

UNGGIM Americas

Access and Use of Geospatial Information for Disasters and Climate Change

Status of work

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United Nations Initiative on
Global Geospatial Information Management

"Positioning geospatial information to address global challenges"

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- Disasters in the Americas
- The Global Strategic Framework for GI&S for DRM
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- Survey Results and takeaways



The Americas Region



- Spans both hemispheres, north and south
- 40 independent countries plus several Caribbean OCT's
- 16 million square miles
- Population 1 billion plus
- Main languages: English, Spanish, Portuguese, French



Disasters in the Americas

Natural disasters and climate change know no boundaries



Flooding, hurricanes, landslides, wildfires, earthquakes, volcanos, tsunamis, droughts, disease outbreaks



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The Global Strategic Framework

Goal:

Quality geospatial information and services are available and accessible in a timely and coordinated way to support decision-making and operations within and across all sectors and phases of the emergency cycle.

* 2030 Agenda for SDG * Sendai Framework DRR

Expected outcome:

The human, economic and environmental risks and impacts of disasters are prevented and reduced through the use of geospatial information and services.

Status:

- Adopted by UNGGIM Committee of Experts on 7 August 2017;
- Endorsed by ECOSOC on 20 June 2018;
- A monitoring tool is being prepared to gauge the status of implementation among member states.



The Global Strategic Framework



Governance
and Policies



Awareness Raising
and Capacity Building



Data
Management

LOCAL
NATIONAL

Priorities for Action

REGIONAL
GLOBAL



Common Infrastructure
and Services



Resource
Mobilization



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UN-GGIM Americas DRR & CC

Objective:

- To promote the development and shared use of geospatial information in policies, programs and projects for Disaster Risk Reduction and Climate Change;
- To implement the Global Strategic Framework for Disasters.
- Work Plan 2018 – 2020, in relation to GSF will focus on:
 - (2) Awareness Raising and Capacity Building
 - (3) Data Management
 - (4) Common Infrastructure & Services
- **Survey purpose:** to understand the issues that GIM organizations confront in supporting DRM activities, and assess opportunities for capacity building interventions.
- **Caution:** Survey to get an impression based on singular responses (perception) of representative geo-officials of countries



Work Plan 2018 - 2020

OBJECTIVE	ACTIVITIES	PERIOD	OUTCOMES
Capacity building action plan	Diagnosis of the HR, data and information tools	Q2 2018	View of the capacities of countries in implementation and use of GI for DRR & CC
	Gap Analysis on the diagnosis of countries' capacities.	Q3 2018	Report
	Implementation of capacity building strategy	Q4 2018	Report of the proposal strategy Workshop
Addressing requirements of international initiatives related to disasters	Open Geospatial Consortium Disasters	Q1 2019	Report
	2030 Agenda SENDAI Framework		Report
	Workshop on Information for disasters	Q2 2019	Report
	National Pilot Studies	Q3 2019	Report
Methodology and final report	Methodology and recommendations Final Workshop	Q1 2020	Report
	Final report	Q3 2020	



Survey Respondents

Survey respondents UNGGIM Americas Region

North	Central	South	Caribbean
Canada	Belize **	Argentina	Antigua & Barbuda *
Mexico	Costa Rica	Bolivia *	Bahamas
USA	El Salvador	Brazil	Barbados
	Guatemala	Chile	Cuba
	Honduras	Colombia	Dominica
	Nicaragua	Ecuador	Dominican Republic *
	Panama	Guyana *	Grenada *
		Paraguay *	Haiti *
		Peru	Jamaica
		Suriname	Saint Kitts & Nevis */**
		Uruguay	Saint Lucia
		Venezuela	Sint Maarten
			St. Vincent & Grenadines
			Trinidad and Tobago

* Countries did not participate in 2015 survey

** Countries did not participate in 2018 survey



Status of the Work

- **2018 Survey** (34 resp.); areas of assessment:
 1. Most prevalent disasters and roles of GIM Org. in disaster response;
 2. Institutional aspects related to disasters;
 3. Challenges in access to GI for DRM;
 4. Access to resources (IT / expertise, staffing);
 5. Impacts of- and readiness for- Climate Change related to DRM;
- Survey report includes distinction of sub-regions: location matters!
- The differences between regions are distinct
- Draft report on survey assessment complete in November 2018, will be shared in working group to discuss approach to gap analysis;
- Capacity Building Interventions will be a separate report.



Survey Results : Disaster types

- Most prevalent disasters:

Disaster	High/Ave. (%)	High (%)	Average (%)	Low/no apply (%)
Floods	100	88	12	0
Hurricanes	70	55	15	30
Wildfires	82	41	41	18
Earthquakes	70.5	50	20.5	29.5
Landslides	73.5	38.2	35.3	26.5
Disease outbreaks	82.3	35.3	47	17.7

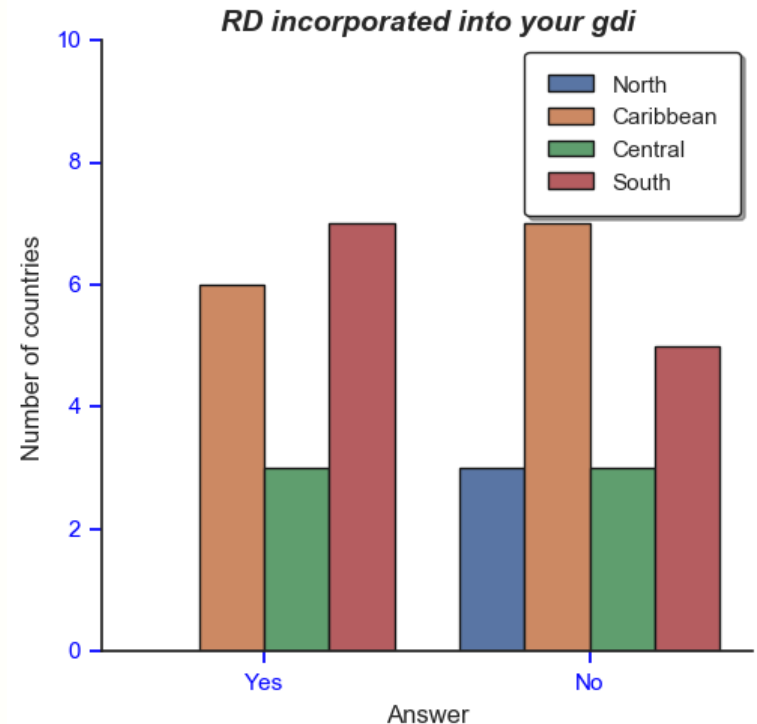
- Rated high/average: all disaster types relatively important
- Flooding: (1) the most prevalent disaster for all respondents
- Hurricanes: (2), 100% for Caribbean countries
- Earthquakes: (3), but depending on (tectonic plates) locations

❖ Drought and snow events not surveyed



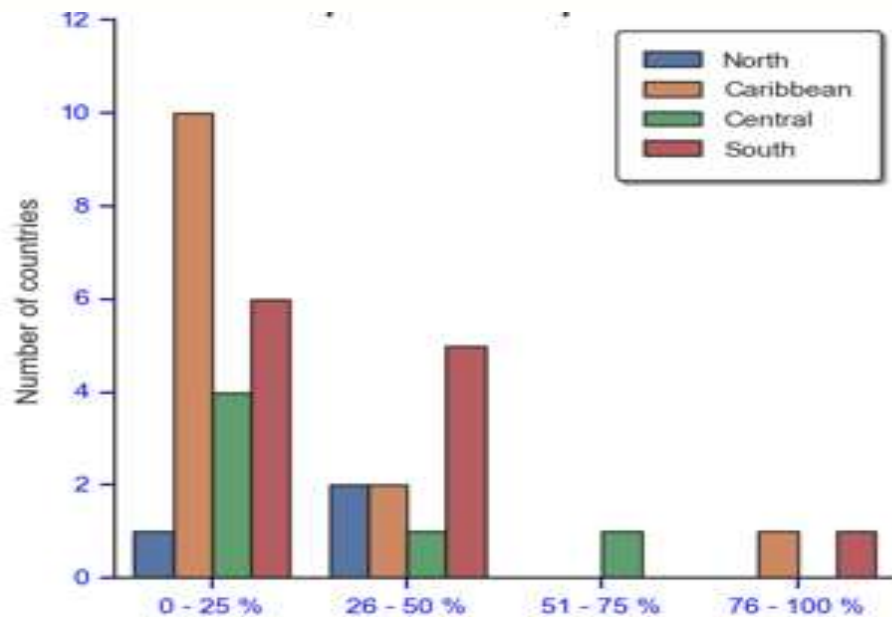
Survey Results : agency roles

- **Risk & Disasters themes in GDI:**
 - Only 47% incorporate R & D in GDI
 - GI agencies play largely a support and advisory role in disasters
 - Involvement of agencies is relative to the perceived importance of the phenomenon:
 - Floods: 15% no role
 - Hurricanes: 29.4% no role
 - Wildfires: 47% no role
 - Earthquakes: 32% no role
 - Landslides: 35% no role
 - Disease outbreaks: 44% no role



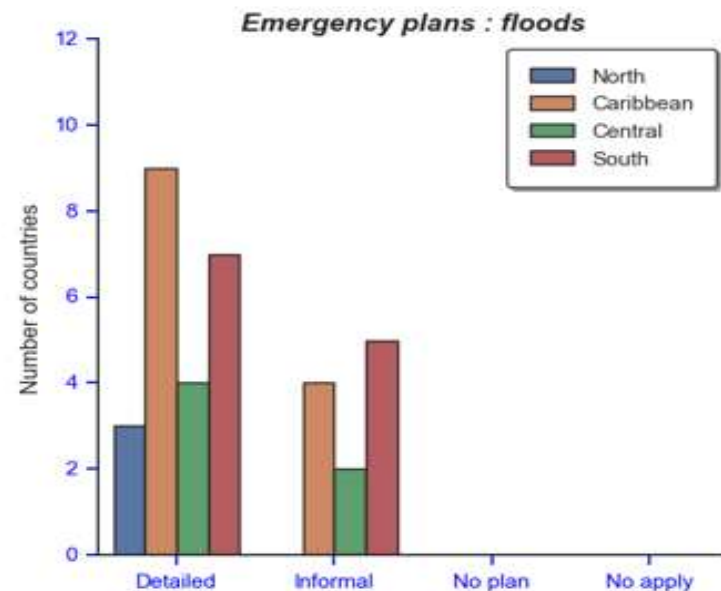
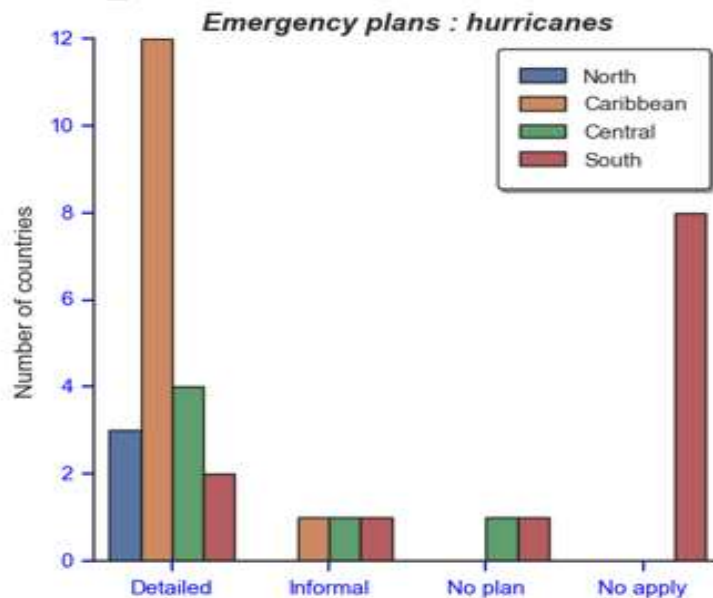
Survey Results (1): Institutional aspects

- 94% have an administrative act on disaster management;
- 35% use SDI as an official tool to manage disaster information;
- 41% have a geoportal to manage disaster risk information;
- 88% have a mechanism for monitoring the production of disaster information;
- 47% have financial model for production of DRM information;
- 85% have a CORS (Caribbean project);
- % of municipalities with risk & disaster information relatively low:

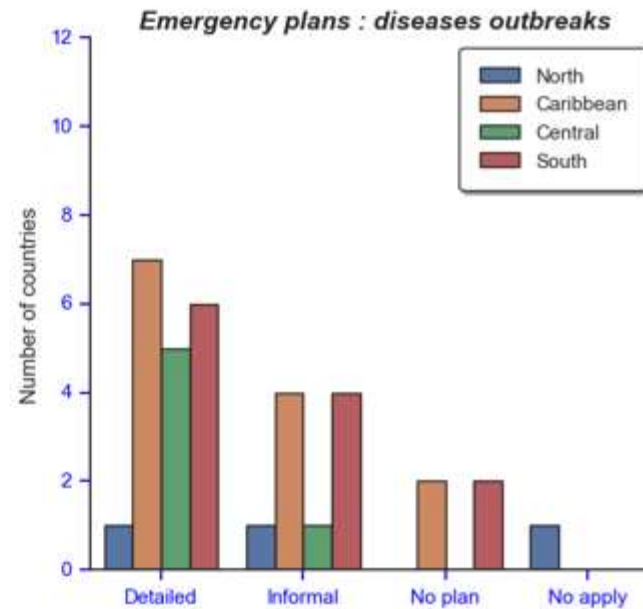
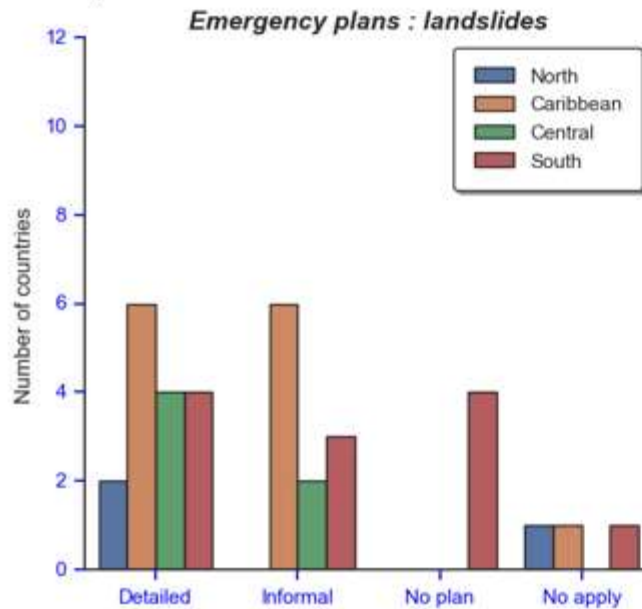
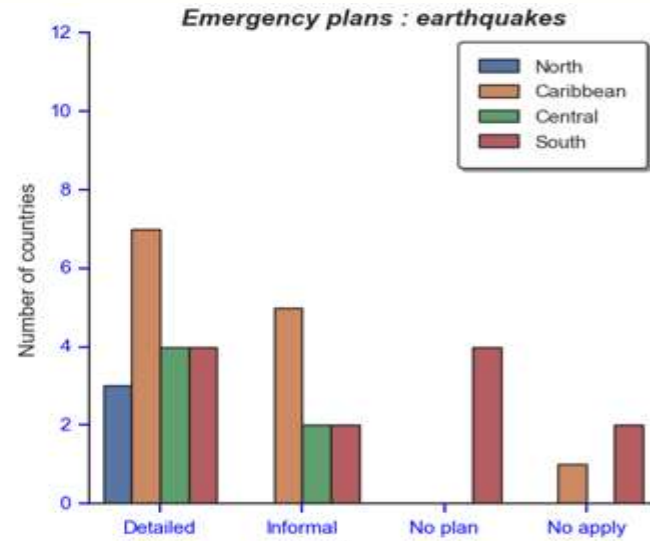
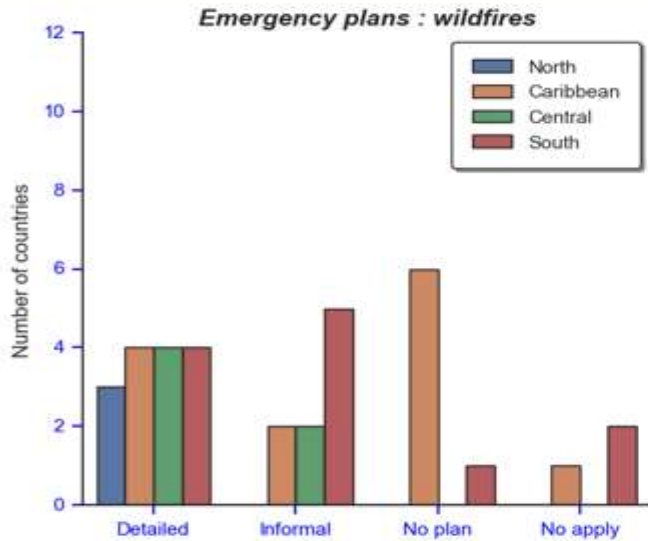


Survey Results (2): Institutional aspects

- 47% have legislative policies allowing open access to GI for DRM;
- 68% can easily allocate additional internal staff for disaster events;
- 47% can easily allocate additional external staff for disaster events;
- 68% can easily allocate additional funds for disaster events;
- 47% can easily allocate new imagery for disaster events;
- 75 -80% indicate all stakeholders (health, transportation, TV and radio stations, municipalities) involved during DRM;
- Documented emergency plans available dependent on prevalence:



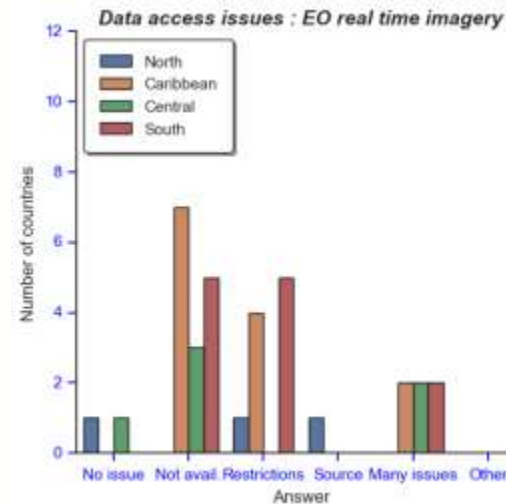
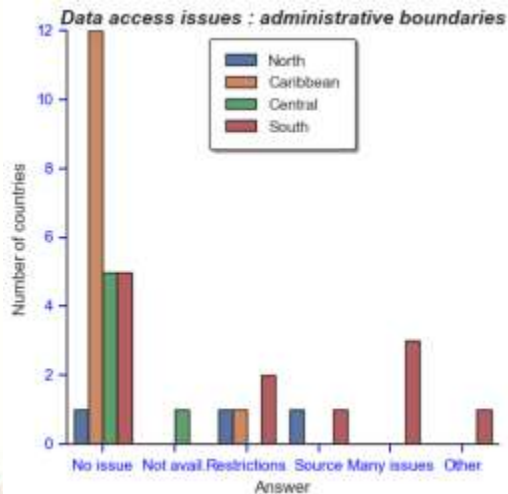
Survey Results (3): Institutional aspects



Survey Results (1): Information

Access, use and sharing of GI for DRM: (use and sharing reflect access)

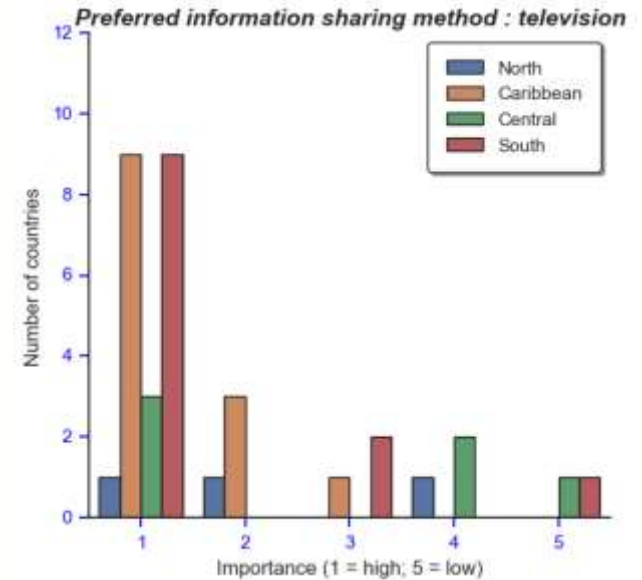
Access (%)	No-issue	Not available	Restrict.	Source	Many issues	Other
Admin boundaries	67.5	3	11.5	6	9	3
EO Optical imagery	35	11.5	20.5	3	26.5	3
EO radar imagery	17.5	29.5	26.5	3	17.5	6
EO real time imagery	6	44	29.5	3	17.5	0
Terrain data (elev., slope, etc.)	56	14.5	11.5	9	3	6
Emergency resources	41.5	14.5	9	11.5	9	14.5
Hydrography	79	3	9	6	0	3
Hydrology	38	26.5	17.5	6	9	3



Survey Results (2): Information

Preferred method for sharing DRM information:

1. Television: 76%
2. Social Media: 76%
3. Radio: 74%
4. Newspaper : 59%
5. Door-to-door: 50%
6. Mailing list 35%



- ❖ Many countries did not respond to questions on use and sharing of GI for DRM



Survey Results (1): Resources

Availability of systems for DRM

Tools	Ok %	Need upgrade %	Absent %
Office software	44	56	
GIS Tools	38	56	6
Databases	20.5	70.5	9
Spatial Databases	20.5	65	14.5
Common Operational picture app.	9	56	35
Vulnerability identification app.	12	62	26
Risk mitigation app.	12	62	26
Damage assessment app.	17.5	65	17.5
Collaboration app	12	62	26
Routing app.	15	59	26
Mobile app.	12	59	29
Internet access	41	56	3
Internet bandwidth	32	68	

With exception of Office, GIS tools & internet, generally upgrade is needed overall



Survey Results (2): Resources

Expertise required	Ok %	Needs upgrade %	Absent %
Spreadsheets	47	50	3
GIS	32	62	6
Data integration	17.5	76.5	6
Database management	14.5	76.5	9

Staff involved	Ok	Needs upgrade (%)	Absent
Technician	41	59	0
Professional	41	56	3
Administrative.	50	50	0

- Widespread upgrades needed in special expertise areas
- Smaller gaps in general staff needed
- Greater resources gaps shown in Caribbean and South America



Survey Results (1): Climate Change

Impact of CC on (%)	High	Average	Low	No-apply
Hurricanes	67.5	6	12	14.5
Floods	88	9	0	3
Wildfires	47	32	18	3
Coastal erosion	59	29	6	6
Landslides	61.5	20.5	12	6

Preparedness for Impacts with Emergency Plans	Yes	In progress	No	No-apply
Hurricanes	32.2	35.3	6	26.5
Floods	26.5	67.5	0	6
Wildfires	12	61.5	20.5	6
Coastal erosion	6	70	12	12
Landslides	14.5	59	12	14.5

- Large majority perceive Climate Change to have significant impacts on (the incidence and severity of) disasters
- Generally most countries respond to be in progress preparing emergency plans for disasters
- 70% of Caribbean countries consider to be prepared with emergency plans for the impacts of Climate Change on Hurricanes



Survey Results (2): Climate Change

Preparedness for CC Impacts: Methodologies for Infra.	Yes	In progress	No	No-apply
Roads	18	61.5	20.5	0
Buildings	12	56	32	0
Power lines	12	61.5	26.5	0
Communications	9	61.5	29	0
Transportation	14.5	59	26.5	0

- In general respondents indicate to be in progress with plans about preparedness for CC Impacts regarding methodologies to plan, build and inspect infrastructure
- A moderate amount of respondent indicated to be unprepared.



Survey takeaways

- Drought and snow events could have been included as disaster events
- Preparedness has no influence (incidence or severity) on disasters; response is key to mitigate the effects, and limit loss of life and damages
- In general, the Caribbean and several South American countries expressed the greatest gaps
- Relatively large amount of countries expressed the need for access to better data for preparedness and response
- Scale matters! No North American country uses SDI as an official tool to manage information related to disaster risks
- An interesting gap appears to be lack of legislation and policies to promote open access to GI for DRM
- Collaboration is key for capacity building in GIM for DRM

“Collaboration moves at the speed of trust, and trust moves at the speed of understanding”.





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