





## **Embracing Complexity:**

Utilizing System Dynamics Modelling to Prevent Community Violence Against Children









CISMAI Coordinamento Italiano dei Servizi contro il Maltrattamento e l'Abuso all'Infanzia











Matt Stephens Senior Technical Advisor – Child Protection World Vision United States



Judy Bass, PhD MPH Associate Professor of Mental Health Bloomberg School of Public Health Johns Hopkins University







# **Defining the problem:**

Dynamic and complex contexts; linear solutions

- Multiple dynamic factors influencing community violence
- Complex interplay of risk and protective factors at different levels of social ecology
- Program design to address VAC has been historically linear (single risk/vulnerability informs single intervention)
- Traditional evidence evaluates effect of single intervention without deep consideration of other influencing factors, limiting ability to replicate effects in diverse contexts.







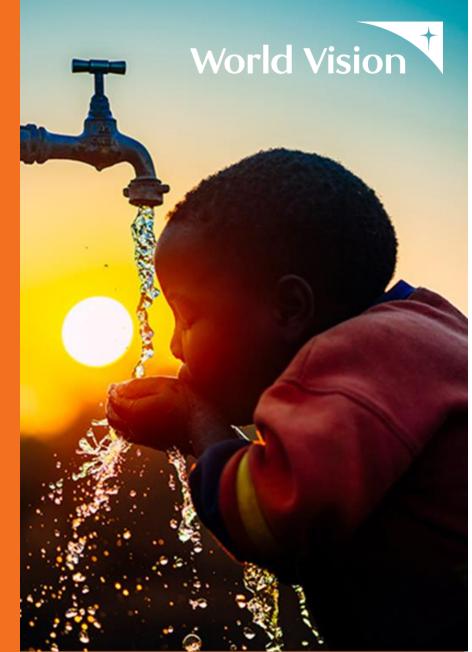
# **Community violence against children:**

"...Violence [against children] which occurs outside the home, primarily in public settings. It is interpersonal, taking place between individuals and small groups that may or may not know one another."

Adapted from What works in Reducing Community Violence: A Meta-Analysis and Field Study for the Northern Triangle (2016).

# El Salvador and Honduras Context:

- Social normalization of violence at all levels
- Significant violence towards and perpetrated by children, especially adolescent and young males
- Gang territorial disputes and organized criminal influence exacerbates violence at community/neighborhood level.
- Both countries' national child homicide rates are amongst the ten highest globally.
- Targeted areas experience high levels of sexual violence, homicide, extrajudicial killings, injuries, torture, and other forms of violent crime.



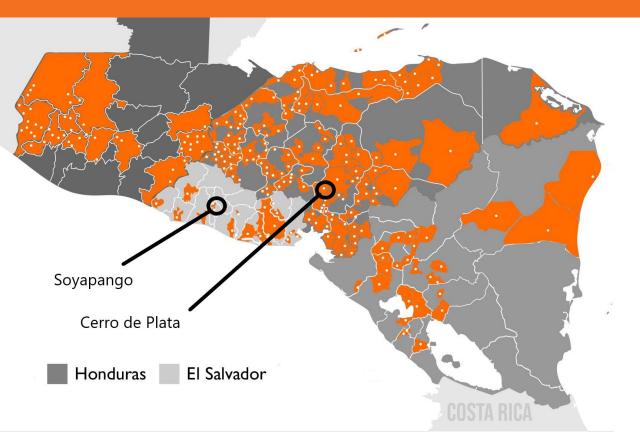
# **Context and Pilot Communities:**

#### • EL SALVADOR:

Soyapango (Departamento San Salvador) 284,000 population

• HONDURAS

Cerro de Plata (Distrito Central) 17,500 HHs in Target communities



## WV Hope at Home Framework:

**VISION**: Children and Youth in the Northern Triangle are protected from violence in homes, schools, and communities and have hope for a future in their home countries.



#### Community Violence Reduction

- Child protection and advocacy model (and associated models)
- Child-focused, community led analysis and planning
- Community sensitization/mobilization (social norms)
- Strengthening reporting and referral mechanisms (response and support services)
- Outreach and support to most vulnerable (at-risk) children and households (parent and caregiver support, norms and values)
- Child life skills, resiliency, and self-protection (education)

#### Youth Resilience

Youth Ready Model

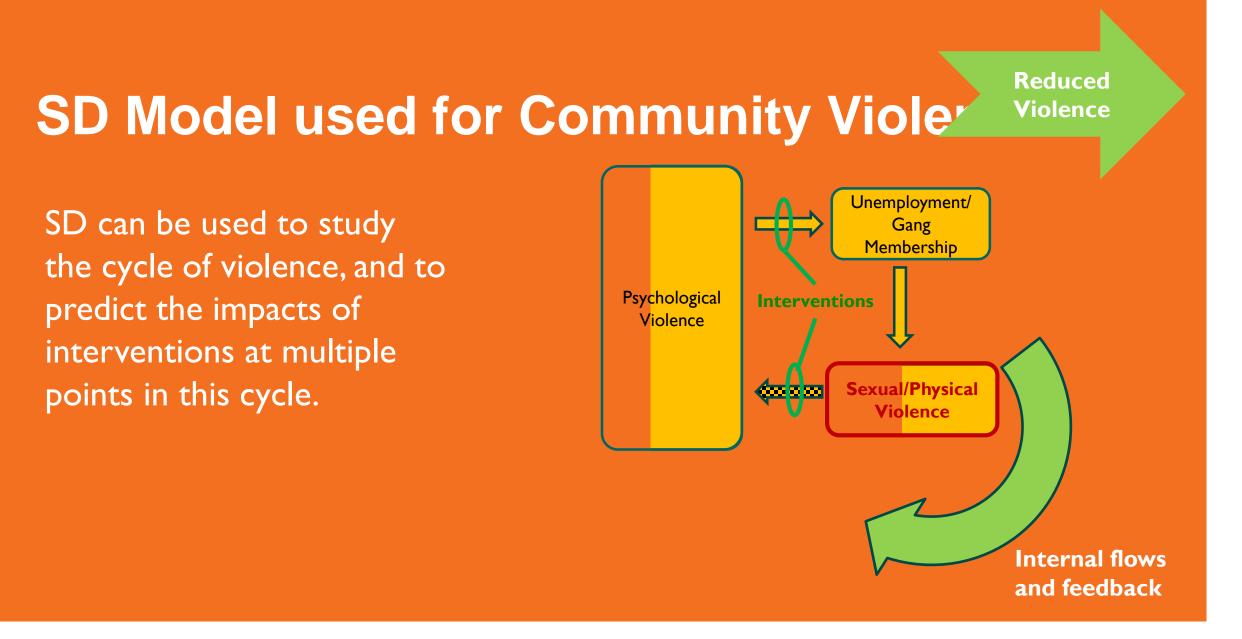


# What is System Dynamics Modelling?

System dynamics is an approach that combines qualitative and quantitative techniques for studying complex systems. Some features are:

- Highly visual representations for facilitating participatory research.
- Interactions and feedback processes that are important in multi-factorial interventions.
- Predictive tools for evaluating what-if scenarios.

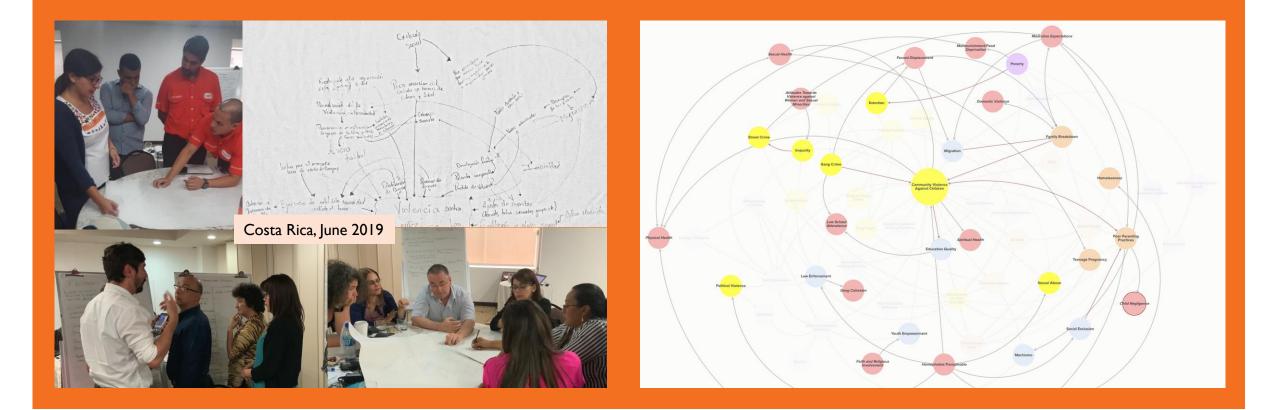




#### Formation of the the initial qualitative models

#### Workshops with intervention teams

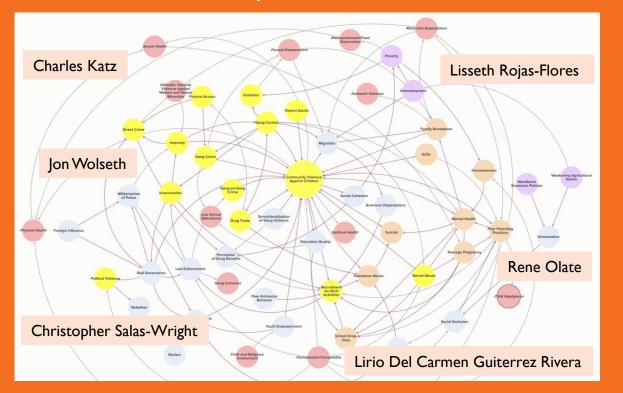
Qualitative causal diagram

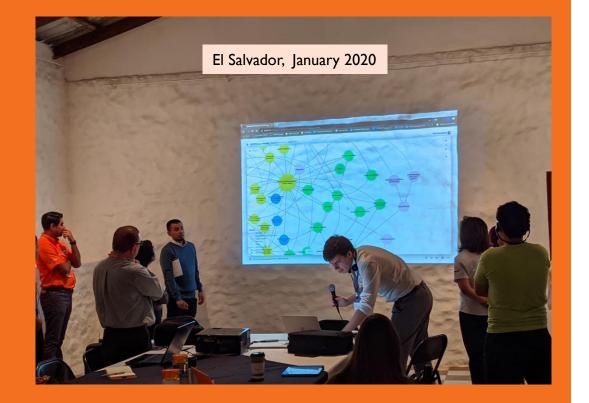


#### Participatory research engagement

Refinement of the model after literature review and expert consultation

#### Validation by community stakeholders





Data collection

#### Identification of primary and secondary data sources

#### Data prioritization

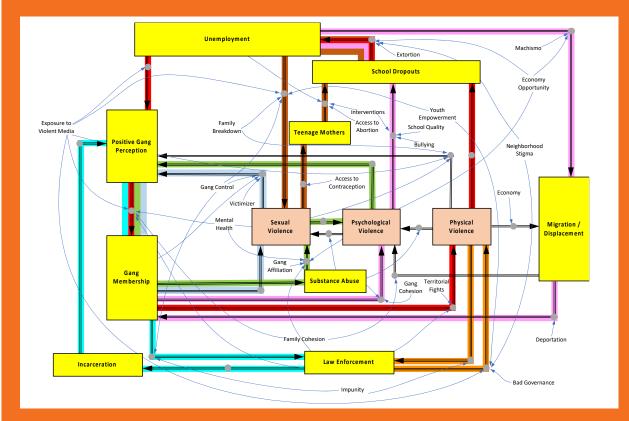
	А	В		D	E		G				
1		Priority for			El Salvador (brief summary of available data)			Honduras (brief summary of available data)			
2	Factor Number (*from expert)	discussion (1-high, 2-medium, 3-low)	Factors (factors from experts are in italics)	Indicators (from DC meeting on Nov 2019)	spatial level (national, department=regional, or municipal)	Frequency of the data / latest availability	HORIZON Indicator Code	spatial level (national, department=regional, or municipal)	Frequency of the data / latest availability	HORIZON Indicator Code	spatia depar o
4			ACEs	Poor Family Management				1. Municipal 2. Central District, San Pendro Sula, Urban, Rural	1. every 5 yrs / 2013 2. annual / 2017		
5	Gover	nment	and Economy								
6			Bad Governance	Ineffective Justice System	national	annual, 2018		National	Annual / 2017		nation
67			Poverty	Unemployment	department	annual, 2018		1. Municipal 2. Central District, San Pendro Sula, Urban, Rural	1. every 5 yrs / 2013 2. annual / 2017		depar
8	24		Urbanization	Urbanization	department	annual, 2018					depar
9	CRIM	3									
70	Violen	nt Crime	÷								
71			Gang-on-Gang Crime	Territorial Disputes	national	annual, 2017		National	Baseline / 2015		natio
2	36		Sensationalization of Gang Violence	Sensationalization of Gang Violence				National	Baseline / 2015		

#### DETAILS OF FACTOR SCORING AND PRIORITIZATION

	PRIORITY	FACTORS USED IN THE FIRST ROUND OF FACTOR PRIORITIZATION			SUM OF FIRST ROUND OF	FACTORS USED IN THE SECOND ROUND OF FACTOR PRIORITIZATION				SUM OF	
Factor	(0,1 = highest, blank = lowest)	Sexual Violence	Psychological Violence	Physical Violence	FACTORS (used to identify 2nd round of factors)			Unemp, Law Enforcement (50% weight)		SECOND ROUND OF FACTORS	TOTAL
Physical Violence	0	1	2		3	2	1	1	1	5	8
Psychological Violence	0	2			2	1	1			2	4
Sexual Violence	0		2		2	1	1			2	4
Gang Membership	1	4	4	3	11			1	1	2	13
Law Enforcement	1	1	1	3	5	1				1	6
Migration/Displacement	1	2	3	1	6	2				2	8
Positive Gang Perception	1	1	1	1	3	2				2	5
Substance Abuse	1	3	3		6						6
Unemployment	1	2	2		4	2	1		1	4	8
Exposure to Violent Media	2	1		1	2	1				1	3
Family Cohesion	2		1		1	1				1	2
Incarceration	2					1	1			2	2
Mental health	2	1			1	1				1	2
School Drop-Outs	2	1			1			1		1	2
Youth Empowerment	2	1		1	2						2
Bad Governance	3			1	1						1
Deportation	3					1				1	1
Economic Opportunities	3	1			1						1
Family Breakdown	3	1			1						1
Gang Affiliation	3	1			1						1
Gang Cohesion	3		1		1						1
Gang Control	3	1			1						1
Neighborhood Stigma	3			1	1						1
Territorial Fights	3			1	1						1
Abortion											
Access to contracention											

#### Quantitative modeling

#### SD Model: flow diagram, input dashboard, trial run



#### Model input parameters (1st phase of data collection not yet complete; simulated data used below.)

Initial	Stock Valu	ues								(	
Gang Men	nbership					Psycholog	gical Violence				
0	0.2	0.4	0.6	0.8	1	0	0.2	0.4	0.6		
Incarcerat			010	010	1	School Dr			010		
0	0	0				0	0	0			
0	0.2	0.4	0.6	0.8	1	0	0.2	0.4	0.6		
Law Enfor	cement					Sexual Vic	olence				
0	0	0				0	0	0			
0	0.2	0.4	0.6	0.8	1	0	0.2	0.4	0.6		
Migration	Displacement					Substance	e Abuse				
0	0	0				0	0	0			
0	0.2	0.4	0.6	0.8	1	0	0.2	0.4	0.6	1	
Positive G	ang Perceptio	n				Teenager	Mothers				
0	0	-0				0	0	-0			
0	0.2	0.4	0.6	0.8	1	0	0.2	0.4	0.6	1	
Physical V	iolence					Unemploy	rment				
0	0	0				0	0	0			
0	0.2	0.4	0.6	0.8	1	0	0.2	0.4	0.6	1	

#### Run parameters

#### Sample model output: changes in stocks over time

0.8

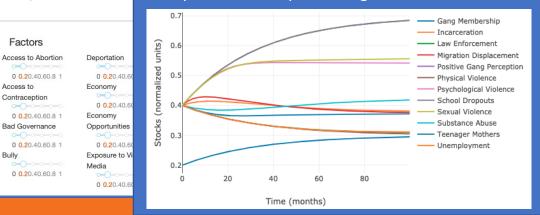
0.8

0.8

0.8

0.8

0.8









### Factors by Social Ecological Frame

SOCIETAL	COMMUNITY	FAMILY	INDIVIDUAL
<ul> <li>Bad Governance</li> <li>Lack of Opportunities</li> <li>Poverty</li> <li>Social Cohesion</li> <li>Social Exclusion Foreign</li> </ul>			
Influence American Deportations Urbanization Migration Machismo Racism Weakening Agricultural Sector Attitudes Toward Violence Political Violence Impunity Incarceration Law Enforcement Militarization of Police Political Violence Political Violence Neoliberal Economic Policies Protest Homophobia and Transphobia* Attitudes towards violence against females and LGBT* Masculine Expectations	Benefits Sensationalization of Gang Violence Gang Cohesion Gang crime Firearm Access Use of Inappropriate Technology Drug Trade Street Crime Extortion Violent Adults Violent Peers Peer Antisocial Behavior	• Teenage	<ul> <li>Adverse Childhood Experiences</li> <li>Mental Health</li> <li>Spiritual Health*</li> <li>Faith and Religious</li> </ul>
(Socialization of Gendered Social Norms)* • Forced Displacement*	<ul> <li>Sexual Abuse</li> <li>Malnourishment/Food Deprivation*</li> </ul>	<ul> <li>Pregnancy</li> <li>Family Breakdown</li> <li>Homelessness</li> </ul>	Involvement* • Physical Health* • Sexual Health*







# Implications for programming:

- Improved design; precise targeting
- Data-informed prioritization
   of interventions
- Smarter investments in high ROI activities
- Continuous learning and adaptation









## **Acknowledgments:**

#### Johns Hopkins University:

Jura Augustinivicius Tak Igusa Zhixi Chen Qi Wang Libby Evans Elizabeth Ashby Travis Roberts Emily Haroz Paul Bolton World Vision: Teresa Wallace Holta Trandafili Armen Martirosyan Elias Vega Oscar Torres Sarah Harris WV El Salvador and WV Honduras Field Teams

# **Questions?**

https://www.wvi.org/child-protection/ispcan

Matt Stephens: <u>mstephens@worldvision.org</u>

Judy Bass: jbass1@jhu.edu

