

RESULTS REPORT OF THE CARIBBEAN PROJECT

The Caribbean region, with an area of more than 2.7 million square kilometers, has been subject to multiple impacts of natural phenomena, which per the Association of Caribbean States (ACS), between 1990 and 2008 the region was subject to 165 impacts, whose economic effects were estimated at 63 billion USD, equivalent to 46% of the economic effects worldwide.

With climate change, these risks increase to the point of endangering the lives of many people and the economies of nations. To mitigate them, it is necessary to make decisions based on evidence. In this case, geospatial quality information is essential.

Historically, Mexico has had a close relationship with the Caribbean. Its foreign policy shares the common purpose of achieving balance in its relations, defending democracy and promoting commercial approaches and international cooperation.

That is why, in April 2011, with the approval of the Law of International Cooperation for Development, the Government of Mexico, through the Mexican Agency for International Cooperation for Development (AMEXCID), established a cooperation agenda with the Caribbean, composed of four initiatives, one of them the "Project for the Strengthening of Spatial Data Infrastructures (SDI) in the States and Territories of the ACS", also known as the "Caribbean Project". It was until 2014, when in collaboration with AMEXCID, the National Institute of Statistics and Geography (INEGI) took on the challenge of carrying it out.

Strategic Objectives

With the intention of improving the resilience of the countries, the strategic objectives of the Project were oriented to strengthen its technological infrastructure and improve its capacities and knowledge to produce, integrate, exchange, use and disseminate geospatial information of higher quality, to interpret and model the phenomena, reduce their risks and guide future efforts to prevent them and, if possible, avoid them.

Strategic Objectives of the Caribbean Project's	
1	Strengthen of the Geodesic Network on the Region (increase permanent or mobile GNSS stations)
2	Disseminate Geographic Data (Create the Caribbean's Digital Map)
3	Promote the use of Geographic Data (Create Land Cover Map)
4	Capacity Building Program
5	Use of Geographic Standards
6	Updating Informatic Technology (Renovate computers)
7	Geographic Metadata

Goals and Objectives achieved

For each of the 7 Objectives, the specific Strategies to be carried out during the 4 years of the project were defined. Generating also its monitoring indicator that would allow an evaluation of the achievement of the objectives at the end of the project.

Next, the control panel is shown with the strategies defined by each of the objectives, and its result reached (classified by a traffic light where the green indicates that they have reached an optimum value, yellow an average value and red that they keep pending actions):

Strategic Objective	Strategies	Tracking Indicator	GOALS / Concrete Objectives			Status	
			minimum	medium	optimum		
1	Strengthen of the geodesic network	Increase Stations	5% of additional stations in the region	3%	5%	10%	33%
2	Disseminate Geographic Data	Create the Caribbean Digital Map	10% of additional portals in the region	5%	10%	15%	10%
3	Promote the use of Geographic Data	Build Land Cover Map	90% of Land Cover in the region	80%	90%	100%	100%
4	Capacity Building Program	Train in Geographic Competences	Participation of 90% of the project countries	80%	90%	100%	86%
5	Use of Geographic Standards	Apply Standards in the Processes	Increase use in 20% of countries	10%	20%	30%	10%
6	Updating Informatic Technology	Renew Computer Equipment	Update 2% of the computer equipment	1%	2%	3%	2%
7	Geographic Metadata	Promote the application	Apply in at least 20% of the countries	10%	20%	30%	10%

Beyond the numerical data of the objective assessment of the established plan, it is important to recognize that significant progress has been made, such as:

1. Development of the SDI diagnosis in the Caribbean countries.
2. Implementation of the Caribbean Geodetic Network (acquisition of 16 fixed geodetic stations and 43 GNSS equipment).
3. Construction of the Caribbean Digital Map.
4. Construction of the Approved Land Coverage Map of the Region.
5. Development of 18 workshops in the region, related to geospatial issues. With a total of 466 hours of instruction and 433 attendees, as well as the participation of 47 instructors from national and international institutions such as: UWI, URISA, OGC, SNIT, UNAM, ECO, CONABIO, SAF, ARSET, NASA, LANOT and INEGI.
6. Development of two specific training courses (Geodetic Processing using Free Software GAMIT and Construction of Geoportals using the Mx-SIG engine developed by INEGI) to the UWI team of professionals.
7. Instrumentation of a Network of Servers for the management of Geospatial Information.
8. Conformation of the Geodetic Data and Processing Center (of the 16 geodetic stations installed) in the UWI.
9. Participation of Caribbean representatives in UN-GGIM and UN-GGIM: Americas.
10. Conformation of a participatory community.

RESULTS OF THE CARIBBEAN PROJECT ASSESSMENT SURVEY

To know the improvements obtained with the Caribbean Project and the satisfaction of the participating countries with the implementation of the 7 strategic objectives, a survey was conducted on "Evaluation of the results of the Caribbean Project", divided into 5 sections: 1. Assessment of improvements, 2. Satisfaction evaluation, 3. Future in strengthening of an SDI, 4. Short-Term activities and 5. Additional information.

The survey was answered by 10 of the 17 countries that participated throughout the 4 years of the Project.

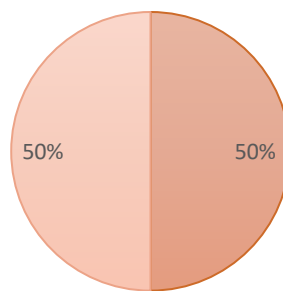
1. Antigua and Barbuda
2. Bahamas
3. Barbados
4. Belize
5. Cuba
6. Guyana
7. Jamaica
8. Sint Maarten
9. St. Vincent
10. Suriname

The results obtained from the "Evaluation of the results of the Caribbean Project" survey are presented below:

I. ASSESSMENT OF IMPROVEMENTS

Only 50% of respondents have transferred data from GNSS stations in their country to the UWI data center.

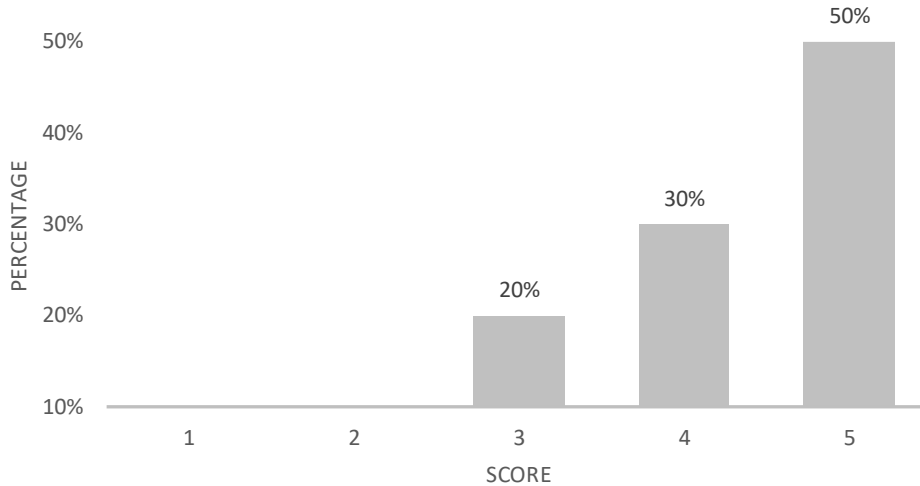
1. Have you transferred data from GNSS stations in your country to the UWI data center?



■ Yes ■ No

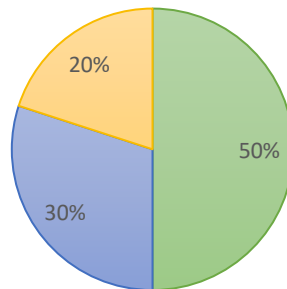
50% of the respondents gave the highest score when rating the impact of the geodetic network in the region.

2. On a scale of 1 to 5 (where 5 is the best score and 1 the worst), How do you score the impact of the geodesic network to the region?



50% of respondents answered that the main benefit provided by the OGC training on geographic standards was to understand its importance in the construction of an SDI.

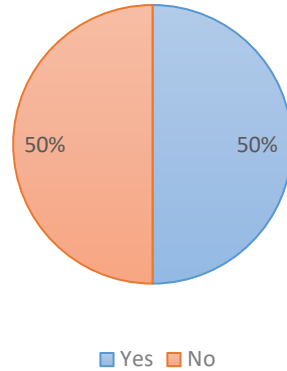
3. Which main benefit was provided by OGC training about geographic standards?



■ Understand its importance ■ Reinforce previous knowledge ■ Learn new knowledge

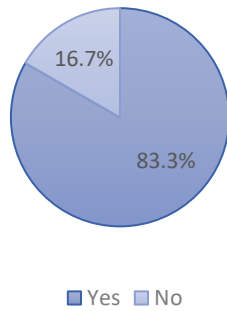
50% of respondents do not have a Geoportal, different from the Digital Map of the Caribbean (product of the Caribbean Project).

4. Do you have an Geoportal in your country? (different from The Caribbean Digital Map)

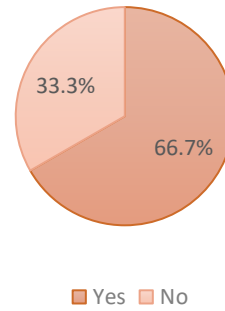


Of the 50% that have a Geoportal different from the Digital Map of the Caribbean, 83.3% mentioned that their Geoportal requires changes. And of the 50% that do not have a Geoportal different from the Digital Map of the Caribbean, 66.7% mentioned that their country requires its own Geoportal.

In case of respond "Yes", Do you think it require changes?



In case of respond "No", Do you think your country require a Geoportal?



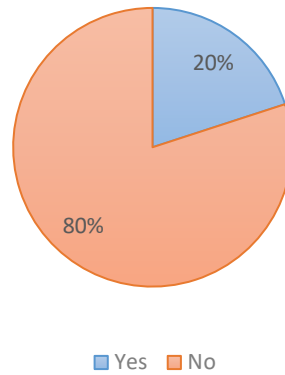
Aerial Photography, Geographic Names, Hydrography, Land Cover, Topography and Vegetation are the topics of Digital Geographic Information where most of respondents (60%) have open data that can be included in the Digital Map of the Caribbean. In the case of Geology and Geomorphology, only 1 country reported having open data.

5. In your country, which of the following topics of Digital Geographic Information (DGI) is open data to be included in the Caribbean Digital Map?

Topics	Percentage
Aerial Photography	60
Geographic Names	60
Hydrography	60
Land Cover	60
Topography	60
Vegetation	60
Land Use	50
Limits	50
Relief and DEM	50
Cadastral	40
Environment	40
Hydrology	40
Risks and Natural Disasters	40
Territorial Ordering	40
Urban Areas	40
Bathymetry	30
Geodesy	30
Weather	30
Communication Channels and Infrastructure	20
Geostatistics Data	20
Natural Resources	20
Satellite Images	20
Geology	10
Geomorphology	10

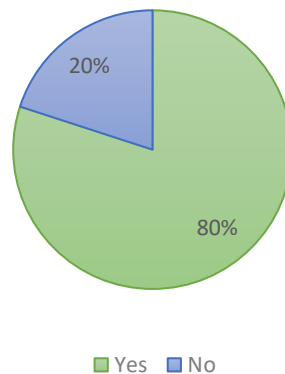
80% of respondents do not have a website to exchange geographic digital information with other institutions and countries in the region.

6. Do you have a web page to exchange Geographic Digital Information with other institutions and countries in the region?



80% of respondents have finished reviewing and validating the classification of you Land Cover Map.

7. Have you ended up of review and validate the classification of the land cover map?



Of the workshops given in the framework of the Caribbean Project, all except the **"Land Cover Map Verification"** workshop were replicated at least once in the region, with the **"Free Software Q-GIS"** workshop being the most replicated by the respondents (50% of respondents replied to it).

On the other hand, more than 50% of the respondents shared the information (presentations and materials) of all the workshops given within the framework of the Caribbean Project, excepting the information from the **"Cartography"** workshop that was shared only by 30% of the respondents.

8. Have you replicated or shared information (presentations and materials) of the trainings received during The Caribbean Project in your Institution or your country? (select your answer for each of the trainings)

Workshop	Year	Replicated	Shared Information	None
Geodesy	2014	20%	60%	30%
Cartography	2015	40%	30%	30%
Geographic Information Standards	2015	20%	80%	
Geographic Information Metadata	2016	30%	60%	10%
Use of Geodetic Equipment	2016	40%	60%	10%
Land Cover Classification	2016	10%	80%	10%
Spatial Data Infrastructure	2016	20%	90%	
Geo-portals and Geo-services with MxSIG	2016	20%	80%	10%
UN-GGIM on RDD	2016	10%	70%	20%
Geographic Information Systems	2016	40%	70%	
Spatial Data Quality	2017	30%	90%	10%
Free Software Q-GIS	2017	50%	60%	20%
Geodetic Processing with GAMIT	2017	10%	70%	30%
MxSIG	2017	10%	80%	20%
Land Cover Map Verification	2017		90%	10%
Geostatistical Data Use	2017	40%	70%	10%

70% of the respondents consider that the topics “Geographic Information Analysis” and “Geographic Database” are topics that require a strengthening of the capacities in their country.

9. Top the 5 main themes you think your country require to strength competences?

Themes	Percentage
Geographical Information Analysis	70%
Geographic Database	70%
Geostatistics Data	60%
International Standards	60%
GIS-base Platform and Geo-Services	60%
Metadata	60%
Remote Sensing	40%
Geographic Information Systems	40%
Use of Software	30%
Geodesy	20%
Cartography	10%
Photointerpretation	10%
Photogrammetry	10%

Based on the current state of the 11 components required for the development of an SDI, most respondents ($\geq 40\%$) rated the **"Basic Data Sets"** component as good; the **"Political Commitment"**, **"Institutional Coordination"**, **"Metadata"**, **"Capabilities"**, **"Infrastructure"** and **"Open source"** components as regular; and the **"Legal Framework"** and **"Human Resources"** components as bad.

The **"Connectivity"** components and **"Software"** did not have a majority in any of the classifications.

10. On a scale of 1 to 5 (where 5 is the best status and 1 the worst), How is the current state of the following components, necessary for the development of a SDI, in your country?

Components of a SDI	VeryBad	Bad	Regular	Good	VeryGood
Political Commitment	0%	20%	50%	20%	10%
Institutional Coordination	10%	30%	40%	0%	20%
Legal Framework	20%	50%	20%	0%	10%
Basic Data Sets	0%	20%	10%	40%	30%
Metadata	10%	30%	40%	20%	0%
Human Resources	10%	60%	20%	0%	10%
Capabilities	0%	30%	50%	10%	10%
Infrastructure	0%	30%	40%	20%	10%
Connectivity	0%	30%	30%	30%	10%
Software	0%	30%	30%	30%	10%
Open source	0%	20%	40%	30%	10%

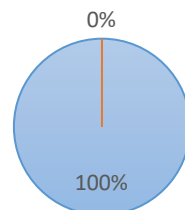
11. Which is the main benefit for your country to be included on The Caribbean Project? (Annex).

The main benefits, mentioned by the respondents, for their countries when included in the Caribbean Project were:

1. Development of the infrastructure for an SDI
2. Development of Capacities oriented to the development of an SDI
3. Knowledge of good practices in the implementation of an SDI
4. Inclusion in the Geodetic Reference Framework

100% of respondents answered that participation in UN-GGIM has favored the use of standards of geographic processes in their country.

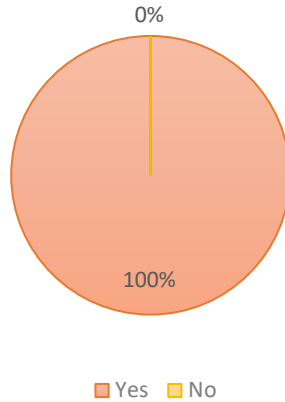
12. Have the participation in the UN-GGIM benefited your country in the use of standards of geographic processes?



■ Yes ■ No

100% of the respondents answered that being included in UN-GGIM has benefited their country in the use of metadata for geographic information.

13. Being included in UN-GGIM, have benefited your country with the use of metadata for geographic information?



II. SATISFACTION EVALUATION

Strategic Objectives:

1. Strengthen of the geodesic network on the region (increase permanent or mobile GNSS stations)
2. Disseminate Geographic Data (Create the Caribbean's Digital Map)
3. Promote Geographic Data use (Create Land Cover Map)
4. Building Capacities
5. Use of Geographic Standards
6. Updating Information Technologies (Renovate Computers)
7. Geographic Metadata

Most respondents ($\geq 40\%$) rated the strategic objectives "**Building Capacities**", "**Strengthen of the geodesic network on the region**", "**Disseminate Geographic Data**" and "**Updating Information Technologies**" as **Very Important** for their country.

The rest of the objectives were qualified in their majority ($\geq 40\%$) as "**Important**".

14. On a scale from 1 to 5, (where 5 is the best score and 1 the worst), please score the importance of the strategic objective of The Caribbean Project in your country?

Strategic Objective	Very little Important	Less Important	Moderately Important	Important	Very Important
Strengthen of the geodesic network on the region	0%	10%	20%	20%	50%
Disseminate Geographic Data	10%	20%	10%	20%	40%
Promote Geographic Data use	0%	20%	10%	40%	30%
Building Capacities	0%	10%	10%	10%	70%
Use of Geographic Standards	0%	10%	10%	50%	30%
Updating Information Technologies	0%	20%	20%	20%	40%
Geographic Metadata	0%	10%	20%	50%	20%

Most the respondents ($\geq 40\%$) rated as **"Very Satisfactory"** for their country, the development during the Caribbean Project, of the strategic objectives **"Building Capacities"** and **"Strengthen of the geodesic network on the region"**.

The objective **"Updating Information Technologies"** did not have a majority rating in any of the items. And the rest of the objectives were qualified in their majority ($\geq 40\%$) as **"Satisfactory"**.

15. On a scale from 1 to 5, (where 5 is the best score and 1 the worst), please score satisfaction development of the strategic objectives of The Caribbean Project in your country?

Strategic Objective	Very Unsatisfied	Unsatisfied	Moderately Satisfied	Satisfied	Very Satisfied
Strengthen of the geodesic network on the region	0%	10%	10%	30%	50%
Disseminate Geographic Data	20%	10%	10%	50%	10%
Promote Geographic Data use	10%	10%	10%	70%	
Building Capacities	0%	10%		30%	60%
Use of Geographic Standards	0%	10%	10%	50%	30%
Updating Information Technologies	0%	30%	20%	30%	20%
Geographic Metadata	0%	10%	10%	60%	20%

Most the respondents ($\geq 40\%$), rated as **"Very Necessary"** in their country, strengthen the strategic objectives **"Building Capacities"**, **"Use of Geographic Standards"**, **"Geographic Metadata"**, **"Updating Information Technologies"** and **"Disseminate Geographic Data"**.

The rest of the objectives were qualified in their majority ($\geq 40\%$) as **"Necessary"**.

16. On a scale from 1 to 5, (where 5 is the best score and 1 the worst), please score the need to strength the development of the strategic objectives of The Caribbean Project for an SDI in your country?

Strategic Objective	Very Unnecessary	Unnecessary	Moderately Necessary	Necessary	Very necessary
Strengthen of the geodesic network on the region	0%	0%	20%	50%	30%
Disseminate Geographic Data	0%	20%	10%	30%	40%
Promote Geographic Data use	0%	10%	0%	50%	40%
Building Capacities	0%	0%	0%	30%	70%
Use of Geographic Standards	0%	0%	20%	30%	50%
Updating Information Technologies	0%	10%	10%	40%	40%
Geographic Metadata	0%	0%	10%	30%	60%

Most the respondents ($\geq 40\%$) rated the strategic objectives "**Strengthen of the geodesic network on the region**" and "**Use of Geographic Standards**" as "**Difficult**" to develop in their country.

The strategic objectives "**Disseminate Geographic Data**" and "**Building Capacities**" were qualified in their majority (40%) as of "**Medium Difficulty**" and the **rest of the objectives** were qualified in their majority ($\geq 40\%$) as "**Low Difficulty**".

17. On a scale from 1 to 5, (where 5 is the best score and 1 the worst), please score the level of difficulty to develop the strategic objectives of The Caribbean Project in your country?

Strategic Objective	Very easy	Easy	Moderately Difficult	Difficult	Very Difficult
Strengthen of the geodesic network on the region	0%	20%	30%	50%	0%
Disseminate Geographic Data	10%	30%	40%	20%	0%
Promote Geographic Data use	0%	50%	40%	10%	0%
Building Capacities	0%	20%	40%	30%	10%
Use of Geographic Standards	0%	20%	30%	50%	0%
Updating Information Technologies	10%	40%	20%	20%	10%
Geographic Metadata	0%	40%	20%	30%	10%

Workshops was classified into 4 categories, with specific courses each of them:

1. Competences to produce geographic data and cartography
2. Integration, organization, and dissemination of GIS
3. Use of Geospatial Information in decision making
4. Transversal competences

Most respondents ($\geq 40\%$) rated all workshops in categories 2 "**Integration, organization, and dissemination of GIS**" and 3 "**Use of Geospatial Information in decision making**" as "**Very Important**" in the development of the geographic information of your country.

In the categories 1 "**Competences to produce geographic data and cartography**" and 4 "**Transversal competences**" the workshops were qualified by most the respondents ($\geq 40\%$) as "**Very important**" and "**Important**".

The workshop that most respondents ($>70\%$) rated as "**Very Important**" was "**Spatial Data Infrastructure**".

18. On a scale from 1 to 5, (where 5 is the best score and 1 the worst) please score the importance of training of The Caribbean Project in the development of geographic information of your country.

Workshops	Very little Important	Less Important	Moderately Important	Important	Very Important
Geodesy (2014)	0%	10%	20%	40%	30%
Cartography (2015)	10%	20%	0%	30%	40%
Use of Geodetic Equipment (2016)	0%	0%	20%	30%	50%
Land Cover Map Classification (2016)	0%	10%	20%	30%	40%
Land Cover Map verification (2017)	0%	10%	20%	40%	30%
Geodetic Processing (2017)	10%	10%	10%	40%	30%
Geographic Metadata (2016)	0%	0%	30%	30%	40%
Spatial Data Infrastructure (2016)	0%	10%	10%	10%	70%
MxSIG (2017)	0%	10%	10%	30%	50%
GIS (2016)	0%	20%	10%	20%	50%
Geo-portals and Geo-services with MxSIG (2016)	0%	20%	0%	40%	40%
Geostatistical Data Use (2017)	0%	10%	10%	30%	50%
Free Software Q-GIS (2017)	10%	30%	10%	10%	40%
Geospatial Data Quality (2017)	0%	10%	20%	40%	30%
Geographic Information Standards (2015)	0%	10%	10%	40%	40%
UN_GGIM on RDD (2016)	0%	0%	20%	50%	30%

Most the respondents ($\geq 40\%$) rated as **"Very Needed"** to continue strengthening in their country, the thematic areas of training **3 "Use of Geospatial Information in decision making"** and **2 "Integration, organization, and dissemination of GIS"**.

The thematic area of training **4 "Transversal competences"** was qualified mostly ($\geq 40\%$) as **"Necessary"**, and the thematic area of **training 1 "Competences to produce geographic data and cartography"** as **"unnecessary"** to strengthen in their countries.

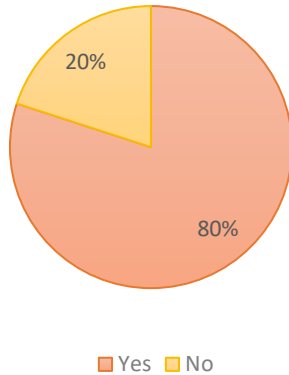
19. Score from 1 to 4 (where 4 is the most necessary and 1 the least), which of the thematic areas of training you think your country requires to strength?

Thematic Areas	Very Unnecessary	Unnecessary	Necessary	Very Necessary
Competences to produce geographic data and cartography	10%	40%	30%	20%
Integration, organization, and dissemination of GIS	0%	10%	30%	60%
Use of Geospatial Information in decision making	0%	10%	20%	70%
Transversal competences	0%	30%	40%	30%

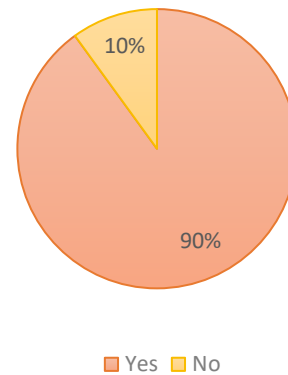
III. FUTURE IN STRENGTHEN OF AN SDI

80% of respondents said they will **continue to participate in UN-GGIM meetings** even without AMEXID funding, and **90%** of respondents said they will **continue to participate in UN-GGIM Americas meetings** even without AMEXID's funding.

20. Once The Caribbean's Project was ended up and AMEXCID's fund finished, Do your country keep on participating on UN-GGIM meetings?

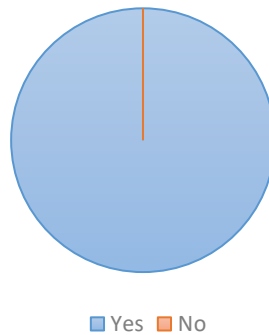


21. Once AMEXCID's fund was finished, Do your country keep on participating on UN-GGIM Americas meetings?



100% of respondents said that their country will **continue to strengthen the strategic objectives necessary to implement an SDI**, even without the financing of AMEXID.

22. Once AMEXCID's fund was finished, Do your country keep strengthening needs to implement SDI?



Most the respondents ($\geq 50\%$), consider that the three components (necessary to implement an IDE) **with greater difficulties to develop in their countries** once AMEXCID financing is finished are: **"Political commitment"**, **"Legal framework"** and **"Institutional coordination"**. And the components that will not have difficulties to develop are **"Basic data sets"** and **"Open source"**.

23. Which of the following components, needed to implement SDI, you think your country would have more difficulties to develop (once AMEXCID's fund was finished)?

Components	Percentage
Political commitment	70%
Legal framework	70%
Institutional coordination	50%
Human resources	30%
Capabilities	30%
Connectivity	30%
Software	30%
Infrastructure	20%
Metadata	10%
Basic data sets	0%
Open source	0%

IV. Short-Term Activities

Most the respondents (>60%) consider that **all the Strategic Objectives of the Caribbean Project (except "Updating Information Technologies") should be developed** during the following 6 months.

24. In which of the 7 Strategic Objectives of the Caribbean Project you consider that your country should follow up during the following 6 months?

Strategic Objective	Yes	No
Strengthen of the geodesic network on the region	80%	20%
Disseminate Geographic Data	80%	20%
Promote Geographic Data use	80%	20%
Building Capacities	90%	10%
Use of Geographic Standards	90%	10%
Updating Information Technologies	30%	70%
Geographic Metadata	70%	30%

Most the respondents (50%) have **planned activities** in their country **in all the Strategic Objectives of the Caribbean Project** (except "Updating Information Technologies"), which will be carried out in the next 6 months.

25. Do you have planned activities in your country in any of the 7 Strategic Objectives of the Caribbean Project during the following 6 months?

Strategic Objective	Yes	No
Strengthen of the geodesic network on the region	70%	30%
Disseminate Geographic Data	60%	40%
Promote Geographic Data use	60%	40%
Building Capacities	90%	10%
Use of Geographic Standards	70%	30%
Updating Information Technologies	50%	50%
Geographic Metadata	60%	40%

26. With what actions does your country plan to contribute to the Caribbean Project during the following 6 months? (Annex).

The two most mentioned actions that countries plan to contribute to the Caribbean Project during the following 6 months are:

1. Contribute information from GNSS stations to strengthen the Geodetic Network.
2. Provide geographic data that contributes to the Caribbean Digital Map.

V. Additional Information

27. Mention the impacts of The Caribbean Project in your country (Annex).

The main impacts (mentioned by the respondents) that the Caribbean Project has had in the participating countries are:

1. The Development of Capacities and the transfer of knowledge.
2. Acquisition of Geodetic and Computer Equipment.

28. Mention the impacts of The Caribbean Project in your Region (Annex).

The main impacts (mentioned by the respondents) that the Caribbean Project has had in the Region are:

1. Exchange of knowledge
2. Collaborative work
3. Cooperation for a common interest (as in the case of the Development of the Disaster Risk Framework.
4. Exchange of information

29. What actions do you think would have improved The Caribbean Project? (Annex).

The main actions (mentioned by the respondents) that could have improved the Caribbean Project are:

5. More funds and local investment
6. Participation of more technical staff in the workshops

30. How do you think you could improve the participation of your country in this type of initiatives? (Annex).

The main actions (mentioned by the respondents) that would improve their participation in the Caribbean Project are:

1. Assign more resources to ensure the continuity of your participation
2. Cooperate with geographic data and services available in your country
3. Performing knowledge exchange between peers

32. What do you liked most about participating in the Caribbean project? (Annex).

The ones that most liked the respondents to participate in the Caribbean project were:

1. Knowledge and shared experiences
2. The information shared
3. Creation of networks in the region

33. What actions does your country need to implement for improve the geospatial information? (Annex).

The main actions (mentioned by the respondents) that should be implemented to improve the geospatial information of their countries are:

1. Development of a National Geospatial Policy or of bodies that focus on geospatial information
2. Training of specialized personnel
3. Greater institutional collaboration
4. Greater investment

FUTURE ACTIONS

Based on the progress made because of this Project; a proposal of actions that would allow continuity of the work done is exposed, avoiding the abandonment and loss of the investment made by the Mexican Government:

1. Maintenance of the technological infrastructure delivered

The investment made to have a geodetic network and a network of servers in the Region, raises the need to sustain the investment with additional resources for its preventive and corrective maintenance. It will be important to be attentive to analyze the alternatives that allow to give additional resources for infrastructure.

2. Incorporate the Caribbean Geodetic Network into the SIRGAS Network, modernize reference frameworks and take advantage of data for the region within the framework of the UN-GGIM Geodesy Subcommittee

With the support of organizations such as SIRGAS and AIG, it will be possible to promote actions related to Geodesy, aligned with what the Geodesy Subcommittee of the Global Committee establishes. It would be of great benefit for the region to consolidate the UWI Data Center as a Geodetic Processing Center.

3. Implement Geomatics Solutions in each country

To work on these actions, it is worth mentioning that the representatives of the countries are trained; as well as the professionals of the UWI for the creation of Geomatics or Geoportal Solutions. Promoting this type of actions will help to train technicians in the subject and will facilitate homologating the exchange of good practices in development, using free software tools.

4. Strengthen the exchange of standardized processes, methodologies and good geospatial practices

Promoting the knowledge and development of the region through the exchange of methods and good practices, will facilitate the alignment of efforts in the same direction and will contribute to improving the quality of geospatial information and its exchange.

5. Promote the use of geographic standards and metadata individually and collectively, seeking integration and alignment with the rest of the continent

This group of actions will make it possible to promote two areas of opportunity that have been left with debt in the Project: the use of standards and metadata.

These two themes will contribute definitively to the incorporation of the Caribbean countries into the UN-GGIM Expert Committee.

6. Promote the updating of geographic data

Before standards and metadata, it is necessary for each country to have the necessary data to model, analyze and represent geospatial information. During the period of implementation of the Caribbean Project, it was possible to identify countries that have geographic data with strong lags in their updating processes; therefore, having a mechanism to update the information will make possible good results.

7. Promote the generation of open data and its exchange

More and more producers and users are in favor of continuing the efforts of free data, however, in the region there are still countries interested in the partial commercialization of data.

8. Motivate and encourage the participation of representatives of the countries in UN-GGIM

The attendance of the representatives of the Caribbean countries to the sessions of the expert committees has prompted the countries to demonstrate gradually to participate in the construction of alternative methods to take advantage of the information.

9. Establish alliances with international non-governmental organizations, as well as the public and private sectors

10. Encourage distance training programs

Among the main benefits of distance training are the following:

1. Reduced operating costs
2. Ease to replicate the courses
3. Align knowledge and facilitate the exchange of information.

Annex (Answers to Open Questions)

11. Which is the main benefit for your country to be included on The Caribbean Project?

(10 Answers)

1. It helped to refocus the agency on the need for geospatial policy
2. Promotion and use of open source software and Infrastructure Development
3. Obtain experiences and know good practices in the implementation of IDE
4. Equipment, training and dialogue with peers
5. Benefit from inclusion in the geodetic reference frame and knowledge about the state of GIS development in other territories
6. The project has assisted in the completion of the development of the NSDI for Belize
7. Acquisition of geodetic equipment and capacity building
8. The knowledge gained and the exposure in meeting not only persons in the in thematical area but also the opportunity to meet in person our knowledges in the region
9. Geodetic Framework
10. Capacity Building

26. With what actions does your country plan to contribute to the Caribbean Project during the following 6 months?

(10 Answers)

1. To provide the information requested and the operationalize the CORS network
2. Promotion of the Caribbean Digital Map as well more use of open source software
3. Contribute the information of the GNSS stations for the strengthening of the Caribbean Geodetic Network and contribute to the creation of capacities
4. Strengthening Geo Network
5. Development of a NSDI
6. Intends to contribute
7. Participate in any work plans and activities and contribute to the Caribbean Map in Barbados
8. Continue to disseminate geographical data create The Caribbean Digital Map
9. Provide Data
10. Providing Datasets

27. Mention the impacts of The Caribbean Project in your country.

(10 Answers)

1. Yes
2. It has provided Jamaica with a solid platform on which to build our SDI
3. Improved capacities by introducing the knowledge obtained from the courses into the productive processes and allowed increasing the GNSS stations of the network of permanent stations for the geodetic works
4. Caribbean Project allowed us to move a significant part of our multiyear plan further
5. Increasing knowledge and increasing awareness of capabilities in the Caribbean Territories
6. Implementation of the Belize National Spatial Data Infrastructure
7. Knowledge transfer and improved technical capacities; Receipt of geodetic equipment and IT equipment
8. The capacity building in terms of training and equipment will help immensely in moving us forward to establish our SDI
9. The Project has had a use impact and has positioned us to move forward much faster
10. Significant, many agencies are now on board

28. Mention the impacts of The Caribbean Project in your Region.

(9 Answers)

1. Yes
2. It has provided Jamaica with a solid platform on which to build our data sharing capability as well as pooling of human resources
3. It created capacities and strengthened the exchange of knowledge among the countries of the area, promoted the exchange and cooperation in the region for a common interest of benefit for all Caribbean countries.
4. Within the Caribbean Region the project allowed many specialists to achieve a lot of knowledge in the geoinformation field. Both via training and via participation in UNGGIM activities.
5. Sharing of information and capabilities.
6. Development of disaster risk framework
7. Collaboration and networking between regional professionals; Exposure to different solutions to similar problems facing the Caribbean region
8. On to the interaction of key persons in relevant positions throughout the region we are now able to call upon each other and realistically expect that assistance would be forthcoming
9. The region is connected with technical capacity

29. What actions do you think would have improved The Caribbean Project?

(9 Answers)

1. Not sure now
2. Greater investment locally and political commitment
3. Exchange and Cooperation
4. The combination of UNGGIM meetings with training during one mission, was not very useful because UNGGIM meetings are visited by high level policy people. The training sessions would have benefited specialists in the operational stage much more. Most of the countries could not afford to send both policy and operational people at the same time.
5. Funding.
6. If there was 1 specific project every country had to complete to display the work that has been done over the past years
7. If point persons from each country has remained the same and if the training was directed more towards the technicians than the managers.

8. If we had ensured that all countries had developed their GIS to a minimum bases for interoperability with each other.
9. Bathymetry data.

30. How do you think you could improve the participation of your country in this type of initiatives?
(9 Answers)

1. Consolidation of the data that is available from other government agencies
2. Public Awareness
3. Promoting the creation of capacities in the rest of the countries and cooperating in services and processes for the management of geospatial information
4. More specific activities of each country. More activities in the Caribbean countries where an exchange of knowledge between peers and more technical people can take place can participate.
5. Funding.
6. By dedicating personnel and resources to make sure that Belize completed its mandate
7. Better preparation in the lead up to meetings and assigning greater resources to the UNGGIM work programmer
8. By putting what we have learned into practice by making concrete steps towards your objective and in so doing impress upon the politicians the importance of our work.
9. Funding support would help and ensuring that we are included in activities going forward.

31. Which institutions in your country do you think could be included in The Caribbean Project?
(9 Answers)

1. Min of Natural Resources
2. Statistical Institute and Educational Institutions
3. GEOCUBA
4. Statistical unit and Caster.
5. The ministry of Foreign affairs for better support
6. Department of Emergency Management
7. Statistical department Physical planning unit Registry of titles Valuation dept.
8. University of Bahamas
9. Meteorological Office

32. What do you liked most about participating in the Caribbean project?
(10 Answers)

1. Sharing of Basic Land Information for the region on a platform
2. The knowledge and lessons shared
3. Share experiences and cooperate with specialists from all countries in the area
4. The passionate involvement of Mexico and the (informal) dialogue amongst participants. This supports networking that is crucial in day today activities
5. Sharing knowledge and information and learning capabilities
6. The various trainings and dialogue with the counter parts from across the globe and region
7. Capacity building; Understanding the Mexican experience with geospatial information management and the best cases that can be adopted for Barbados and the region; Collaboration with regional partners
8. The wattle of information gleaned has made me more capable of giving sound advice to the political persons and has ensured that the country will move forward in the right direction
9. The ability to network with colleges from across the region
10. Networking, New ideas and New culture

33. What actions does your country need to implement for improve the geospatial information?

(10 Answers)

1. National approved policy of GIM
2. Stronger political will and the development of a National Geospatial Policy
3. Obtain access to information on remote sensing of land and technologies and software for the management of geospatial information
4. Massive training of personal in geodesy
5. Establishment of the NSDI
6. Belize needs to legislate a governing body with its mandate being solely to focus on the advancement of geospatial information
7. Greater institutional collaboration; Improve political awareness
8. We need to get all the stakeholders to buy completely to the stored data concept. we need to use our limited resources in the best possible manner
9. Provide Funding
10. Legislation
