

## **Theory of Change in Complex Systems: Strengthening Families Example**

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### **Draft Working Document**

#### **Background**

Based on an extensive review of research, the Center for the Study of Social Policy (CSSP) developed an approach known as *Strengthening Families* to prevent child maltreatment (see <http://www.strengtheningfamilies.net/>). The approach is based on families developing five Protective Factors:

- parental resilience;
- social connections;
- concrete support in time of need;
- knowledge of parenting and child development; and
- social and emotional competence of children.

Implementing the Strengthening Families approach is not about using a particular model or starting a new program. Rather it is about engaging existing programs, services, parents, and other entities as partners around the use and promotion of the Protective Factors as their underlying paradigm and rules for action. The simple rules that implicitly or explicitly guide agency personnel and policy-maker actions have focused heavily on reducing risk factors rather than building protective factors.

The Strengthening Families model includes changes at multiple interrelated subsystems of a complex system including changes between caregiver and child; within the neighborhood/community; within organizations and programs regarding professional development, policies, norms, and system structures; policies and societal norms at local, state, and national levels; and formal and informal organizational connections and partnerships. These subsystems can be thought of as primary domains of influence that affect the whole complex system.

Before proceeding, let us clarify what we mean by a system. We are using this definition from Donella Meadows, a scholar who is widely recognized as a leader in the systems field: “A system is an interconnected set of elements that is coherently organized in a way that achieves something” (Meadows, 2008; emphasis added). The definition goes beyond “parts” (elements) to a focus on the interconnection among those parts. It also emphasizes that there is coherence to this interconnected set of parts and it accomplishes something. This definition reminds us that

“systems” are more inclusive than formal social organizations; they include both formal and informal configurations.

In the following pages we describe one way a Strengthening Families initiative might develop a framework for conceptualizing what change might look like as a system moves toward use of protective factors in the complex systems within which various actions are positioned. The framework presents the change process in terms of a shift in the simple rules/guiding principles that guide the actions/behaviors of the actors within all parts of the complex system. It is a shift in paradigm. Meadows (2008) identifies shifting paradigms as one of the most powerful levers for changing a system.

## **Mapping Patterns of Change in a Complex System**

The Theory of Change diagram for Strengthening Families at the end of this document presents a framework of how attention to changing paradigms, multiple system dynamics, and a tipping point can aid in understanding, evaluating, and influencing the embedding of protective factors in a community, state, or region to reduce child maltreatment. Each part of the framework can be zoomed in on and elaborated to guide both action and inquiry. The diagram presents an example of how program leaders and evaluators might frame a way to look at the evolution of patterns within relevant subsystems. It can help leaders of the initiative track and consider how to influence multiple system dynamics. The statements within the framework are indicators that the systems is shifting toward the new (protective factors) paradigm. They can help provide a focus for evaluation activities.

The development of the framework begins by identifying subsystems within the overall complex system that have coherence of their own, interact with other subsystems, are likely to change in different ways and/or rates, and have been shown by past research to affect the whole complex system that interacts with child maltreatment. Thus they are important leverage points for systemic change. The idea is to work simultaneously in these multiple parts of the system with recognition that different patterns of change are likely for each subsystem. The subsystems have different system dynamics (especially differences in the extent and nature of organized and adaptive dynamics) and have different processes or structures that can be influenced.

The second step in developing the framework is to identify aspects of change over time for each subsystem. In the Theory of Change diagram each subsystem is observed first in regard to a baseline analysis of the subsystems when the investigation begins. Then (moving to the right in the diagram) attention is paid to the nature and extent of how people try out interventions to change intended subsystems, individually or collectively, build enough change to reach a tipping point and then sustain a new balance around the protective factors as the dominant paradigm underlying how the complex system functions. Although the subsystems are displayed separately, it is important to recognize that the boundaries between the progression of change over time and the boundaries between the subsystems are fuzzy and permeable. For example, some interventions that are being tested may be working across these subsystems. Also, although all subsystems need to progress, it is not expected that they will change at the same rate or in the same time frame.

It is also important to recognize that this diagram represents a segment of time within an even longer period of time over which change is happening. For example, if we zoomed out, we would see a change process to the left that has brought these sites to the point where they were ready to work on changing their social systems to establish the protective factors as core guiding principles for their social systems. We also realize that the phases of change represented here can be thought of as a spiral “beneath” the picture presented here. These phases can be repeated at deeper and deeper levels of change over time.

Here is more detail about the progression from left to right in the diagram.

- **Baseline Understanding of Fundamentals and Systems Dynamics**: When changing a complex system, there is no “beginning”. Changes are being sought in a dynamic system that is continually evolving. Specific projects and evaluators may be assessing a variety of relevant systems and subsystems. The projects are focused on specific events, activities, structures, and processes that are relevant to their specific intervention as well as the presence of the underlying paradigm of protective factors. The statements in the diagram within each row and column represent a general statement of what evaluators may be attending to as they learn from the interventions being studied. These statements are designed to address the deeper (less visible) leverage of change—(a) the extent and nature of how the protective factors are present as fundamental principles of the systems and subsystems and (b) the system dynamics which involve the balance and nature of the organized and adaptive dynamics.<sup>1</sup> (See the questions in the column representing the first aspect of change.) Assessment and feedback are essential processes involved in changing a complex system and thus are an aspect of the intervention itself, not just an aspect of the evaluation.
- **Trying out Interventions that address New Fundamentals and System Dynamics**: The next aspect of change is designing and implementing small-scale, well designed changes to try out ways to embed protective factors (the new fundamentals) in people’s actions and leverage both organized and adaptive system dynamics. R&D projects usually are trying out interventions that vary in their design and the extent to which they are directly addressing the various subsystems of the overall system. Some are directly working at all these levels while others are focused on two or three of these levels. In some cases these latter ones are expecting to address interventions at the other levels at a later time or are expecting ripple effects from their points of intervention that will lead to changes in these other levels. Again, the descriptors in this column of the diagram provide an example of what one might see when interventions to build protective factors are being tried out at each level of the social ecology. (See Attachment A for description of the social ecology.)
- **Tipping Point to New Fundamentals and System Dynamics Balance**: This theory of change holds that as interventions are tested with more people and/or with more effectiveness, a tipping point is reached where momentum begins to shift to the protective

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<sup>1</sup> See W.K. Kellogg Foundation (2007) and Parsons (2010) for more information on these two types of system dynamics.

factors as the predominant underlying way in which people are working within and across subsystems. The tipping point occurs as the overall system moves to a point far-from-equilibrium and a new system grounded in the new simple rules (here, the protective factors) emerges. See the discussion by Ramage and Shipp (2009) of the work of Ilya Prigogine for more about this important concept of changes that happen as a system moves far-from-equilibrium. Again, this column of the diagram provides illustrative statements about what one might find as a tipping point is reached.

- **Sustainable Adaptive Balancing of New Fundamentals and System Dynamics in Shifting Context:** The right side of the diagram shows a sustainable dynamic balancing grounded in the protective factors. A complex social system is not static. It is dynamic and changing. This column of the diagram draws attention to the need for continual vigilance to the nature of the complex system. The system continues to adjust as the context changes. There is a likely oscillation over time in child maltreatment rates but if the changed system is an improvement over one not grounded in protective factors, the oscillation is around a lower level of child maltreatment rates. Continual vigilance includes feedback about outcome levels and key system dynamics, patterns, processes, and structures. The “long-term outcome” is a situation where multiple agents across subsystems of the overall complex system are interacting and maintaining a dynamic balance that is continually adjusted in light of changing conditions to keep the child maltreatment rates low.

This theory of change diagram provides the basis to follow and map changes in events, results, patterns, structures, and processes within and among the subsystems that reflect shifts in the underlying paradigm toward protective factors and recognize the importance of both organized and self-organizing dynamics in affecting system change. The diagram also serves as a basis for engaging in dialogue using an understanding of the features of complex systems to identify strategic leverage points in various levels of the system that are likely to have a significant impact in moving the system as a whole to the tipping point. This map helps guide speculation about what may happen when certain changes are made. It cannot predict change at a certain point in time because complex systems are characterized by unpredictable dynamics and consequences.

When looking across these subsystems and their interconnections, attention is directed to changes in boundaries, relationships, and differences in levels of energy to give clues as to how one might shift patterns within the complex systems (considering both organized and adaptive dynamics) toward greater use of protective factors as foundational to whichever aspect of the system is being addressed. As the tipping point is reached within each subsystem, the boundaries among the subsystems are likely to be even more permeable with the new knowledge about protective factors moving across boundaries and moving to a deeper level of understanding and integration.

## **Partnerships**

The partnerships involved in the projects are an essential aspect of the theory of change within complex social systems. The partnerships that bring together people across the domains of the

system play a critical role in bringing about whole system change. They are able to look at changes in boundaries, relationships, perspectives, and differences in levels of energy to give clues as to how they might influence patterns within and among the levels of the complex systems. As the tipping point is reached within one or more subsystems, the boundaries among the subsystems may be more permeable encouraging movement of the new knowledge about protective factors across subsystems and consequent shifts in patterns, structures, and processes among people who are involved in various levels of the social ecology. The networking across the levels of the system enhanced by the partnerships and learning processes are theorized to help people across the whole system move to a deeper level of understanding and integration of what it means to build a system on a paradigm grounded in protective factors. See Parsons (1998 and 2002) for more details on use of a similar tool in other settings.

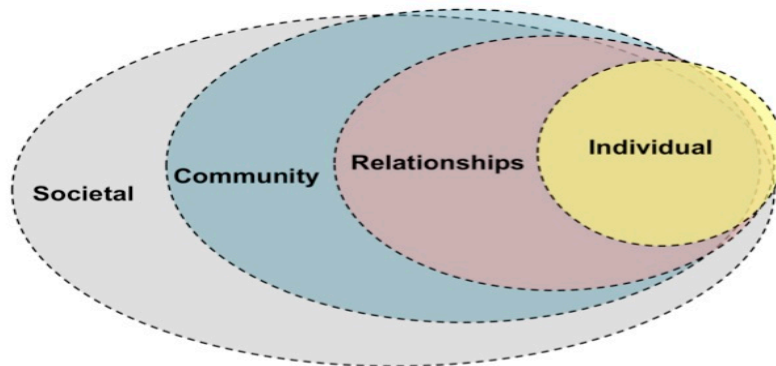
### **Concluding Comment**

This description only touches the surface of the theory of change involved in the Strengthening Families work. The evaluators and project leaders will continue to tack back and forth between complexity theory and empirical data derived through evaluations and other sources.

### **References**

- Meadows, D. (2008). *Thinking in systems*. White River Junction, VT: Chelsea Green Publishing Company.
- Parsons, B. (1998). Using a systems change approach to building communities. In *The policymakers' program: The first five years: Implementation tools*. Volume II. St. Louis, MO: The Danforth Foundation.
- Parsons, B. (2002). *Evaluative Inquiry: Using evaluation to promote student success*. Thousand Oaks, CA: Corwin Press.
- Parsons, B. (2010). *Using Complexity Science Concepts When Designing System Interventions and Evaluations*. Ft. Collins, CO: InSites.
- Ramage, M, & Shipp, K. (2009). *Systems thinkers*. London/New York: Springer. pp. 229-232.
- W.K. Kellogg Foundation (2007). *Designing initiative evaluation: A systems-oriented framework for evaluating social change efforts*. Battle Creek, MI: W.K. Kellogg Foundation.

# Definitions of the Social Ecology Domains



## Individual Domain<sup>2</sup>

*Individual Domain:* Qualities, “structures”, processes, and paradigms that are located within an individual—knowledge, awareness, skills, behaviors (except those that are relational), mental/emotional/physical health, food/housing/financial stability, safety, belief systems (individual norms), self-efficacy, etc. This domain includes the support for the building of two of the protective factors (KPCD and PR).

## Relationship Domain

*Relationship Domain:* Qualities, structures, processes, and paradigms that exist in and drive the interaction between two or more individuals. Relationships are both formal supports (e.g., providers) and informal supports (e.g. family, neighbors, friends). This includes the “quality” and “function” of the relationships. This domain includes the support for the building of four of the protective factors (N&A, SECC, CSTN, and SC).

## Community Domain

*Community domain:* Qualities, structures, processes, and paradigms that are located within the collective entity that brings together supporters and builders of protective factors that are relatively close in proximity. The definition of community varies among the sites. It may be geographic community, provider community, and/or a special caregiver community (e.g., substance abuse recovery community, families with children with disabilities). It includes the formal and informal communities/organizations that exist within the geographic, provider, and/or caregiver/child communities relevant to the site.

## Societal Domain

*Societal Domain:* Structures and paradigms that institutionalize, regulate, and/or sustain the “systems” in the community, relationship, and individual domains, in support of child abuse and neglect prevention. When these structures, processes, and paradigms are part of the intervention and integral to the specific individual, relationship, and community domains that affect the caregivers/children in the R&D projects we have incorporated them in those domains. The societal domain refers to a larger system than the community, most likely a county, state, region within a state, region of the country (multiple states), or nationally. For example, if the community consists of a neighborhood, the societal domain might be a city or county. It is this larger societal domain that is influencing the community domain.

2 These definitions are based on: Centers for Disease Control and Prevention. (August 2007). *The social-ecological model: A framework for prevention*. Retrieved May 28, 2008 from <http://www.cdc.gov/ncipc/dvp/Social-Ecological->

# Theory of Change in Paradigms, Structures, and Conditions of Complex Systems

## Strengthening Families Example

Domains of Influence	Baseline Understanding <i>To what extent:</i>	Trying Out Interventions	Tipping Point	Sustainable Adaptive Balancing
<b>Caregiver-Child</b>	Are families aware of and practicing protective factors? Is social support building protective factors? Do parents use both organized and adaptive dynamics?	Families test use of protective factors and determine changes in relationships and boundaries in daily life. Families learn to self-assess use of protective factors.	Enough families are habitually using and building protective factors that family norms are shifting in support of protective factors. <i>Outcomes being achieved.</i>	Caregivers are connected with other caregivers and family members who are skilled at using and building protective factors. Family norms support protective factors. (Evidence of well being of families and levels of child maltreatment are regularly monitored.)
<b>Neighborhood/Community</b>	Are neighborhoods and their leaders building social cohesion around protective factors? Do they encourage adaptive dynamics? Organized dynamics?	Neighborhoods pilot new ways of functioning that are grounded in protective factors and social cohesion.	Neighborhoods & leaders commit to use and build protective factors. They leverage organized and adaptive dynamics. <i>Social cohesion being achieved/ supported.</i>	Neighborhoods & leaders adjust to social conditions in community and emphasis on supporting protective factors. They consider and reflect on their ways of functioning. (Evidence monitored.)
<b>Organization/Programs (Learning/Capacity Building)</b>	Do learning activities address protective factors? Are learning activities designed to model adaptive dynamics? Organized dynamics?	Learning activities redesigned and tested with greater attention to protective factors and use of more interactive, peer-to-peer learning and learning from families.	Communities of practice grounded in peer-to-peer learning and application are common; include reflection on balance of protective and risk factor attention in different contexts.	Knowledge development dissemination and integration woven into practice with learning activities and communities of practice used to shore up challenging areas. (Practitioner knowledge and practice regularly assessed.)
<b>Organizations/Programs (Policy, Norms, Support Structure)</b>	Are organizations/programs designed around building protective factors? Do programs encourage adaptive dynamics between workers and families that support protective factors?	Organizations/programs pilot new ways of operating that are grounded in protective factors. They determine cost implications.	Organizations/programs commit to redesigned programs/structures that incorporate protective factors. Programs & structures leverage organized and adaptive dynamics. <i>Outcomes being achieved/ supported.</i>	Organizations/programs use outcome and other data to adjust to social conditions in community with emphasis on supporting protective factors. Organizations/ programs put high priority on leveraging both adaptive and organized dynamics.
<b>Policy &amp; Social Norms (Local, state &amp; national)</b>	Are policies, norms based on encouraging protective factors? Are policies attentive to both organized and adaptive dynamics?	Policies, norms adjusted with engagement of multiple voices, perspectives, valuing of protective factors.	Policies, norms overall predominately encourage building of protective factors. Policies leverage both organized and adaptive dynamics. <i>Outcomes supported.</i>	Policymakers balance attention to risk and protective factors tailored to micro-contexts. They adjust policy features that affect system fundamentals and dynamics over time based on data systems to maintain grounding in protective factors and related new knowledge.
<b>Organizational Connections/Partnerships</b>	Are connections built to encourage protective factors? Do connections support adaptive dynamics? Organized dynamics?	Entities, including ones not formerly involved, explore formal and informal connections to build attention to protective factors.	Key partners have multiple inter-connections that encourage attention to protective factors on a micro and macro level. Attention to protective factors is fundamental to connections.	Partners use data feedback to strategically shift connections to respond to contextual changes to ensure primary attention to protective factors. Shifts are based on attention to boundaries, relationships, perspectives, and system dynamics.

# Theory of Change in Complex Systems

*(initiative)*

