / Land Cover	2	1	2	1	1	-
Administrative Units	-	1	-	2	-	-
Environmental (e.g. Biodiversity, Natural Resources)	1	-	1	1	1	-
Climate	-	-	1	-	2	-
Socio-Economic	1	1	-	1	4	1
Imagery / Aerial Photo	1	-	-	1	1	-
Topography	1	-	-	1	1	-
Natural / Human- Induced Hazards	1	-	-	-	2	-

Update Frequency (number of change responses)

	2x per Year	1x per Year	Every 2 Years	Every 3+ Years	Do Not Know
Infrastructure	1	-	1	2	-
Hydrography	-	-	-	2	-
Land Use / Land Cover	-	-	1	2	-
Administrative Units	-	-	-	2	-
Environmental (e.g. Biodiversity, Natural Resources)	-	-	-	2	-
Climate	-	1	-	1	-
Socio-Economic	-	2	2	1	-
Imagery / Aerial Photo	-	-	-	1	-
Topography	-	-	-	1	-
Natural / Human- Induced Hazards	1	-	-	1	-

Question and Response Summary Matrix

Question Num	Sequence Num	Response Total	CIAT	CIFOR	CIMMYT	CIP	ICARDA	ICRISAT	IFPRI	IITA	ILRI	IPGRI Bioversity	IRRI	IWMI	WARDA	Water/Food Challenge Pr.	WorldFish
Section 1.																	
1-1	1	15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
1-2	2	15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
1-3	3	15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
1-4	4	15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
1-5	5	15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
1-6	6	14	C	NA	C	C	C	C	C	C	C	C	C	C	C	C	C
1-7	7	15	C	C	P	C	C	C	C	P	C	C	C	C	C	P	C
1-8	8	15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
1-9	9	15	C	C	P	C	C	C	C	C	C	C	C	C	C	C	C
1-10	10	15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
1-11	11	15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
1-12	12	15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
1-13	13	15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Section 2.																	
2-1	14	15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2-2	15	15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2-3	16	14	C	C	C	C	C	C	C	C	C	C	C	C	C	NA	C
2-4	17	15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2-5	18	14	C	C	P	C	C	C	C	C	C	C	P	C	C	NA	C
2-6	19	14	C	C	C	C	C	C	C	P	C	C	P	C	C	NA	C
2-7	20	13	C	C	C	C	C	C	NA	C	C	C	C	C	C	NA	C
2-8	21	14	P	C	C	C	C	C	C	C	C	C	C	C	C	NA	C
2-9	22	15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2-10	23	14	C	C	C	C	C	C	C	C	C	C	C	C	C	NA	C
2-11	24	14	C	C	C	C	C	C	NA	C	C	C	C	C	C	C	C
2-12	25	14	C	C	C	C	C	C	C	C	C	C	C	C	C	NA	C
2-13	26	15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2-14	27	14	C	C	C	C	C	C	C	C	C	C	C	C	C	NA	C

C – Complete Response

P – Partial Response

NA – No Response

Continued on next page

Question and Response Summary Matrix (continued)

Question Num	Sequence Num	Response Total	CIAT	CIFOR	GIMMYT	CIP	ICARDA	ICRISAT	IFPRI	IITA	ILRI	IPGRI Bioversity	IRRI	IWMI	WARDA	Water/Food Challenge Pr.	WorldFish
Section 3.																	
3-1	28	15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3-2	29	14	C	C	C	C	C	P	C	P	C	C	C	C	C	NA	C
3-3	30	15	C	C	P	P	C	C	C	C	C	C	C	C	C	P	C
3-4	31	14	C	C	P	C	C	C	C	C	C	C	C	C	NA	P	C
3-5	32	14	C	C	C	C	C	C	C	C	C	C	C	C	NA	C	C
3-6	33	14	C	C	C	C	C	C	C	C	C	C	C	C	C	NA	C
3-7	34	14	C	C	C	C	C	C	C	C	C	C	C	C	C	NA	C
3-8	35	14	C	C	C	C	C	C	C	C	C	C	C	C	C	NA	P
3-9	36	13	C	NA	P	C	C	C	C	C	C	C	C	C	P	NA	P
3-10	37	15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3-11	38	14	C	C	C	C	C	C	C	C	C	C	C	C	C	NA	C
3-12	39	15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3-13	40	15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3-14	41	14	C	C	C	C	C	C	C	C	C	C	C	C	C	NA	C
3-15	42	14	C	P	C	C	C	C	P	C	C	C	P	C	P	P	C
3-16	43	11	C	C	C	NA	C	NA	NA	C	NA	C	P	C	P	P	C

C – Complete Response

P – Partial Response

NA – No Response