



# Embracing Complexity:

Utilizing System Dynamics Modelling to Prevent Community Violence Against Children





**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:

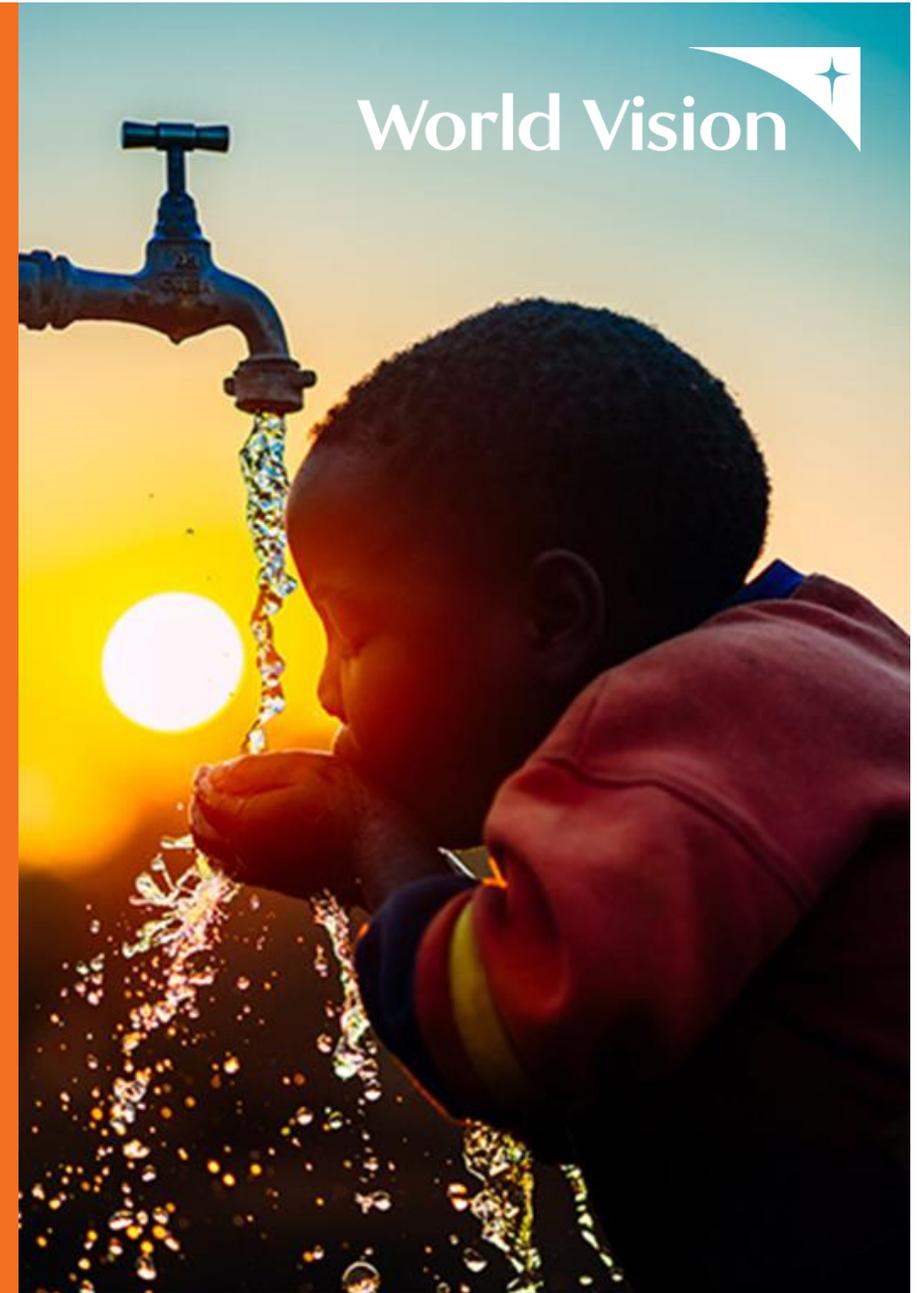
“...Violence [against children] which occurs outside the home, primarily in public settings. It is interpersonal, taking place between individuals and small groups that may or may not know one another.”

*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.



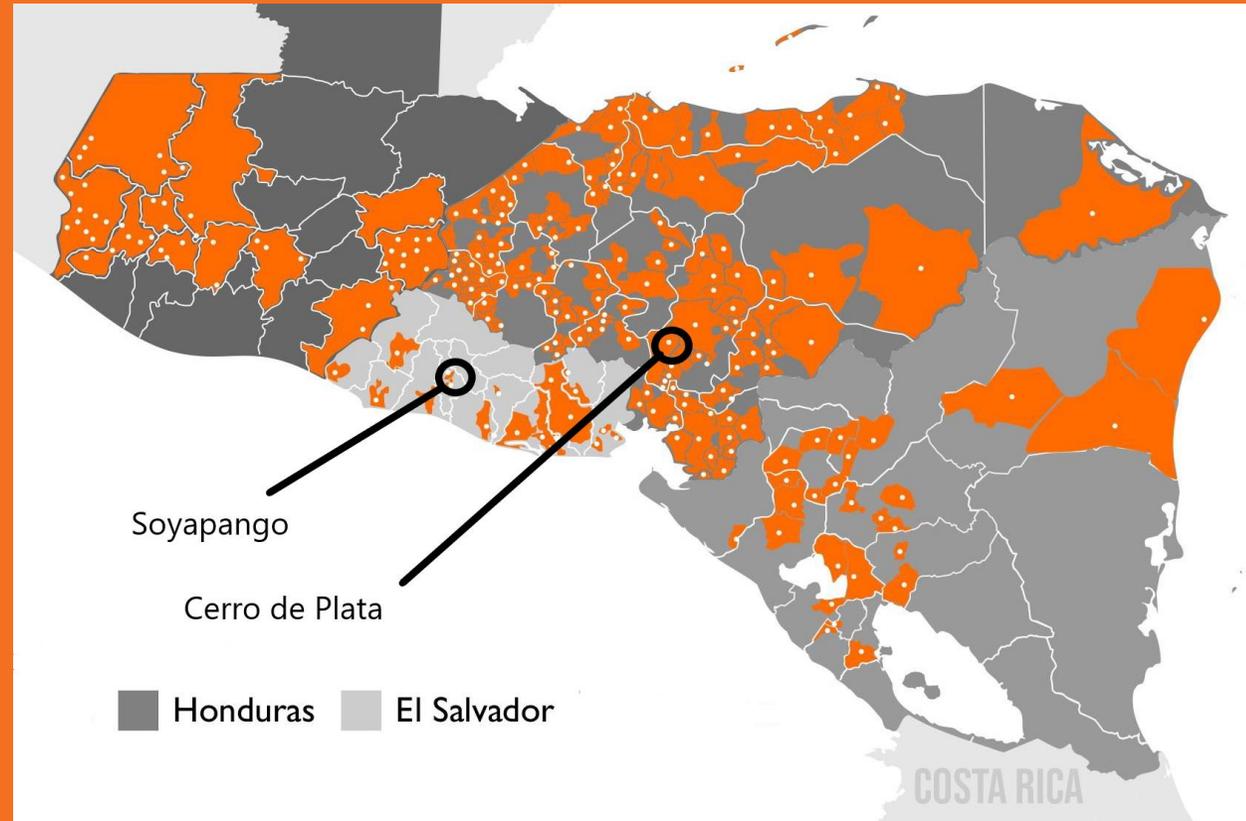
# Context and Pilot Communities:

- 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.

Families have the skills and resources to adequately care for and protect children and adolescents

Children/Youth have access to safe schools and safe places to play/gather in their communities

Communities work together to prevent and respond to violence against children and youth

Education options for youth are accessible, safe, and designed to prepare them for employment.

Youth have skills, abilities, and access to decent and safe employment opportunities

Youth are connected to support structures and are actively participating in community development and decision making processes

## 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?

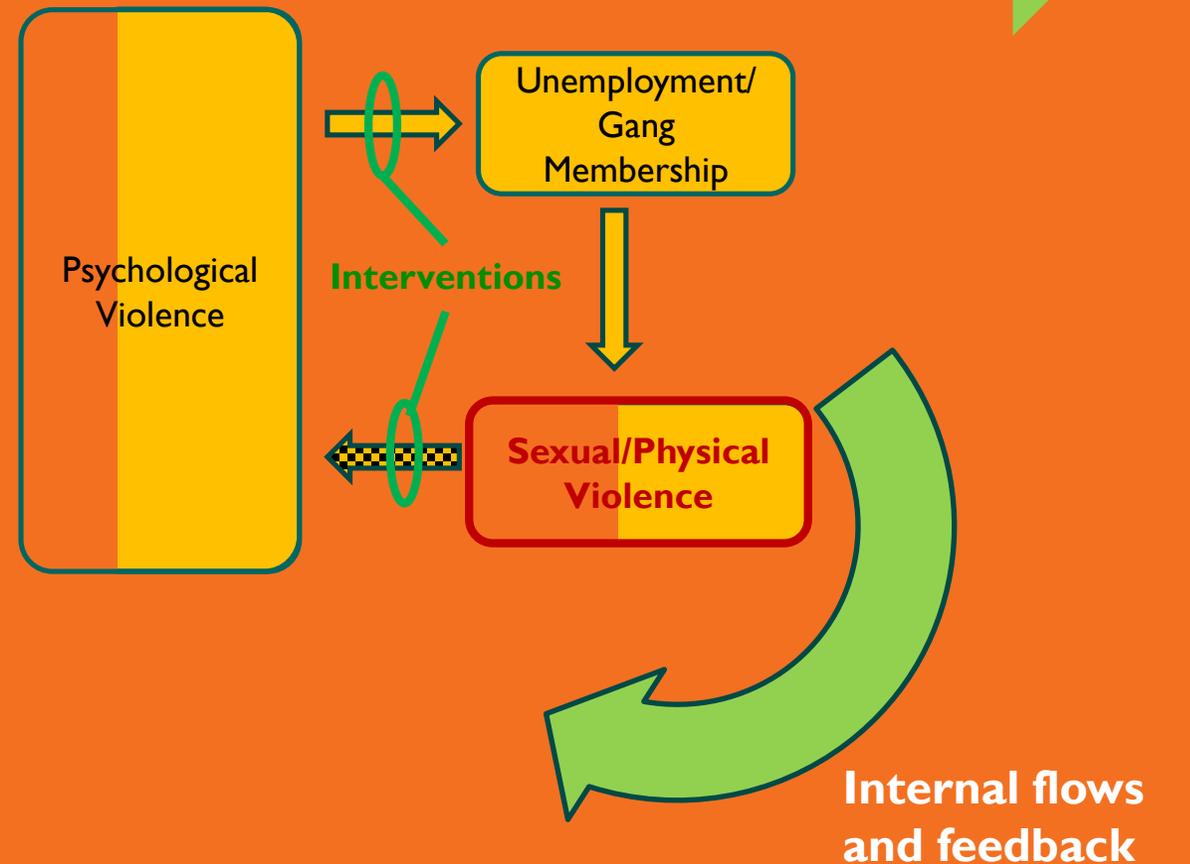
System dynamics is an approach that combines qualitative and quantitative techniques for studying complex systems. Some features are:

- 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.



# SD Model used for Community Violence

SD can be used to study the cycle of violence, and to predict the impacts of interventions at multiple points in this cycle.





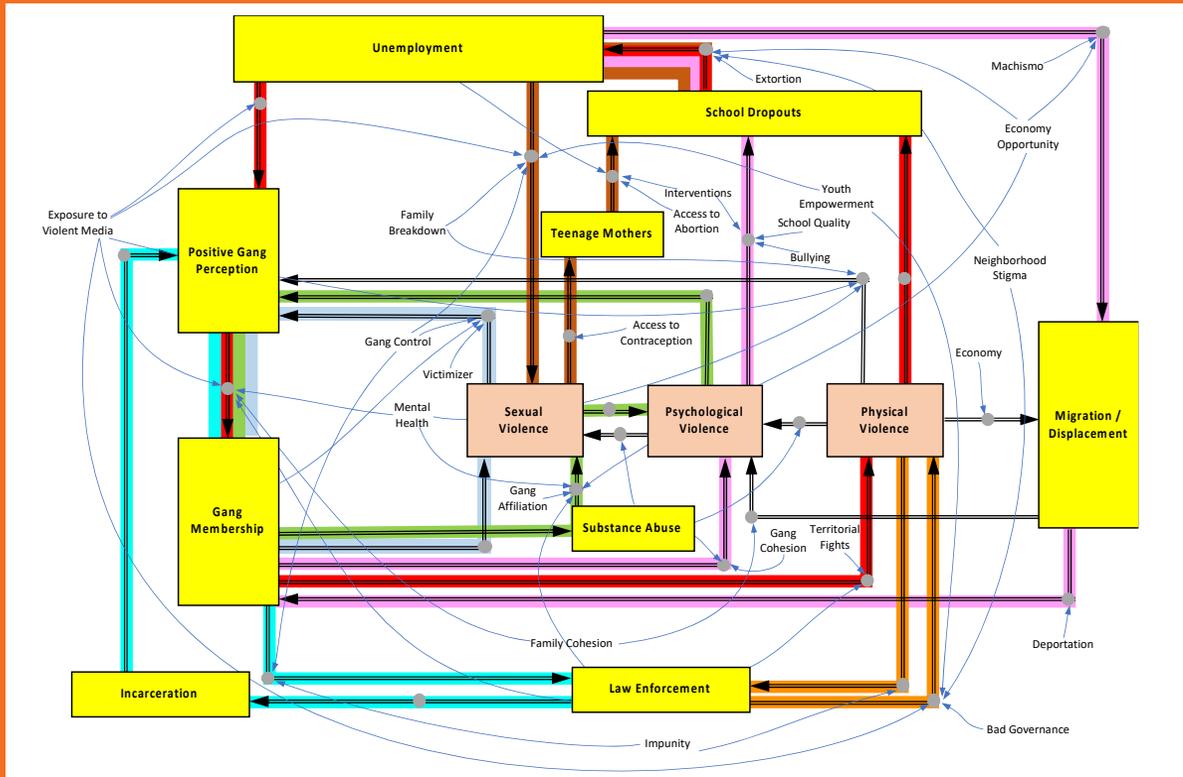




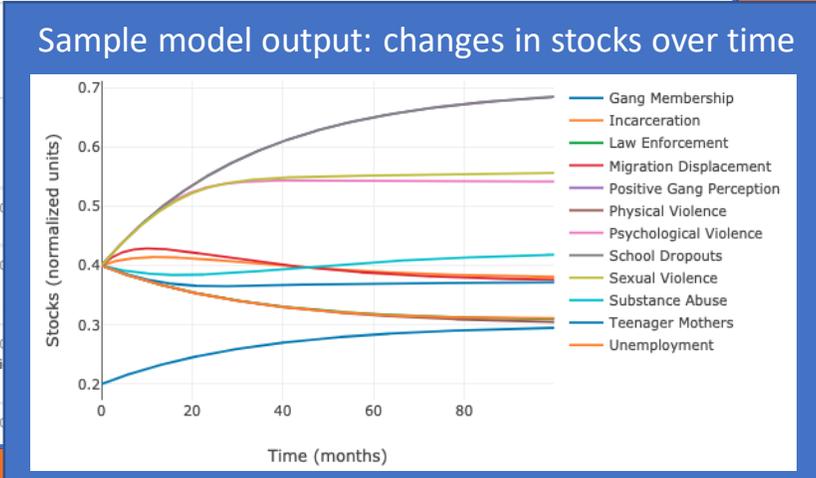
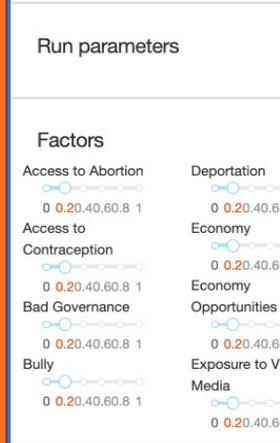
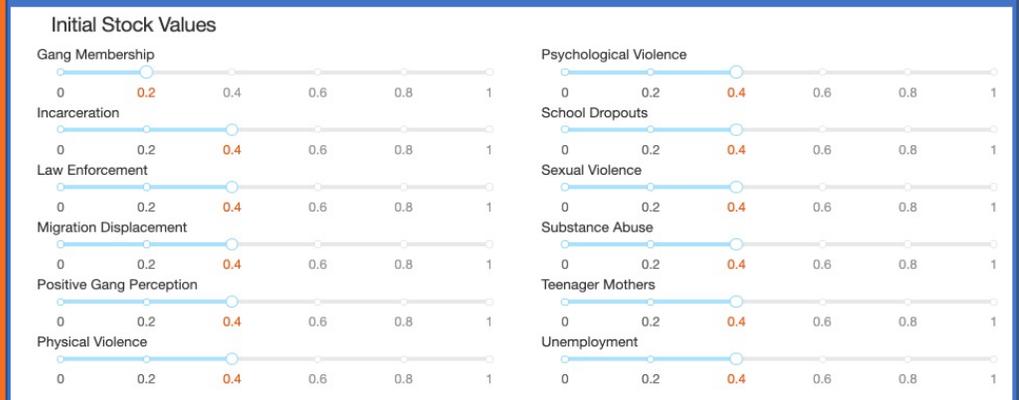
# Development of the SD Model on Community VAC:

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.)





**USAID**  
FROM THE AMERICAN PEOPLE



**JOHNS HOPKINS**  
BLOOMBERG SCHOOL  
of PUBLIC HEALTH

# Factors by Social Ecological Frame

## SOCIETAL

- Bad Governance
- Lack of Opportunities
- Poverty
- Social Cohesion
- Social Exclusion Foreign Influence
- American Deportations
- Urbanization
- Migration
- Machismo
- Racism
- Weakening Agricultural Sector
- Attitudes Toward Violence
- Political Violence
- Impunity
- Incarceration
- Law Enforcement
- Militarization of Police
- Political Violence
- Neoliberal Economic Policies
- Protest
- Homophobia and Transphobia\*
- Attitudes towards violence against females and LGBT\*
- Masculine Expectations (Socialization of Gendered Social Norms)\*
- Forced Displacement\*

## COMMUNITY

- School Drop-Outs
- Substance Abuse
- Child Participation
- Youth Participation
- Education Quality
- Gang Control
- Gang-on-Gang Crime
- Perception of Gang 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
- Sexual Abuse
- Malnourishment/Food Deprivation\*

## FAMILY

- Teenage
- Pregnancy
- Family Breakdown
- Homelessness

## INDIVIDUAL

- Adverse Childhood Experiences
- Mental Health
- Spiritual Health\*
- Faith and Religious 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:  
[mstephens@worldvision.org](mailto:mstephens@worldvision.org)

Judy Bass: [jbass1@jhu.edu](mailto:jbass1@jhu.edu)

