OVERVIEW OF THE DAMAGE AND LOSSES (DALA) METHODOLOGY

Dr. Omar D. Bello

CEPAL

OUTLINE

1. DALA reports

2. ECLAC recent work on disasters

A DALA report consist of:

1. **Estimation of effects:** damage, losses, and additional costs
2. **Estimation of impacts:** household level and macro-economic and impacts

   The values are to be expressed in a disaggregated manner taking into consideration breakdowns by sector of economic activity, geo-political divisions, and groupings of affected population. All work is done following the 2014 version of the methodology.
3. **Recommendations for resilient reconstruction:** organized using the Sendai Framework for DRR

Core Concepts

Damage refers to the effects the disaster has on the assets of each sector, expressed in monetary terms. It is estimated by the *replacement price*, which is the current price (before the disaster) of an asset equivalent to the one destroyed.

Losses are the value of **goods that go unproduced and services that go unprovided** during a period running from the time the disaster occurs until full recovery and reconstruction is achieved. Calculating them means **setting a value on production that will be forgone**, which will obviously have an impact on GDP, employment, public finances and external accounts.

Additional costs refer to outlays required to produce goods and temporarily provide services as a result of the disaster.

Estimations by sector

Affected population

Social	Infrastructure	Economic sectors
• Education • Health • Housing	• Transportation • Water and sewerage • Power • Telecommunications	• Agriculture and fisheries • Manufacturing • Commerce • Tourism

Environment and macroeconomic impact

Primary affected population

Persons **directly** affected by the consequences of the disaster:

- Deceased
- Injured
- Sheltered
- Displaced
- Damage to property

Affected population

	Deaths	Missing	Injured	Evacuated persons	Other effects
Abaco	56		265		
Grand Bahama	11		28		
Total	67 (as of 29 October 2019)	282 (NEMA Hurricane Dorian Daily Brief, Friday 18 October 2019)	293 (treated for injuries between 2-11 September)	4,861 persons registered by the Department of Social Services *	The entire population in Abaco and Grand Bahama experienced a disruption in electricity, water and telecommunications Approximately 10,645 students were affected.

* Not considering those that might have evacuated on private boats

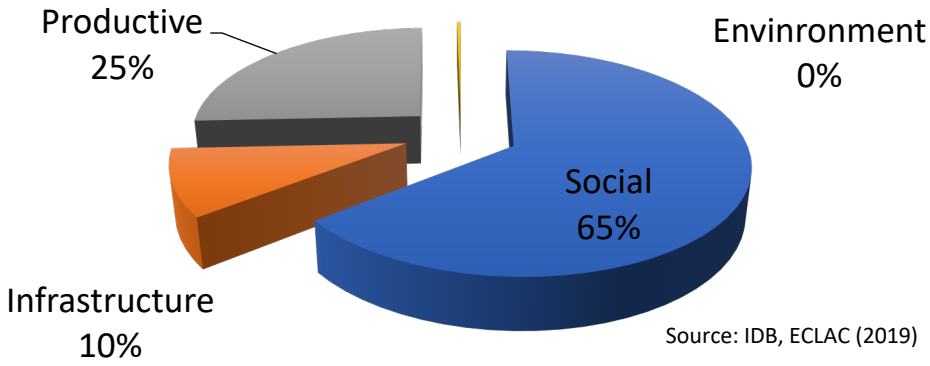
Effects: Hurricane Dorian
Million ($)

	Damage	Losses	Additional Costs
Social	**1,597**	**92**	**82**
Housing	1,487	65	58
Education	72	6	19
Health	38	21	5
Infrastructure	**239**	**197**	**16**
Power	131	69	6
Telecommunications	42	54	1
Water and Sewerage	15	37	2
Transport	51	37	7
Productive	**621**	**400**	**20**
Tourism	530	325	15
Commerce	78	65	5
Fisheries and Agriculture	14	10	0
Environment	**7**	**27**	**102**
Total	**2,464**	**717**	**221**

Effects: Hurricane Dorian

Million ($)

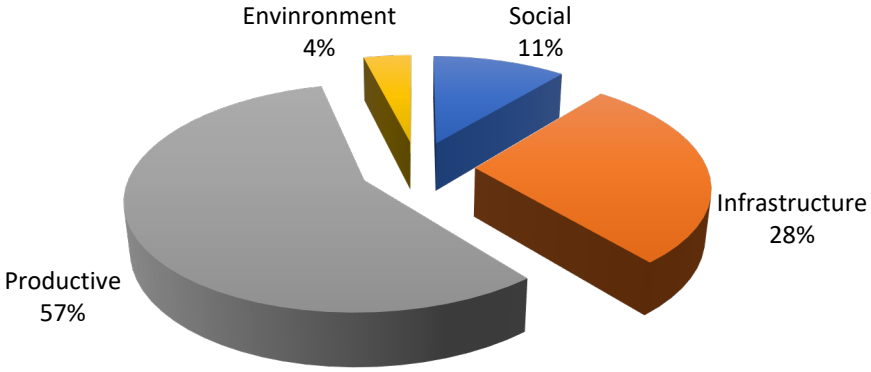
	Damage	Losses	Additional costs
Social sectors	1,597	92	82
Infrastructure sectors	239	197	16
Productive sectors	621	400	20
Environment	7	27	102
Total	**2,464**	**717**	**221**



Source: IDB, ECLAC (2019)

Damage (Hurricane Dorian, 2019)

- Damage was the most important effect
- The social sector was the most damaged.
- **Housing and Public Buildings sector suffered 60 percent of the total damaged.**
- **The second most damaged sector was tourism (21 percent)**



Source: IDB, ECLAC (2019)

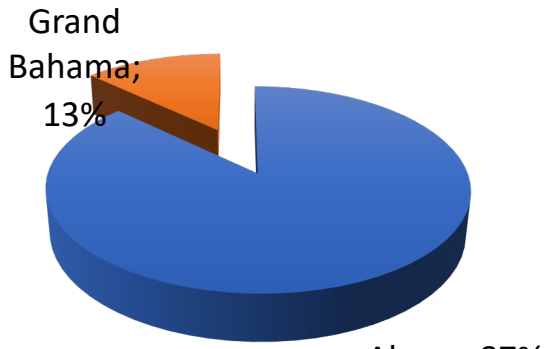
Losses (Hurricane Dorian, 2019)

- For most of the sectors, we estimate losses for 28 months. 57 per cent of the losses took place in the productive sector being tourism the activity that was most affected, 46 per cent of the total losses.
- Abaco suffered 76 per cent of the total losses.
- Most of the losses were in the private sector, 84 per cent

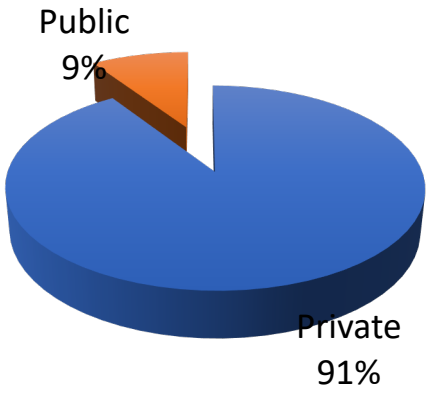
Effects:
Hurricane Dorian
Million ($)

	Public	Private
Damage	229	2,235
Losses	130	587
Additional costs	105	116
Total	**464**	**2,938**

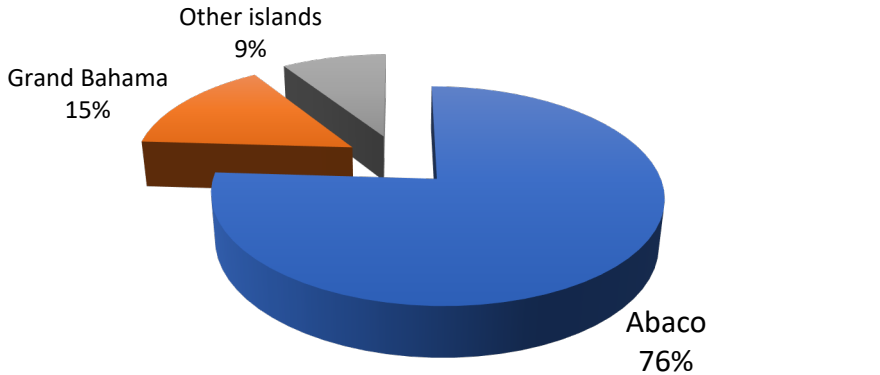
Damage (Hurricane Dorian, 2019)



Source: IDB, ECLAC (2019)

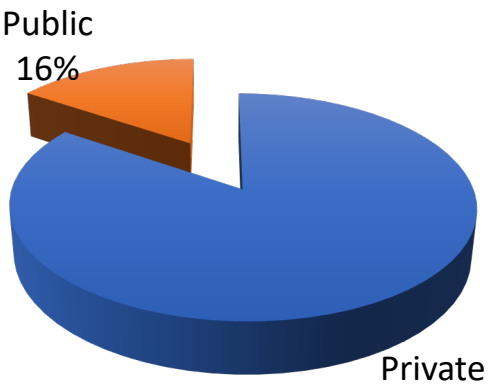


Source: IDB, ECLAC (2019)



Source: IDB, ECLAC (2019)

Losses (Hurricane Dorian, 2019)



Source: IDB, ECLAC (2019)

Source: IDB, ECLAC (2019)

Impacts
Hurricane Dorian

The estimated impact of Hurricane Dorian is one percentage point of the GDP. This implies that post-disaster, the economy is expected to grow 0.9 per cent. This will result in a decrease in salaries of $ 51.3 million and profits of $ 60.9 million.

The situation is different when the focus is on local economic activity. In the case of Abaco, the impact was estimated at 7.3 percent of its GDP. Taking place on that island, 47 percent and 60 percent of the country's worker remunerations and profits decrease, respectively. In Grand Bahama, the impact was 2.0 percent of its GDP.

Impacts of COVID-19
Tourism Sector: Dominican Republic

In the Dominican Republic, the expected income drops in the tourism sector during 2020 are approximately US $ 6.033 million. The impact of this drop will be a decrease of 4 percentage points of GDP. Seen from the factor payments side, the impact will be reflected in contractions in the remuneration of employees and workers, operating surplus and mixed income in DOP 84,702 million in salaries, 1.9% of GDP, DOP 74,553 million in operating surplus 1.6% of GDP, and DOP 61,484 million in mixed income, 1.3% of GDP, respectively.

With regard to employment, a reduction in the order of 242 thousand jobs is estimated in the tourism sector, 5% of the employed population. This includes direct jobs associated with tourism and indirect jobs. If this percentage is transferred to the female population employed in the accommodation and food sector, around 10,300 female jobs would be lost, only in this sector.

Impacts of COVID-19
Tourism Sector: Dominican Republic

In the Dominican Republic, the expected income drops in the tourism sector during 2020 are approximately US $ 6.033 million. The impact of this drop will be a decrease of 4 percentage points of GDP. Seen from the factor payments side, the impact will be reflected in contractions in the remuneration of employees and workers, operating surplus and mixed income in DOP 84,702 million in salaries, 1.9% of GDP, DOP 74,553 million in operating surplus 1.6% of GDP, and DOP 61,484 million in mixed income, 1.3% of GDP, respectively.

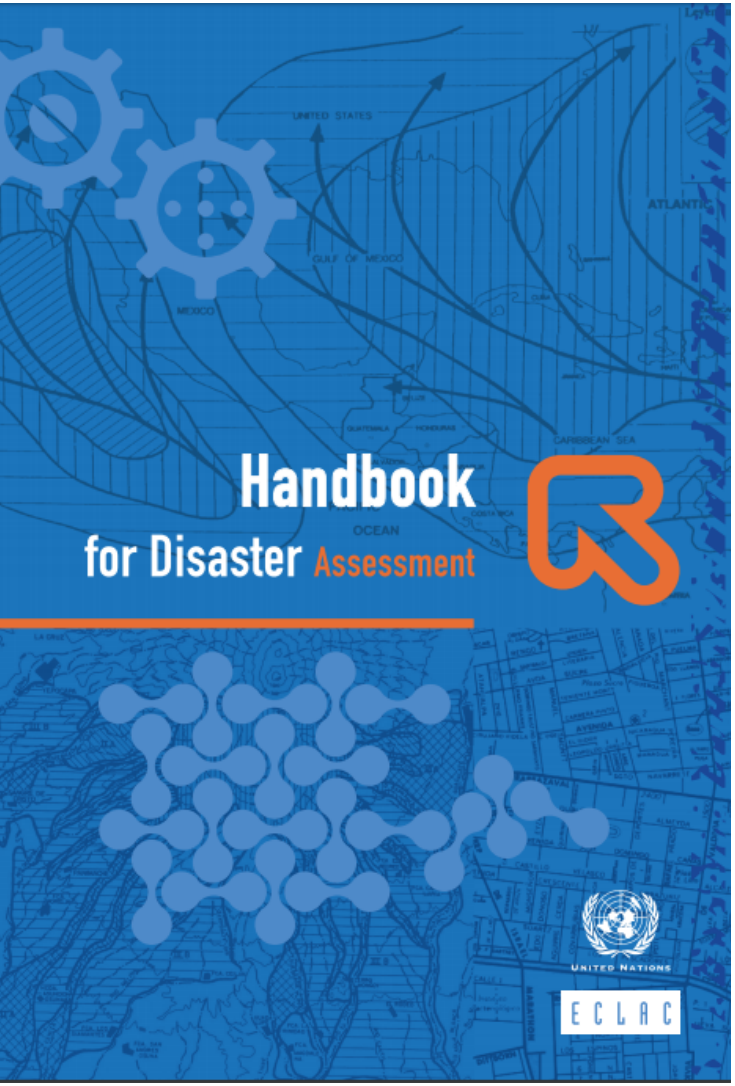
With regard to employment, a reduction in the order of 242 thousand jobs is estimated in the tourism sector, 5% of the employed population. This includes direct jobs associated with tourism and indirect jobs. If this percentage is transferred to the female population employed in the accommodation and food sector, around 10,300 female jobs would be lost, only in this sector.

This section is **structured** under the guiding principles of the "Sendai Framework for Disaster Risk Reduction"

1. Risk identification
2. Risk reduction
3. Preparedness
4. Financial protection
5. **Resilient recovery:** strength will be correlated to accomplishment of goals under the four previous pillars.

Measures are based on each country's technical and financial capabilities, increasing sustainability and attainment of goals, and adapting textbook recommendations to specific national contexts.

Recommendations for Resilient Reconstruction



DALA

ECLAC has been a pioneer in the field of disaster assessment and in the development and dissemination of a disaster assessment methodology. Starting in 1973 with the earthquake that struck Managua, Nicaragua in December 23, 1972, ECLAC has made:

- More than 110 assessments of the social, environmental and economic effects and impacts of disasters in 28 countries in the region. Two of these disasters were epidemics
- **Based on its experience in this matter, ECLAC developed a Handbook for disaster assessment in 1991, its last edition was published in 2014.**

DALAs

- **Since 2015, ECLAC has led 14 assessments applying the new methodology:**

2015: Hurricane Joaquin (Bahamas)

2016: April 16th earthquake (Ecuador); Hurricane Earl (Belice); Hurricane Matthew (Bahamas).

2017: Floods (Argentina); Hurricane Irma (Bahamas, Anguilla, Sint Maarten); Hurricane Irma and María (Turks and Caicos Islands, British Virgin Islands)

2018: Volcán de Fuego Eruption (Guatemala)

2019: Hurricane Dorian (Bahamas)

2020: Hurricanes Eta and Iota (Honduras); : Hurricanes Eta and Iota (Guatemala)

DALA methodology trainings

Since 2014, ECLAC has done the following activities to diseminate its methodology:

- More than 40 face-to-face courses in which public officials from 21 countries of Latin America and the Caribbean participated.
- Development of distance learning courses in English and Spanish. Both include a specific module for the assessment of epidemics
- Publication of the Exercise Guide to support these courses

OVERVIEW OF THE DALA METHODOLOGY