



# **Organización Panamericana de la Salud**

*Oficina Regional de la  
Organización Mundial de la Salud*



## **Dengue Situation in the American Region. Integrated Management Strategy for Dengue Prevention and Control.**

11<sup>th</sup> Meeting of the Caribbean National Epidemiologists  
and Laboratory Directors. Port of Spain  
May 9-13, 2011

Christian Frederickson  
PAHO/WHO Costa Rica.

# Dengue has had a long history in the Americas with first outbreaks noted in 1600 -1900

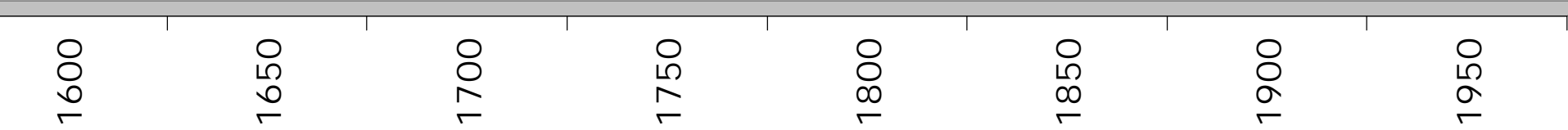


1635: The first dengue epidemic reported in Martinique and Guadeloupe.

1780: Benjamin Rush described a large outbreak in Philadelphia, Pennsylvania in the United States.

1827 First multi country outbreak reported in Virgin Islands, Cuba, Jamaica, Venezuela and cities in the US.)

1912: Dengue Epidemic in Panama, Chile and Argentina North.



# Dengue in the Americas 1940 - 2000

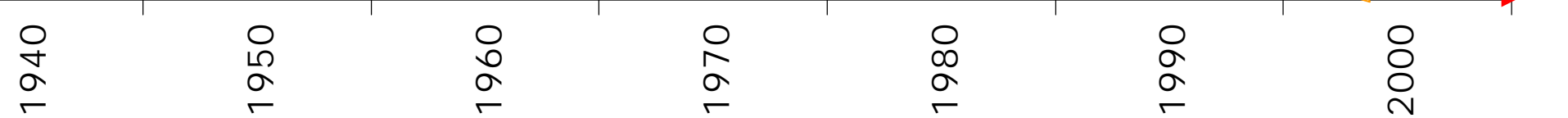


1939-1945  
 WORLD WAR II  
 DEN-1, 2, 3, 4 circulated from tropical Asia to the rest of the world.

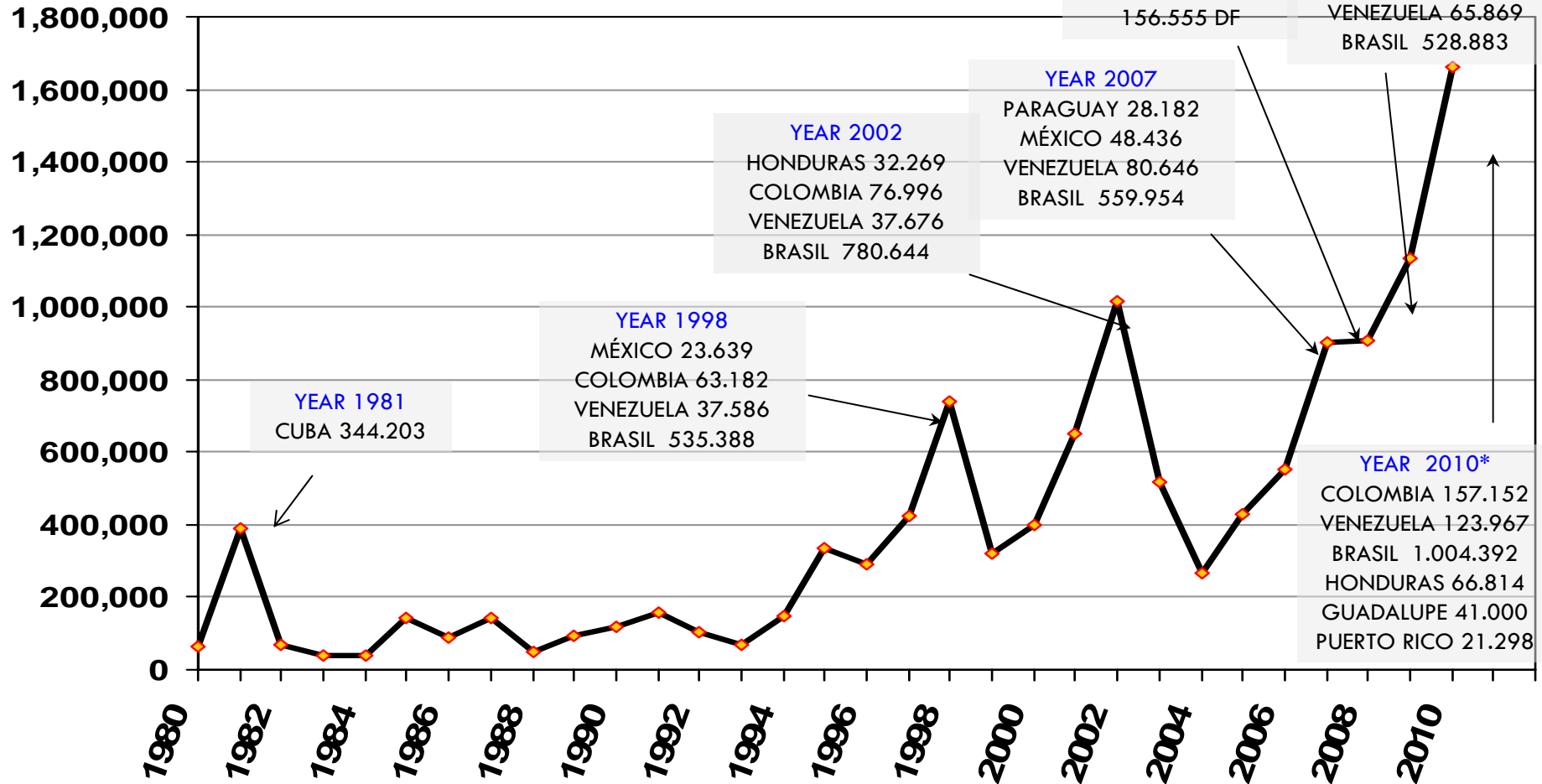
1947-1970 Eradication of *Ae. Aegypti*  
 OPS – CD1.R1

1971-1990  
 DETERIORATION OF VERTICAL PROGRAMMES

1996 -1997:  
 CD39.R11  
 Continental Plan for expanding and intensifying the war against *Aedes aegypti*



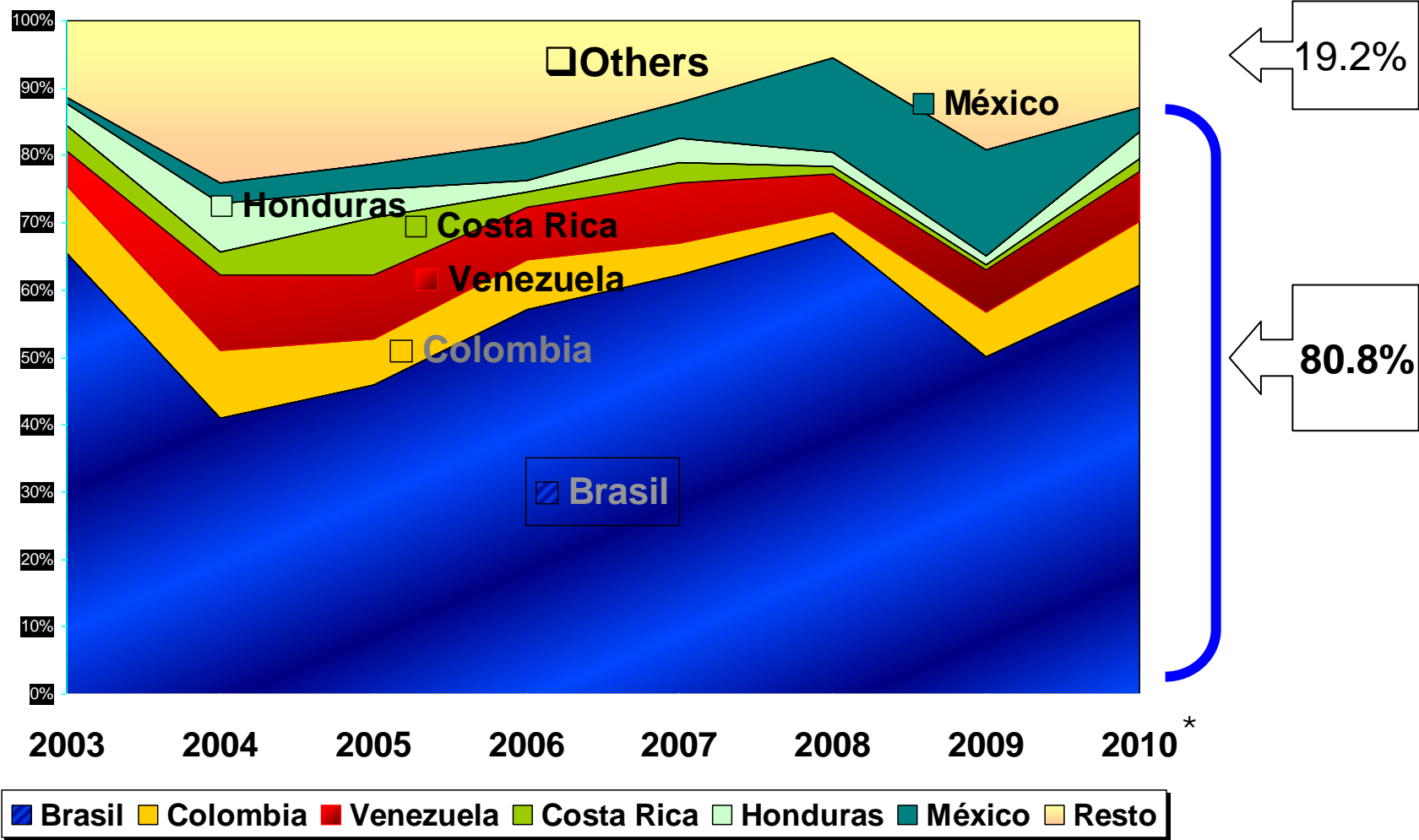
# Evolution of Dengue in the America Region 1980-2010



Source: Countries report.  
\* 2010: preliminary data

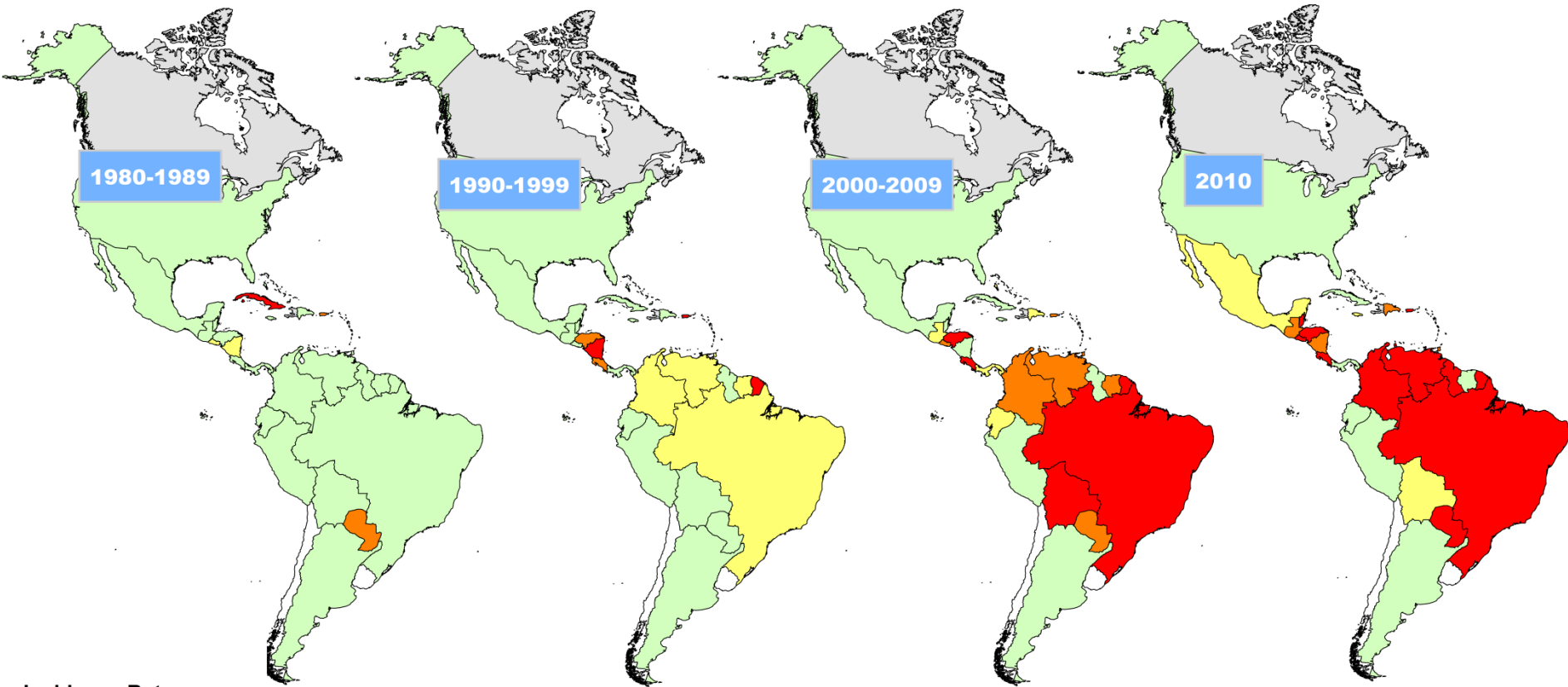
# Dengue Situation 2010

# Countries Most Affected by Dengue Morbidity. 2003-2010



Source: Country reports to PAHO

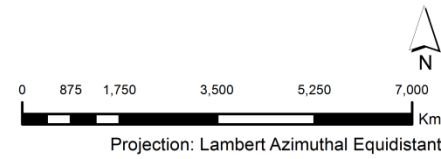
# Dengue Incidence in the Americas, 1980- 2010



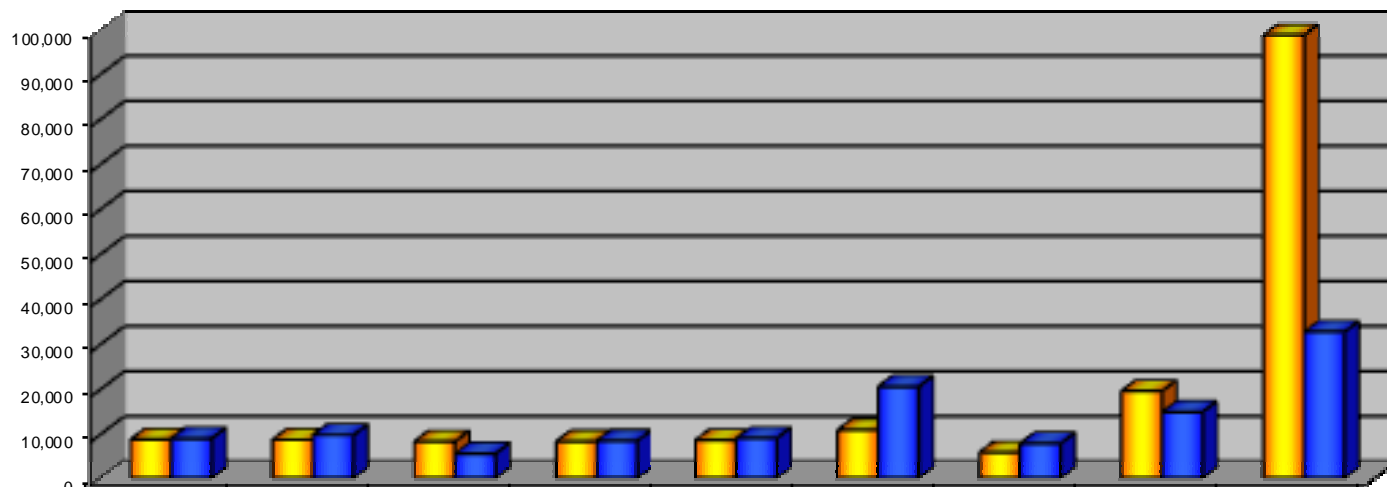
**Incidence Rate**  
Cases x 100,000 inhab

- < 50
- 50 - 100
- >100 - 200
- > 200
- No data
- No Indegenous cases

**Incidence Rate x 100,000**



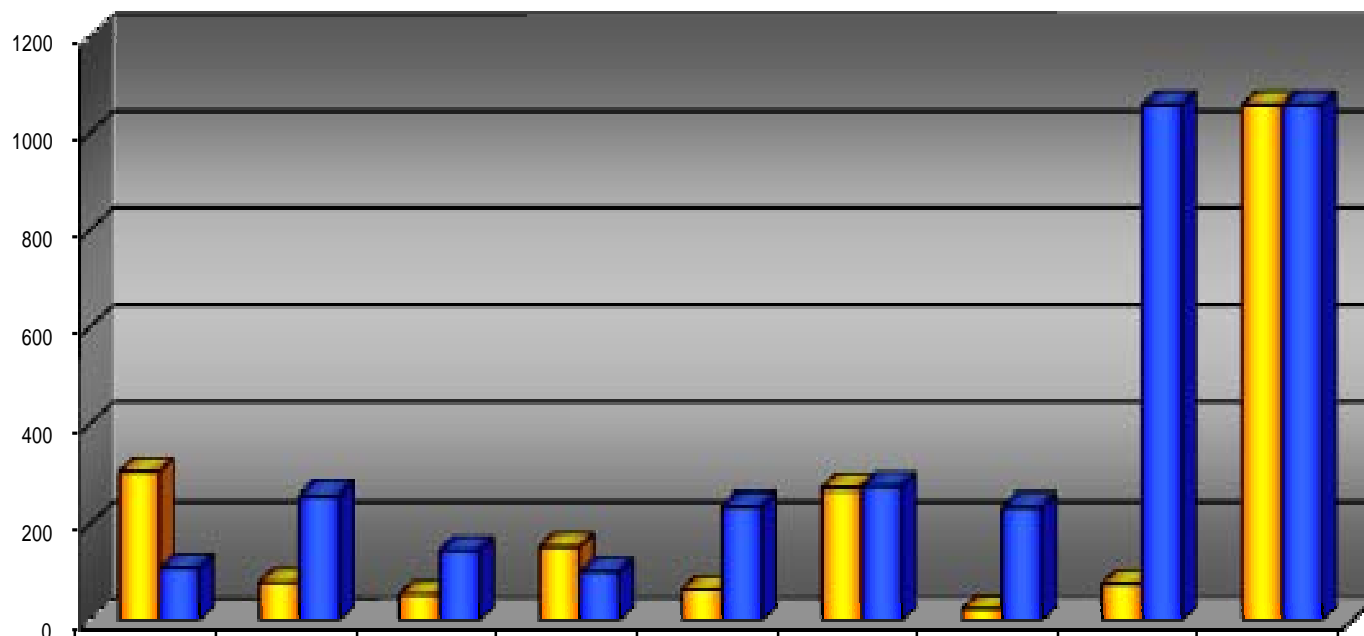
# Dengue Cases in the Caribbean 2002-2010



	2002	2003	2004	2005	2006	2007	2008	2009	2010
■ Non Hispanic countries	8,867	8,837	8,447	8,484	8,754	10,987	6009	19673	98849
■ Hispanic countries	9111	9898	5764	8636	9186	20640	8034	15013	32817



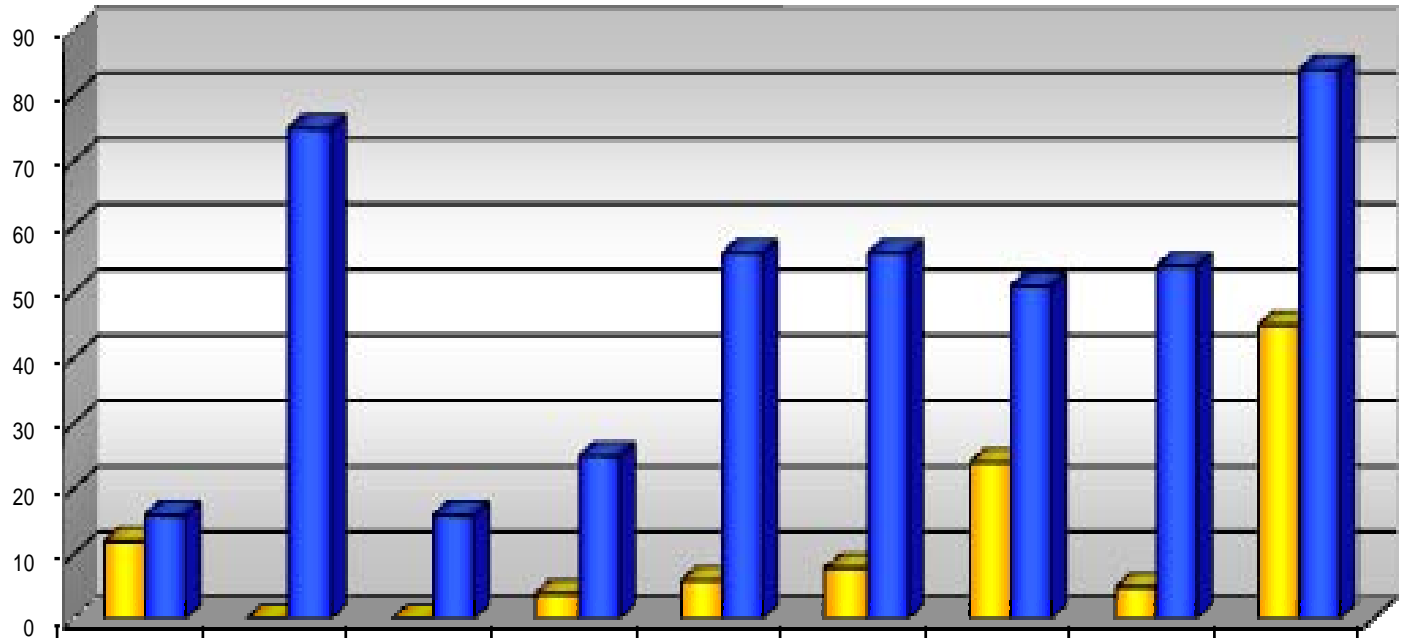
# Dengue Haemorrhagic Fever in the Caribbean 2002-2010



	2002	2003	2004	2005	2006	2007	2008	2009	2010
Non Hispanic countries	303	81	56	154	66	270	24	78	1058
Hispanic countries	111	257	147	103	237	273	235	1058	1058

■ Non Hispanic countries
 ■ Hispanic countries

# Deaths due to Dengue in the Caribbean 2002-2010



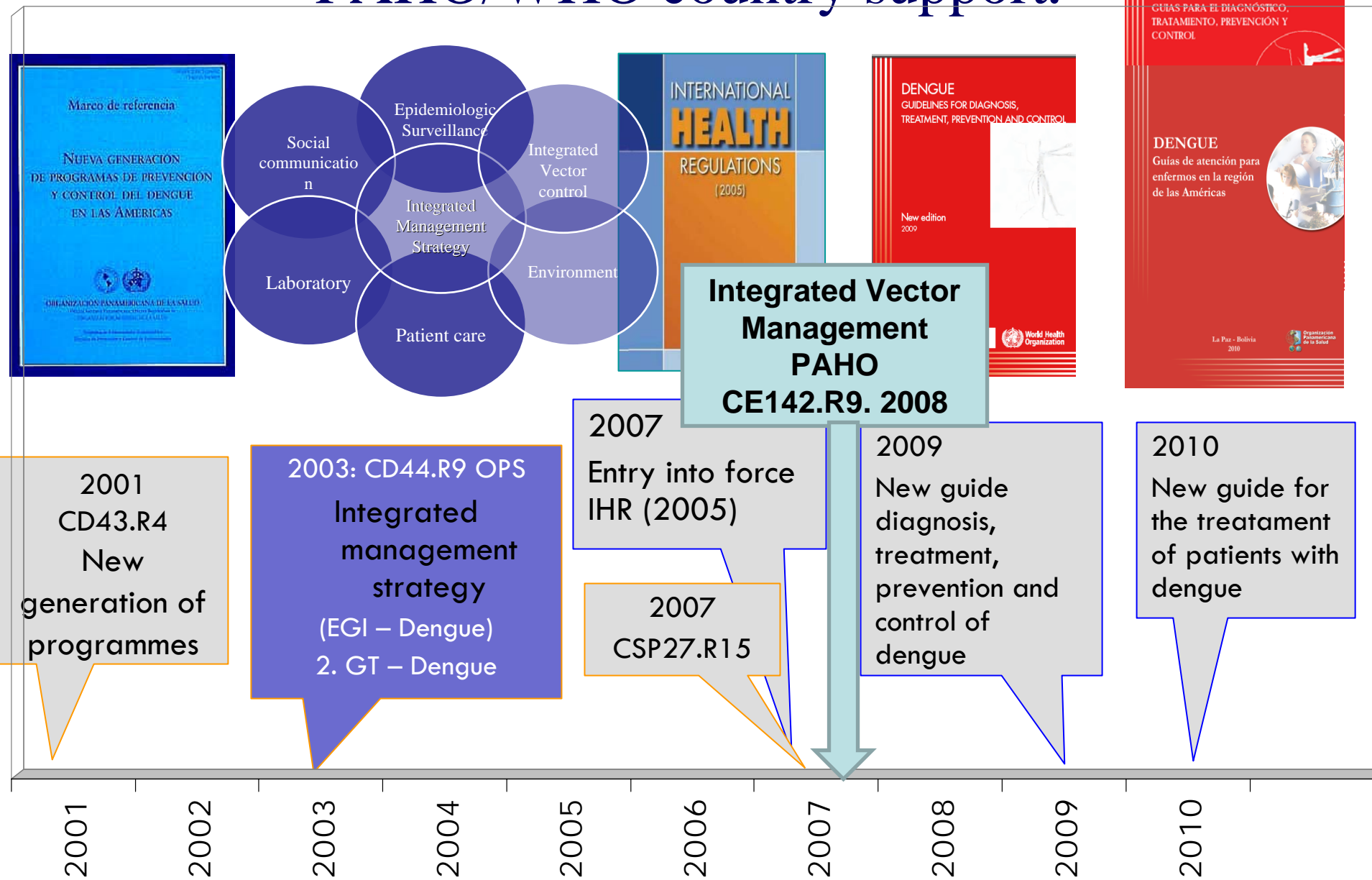
	2002	2003	2004	2005	2006	2007	2008	2009	2010
Non Hispanic countries	12	0	0	4	6	8	24	5	45
Hispanic countries	16	75	16	25	56	56	51	54	84

■ Non Hispanic countries    ■ Hispanic countries

# Dengue Situation 2011

# Dengue in the Americas 2000-2010

## PAHO/WHO country support.



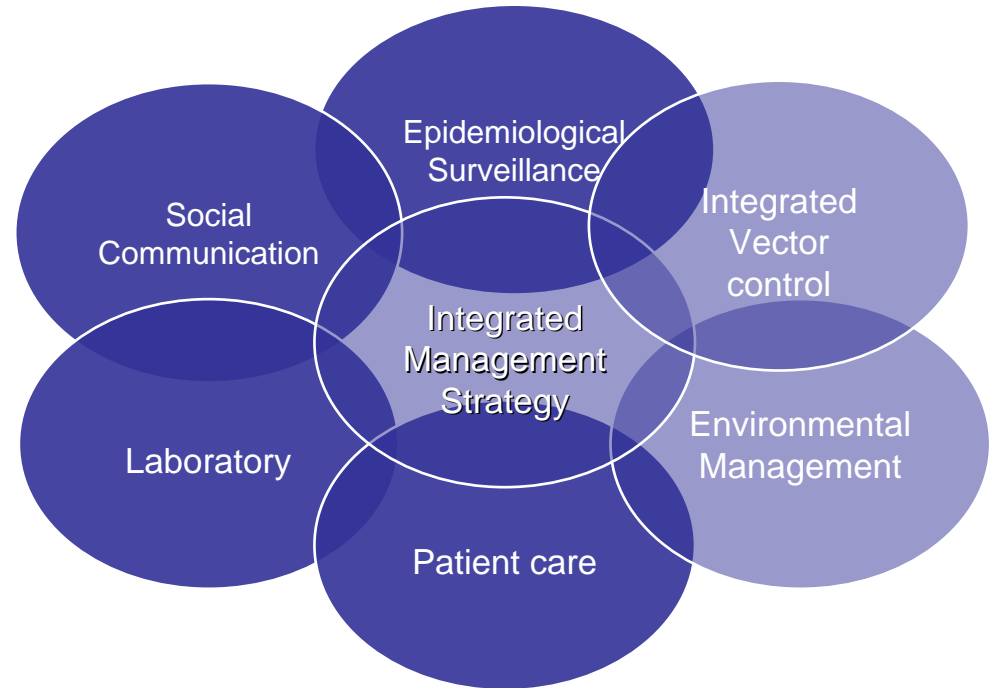
# Factors that Affect Dengue Transmission



1. Unprecedented population growth (megacities)
2. Uncontrolled and unplanned urbanization
3. Inadequate environmental management
4. Migration and tourism
5. Climate change
6. Poverty and extreme poverty

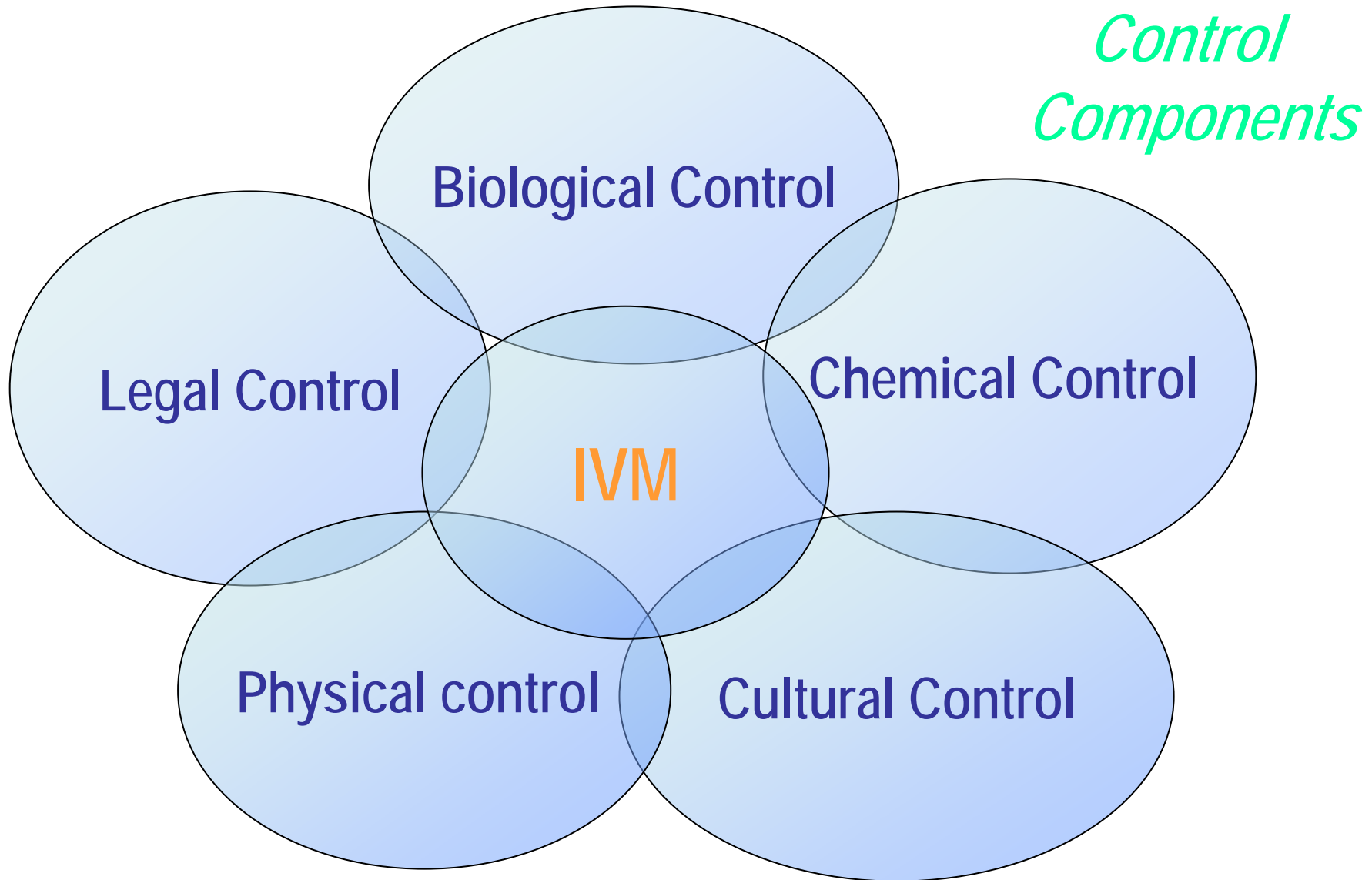


# Integrated Management Strategy (IMS-Dengue) for Dengue Prevention and Control.



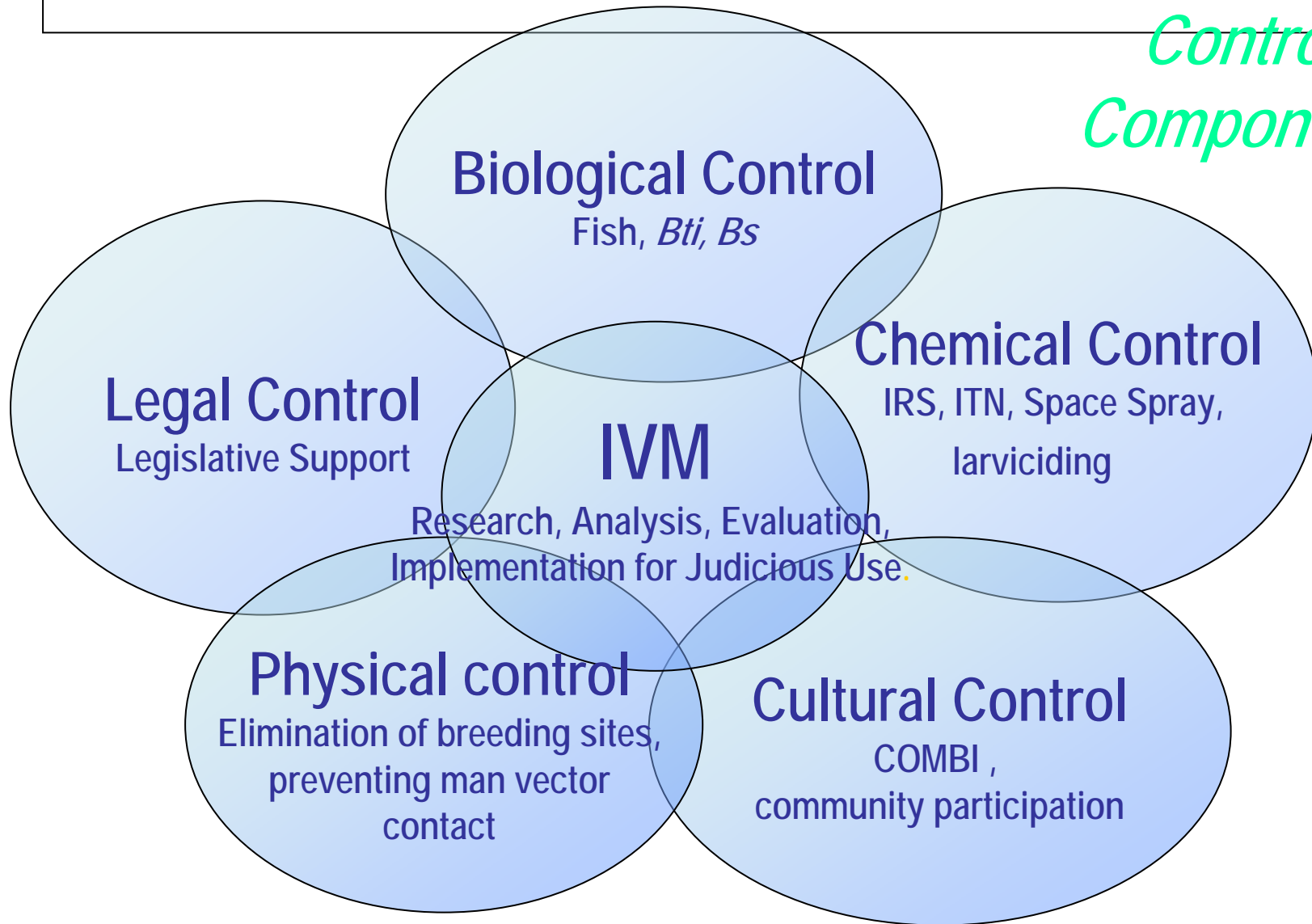
17 countries and 4 sub-regions (Central America, MERCOSUR, Andean and Caribbean) have the IMS-Dengue.

# Integrated Vector Management



# Integrated Vector Management

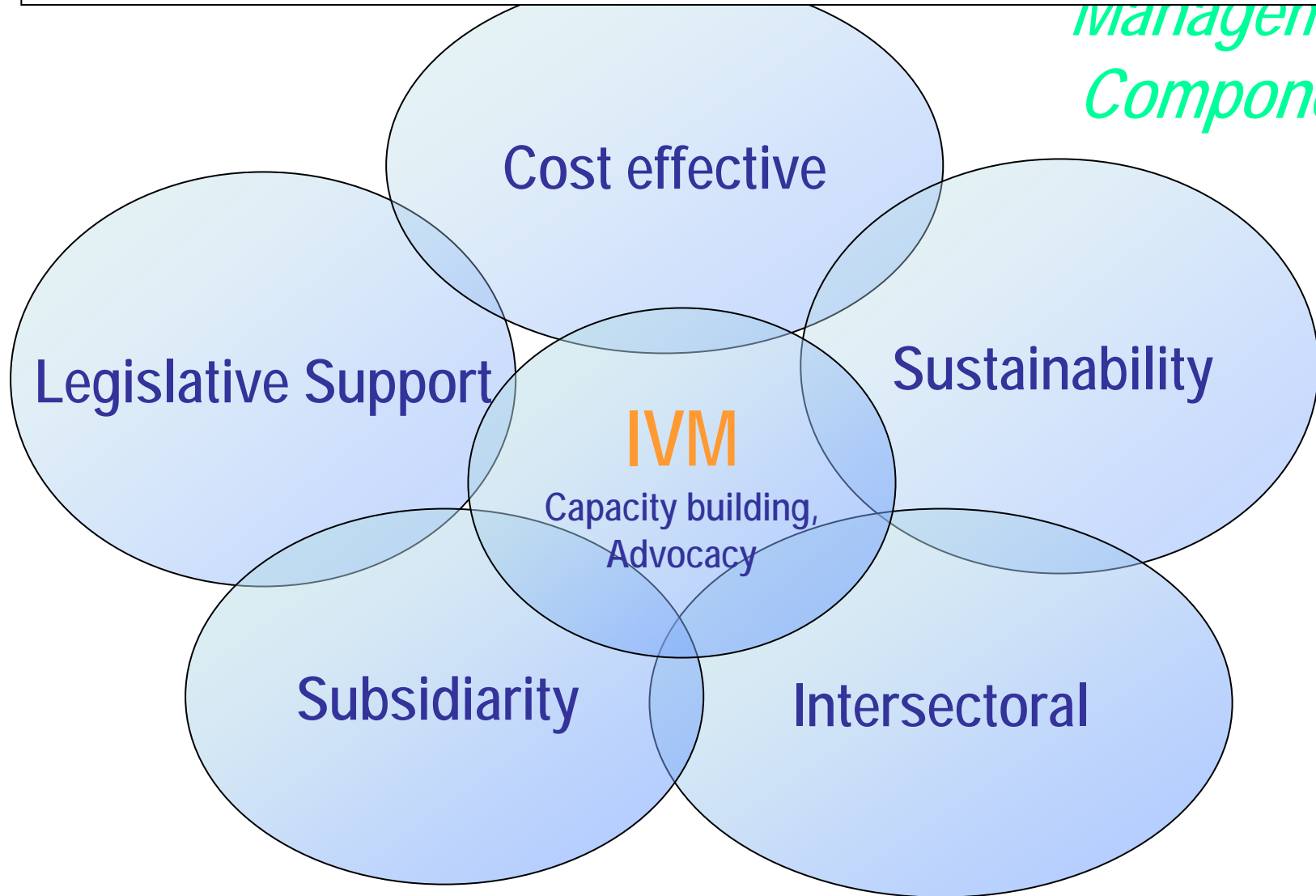
*Control  
Components*





# Integrated Vector Management

*Management  
Components*



# IMS-DENGUE ELABORATION IN THE REGION OF THE AMERICAS

## CENTRAL AMERICA and the CARIBBEAN

## ANDEAN REGION

## SOUTHERN CONE

Country	Date of Preparation
Subregional EGI for CA-DOR	Jan. 2004 Revised 2005
Nicaragua	March 2004
Guatemala	August 2004
Honduras	Sept. 2004
Dominican Rep.	Nov 2004
Costa Rica	Dec. 2004
El Salvador	Feb. 2005
Panama	July 2005
<b>Caribbean IMS</b>	July 2009
Guyana	Feb 2011
<b>Trinidad and Tobago</b>	May? 2011

Country	Date of Preparation
Venezuela	May 2004
Colombia	March 2006
Peru	Feb. 2007
Ecuador	Oct. 2007
Bolivia	Dec 2008

Country	Date of Preparation
Brazil	2003
Paraguay	May 2005
Subregional EGI for MERCOSUR	May 2007
Argentina	June 2007
Uruguay	April 2008
Chile	Sep 2008

NB: The resources devoted to the IMS-Dengue continue to be limited for its implementation and evaluation.

# Monitoring and Evaluation of IMS-Dengue.

- **OBJECTIVES:**
- **To promote the implementation process**
- **to provide practical recommendations in order to improve management issues,**
- **to make technical adjustments and**
- **to give greater emphasis on primary environmental care and extrasectorial actions.**
- **The Dengue International Working Group (GT-dengue) had been mobilized and the evaluation is done in accordance to the technical indicators and within all the EGI-dengue components.**
- **In 2008-2011 a total of 13 countries were evaluated.**

# Caribbean Dengue Activities 2002-2011

2011

- February and early 2011, Guyana and Trinidad and Tobago: Workshop for the elaboration of Integrated Management Strategy for dengue prevention and control (IMS-dengue).
- September 2010, Puerto Rico: Workshop for the elaboration of Integrated Management Strategy for dengue prevention and control (IMS-dengue).

2009

- June 2009 Martinique: Workshop Elaboration of Integrated Management Strategy for dengue prevention and control (IMS-dengue) for the Non Hispanic Caribbean sub-region.
- February 2009 Aruba: Technical assistance for dengue outbreak response in IVM.

2008

- October 2008, Trinidad and Tobago: Official mission for dengue outbreak response.
- September 2008, Puerto Rico: Mission for the evaluation of the National Dengue program.

2007

- September 2007, Guyana: Technical assistance for dengue outbreak response in entomology and patient care.
- March 2007, Martinique and French Guyana: Visit to the French Departments Dengue programs.

2004

- September 2004: Evaluation of COMBI Plans Barbados, Santa Lucía, Trinidad & Tobago.
- June 2004, Trinidad and Tobago: COMBI Plans Workshop for Barbados, Belize, Santa Lucía, Trinidad & Tobago

2002

- September 2002, Trinidad and Tobago: Mission for the evaluation of the National Dengue programme.

# Communication for Behavioural Impact (COMBI)

Progress in the Implementation of the COMBI methodology.  
Colombia, Peru, Paraguay



Mes: Enero

*Hoy puedes ser su desayuno.....*



**EVITALO**

LIMPIA LA PILA



Combi

*Que no seas tú el desayuno...!*



**EVITALO**

Limpia la pila



Combi

# Resolution CSP27.R15

## ☑ Macro determinants Control activities



**Partnership with Ecoclubes  
Water and Youth Movement**



**Tires disposition and recycling:  
Brazil, Costa Rica, El Salvador,  
Paraguay.**



**Meeting of Mayors  
Associations: Strengthen the  
environmental management  
and legislative aspects**



**Dengue control in Megacities  
workshops**

# LESSONS LEARNED: National IMS-dengue

- ✓ Greater intrasectoral coordination (Technical and Management) and interprogrammatic efforts in order to guarantee the reduction of the fatality case and confront the increase of severe dengue cases.
  - ✓ Greater coordination with other sectors: Environment, Education, Private Business, Municipal Government and Community groups.
  - ✓ New programs at the local level: COMBI, Eco-Clubs, Eco-Health.
  - ✓ Increased capacity for resource mobilization at the country level.
  - ✓ New tools being used by programs: LIRA, Mosquito capture devices, GIS.
  - ✓ Increased capacity to respond to outbreaks and the anticipation of outbreaks/epidemics.
- ✓ Criteria unifications: diagnostic of Dengue, patient care, entomological indexes



EcoClubs,  
Argentina



Recycling tires, Brazil



COMBI,  
Guatemala



COMBI,  
Brazil

# Communication for Behavioral Impact Dengue COMBI Plans Caribbean region

## Supported by:

- Centers for Disease Control and Prevention (CDC)
- WHO Mediterranean Centre for Vulnerability Reduction, Tunis
- Pan American Health Organization
- Caribbean Epidemiology Centre (CAREC)
- World Health Organization
- Ministry of Health, Trinidad and Tobago.

## COMBI Objectives

- **March 2004 – Trinidad:** Inspect the homes in order to collect and discard refuse and the containers in disuse.
- **March 2004 - Santa Lucia:** Wash with brushes the barrels, store water in covered barrels, and/or anoint chlorine on the internal surface of the container, to place them mouth below.
- **March 2004 - Barbados:** Ensure that the owners of businesses of tires send them to the spillway in a weekly pattern and/or keep them under ceiling.



# Retyre & Remove



## Dispose of the Threat!!

The Ministry of Health

COMBI, Barbados

# Priority for Dengue Control and Prevention

- Promote collaboration between Ministries to combat Dengue such as Ministry of Education Tourism, Water and Sanitation and Municipalities.
- Strengthen Clinical and patient care capacities to avoid deaths.
- Strengthen Laboratory Diagnostics training
- Implementation of Evidence based Control using Integrated Vector Management for effective Vector Control.
- Strengthen human resource capacities especially in the monitoring and control of the vector *Aedes aegypti*.
- Together with National and International Universities promote research in local solutions and the application of new methodologies for monitoring and control of *Aedes aegypti*.
- Strengthen Outbreak Response.

# Our challenges



# While We Live in a Tropical Paradise



# The Problem of Solid Waste Disposal is Universal

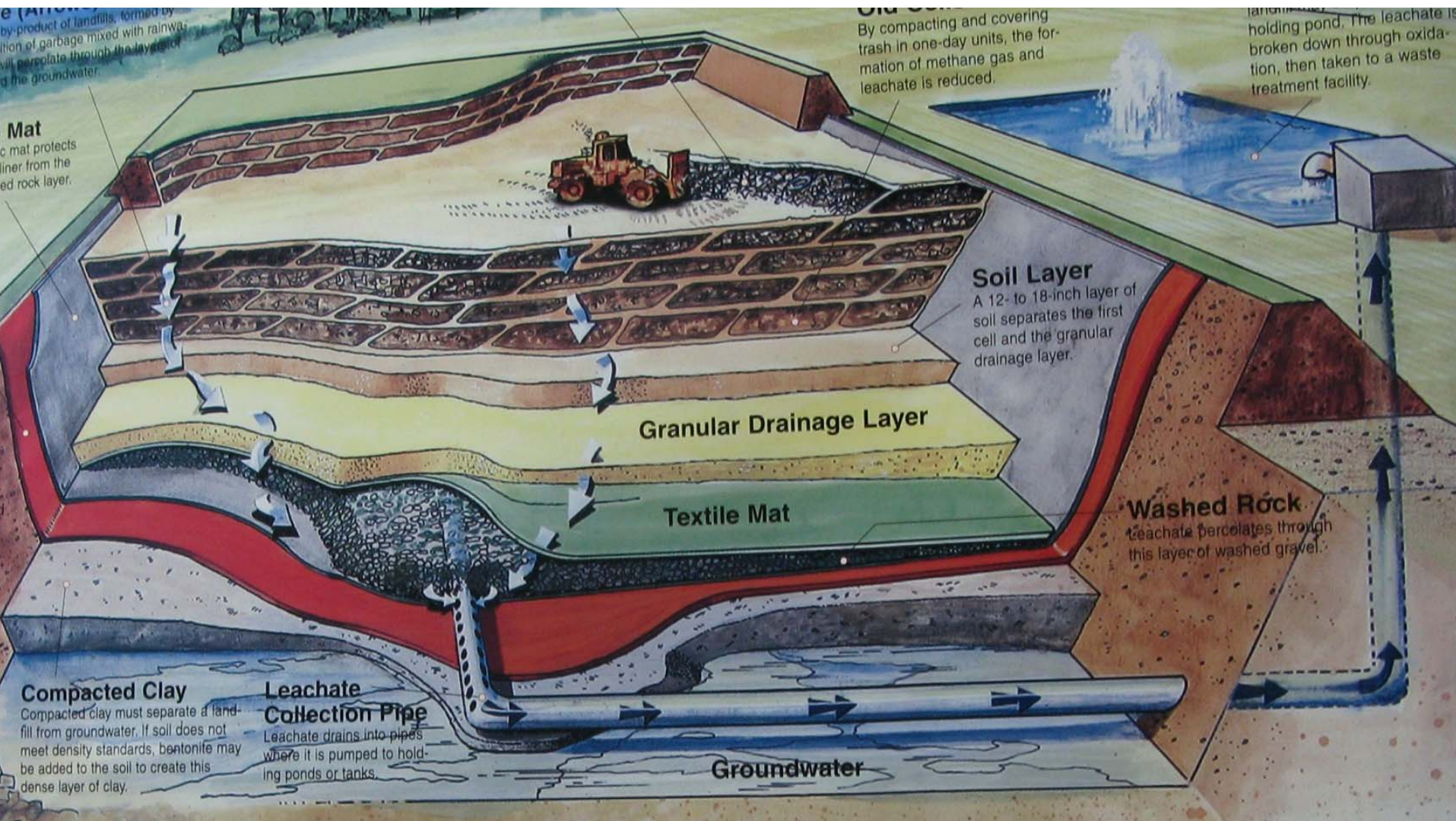
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**And it is not easy  
Nor Cheap to Eliminate**



# The solution will take time but must be done.



Thank you for your attention

Questions?

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