

Planned Resettlement and Vulnerability in Cities

The on-going case of the River Cauca Diike Improvement (PJC), Cali (Colombia)

Veronica Olivotto (MSc)

olivotto@ihs.nl

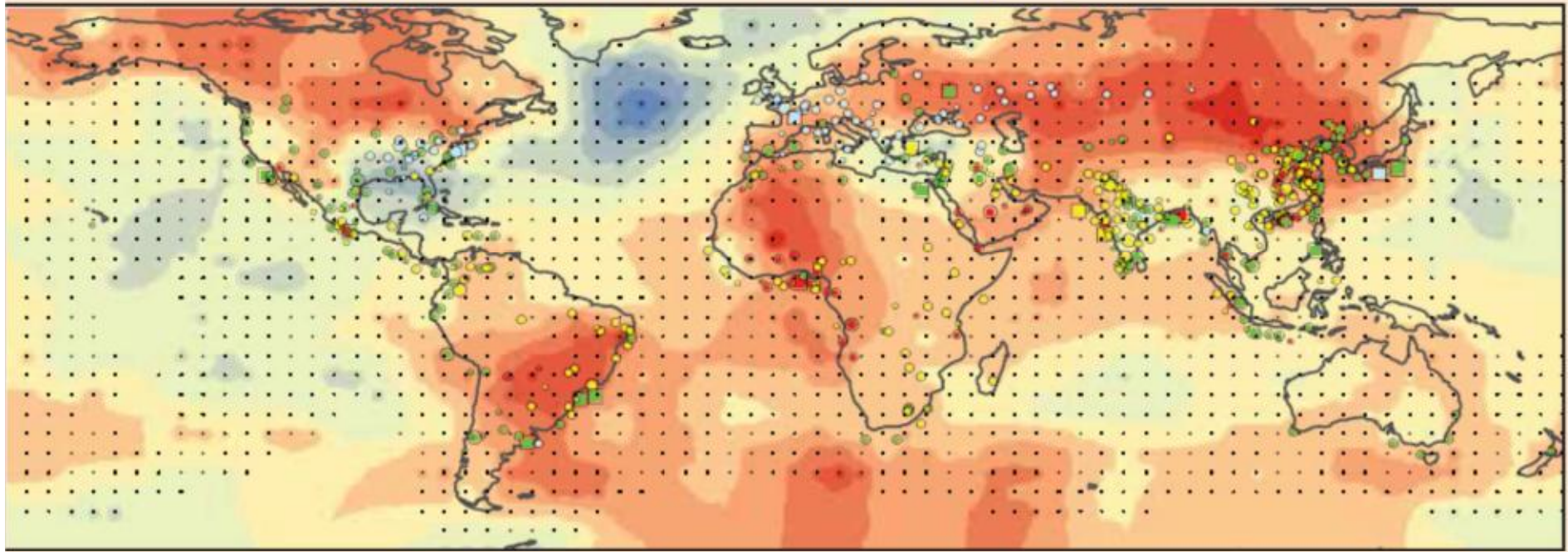
Urban Management Tools for Climate Change
(UMTCC) 2017

Setting the Scene: Changing Cities, Changing Climate

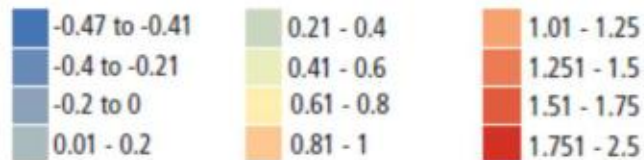
Changing Cities

- Larger cities are exposed to climatic risks, such as temperature rise, in different ways
- A number of large urban agglomerations in almost all continents, will be exposed to a temperature rise of greater than 1.5°C (over preindustrial levels) by mid-century

Urban Agglomerations 2010 with Observed Climate Change, Trend Period 1901-2012



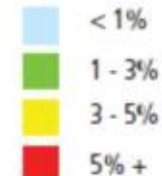
Trend period 1901 - 2012 (°C over period)



City Population 2010



Compound annual growth rate 1970 - 2010



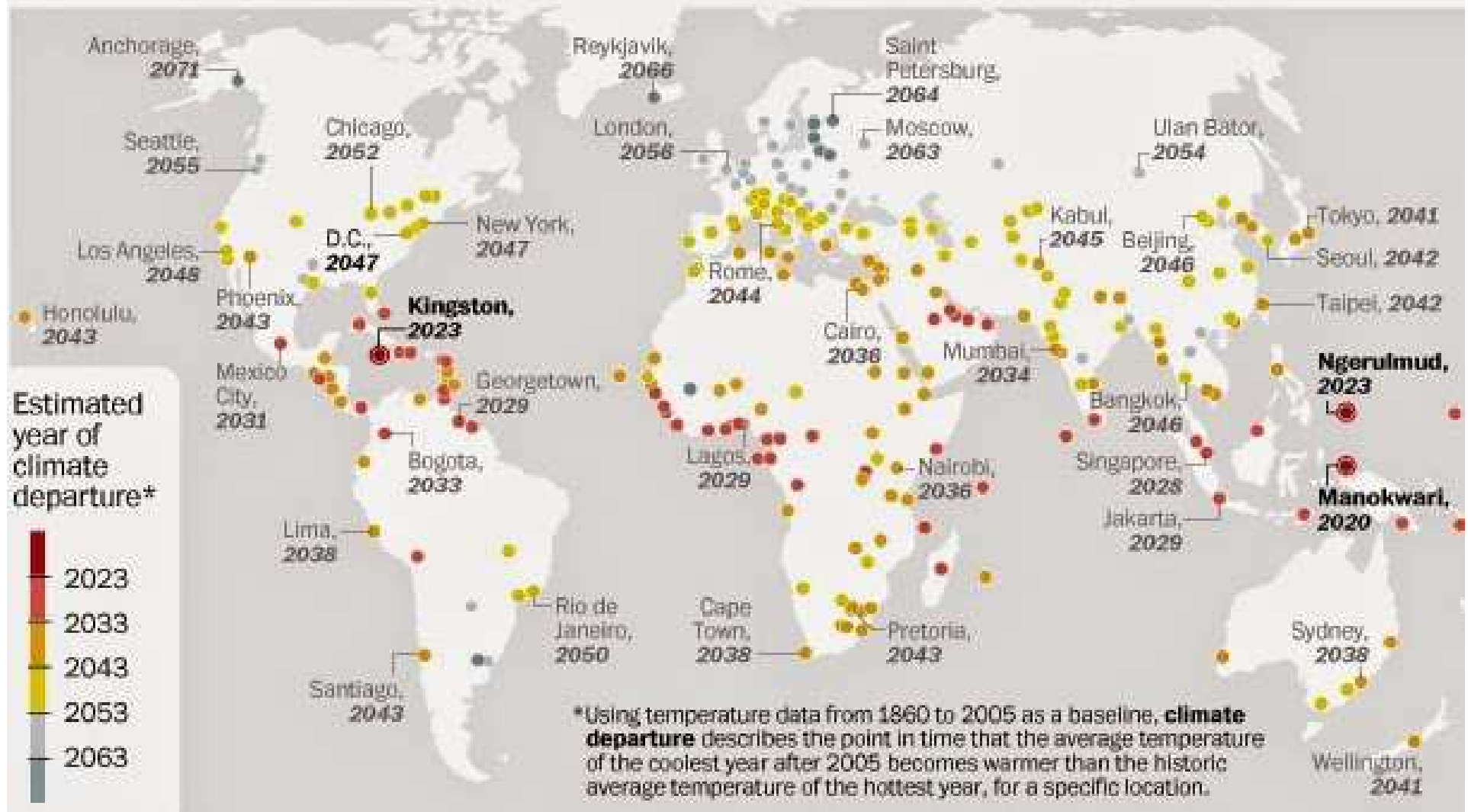
Temperature rise of greater than 1°C in areas in north and central Asia, western Africa, South America, and parts of North America, indicates the potential differential exposure of large cities to climate risk

[SOURCE: Revi et al (2014). Working Group 2 Chapter 8]

Years of Climate Departure

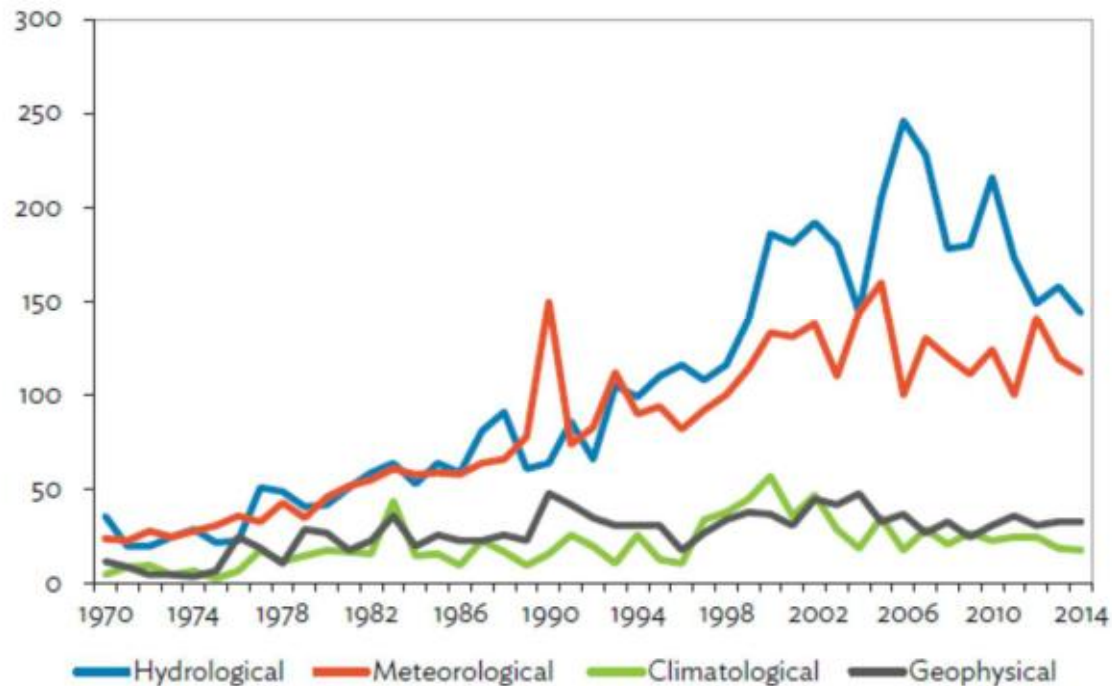
- Unprecedented climates will occur earliest **in the tropics and among low-income countries**, highlighting the vulnerability of global biodiversity and the limited governmental capacity to respond to the impacts of climate change.

Without carbon dioxide mitigation



Based on Mora *et al* (2013). 'The projected timing of climate departure from recent variability' *Nature* 502: 183-187

**Figure 1: Global Frequency of Natural Disasters by Type
(1970–2014)**



Source: Authors' estimates based on data from the Emergency Events Database (EM-DAT) of the Centre for Research on the Epidemiology of Disasters. <http://www.emdat.be> (accessed 5 March 2015).

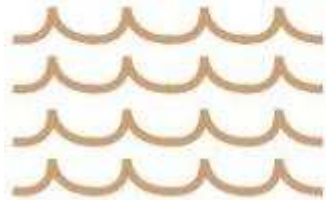
“In the last 4 decades, the frequency of natural disasters recorded in the Emergency Events Database (EM-DAT) has increased almost three-fold, from over 1,300 events in 1975–1984 to over 3,900 in 2005–2014.”

(Thomas and Lopez, 2015)

Top 3 climate hazards as disclosed by cities

Flood

27 cities



Insects and micro-organisms

17 cities



Extreme temperature

17 cities



Top 3 assets or services impacted by the effects of climate change

Health and community



Food and agriculture



Residential



Even with adaptation measures subsidence and sea-level rise will increase global flood losses to **US\$60–63 billion per year in 2050** (Hallegatte et al., 2013)

Top adaptation actions taken for the top climate hazards

Flood

- ▼ Flood mapping
- ▼ Restrict development in at risk areas

Insects and micro-organisms

- ▼ Disease prevention measures
- ▼ Improve water supply distribution method

Extreme temperature - hot

- ▼ Heat mapping and thermal imaging
- ▼ Community engagement/education

Water scarcity

- ▼ Water use restrictions and standards
- ▼ Tree planting and/or creation of green space

	Summary statement	Anthropogenic Influence Increased event likelihood or strength	Anthropogenic Influence decreased event likelihood or strength	Anthropogenic Influence not found or uncertain	Number of papers
Heat	Long-duration heatwaves during the summer and prevailing warmth for annual conditions are becoming increasingly likely because of a warming planet	Europe heat, 2003 (Stott et al, 2004 ²³); Russia heat, 2010 (Rahmstorf and Couman, 2011; ²² Otto et al, 2012 ²³); USA heat, 2012 (Diffenbaugh and Scherer, 2013; ²⁴ Knutson et al, 2013); ²⁴ Australia heat, 2013 (Arblaster et al, 2014; King et al, 2014; Knutson et al, 2014; Lewis et al, 2014; Perkins et al, 2014); ²⁵ Europe heat, 2013 (Dong et al, 2014); ²⁵ China heat, 2013 (Zhou et al, 2014); ²⁵ Japan heat, 2013 (Imada et al, 2014); ²⁵ Korea heat, 2013 (Min et al, 2014) ²⁵	--	--	14
Cold	Prolonged cold waves have become much less likely than they were previously, such that the probability of reoccurrence of the 2013 severely cold winter in the UK might have fallen by 30 times because of global warming	--	UK cold spring, 2013 (Christidis et al, 2014) ²⁵	UK extreme cold, 2010–11 (Christidis and Stott, 2012) ²⁶	2
Heavy precipitation and flood	Extreme precipitation events were found to have been much less influenced by human-induced climate change than extreme temperature events	UK floods, 2011 (Pall et al, 2011); ²⁷ USA seasonal precipitation, 2013 (Knutson et al, 2014); ²⁵ India precipitation, 2013 (Singh et al, 2014) ²⁵	USA Great Plains drought, 2013 (Hoerling et al, 2014) ²⁵	Thailand floods, 2011 (Van Oldenborgh et al, 2012); ²⁶ UK summer floods, 2012 (Sparrow et al, 2013); ²⁴ north China floods, 2012 (Tett et al, 2013); ²⁴ southwest Japan floods, 2012 (Imada et al, 2013); ²⁴ southeast Australia floods (2012); (King et al, 2013; ²⁴ Christidis et al, 2013); ²⁴ southern Europe Precipitation, 2013 (Yiou and Cattiaux, 2014); ²⁵ central Europe precipitation, 2013 (Schaller et al, 2014) ²⁵	14
Drought	Droughts are highly complex meteorological events and research groups have analysed different factors that affect droughts, such as sea surface temperature, heat, or precipitation	East African drought, 2011 (Funk et al, 2012); ²⁸ Texas drought, 2011 (Rupp et al, 2012); ²⁸ Iberian Peninsula drought, 2011 (Trigo et al, 2012); ²⁸ east African drought 2012, (Funk et al, 2012); ²⁸ New Zealand drought, 2013 (Harrington et al, 2014); ²⁵ USA California drought, 2013 (Swain et al, 2014) ²⁵	--	Central USA drought, 2012 (Rupp et al, 2013); ²⁴ USA California drought, 2013 (Funk et al, 2014); ²⁶ (Wang and Schubert, 2014) ²⁵	9
Storms	No clear evidence of human influence was shown for any of the four very intense storms examined	--	--	USA hurricane Sandy, 2012 (Sweet et al, 2013); ²⁴ cyclone Christian, 2013 (von Storch et al, 2014); ²⁵ Pyrenees snow, 2013 (Anel et al, 2014); ²⁵ USA south Dakota blizzard, 2013 (Edwards et al, 2014) ²⁵	4
Number of papers	--	23	2	18	43

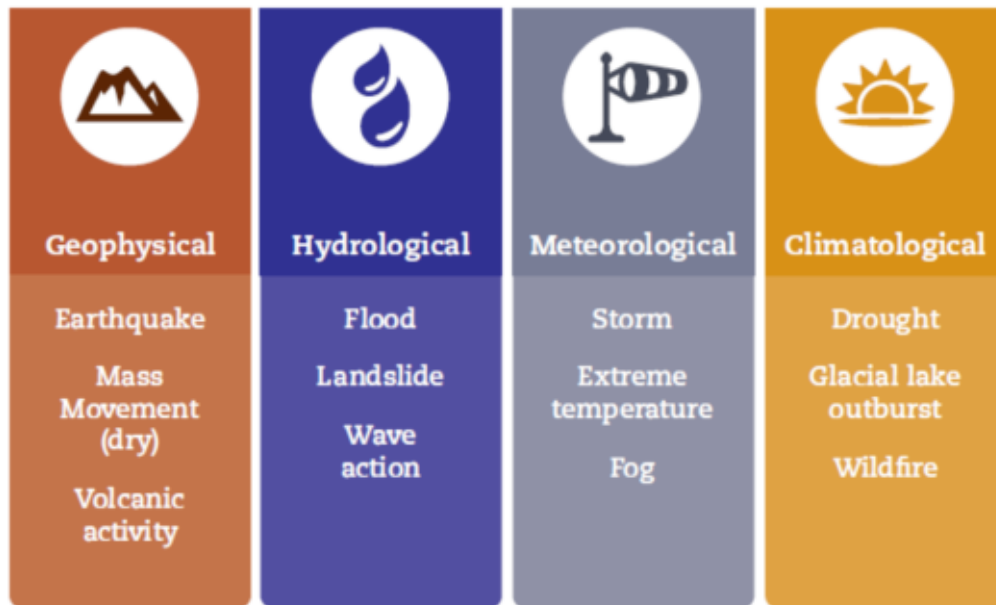
References are in Peterson et al, 2012;²⁸ Peterson et al, 2013;²⁴ Herring et al, 2014;²⁵ or listed separately. Adapted from the Bulletin of the American Meteorological Society.

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Table 1: Detection and attribution studies linking recent extreme weather events to climate change

Source: The Lancet, 2013

Classifying Natural Disasters



(CRED and UNISDR, 2015)

- Climatic and non-climatic hazards
- Natural Hazards can interact creating a cascading chain of events!

Floods > mudslides> cut power lines and roads
Extreme heat > wildfires > heavy pollution > bronchial disease

**50 million – 200 million people will be
displaced by 2050**

(Source: United Nations University Institute for Environment and Human Security and the International Organization for Migration)



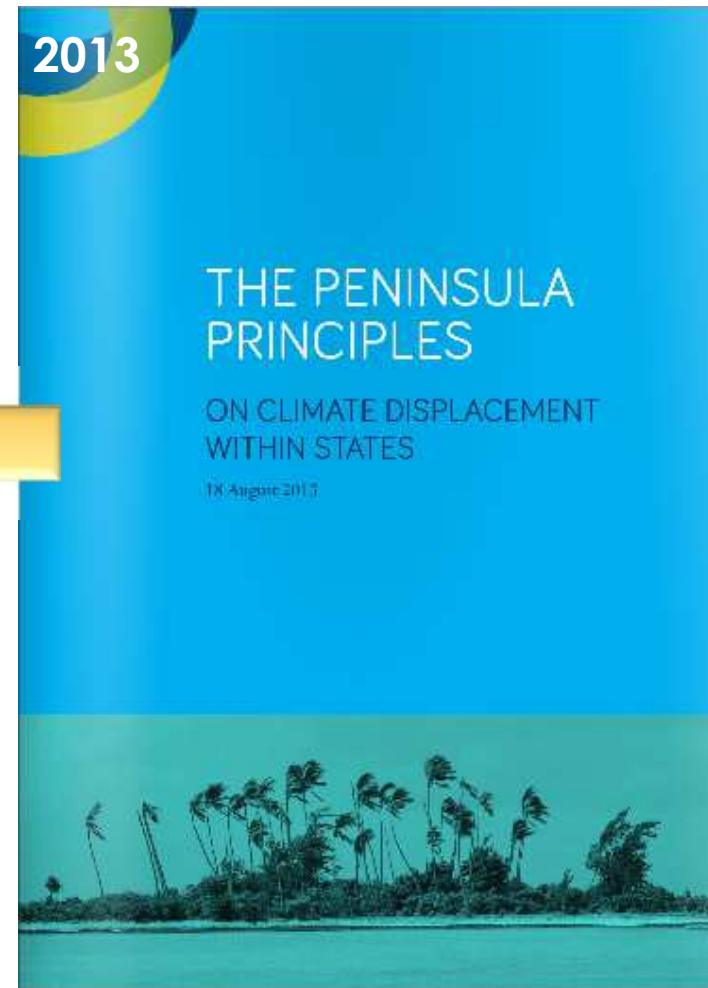
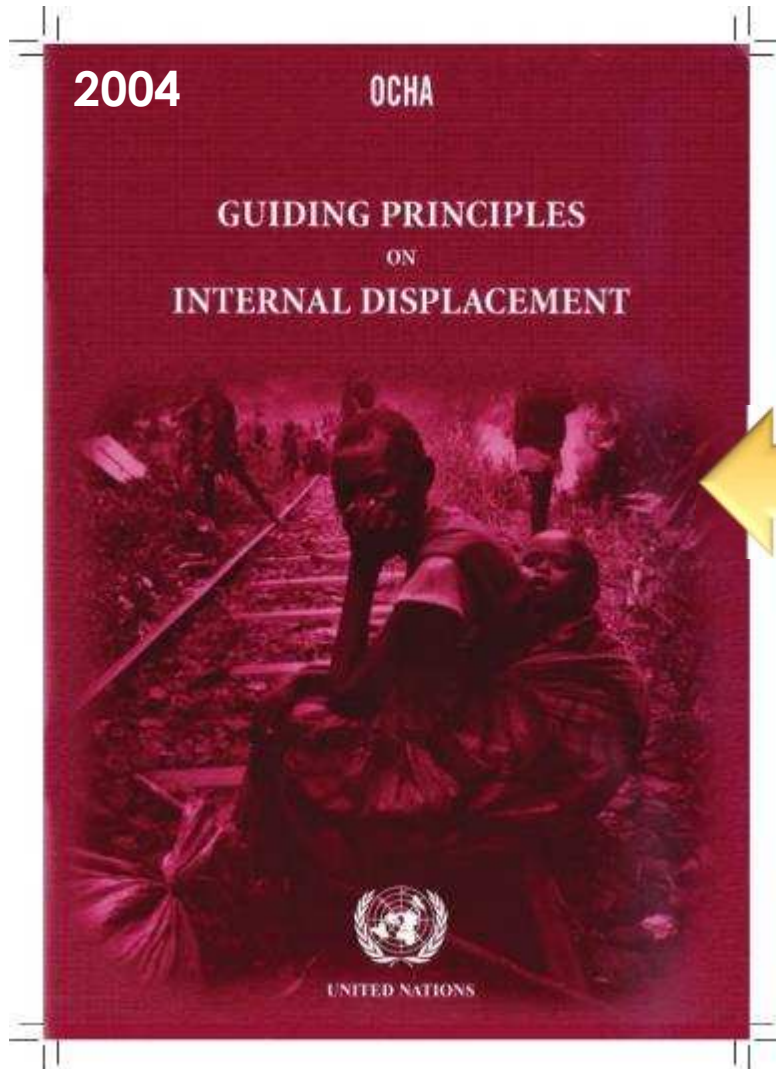
Shishmaref communities (Alaska) started relocation in 2002 due to coastal erosion and Sea Level Rise
(Source: Alaska Department of Commerce)



Native American people who lived for generation on the Isle de San Charles, Louisiana will be resettled to drier land by 2022.

(Source: Josh Haner/New York Times)

International framework on the rights of climate displaced persons



<http://displacementsolutions.org/ds-initiatives/the-peninsula-principles/>

Development-forced Displacement and Resettlement (DFDR)

- Mining operations
- Hydroelectric Dams
- Highways and other transport infrastructure
- Tourist resorts
- Conflict



Hydroelectric Dam construction works in Southern Ethiopia
(Source: The Guardian)

Planned Relocation

- “the physical process of moving people and can be either temporary or permanent and either voluntary or forced.” (Ferris, 2012)

Planned Resettlement

- “to assist displaced persons to replace their housing, assets, livelihoods, land, access to resources and services and to enhance, or at least restore their living standards.” (World Bank in Ferris 2012:11)



Newtok Communities facing resettlement due to erosion and SLR (Source: The Guardian, 2013)

Planned Relocation in the context of Disasters and CC

- Preventive/anticipatory relocation
- Reactive relocation
- As a **consequence of measures related to climate change adaptation** or disaster risk reduction measures

Study objectives

- Review principles of planned resettlement including the added challenges brought by climate risk disasters
- Understand the socially constructed nature of vulnerability in Cali
- Develop and apply a framework to assess the planning and management of planned resettlement in Cali

Methodology

Primary Data	Secondary Data
3 in-depth interviews with municipal officers of River Cauca Dike Plan (Social Component) (December 2015)	Literature Review of good DFDR or CC planned relocation practices/principles
1 in-depth interview with the Coordinator of the Municipal Council on Disaster Risk Management of Cali (July 2014)	Review of available (Spanish) academic literature, in-depth news media coverage, urban observatories on Cali's urban expansion and politics of relocation along the River Cauca Dike
1 Group Discussion with one CBO Ecolprovys (December 2015)	Key PJC documents from the Municipality, Royal Haskoning, Cali's Public Defensor and National Special Prosecutor

Lessons for climate change and disaster induced displacement

Summary of
key principles
for good DFDR
(Ferris, 2012)

Involuntary relocation and resettlement **should be avoided wherever possible.**

Where relocation and resettlement are unavoidable, **the scale of displacement should be minimized** and resettlement activities should be conceived and executed as **full-fledged sustainable development programs.**

Meaningful consultation with the populations to be displaced should be an integral part of the process.

Displaced persons should be assisted to regain their productive activities and to restore and **improve their livelihoods and incomes at least to the levels they enjoyed before** the displacement.

Lessons for climate change and disaster induced displacement (cont.)

More key principles for good DFDR (Imura & Shaw, 2009; Perry & Lindell, 1997; Mathur, 2015)

Resettlement policies are socially sensitive and resettlement laws that make resettlement a legally enforceable right

Focus on **improving living conditions of the poorest**

Move people as a **group** and involve all concerned parties

Strengthen capacities to manage the resettlement process through establishing an implementation agency with a local presence on the ground

Lessons from climate change and disaster induced displacement practice

Key lessons for planning and management of planned resettlements (Bronen, 2014; Petz, 2015)

Anticipatory relocations perceived more **successful** than reactive ones

Involve host communities in the relocation to minimize later conflicts

Small sized relocations have greater chance of success than relocating large groups

Account for **political and economic contexts** and prior community experience with migration and displacement

Lessons from climate change and disaster induced displacement practice (cont.)

Key lessons for planning and management of planned resettlements (Ferris, 2012; Bronen, 2014; Petz, 2015)

There are mechanisms in place **to avoid that people return to the danger zone**

Acceptable levels of risk are defined in advance and they guide relocation or in situ protection

Persons who must be relocated are **informed and understand the risk(s) they are exposed to**

Lessons from climate change and disaster induced displacement practice (cont.)

Key principles
for planning
and managing
planned
resettlements
(Adams et al,
2015)

Transfer of positive characteristic to the new settlement
(maintenance or creation of place attachment and
identity)

Right to Self-determination or the presence of a
collective voice in the decisions about when, where and
how to relocate

Specific challenges of Planned Resettlement in the context of Disaster Risk and Climate Change

Determining when a place becomes uninhabitable

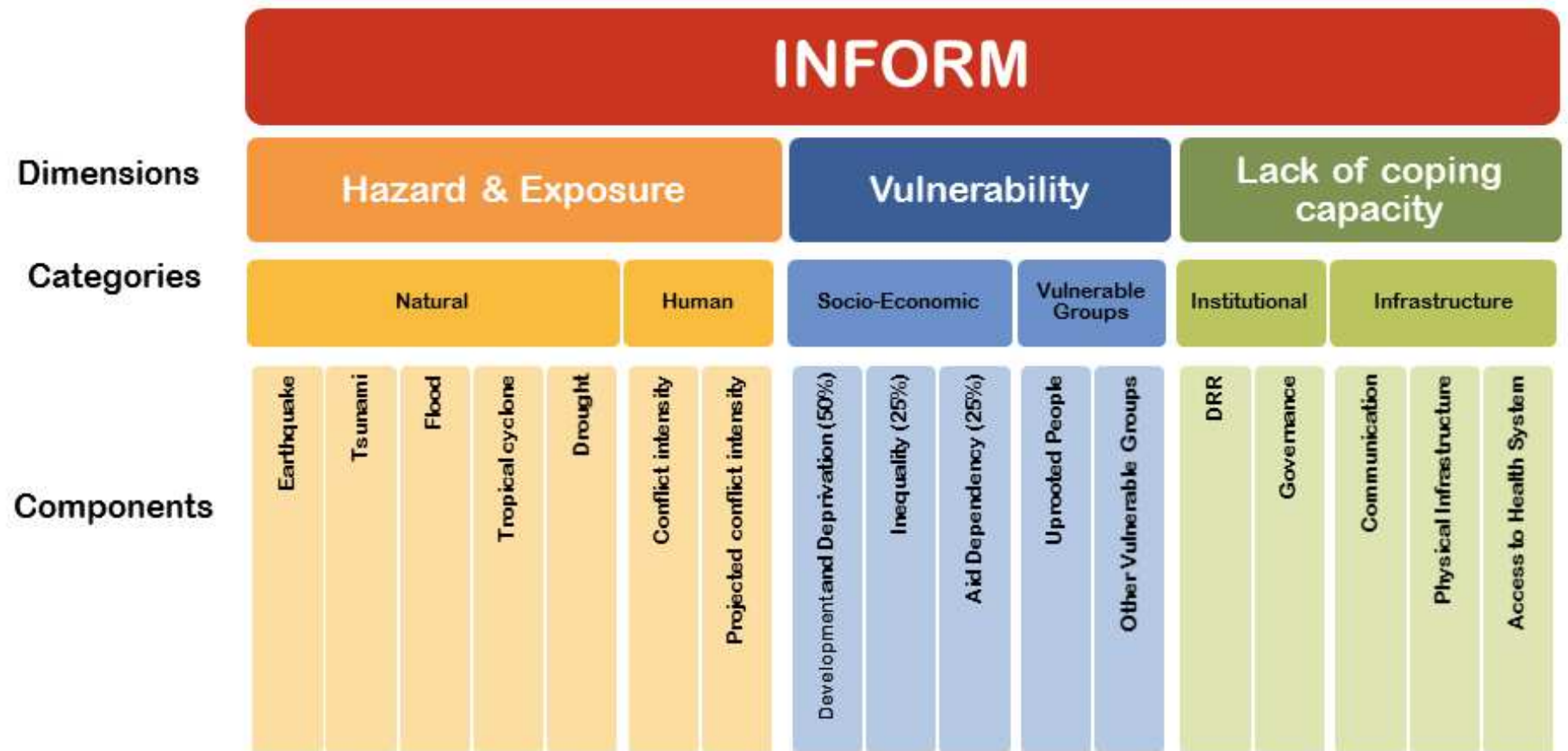
- Strong scientific evidence that people can no longer stay in place
- Balance many trade-offs when deciding whether to protect people in situ



Source: In situ relocation in Juan Bobo Medellín (Source: Gerencia de Vivienda y Habitat de la Empresa de Desarrollo Urbano)

Understanding the value of threatened property or infrastructure and long-term maintenance costs, and the physical conditions of the land

Need for more objective assessment of hazards



Source: <http://www.inform-index.org/InDepth/Methodology>

FRAMEWORK FOR PLANNING AND MANAGING OF RISK INDUCED RESETTLEMENTS

Managing the Relocation Process	Planning the Relocation
1. One local community organization leads resettlement efforts and other agencies involved in the relocation have a local presence (Imura & Shaw, 2009; Perry & Lindell, 1997; Mathur, 2015)	1. There are resettlement policies that are socially sensitive and resettlement laws that make resettlement a legally enforceable right (Ferris, 2012; Mathur, 2015)
2. Persons who must be relocated participate in resettlement and implementation decisions (e.g., timeframe, site selection, identification of basic needs, settlement planning, housing options, livelihood and economic issues) (Perry & Lindell, 1997; Ferris, 2012, Petz, 2015, Mathur, 2015; Adams et al., 2015))	2. Acceptable levels of risk are defined in advance and they guide relocation or in situ protection (Bronen, 2015)
3. Persons who must be relocated are informed about the progress of relocation and have points of contact for key agencies involved. Communication is respectful to the issues confronting stakeholders and is two-way	3. The size of the resettlement task is estimated (spatially, economically, socially, institutionally) and a plan is prepared well in advance (IFC, 2002; Ferris, 2012).
4. Persons who must be relocated understand the risk they are exposed (Bronen, 2014)	4. Affected people are consulted to define the methods to assign value to lost assets, compensation parameters, asset swaps, and baseline monitoring indicators (IFC, 2002; UNHCR, 2011).
5. There are mechanisms in place to avoid that people return to the danger zone (Bronen, 2014)	5. Basic infrastructure services are available to the relocation site (Imura & Shaw, 2009).
6. Special concerns with regard to cultural, racial, and economic minority issues are addressed so that people do not feel discriminated against (Perry & Lindell, 1997; UNHCR, 2011)	6. The relocation site is closer or equally distant to previous home and potential conflicts with host communities are avoided (Imura & Shaw, 2009; UNHCR, 2011; Ferris, 2012).
7. Stakeholders and agencies work collaboratively across and within scales to streamline planning and development processes, manage relocation tasks, and resolve issues (Sipe & Vella, 2014)	7. The social and personal needs of the relocated are addressed, and social networks are preserved (Perry & Lindell, 1997; Imura & Shaw, 2009; Ferris, 2012; Adams et al., 2015; Mathur, 2015).
	8. Housing designs, settlement layouts, natural habitat, and community facilities match a community's way of life (Imura & Shaw, 2009)
	9. Commitment to relocation, the vision, and the rationale are set soon after the disaster; are time bound; and are strongly supported by the chief decision makers at all relevant tiers of government (Sipe & Vella, 2014; Mathur, 2015)

- Physical
- Geographical aspects
- Social/Cultural aspects
 - Risk Management
- Decision making aspects

Case study of the Plan Jarillon Cauca (PJC) Resettlement (Cali, Colombia)



Cali, Valle del Cauca

Population: 2.3 Million

City Area: 619 Km²

Metro: 3.4 Million



ALCALDÍA DE
SANTIAGO DE CALI

	2009	2010	2011	2012	2013	2014	2015		Growth rate
Candelaria	74650	75772	76933	58318	79279	80476	81697		1,51
Jamundi	105510	107730	110000	132865	114672	117079	119532		2,10
Yumbo	101551	104014	106526	104727	111707	114385	117118		2,41
Palmira	292510	294580	296620	275367	300712	302741	304763		0,69
Buenaventura	355736	362625	369753	342669	385759	393149	400686		2,00
Cali	2219714	2244639	2269630	2294643	2319655	2344703	2369829		1,10

Source: Veronica Olivotto with data from Cali en Cifras (2013)



Areas most affected in case of dike rupture (Castro, 2006)



Cali and the River Cauca

Rio Cauca Dike under construction (1959)
Source: Cali Municipal Planning Department



Existing factors of City and Citizens Vulnerability in the East of Cali

City infrastructure

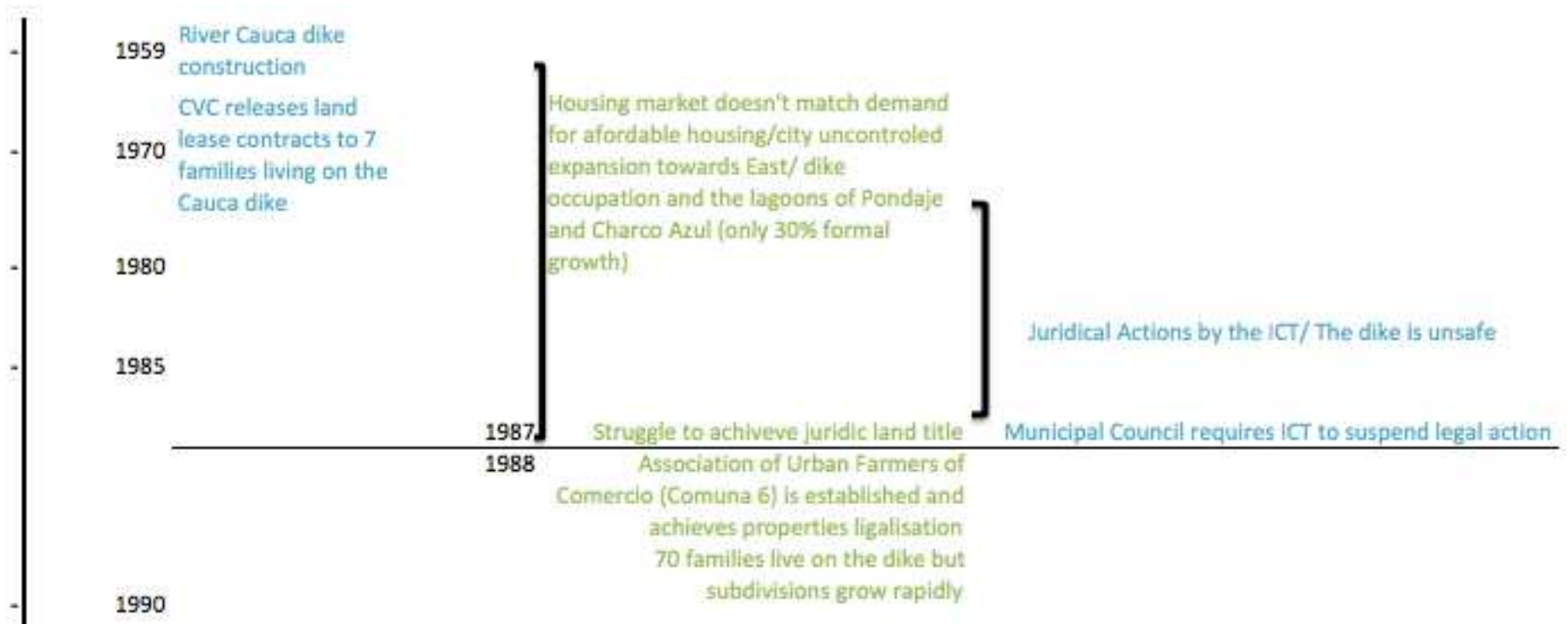
- Power stations at Juanchito and San Luis
- Water Treatment Plants at Puerto Mallarino and Rio Cauca (providing for 75% of the city)
- Wastewater Treatment Plant Canaveralejo (PTAR)
- Fire Brigades Station at Comercio

Citizens

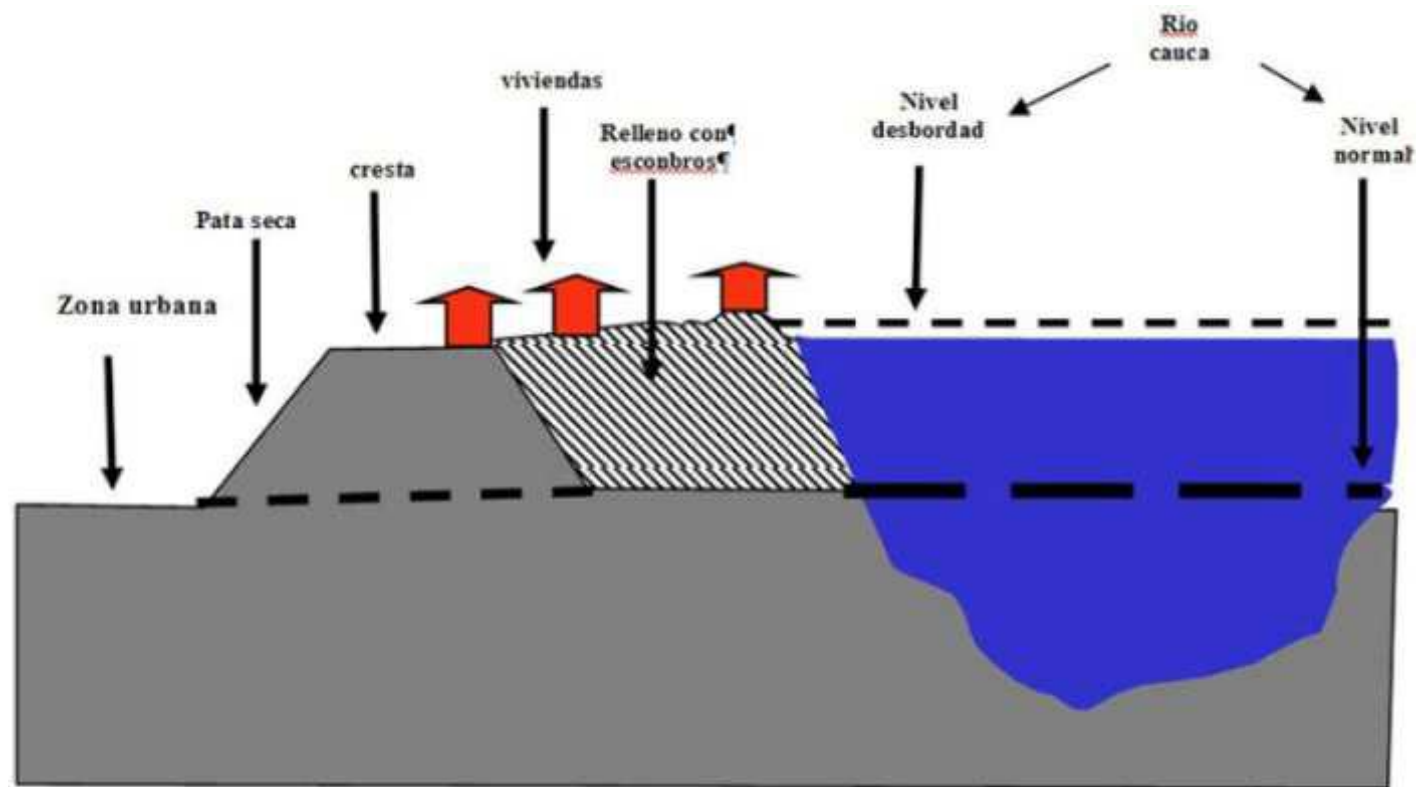
- Exposure to floods
- Precarious housing conditions
- Insecure tenure, little legal protection against eviction
- No insurance against fires/disasters
- Mix of secure/insecure jobs

1st PERIOD

- ✧ Influx of migrants displaced from Northern provinces (1940s-1950s)
- ✧ **Construction of the River Cauca dike** to protect agricultural lands and urban expansion in low lying land (high cost of housing construction)
- ✧ Land speculation/Land owners sell out
- ✧ Process of housing sector privatisation (1970-1991)
- ✧ **Occupation of the dike**
- ✧ Struggle to obtain **land titling**, that is ultimately granted







'Relleno' made with debris on the humid slope

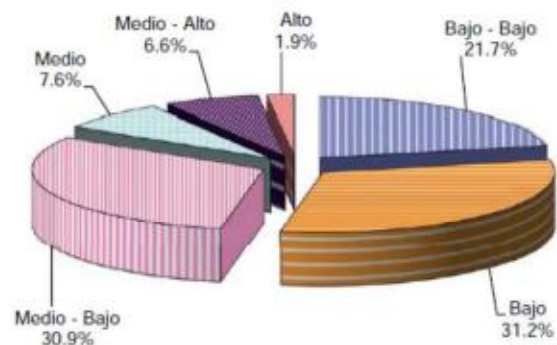
Source (Hernando Uribe Castro, 2011)



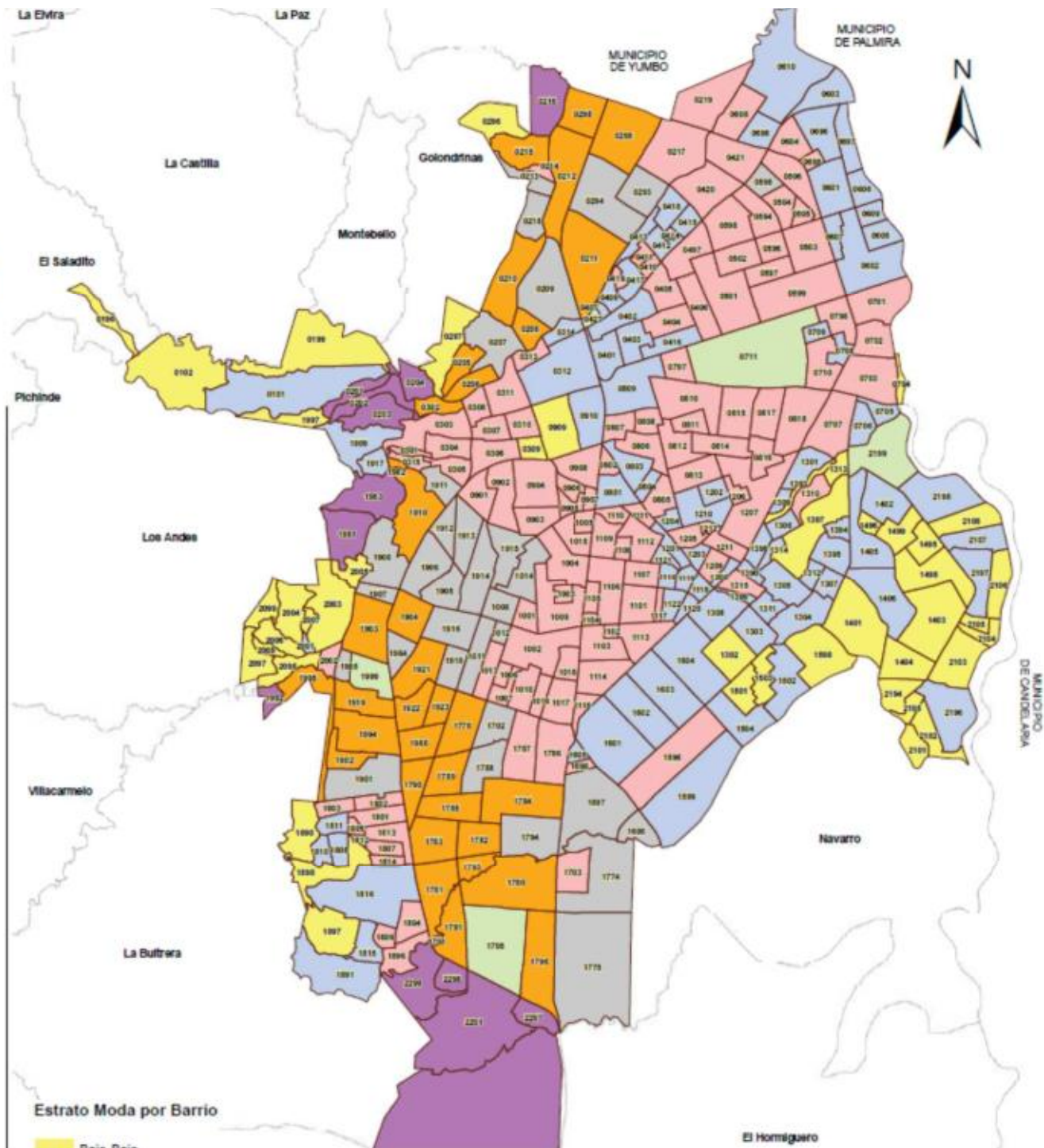
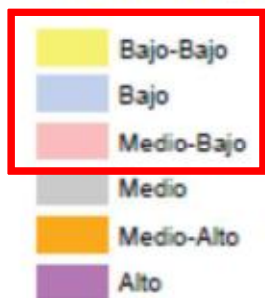
Structures of bamboo and adobe on the River Cauca dike

Source: El Pais, 2011

Municipio de Santiago de Cali
Participación porcentual según estrato
2012



Estrato Moda por Barrio



Source: Municipality of Santiago de Cali; Departamento Administrativo de Planeación Subdirección del POT y Servicios Públicos (2012)

Informal Settlements Characterization

Diverse community

“Of those living on the dike 48% are recognized as Afro-Colombians, 45% self-recognized as indigenous mestizos and approximately 8% are indigenous.”

(Interview 18 December 2015, Municipality of Cali, Rio Cauca Plan Director)

SMEs owners

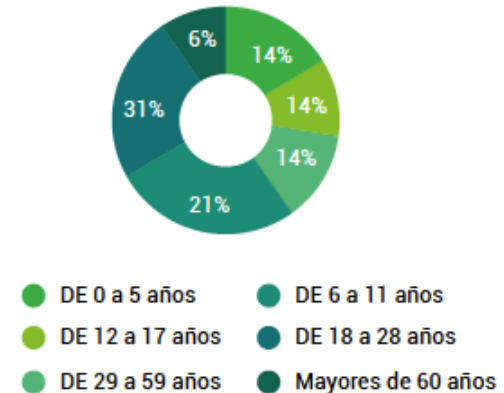
Gráfico 12. Situación Laboral de la Población Económicamente Activa



Fuente: Caracterización Socioeconómica de la población objeto de reasentamiento del Plan Jarillón de Cali. Secretaría de Vivienda Municipal. Radicado No. 201541470006156. 04 de agosto de 2015.

52% children/teenagers

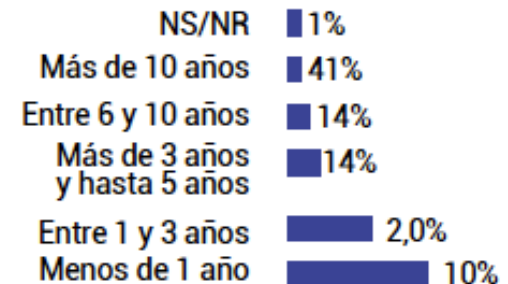
EDADES POBLACIÓN TOTAL



Established settlement

Gráfico 8. Tiempo de residencia en el sector

TIEMPO DE RESIDENCIA EN EL SECTOR



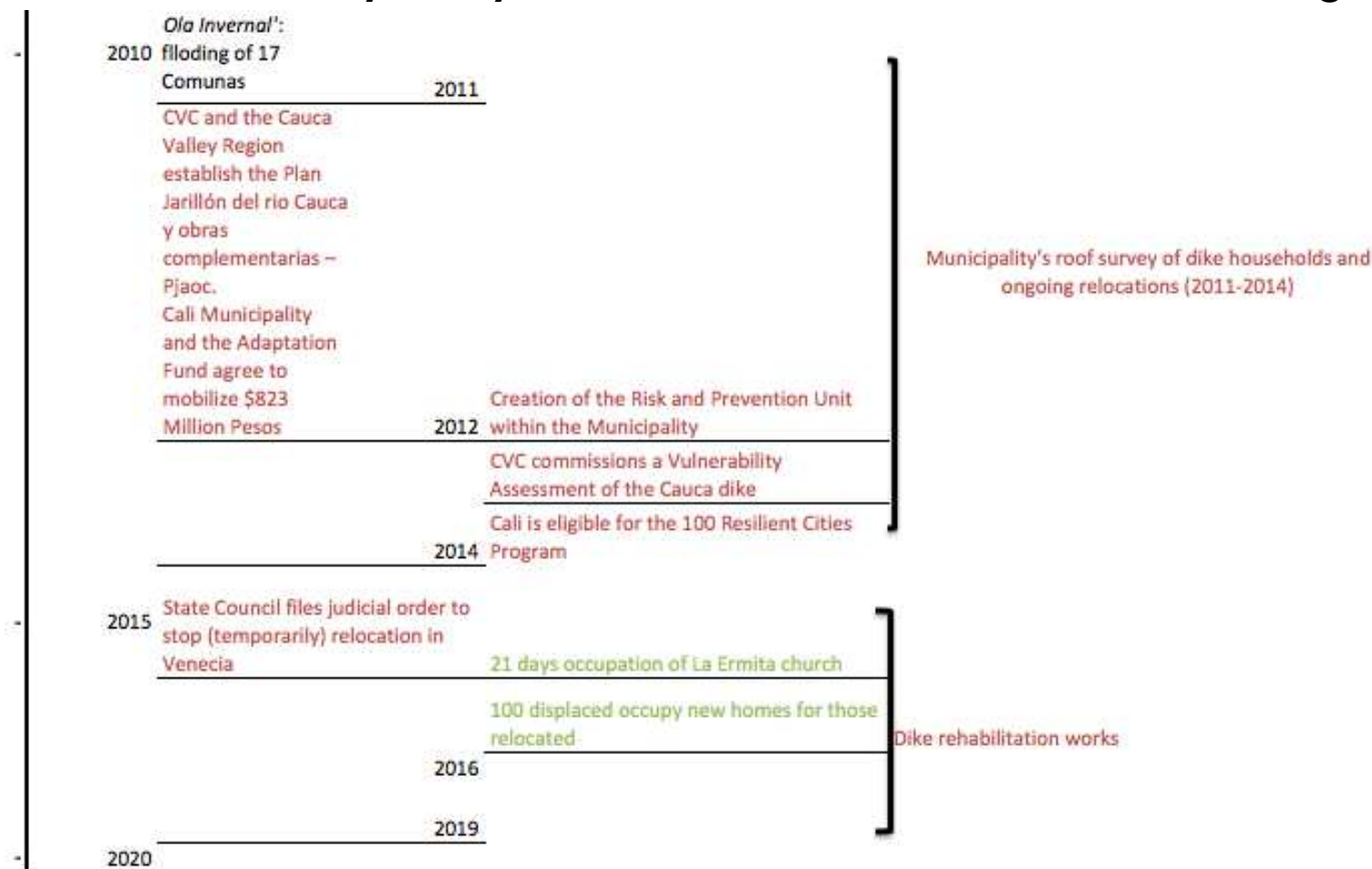
2nd PERIOD

- ✧ **More coherent approach from authorities: Rio Cauca Rehabilitation Plan**
- ✧ **Climate change framing/Pressure on municipal authority “A Katrina can happen in Cali”**
- ✧ Relocations begin without a proper verification process in 2006
- ✧ First new housing units (VIS) are built for displaced families
- ✧ Settlers struggle for land titling and make strategic alliances to resist relocation



3rd PERIOD

- ✧ **“Winter wave”** of 2010-2011: the flooding of Cali (1,500 ppl affected in Cali; 45,000 ppl in the Cauca Valley)
- ✧ The dike is declared an area of **“non mitigable risk”** (land values drop)
- ✧ **River Cauca Dike Plan** (US\$429M) - New national/international actors
- ✧ **Relocation with force**: judicial expropriation to re-acquire State-owned land
- ✧ **Vulnerability Study and Census** to determine new housing beneficiaries



Effects of La Niña event (2010-2011) in Colombia

Total Emergencies	2,219 (100%)
Floods	1,233 (55.6%)
Landslides	778 (35.1%)
Windstorms	174 (7.8%)
Avalanches	24 (1.1%)
Other	10 (0.4%)
People affected	3.2 Million
Deaths	1,374
Houses affected	Approx. 500,000
Municipalities affected	1000 (out of 1,100 in Colombia)



Winter-wave floods (2010-2011) at Juanchito, Cali

Invasiones en el
JARILLÓN

**SITUACIÓN
ACTUAL**

El jarillón tiene
17,5 km
de extensión

DIQUE
Altura promedio
3,5 metros

(muro para contener las aguas del río) hecho de tierra compactada (arcilla). No se utilizan en él hierro, ladrillo ni cemento, porque son costosos y no son ideales por el tipo de terreno.

Berma con
Escombros

Hormiga Arriera

Durante el 2013, la CVC relleno huecos de hormigueros a lo largo de cuatro kilómetros del dique. Se inyectaron 1257 metros cúbicos de cemento y puzolana (roca volcánica fragmentada) para mitigar los efectos de los socavones. 64 hormigueros fueron intervenidos en el dique a la altura de Navarro, Pizamos I y II y parte de Potrerogrande.

En caso de que el nivel del río crezca, el agua se filtraría por los huecos que han hecho las hormigas.

PJC Main Actors



JARILLÓN DE CALI: ALCANCE

REDUCCIÓN DEL RIESGO POR INUNDACIÓN A CAUSA DE LA ROTURA DEL JARILLÓN O DESBORDAMIENTO DEL RÍO CAUCA Y POR DEFICIENCIA EN EL SISTEMA DE DRENAJE.

Reducción de la
amenaza (Hidráulico ,
Geotécnico y Hormiga
Arriera)

- Reforzamiento y reconstrucción de Jarillones (90cm Altura) :
- 17kms del Jarillón de Aguablanca
- 2 kms Río Cali.
- 6 kms Canal Interceptor Sur.

Reducción de la
Vulnerabilidad de
Infraestructura
Indispensable

- Protección y Reducción de la vulnerabilidad en la Infraestructura de Servicios Públicos :
- PTAR
- PTAP
- Estación de bombeo Paso del Comercio
- Edificaciones indispensables

Reducción de la
Amenaza por
deficiencia en el
Sistema de Drenaje

- Recuperación Hidráulica del Sistema de drenaje y Regulación del Oriente de Cali

Reducción de la
Vulnerabilidad
(Vivienda)

- Construcción de aprox. 7500 viviendas para el reasentamiento de las familias beneficiarias del PJAOC.



Componente Social

Reducción de la vulnerabilidad, Garantía de liberación de terrenos para evitar la doble ocupación, implementación de reasentamiento a través de la aplicación de metodologías propias de la Alcaldía por parte de sus expertos.

- Reasentamiento y Acompañamiento Social a familias que habitan en zonas de alto riesgo no mitigable.
- Plan Gestión Social Jarillón Aguablanca
- Plan Gestión Social Pondaje
- Plan Gestión Social Potrero Grande

Social Management Plan (GIP, 2015)



Geo-referencing

Verification

Characterisation

Diagnostic and plan of action

Awareness

Socialisation

Follow up and delivery of new homes

ASSESSMENT OF THE RIVER CAUCA DIKE RELOCATION PLAN (PJC)		
PRINCIPLES OF GOOD RELOCATION		
Planning the relocation	ACHIEVED? (YES/NO/PARTLY)	EVIDENCE FOR THE ASSESSMENT
<p>1. There are resettlement policies that are socially sensitive and resettlement laws that make resettlement a legally enforceable right (Ferris, 2012; Mathur, 2015)</p>	NO	<p>In Colombia there is still no specific policy, which allows formulating and implementing resettlement plans of any kind. There are constitutional rules and regulations, which may be applied to these processes, mainly falling within housing projects in general and more particularly in Housing Programs (VIS), which also complements actions taken in the framework of risk management policies applied in land use planning.</p> <p>Local Level policies: The Development Plan of the Municipality of Santiago de Cali 2012 - 2015 "Calida: A City for All" and the Plan Territorial-POT which integrate comprehensive risk management and improvement of living conditions through the habilitation of land for the development of housing programs. Both identify the PJC as a strategic intervention and outline baselines, indicators and outcomes. Various decrees on managing informal settlements.</p> <p>National level laws: The Rule of Law and Article 51 on Dignified Housing and other fundamental rights in the Colombian Constitution; Act 388 of 1997 on Land Management, which amended and updated Law 9 of 1989 and the Law 1523 of 2012 established the National Policy on Disaster Risk Management and the National Risk Management System that in Art. 3 mentions to "improve the security of human settlements to natural hazards".</p>
<p>2. Acceptable levels of risk are defined in advance and they guide relocation or in situ protection (Bronen, 2015)</p>	PARTLY	<p>The River Cauca Dike has long been known to the Municipality as an area of high risk of flooding and certainly not apt for urban development but land market speculations incentivized housing constructions in low lying areas. It is only in 2010 after the winter wave that Corporation OSSO, The Seismology Observatory and the Department of Planning, based on previous work done by Corporiesgos, define the area of high immitigable risk based on 1 in 100, 250, 500 year flood scenario, for 3 vulnerable points of the dike. If the dike were to break 900,000 and loss and damages for approx. USD 2.5 Million. This evidence and public pressure after the disaster leads the choice of relocating people.</p>

Legal framework to manage disasters and recovery

Decree 4674 of 2010 established special norms to evacuate people and a process to resettle people living in non-mitigable high risk disaster areas. National Directorate of Risk Management is in charge of creating a resettlement program

Decrees 4702 of 2010 and 4830 of 2010 made changes to the old National Calamities Fund – establishment of **Colombia Humanitaria** (a temporary team phased out in 2014)

Decree 4147 of 2011 created the National Unit for Disaster Risk Management (UNGRD)

Decree 4821 of 2010 adopted measures to guarantee the availability of urban land to be used for housing projects and relocation of human settlements: new Integral Projects of Urban Development

Decree 4819 of 2010 created **Fondo Adaptación** “whose purpose is the recovery, construction and reconstruction of areas affected by the ‘La Niña’ phenomenon”

Act 388 of 1997 on Land Management, which amended and updated Law 9 of 1989 and the Law 1523 of 2012 established the National Policy on Disaster Risk Management and the National Risk Management System

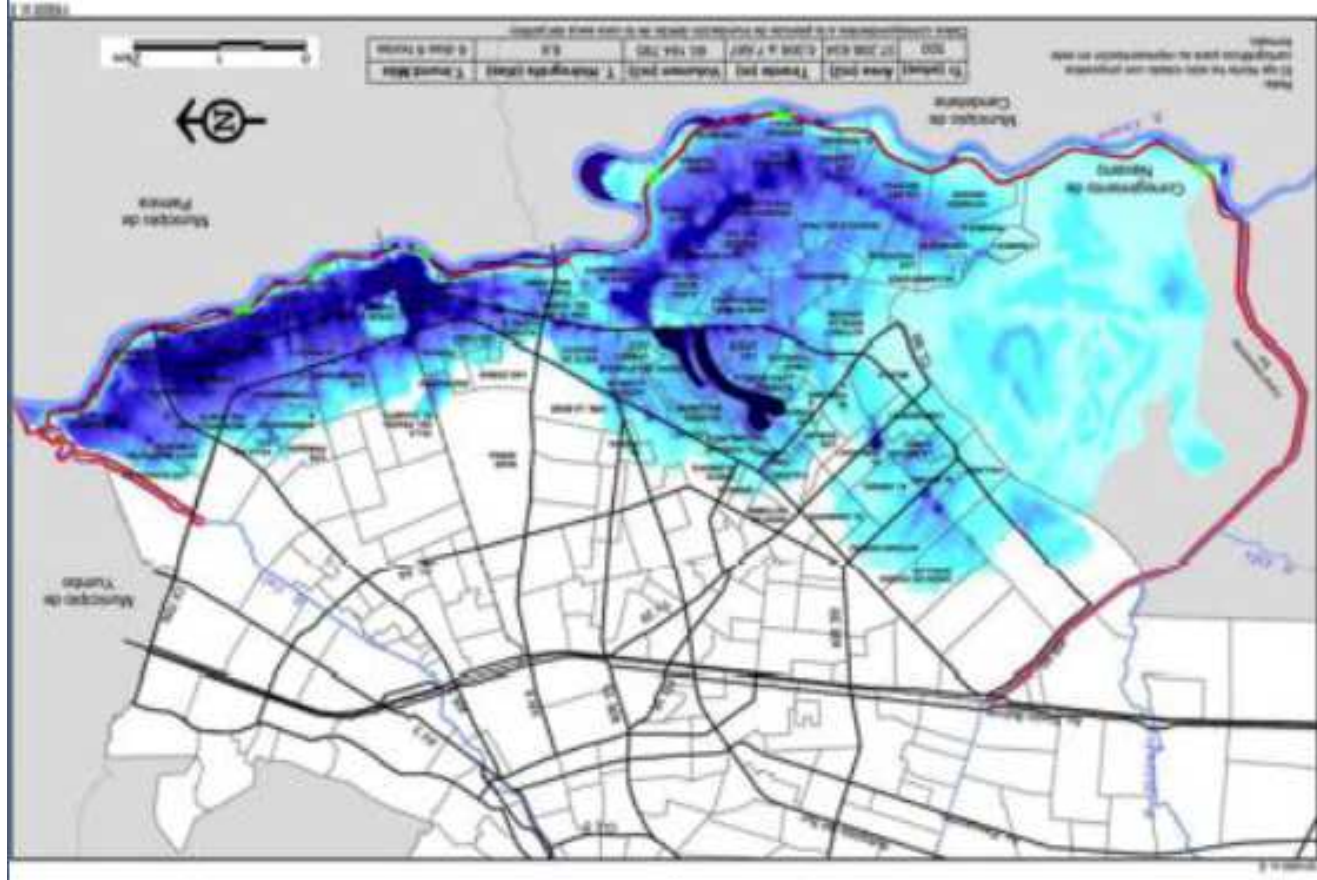
Mitigable and non mitigable flood risk in Cali



Departamento de Planeación Municipal en la reunión de seguimiento a las acciones de Plan Jarillón De Cali – Línea de Acción de Reducción de la Vulnerabilidad Social. Acta de reunión de julio 3 de 2015.



Inundación por Deficiencia en el Sistema de Drenaje



Inundación por Desbordamiento

Planning the relocation	ACHIEVED? (YES/NO/PARTLY)	EVIDENCE FOR THE ASSESSMENT
3. The size of the resettlement task is estimated (spatially, economically, socially, institutionally) and a plan is prepared well in advance (IFC, 2002; Ferris, 2012).	PARTLY	The size of resettlement task is largely estimated by the SHS and the Municipal Planning Department who define number of people to be relocated (only through a “roof survey”), costs of relocation and extent of socio-economic follow up. At The Ministry of Housing coordinates the Social Management Plan with other six government institutions. The Plan counts with Risk Management, Social Strengthening and Economic Empowerment components. The investment was announced in 2011 but the plan only completed in 2013.
4. Affected people are consulted to define the methods to assign value to lost assets, compensation parameters, asset swaps, and baseline monitoring indicators (IFC, 2002; UNHCR, 2011).	PARTLY	Judicial expropriation applies to the majority of the inhabitants in return for a VIP or productive home (top-down definition of parameters). No proper socio-economic valuation of the losses is done Colombian as land market value amounts to zero. Only one community of 173 families, living in Puerto Nuevo, has legal ownership of the land. Only in this case the municipality has a legal obligation to make a purchase offer, which it is currently being designed (Interview 18 December 2015, Municipality of Cali, Rio Cauca Plan Director). Monitoring indicators are decided by Department of Planning and are mostly quantitative.
5. Basic infrastructure services are available to the relocation site (Imura & Shaw, 2009).	PARTLY	In the new homes, water, electricity and internet cable are guaranteed. Access to transportation and roads is ensured through already existing networks but initial evidence from displaced people is mixed. In Llano Verde schools are lacking, no health facilities, no parks, streets are unsafe for children to play. Respondents in Rio Cauca are overall more satisfied with the economic conditions and reaching health facilities/schools is not a problem even if they take the bus. More evidence is required.
6. The relocation site is closer or equally distant to the previous home and livelihood income and potential conflicts with host communities are avoided (Imura & Shaw, 2009; UNHCR, 2011; Ferris, 2012).	PARTLY	Most new homes are in comunas close to the dike but many jobs especially those related to recycling selling points are further away. Instances of tensions and violence between existing youth groups and relocated ones are emerging. More evidence is required.

Investment announced in 2011 but the plan only in 2013

Intervención del jarillón

Fase 1

Los trabajos se realizarán sobre un kilómetro del jarillón del río Cauca en el sector de Nuevo Amanecer. Siete mil metros cuadrados de escombros ya fueron retirados. El Dagma espera remover 3.200 árboles para limpiar el terreno.



Se reconfigurará la estructura con tierra limo arcillosa, que tiene cualidad impermeable que impedirá, a largo plazo, la fractura del jarillón por la humedad. Su altura será mayor a la que tiene actualmente.

Situación inicial del dique

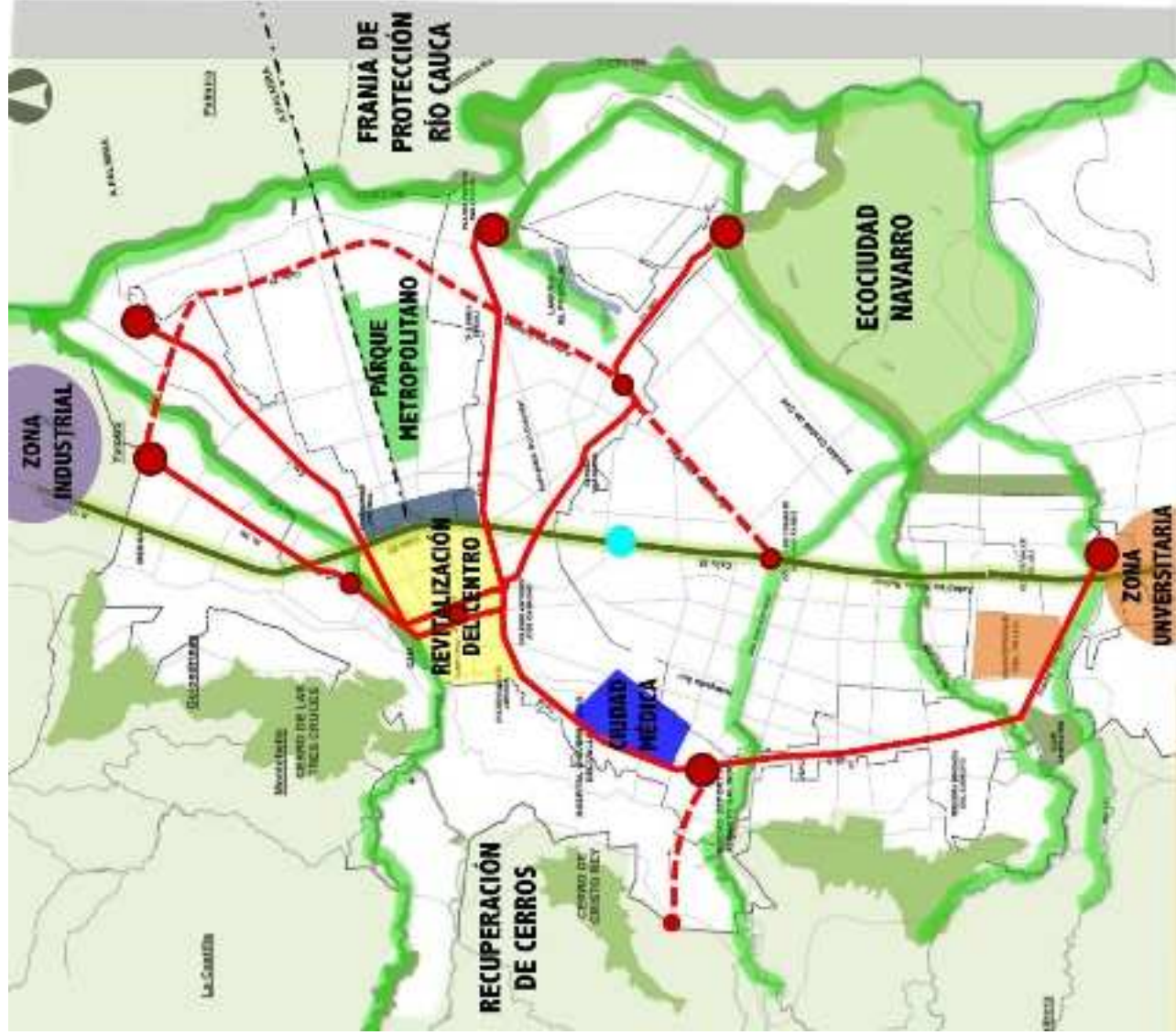


Intervención social en el jarillón



Jarillon Rio Cauca Project (PJC) (2012)

(Source: DAGMA, CVC, 2013)



- Corredores ambientales
- Troncales SITM-MID
- Terminales de cabecera SITM-MID
- Estaciones intermedias SITM-MID por construir
- Corredor verde de transporte Masivo y transformación urbana
- Parque Metropolitano (Base aérea)
- Centro Global
- Área de reconversión industrial
- Área universitarias
- Área industrial Yumbo
- Plaza de mercado Santa Elena
- Línea férrea

Decree 4674 of 2010: estimating people at risk

Hogares asentados en zonas de alto Riesgo



40.569 hogares están en zonas de alto riesgo no mitigable, de los cuales 5.500 se reubicarán con el Plan Jarillón. En 2012 ya se asignaron 510 subsidios de arrendamiento. La meta es reubicar a 15.000 según el PDM 2012-2015.

Estimating informal settlements along the River Cauca Dike

Number of informal settlements (AHDl) in Cali	Source
110 informal settlements (200,000 people)	Cali Municipal Planning Department
61 informal settlements	EMCALI
123 informal settlements (552 buildings); 75 in urban areas and 48 in rural areas	Ministry of Housing

AHDl	HOGARES
LAGUNAS PONDAJE Y CHARCO AZUL	
Belisario	925
El Barandal	17
La Esperanza	22
Brisas de La Paz	144
Sardi	134
Nueva Ilusión	412
El Jazmín	49
La Florida	182
Nueva Florida	293
Playa Baja	141
Polo	178
Villa Uribe	107
Playa Alta	220
Subtotal	2824
JARILLÓN	
Brisas Nuevo Amanecer	922
Cinta Larga	93
Las Vegas	238
Venecia	414
Navarro	606
Las Palmas	88
Samanes	173
Brisas Del Cauca	1005
Puerto Nuevo	711
La Playita	432
Comfenalco	285
Floralia	614
Rio Cali	332
Subtotal	5913
Red unidos SVS-F.A	40
Total general	8777

Institutional Responsibilities PJC 2011

Líneas de acción	Acciones	Entidad Ejecutora
Reducción de la Vulnerabilidad Social	Reasentamiento y acompañamiento social de aproximadamente 7.852 hogares que habitan en zonas de alto riesgo no mitigable. ★ Plan Gestión Social. ★ Garantía de liberación y cuidado de los terrenos para evitar la doble ocupación.	Alcaldía de Cali
Reducción de la Vulnerabilidad Social	Construcción de aproximadamente 6.300 soluciones de vivienda, para el reasentamiento de los hogares beneficiarios del Plan Jarillón de Cali.	Comfandi
Reducción de la amenaza de inundación por desbordamiento (Hidráulico y Geotécnico)	Reforzamiento y reconstrucción de Jarillones (90 cm altura): ★ 16,7 Kms del Jarillón de Aguablanca. ★ 2 Kms del Jarillón Río Cali. ★ 7,4 Kms del Jarillón Canal Interceptor Sur.	CVC
Reducción de la Vulnerabilidad de infraestructura indispensable	Protección y reducción de la vulnerabilidad en la infraestructura de servicios públicos: ★ Planta de Tratamiento de Agua Residual - PTAR Cañaveralejo. ★ Planta de Tratamiento de Agua Potable - PTAP Puerto Mallarino. ★ Estación de Bombeo Paso del Comercio.	EMCALI
Reducción de la amenaza por deficiencia en el Sistema de Drenaje	Recuperación Hidráulica del Sistema de Drenaje y Regulación del oriente de Cali (El Pondaje Fases II y III).	EMCALI

Economic aspects PJC 2011

TABLA DE APORTES DE EMCALI, CVC, ALCALDIA Y FONDO ADAPTACION					
COMPONENTE	FONDO	CVC	EMCALI	MUNICIPIO	TOTALES
REFORZAMIENTO JARILLONES	\$144.200.582.219	\$69.650.141.823			\$213.850.724.042
INFRAESTRUCTURA INDISPENSABLE Y SISTEMA DE DRENAJE	\$125.144.070.408		\$82.010.000.000		\$207.154.070.408
CONSTRUCCION VIVIENDA, GESTION SOCIAL, GERENCIA PROYECTO, PROG. MEDIOS DE VIDA	\$254.862.000.000			\$127.431.000.000	\$382.293.000.000
TOTALES	\$524.206.652.627	\$69.650.141.823	\$82.010.000.000	\$127.431.000.000*	\$803.297.794.450

Cali Municipal Council, 2015

Breakdown of each partner contribution in PJC

1 COL Peso = 0,00033 USD

<i>Dependencia</i>	<i>Estrategia</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>	<i>TOTAL</i>
SECRETARIA DE VIVIENDA SOCIAL	REUBICAR FAMILIAS QUE HABITAN ASENTAMIENTOS HUMANOS DE DESARROLLO INCOMPLETO EN PROYECTOS HABITACIONALES VIP	21.503.371.936	19.280.003.099	16.869.224.966	57.652.600.000
SECRETARIA DE BIENESTAR SOCIAL	ACOMPANIAMIENTO Y FORTALECIMIENTO SOCIOECONOMICO A LAS FAMILIAS REUBICADAS INTERVENCION PJC 2016-2018	11.000.000.000	10.000.000.000	8.000.000.000	29.000.000.000
SECRETARIA DE EDUCACIÓN	ACCESO A EDUCACIÓN A NIÑOS DE LAS FAMILIAS REUBICADAS INTERVENCION PJC 2016-2018	1.600.000.000	1.600.000.000	-	3.200.000.000
SECRETARIA DE GOBIERNO	ACOMPANIAMIENTO INSTITUCIONAL EN LA REUBICACIÓN DE PJC 2016-2018	385.800.000	422.400.000	453.200.000	1.261.400.000
INFRAESTRUCTURA Y VALORIZACION	APOYO A LA REUBICACIÓN DE FAMILIAS DEL PJC 2016-2018	1.600.000.000	1.800.000.000	1.900.000.000	5.300.000.000
TOTAL		36.089.171.936	33.102.403.099	27.222.424.966	96.414.000.000

Breakdown of Municipal Investment

1 COL Peso = 0,00033 USD

Resettlement compensation terms

To all HH affected by the flooding in 2010 the following applies:

- Judicial expropriation of informal constructions on the dike
- A free 40m² *Vivienda de Interes Prioritario (VIP)* apartment
- 3-month rent subsidy (equivalent to 250,000CO\$) while waiting for a new home
- Support for purchasing land relocating 1,100 productive businesses elsewhere in the city
- Purchase offer for 137 families whose properties were legalised

Resettlement conditions

Conditions for receiving a free 40m2 VIP apartment

- Must be a HH verified in the 2011-2014 census
- HH did not previously benefit from any other government-housing program
- HH do not own other properties in or outside of Cali

Conditions for re-establishing productive home business

- The business is used as the primary source of income

ALCANCE PJAOC:

- Reubicar 7500 familias
- Recuperar 25 km de Jarillones
- Proteger Infraestructura de Servicios Públicos
- Recuperar sistema de drenaje y amortiguamiento de crecientes



Cali Dike – Plan of Interventions and related actors

The resettlement areas are in some cases within the same Comuna (1,2) or at a maximum 8km distance (3)

<p>7. The social and personal needs of the relocated are addressed, and social networks are preserved (Perry & Lindell, 1997; Imura & Shaw, 2009; Ferris, 2012; Adams et al., 2015; Mathur, 2015).</p>	<p>NO</p> <p>Initial evidence from few displaced people from 3 areas is mixed. Many people cannot afford to pay for services in the new homes because they lack a stable source of income or have no income. Because many of the economic activities of most households were not taken into account in the Social Management Plan (many people do not meet requirements), some resettled households have completely or partly lost their sources of income (recycling and livestock rearing). There is no sufficient evidence as whether social networks are preserved. More evidence is required.</p>
<p>8. Housing designs, settlement layouts, natural habitat, and community facilities match a community's way of life (Imura & Shaw, 2009)</p>	<p>NO</p> <p>The new tower block apartments do not allow for small home-based businesses or for livestock rearing which represented a substantial amount of daily income for many people. A thorough assessment of natural habitat and access to facilities is yet to be done.</p>
<p>9. Commitment to relocation, the vision, and the rationale are set soon after the disaster; are time bound; and are strongly supported by the chief decision makers at all relevant tiers of government (Sipe & Vella, 2014; Mathur, 2015)</p>	<p>PARTLY</p> <p>The commitment to relocation has been inconsistent considering that the first relocation plans date back to the 2000s (the City Strategic Development Plan for the rehabilitation of the river Cauca dike) and the first relocation only takes places 5 years later. The rationale for relocating due to the risk of flooding of the Rio Cali was well known by the CVC but the Municipality was rather dismissive. After the winter-wave the tone changes, the flood risk is now rebranded as a fight against "the threat of climate change". Relocation with force begins in 2011 but it is only in 2013 that the investments pledged by the Adaptation Fund and the Ministry of Housing translate in new housing construction.</p>



(Source El Pais, 2011)

**New apartment blocks for displaced families, Vivienda de Intéres
Priòritario (VIP) 40m²**



(Source: El Pais, 2015)

ASSESSMENT OF THE RIVER CAUCA DIKE RELOCATION PLAN (PJC)

PRINCIPLES OF GOOD RELOCATION

Managing the Relocation Process

Managing the Relocation Process	ACHIEVED? (YES/NO/PARTLY)	EVIDENCE FOR THE ASSESSMENT
<p>1. One local community organization leads the relocation efforts and other agencies involved in the relocation have a local presence (Imura & Shaw, 2009; Perry & Lindell, 1997; Mathur, 2015)</p>	PARTLY	<p>CBOs are not formally involved. The River Cauca Dike Plan counts with a Local Steering Committee, a Technical Committee (made of municipal officers) and a Follow up Committee. The Follow up Committee is made of the Mayor, advisors, the River Cauca Dike Plan Project Manager and members of the ministries of education, development and planning. The local presence is ensured through socialization and awareness days about objectives and processes.</p>
<p>2. Persons who must be relocated participate in resettlement and implementation decisions (e.g., timeframe, site selection, identification of basic needs, settlement planning, housing options, livelihood and economic issues) (Perry & Lindell, 1997; Ferris, 2012, Petz, 2015, Mathur, 2015; Adams et al., 2015))</p>	NO	<p>Timeframes and relocation sites are decided by the Social Housing Secretary (SHS) and housing design were pre-defined by the housing operator (COMFANDI) as the standard 40m² VIP. Between 2012-2014 the SHS carries out a verification process and a census (<i>Estudio de techo</i>) where data on the number of houses, housing conditions, registry of nuclear family, years of permanence in the place, property titling, occupation are recorded. The methodology for undertaking the verification or census was not released by local authorities (confusion over who owns information). Some households were not present during the census; poor clarity in identifying different family groups; houses are being demolished without new homes to go to; the economic value of the hundreds of informal companies and thousands of people who earn their livelihood from work associated with the dike is largely not accounted for and at least 1100 people own a productive house. People can choose between a house or the relocation of the family business, not both. The conditions to obtain either are defined top-down.</p>

People left out of the census/verification

*“a mí me verificaron, a mi hermana no la quisieron verificar porque en ese momento ella se encontraba laborando. Yo le dije que ella vivía acá y que mirara que estaban las cosas de ella. La muchacha que estaba haciendo la verificación, contesto que **si no estaba, era porque no vivía acá**, esto fue en febrero en 2014. Nosotros no sabíamos que iban a venir a verificar, ellos fueron llegando así.”*
Hombre Venecia.”

(Hogar No. 2. Acta de visita del 10 de septiembre de 2015)

Sometimes it is unclear how a nuclear family is detected

“... nosotros digamos que a la vista de todo somos dos hogares diferentes porque mi suegra cocinaba aparte, yo cocinaba aparte, la casa era propia de mis suegros, era grande, éramos totalmente independientes.

Ellos nos tomaron como si fuéramos un hogar..”

(Hogar No. 5. Acta de visita del 10 de septiembre de 2015)

Livelihoods and Economic issues

ACTIVIDADES ECONÓMICAS IDENTIFICADAS		
Lefty trade and self-employment HOGARES DE REBUSQUE Y AUTOEMPLEO	Break-even businesses HOGARES CON NEGOCIOS BÁSICOS	Profitable businesses HOGARES CON NEGOCIOS CONFORMADOS
Son los negocios que remuneran inadecuadamente a su propietario, no existiendo la retribución al capital productivo, lo que causa descapitalización en su actividad y solo proveen el sustento diario de las personas.	Son negocios que únicamente generan el proceso productivo en el mismo volumen de producción que realizan, siguen practicas contractuales que les permiten el ahorro de costos salariales	Son los negocios que alcanzan a pagar a su propietario, producir excedentes y generar puesto de trabajo que cumplen la legislación laboral con respecto al pago de seguridad social y salario mínimo.
823	151	37

Tabla 11. Cursos Ofertados en Capacitación para el Trabajo

CURSOS OFERTADOS EN CAPACITACIÓN PARA EL TRABAJO	
• Auxiliar de archivo.	• Maquinas planas
• Construcción de Estivas.	• Mecánica automotriz.
• Electricidad domiciliaria.	• Mesa y bar
• Estilista de cabello	• Modistería
• Gastronomía y cocina	• Panadería
• Instalación y reparación de redes	• Auxiliar en refrigeración
• Manicure y pedicura	• Soldadura
	• Ventas de tangibles e intangibles
	• Marroquinería (CDP del cuero)

Tabla 7. Actividad Económica

ACTIVIDAD ECONÓMICA	CANTIDAD	% PART.
Livestock rearing		
Ganadería (cría de especies menores)	261	25,8
Reciclaje Recycling	184	18,2
Comercio al por menor Retail trade	139	13,7
Alimentos	63	6,2
Extracción de minerales	62	6,1
Transporte	47	4,6
Alquiler	28	2,7
Otros	28	2,7
Servicio comidas y bebidas	26	2,5
Fabricación y Producción de madera	23	2,2
Agricultura	20	1,9
Productos metálicos	17	1,6
Prendas de vestir	14	1,3
Fibras sintéticas	12	1,1
Actividades de servicios personales	12	1,1
Mantenimiento y reparación vehiculos	11	1,0
Sin Información	11	1,0
Fabricación muebles	10	0,9
Fabricación y producción de minerales no metal	9	0,8
Comercio al por mayor	8	0,7
Caucho y plástico	8	0,7
Mantenimiento maquinaria y equipo	6	0,5
Otras industrias manufactureras	6	0,5
Educación	6	0,5
Total	1011	100,0

Managing the Relocation Process	EVIDENCE FOR THE ASSESSMENT	ACHIEVED? (YES/NO/PARTLY)
<p>3. Persons who must be relocated are informed about the progress of relocation and have points of contact for key agencies involved. Communication is respectful to the issues confronting stakeholders and is two-way.</p>	<p>For each area under relocation the PJC Technical Committee carries out “socialisations” with households to be relocated, however only 36 meetings were organized over a period of 2 years. These are group meetings either hosted directly around the premises of the new homes, at local neighbourhood associations’ or in Municipality offices. Technical officers present new housing plans, show pictures of the interiors of the new homes and suggest behavioural conduct from household chores to paying taxes. Some of these stories are documented in the PJC Blog http://componentesocial.blogsecretto.com/</p>	<p>PARTLY</p>
<p>4. Persons who must be relocated understand the risk they are exposed (Bronen, 2014)</p>	<p>Interviews with social workers from Ecolprovs and the Public Defensor reveal a different picture where during the initial roof survey people were only asked to choose between the different neighbourhoods with no mention of risk and flooding nor relocation. Displaced people have received incomplete and incoherent information about objectives and relocation process. However one thing that seems to have been clear is that productive activities would no longer be possible in the new homes.</p>	<p>NO</p>
<p>5. There are mechanisms in place to avoid that people return to the danger zone (Bronen, 2014)</p>	<p>Despite there being a component of awareness raising in the Social Management Plan, there is no clear message delivered about the risk of flooding nor about the relocation process (Public Defensor, 2015)</p> <p>There is no monitoring and protection strategy of reclaimed areas, while police surveillance is established in already demolished areas, this presence is not constant, and there are no control mechanisms visible or information to ensure that those areas not occupied again (Public Defensor, 2015)</p>	<p>NO</p>
<p>6. Special concerns with regard to cultural, racial, and economic minority issues are addressed so that people do not feel discriminated against (Perry & Lindell, 1997; UNHCR, 2011)</p>	<p>In terms of recognizing people that are culturally or racially discriminated within the relocation process, under Law 70, Afro-Colombians that are associated in Community Councils and reside in a rural area have the right to consultations with the municipality where the impact of the relocation on their social and economic life is assessed in order to maintain similar living standards in the new settlement. On the dike this only applies to 177 families. Special needs of people with disabilities are accounted for in the housing design.</p>	<p>YES</p>



36 socialization days between July 2013 and July 2015 to which 3,531 people participated (unclear whether they are unique counts)



Health fairs organized by the Secretary of Health and Education

¡¡Atención!!



Personas inescrupulosas están ofreciendo casas en nombre de la **alcaldía y El Plan Jarillón de Cali.**

No se deje engañar.

Ninguna persona está autorizada a ofrecer planes de vivienda a nombre del municipio o de **ESTE EPROYECTO.**

Cualquier DUDA al respecto dirijase a las oficinas del **Plan Jarillón de Cali.**

av. 5bn no 21-02, B/ Versalles Cali. (Valle)

Denuncie a quienes se quieren aprovechar de su necesidad.

EL PLAN JARILLON DE CALI, no es un programa de vivienda es un proyecto de prevención de riesgo no mitigable por inundación.

Denuncie a inescrupulosos que ofrecen viviendas gratis a través del Plan Jarillón



El Plan Jarillón de Cali es un proyecto de prevención de riesgo por inundación, no es un programa de vivienda. Las personas que ofrecen viviendas gratis a través del Plan Jarillón de Cali están aprovechándose de la necesidad de las personas y están poniendo en riesgo sus vidas y la de las personas que viven en las viviendas que ofrecen.

Leaflet at the municipality warns citizens to stay away from informal housing developers offering homes to those relocated and reminds that the River Cauca Dike Plan is not a housing program but a project to mitigate the risk of inundation (Photo: Veronica Olivotto)



1st Km of the Cauca dike turned into a linear eco-park, other 6,5 Km are underway.

Human disaster/Environmental success?

Managing compensations and securing danger zone

- Upon receiving the rent subsidy people, sell their plot of land to other families who then claim another rent subsidy
- New people move to the dike in the expectation of receiving a house
- Rent out the apartment in the new housing project, only to come back to the dike

7. Stakeholders and agencies work collaboratively across and within scales to streamline planning and development processes, manage relocation tasks, and resolve issues (Sipe & Vella, 2014)

PARTLY

Examples of poor collaboration in managing the relocation tasks exist especially between the Technical Committee officers. This led to delays in subsidy delivery in at least 40 cases. This is due to people's case files missing key documents for the evaluation and delivery of the compensation. Also the production and delivery of the new houses seems delayed resulting in further resistance, vulnerability and insurgent actions by residents (e.g. occupation of new homes). Delays are also evident in the process of property titling (Public Defensor, 2015).



(Source El Pais, 2015)



AHDI	LLANO VERDE	POTRERO GRANDE	RAMALÍ	RÍO CAUCA	REASENTADOS
Brisas de la paz	117			3	120
Brisas de nuevo amanecer	114	229		398	741
Cinta larga				60	60
El barandal				9	9
La esperanza				21	21
Las vegas	132		8	14	154
Nueva ilusión	134		6	25	165
Playa alta				1	1
Sardi	78	44			122
Venecia	204	1	6	22	233
Villa Uribe	19				19
Total	798	274	20	553	1645

Tabla 9. Hogares reasentados Plan Jarillón de Cali.

PROYECTOS HABITACIONAL	LLANO VERDE	POTRERO GRANDE	RAMALÍ	RÍO CAUCA	REASENTADOS
Total general	797	273	80	599	1749

20% of the total households have been relocated

(Source: Dirección Social del Plan Jarillón de Cali,2015)

Recommendations on planning the resettlement

- Comply with the terms set out in the 2013 Peninsula Principles on Climate Displacement within States to recognize and respect the rights of climate displaced persons
- Develop a National Relocation Policy based on the lessons learned from PJC and other mega projects like Gramalote
- The size of the resettlement task was estimated only after a major catastrophe and a plan only presented 3 years later
- Counting of hh during census is uncertain and different departments own census data
- Establish community based monitoring process to ensure PJC has input from the affected community
- Continuous monitoring of post-resettlement social and economic conditions is required to mitigate conflicts
- Urbanization of farmers presented as the only option

Considerations on managing the resettlement

- Four different entities oversee, managing and implementing the resettlement project with no overarching Governance Committee
- Ensure that rent subsidies are paid to climate displaced people in a timely manner and that homes are delivered on time
- Although there are local contact points, communication about the reasons for relocating are unclear and have led to shadow housing brokerage
- Put in place contingency mechanisms to avoid that people sell their new home and move back to the dike
- Building back “better”? Expand the expertise represented on the board of directors of Fondo Adaptación beyond government and business to include those with experience in social science, and relocation processes, so that that economic perspectives alone do not dominate decision making and that social implications are fully taken into account.

Reflections on politics and spatial planning

- Urban flood risk in Cali is historically and socially created through land and property speculation, poor land use planning
- Instrumentalisation of informal settlers for political gains exacerbated people's risk
- Urbanizing of farmers presented as the only option
- Political compensation that does not address longstanding social-economic inequalities

“Resettlement is an inherently complex process. It is this complexity that gives rise to the kind of problems, which are not readily amenable to rational planning and implementation methods, and predisposes resettlement efforts to failure.”

Bronen, 2015

An early version of this research is presented in Climate & Precarity
ISSUE 3 of Distance Plan, Available here:

http://thedistanceplan.org/pdf/Issue3/THE_DISTANCE_PLAN_ISSUE3_Section6.pdf

Planned Resettlement and Vulnerability in Cities

The on-going case of the River Cauca Diike Improvement (PJC), Cali (Colombia)

Veronica Olivotto (MSc)

olivotto@ihs.nl

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