Stray dogs, street gangs and terrorists: manifestations of a latent capacity support system

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ABSTRACT

This paper attempts to explain the inefficacy of public policies aimed at eradicating unwanted activities. It is posited that such policies are based on a perceived structure of the system that is not cognizant of the latent capacity support mechanisms for the activity. The ineffectiveness of a policy can be explained when the latent capacity support mechanisms are included in the model of the system. Policies aimed at influencing the capacity support system would be far more effective, compared with those directly attempting to contain the unwanted activity.

Introduction

Pests and other undesirable populations offer considerable resilience to interventions attempting to limit or eradicate them. These interventions often directly aim at reducing these populations through either by limiting their procreation or accelerating their demise. For example, stray dogs roam the streets of many major Asian cities in spite of the efforts to euthanize or castrate them. Street gangs and the violence associated with them continue in may North American cities in spite of considerable effort on part of law and order institutions to contain them. Suicide attacks terrorizing public continue in central Asian countries like Pakistan, Iraq and Afghanistan in spite of the concerted military offensives to eradicate their perpetrators. This article suggests that a latent capacity support structure that maintains the inflow into the undesirable population exists in all such cases. Interventions not cognizant of this structure may only address symptoms and

not alleviate the root cause. The capacity support process as a generic metaphor may help to bring the latent root causes to fore.

Stray dogs as a manifestation of a latent capacity support system

My inspiration for defining a generic system for undesirable populations came from observing the city government attempts to deal with the throngs of stray animals, mostly cats and dogs, roaming the city of Bangkok. The local newspapers routinely reported on the menace of the stray animals as well as the efforts of the city government to deal with them.

General Chamlong Srimoung, was elected governor of Bangkok in the late 1985. [1] Chamlong came to office through a landslide victory and enjoyed wide popularity among all cross sections of people due to his impeccable honesty and personal charisma. A devout Budhist, vegetarian, and a declared celibate, Chamlong led a very simple life. He dressed in a peasant's clothes, lived in a bare one-room apartment and slept on floor even when he was the governor of Bangkok. Chamlong sincerely wanted to improve living conditions in Bangkok. Among other things, he also wanted to alleviate the menace of stray dogs. However, being a kind man, he was not in favor of euthanizing the animals as has been practiced in many cities of the world. He wanted to find a humane solution to the problem. With help from the city's philanthropists, Chamlong set up a dog asylum. Stray gods were caught and brought to this asylum, where they were castrated and treated for any ailments they had. A small number of these castrated dogs were adopted, but most were released back into the streets. This measure was expected to bring down the breeding rate of the stray dogs and hence reduce their population, but experience shows this did not happen. Elsewhere catching stray animals and euthanizing them is a common

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[1] Chamlong Srimuang received the coveted Raymond Magsaysay Award in 1992. See http://www.rmaf.org.ph/Awardees/Biography/BiographySrimuangCha.htm

practice that often provides employment to dog-catchers without making a dent into the stray animal populations.

Perceived structure of the stray dog population system

The perceived structure sustaining stray dogs clearly comprised a single conservative system representing the stock of the undesirable population and its growth and demise processes as shown in Figure 1.
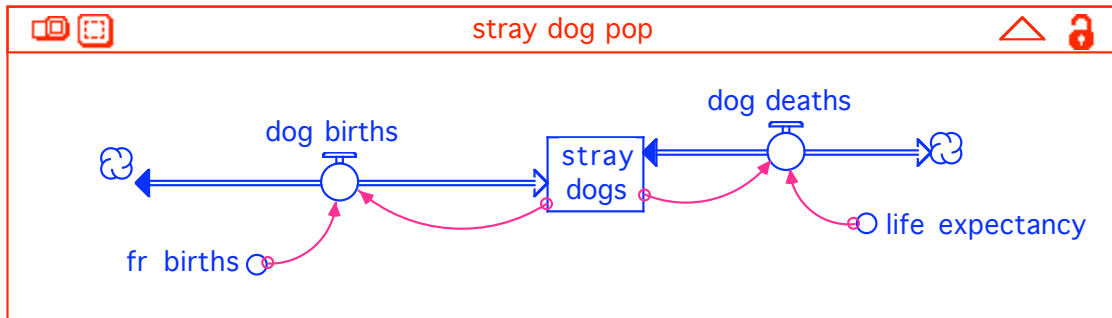

Figure 1: **Perceived structure of a pest population**

The castration policy in this structure will limit the population by reducing its birth rate; the euthanasia policy will attempt to achieve the same objective by increasing the death rate. Both policies will be effective if there were no other flows or influences affecting them were present. However, if there existed migration flows into the population and the birth, death and migration rates were sustained by a latent capacity support system, any intervention into limiting the birth and death flows would be mitigated by the latent structure, which would render both policies ineffective.

Latent capacity support system maintaining stray dog population

In fact, the gracious governor of Bangkok and his philanthropist friends did not consider that the stray dog problem was not local to Bangkok, whereas the castration program was. Stray dogs roamed all over the Kingdom of Thailand and did not need a visa to walk into Bangkok.

Bangkok, with its exotic sights, sounds and smells attracts millions of tourists every year from all over the world. An important part of Bangkok is its restaurants and food vendors that serve visitors with a variety of tastes and budgets. Unlike the Western ethic, not finishing everything on your plate is considered polite and tasteful so you are not considered a glutton. The left food is often fed to the stray cats and dogs or just thrown away in a way that it remains accessible to the stray animals. In a city of over 14 million, huge quantities of left food are generated.

Stray dogs are attracted to a place where they can feed well and Bangkok with the same amount of food and a lower dog population created by castration would be a favorite. Dogs may also spend more time breeding and less time looking for food if there is plenty of food around. Needless to add that well fed dogs live longer than the malnutritioned ones. So, any decreases in their population, whether from euthanasia or castrations would soon be mitigated. These mechanisms create a latent capacity support system for the stray animals that renders the policies to address symptoms ineffective.

Figure 2 shows the complete model subsuming the latent capacity support structure described above. Trash food availability determines population capacity in the long run that drives immigration, births and deaths. The trash food availability in turn is sustained by trashed food generation that creates a carrying capacity. Please note, however, that carrying capacity is not given by the stock of trashed food, but by the inflow into this stock. The long run carrying capacity would be zero no matter how big the stock of trash food is if there is no inflow into this stock.

Figure 3 shows the performance of the castration and euthanasia policies, which are effective only in the short run. Both improve food availability for the remaining dogs in the city leading to increased in-migration from the neighboring districts, longer life expectancy and more breeding time, all of which restore their local population. Unless the latent capacity sustenance system created by trash food generation is addressed, any policies directly attempting to limit their numbers will be defeated. The only effective approach would be to limit the latent capacity by disposing the

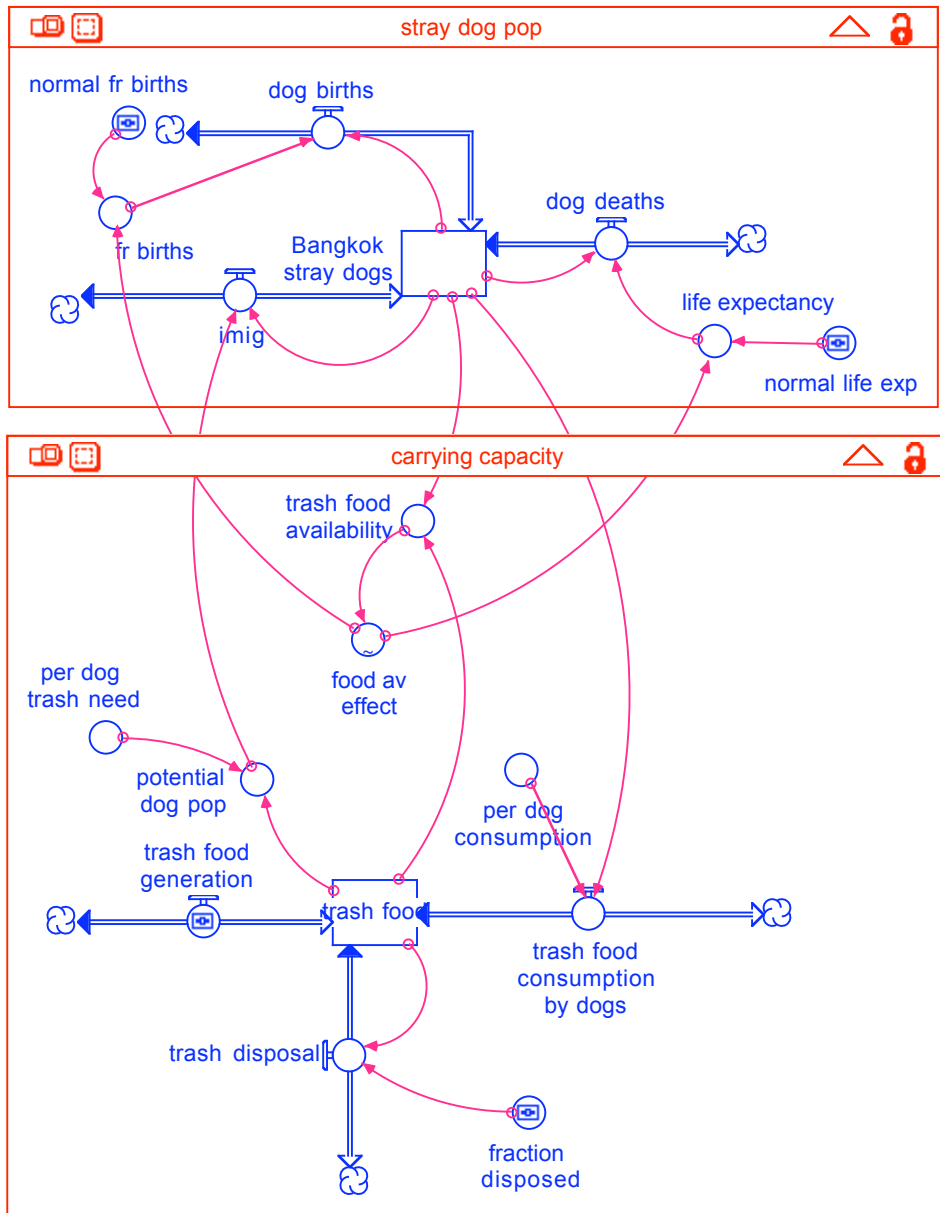trash or reducing its generation, which is borne out by the additional simulations in Figure 3.

Figure 2: **Complete system subsuming apparent and latent structure of a pest population**

If we now consider that an improvement in the cleanliness of the city and reduction in its stray pests might increase tourist inflow with its concomitant trash food generation, even the trash disposal policy will not work unless there is a fundamental change in the food throwing norm, which might be difficult to achieve. It would seem that public policy problems created by latent mechanisms would invariably resist interventions addressing symptoms. Interventions addressing latent mechanisms sustaining the symptoms would be effective but then recognizing the latent structure is admittedly not an easy task.
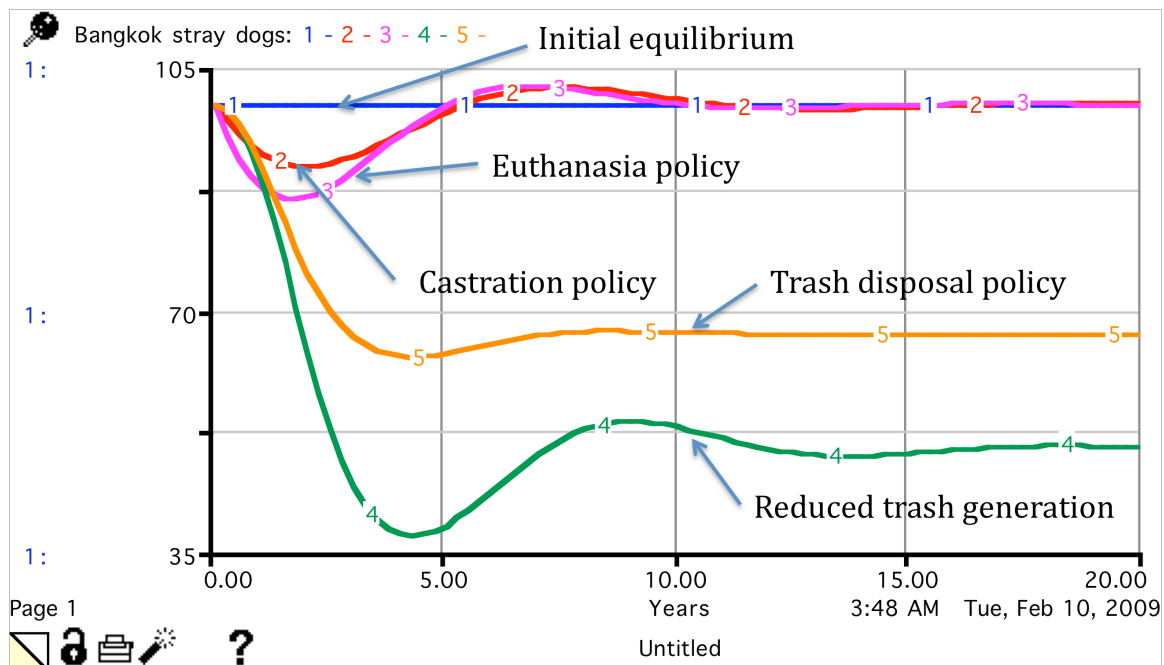

Figure 3:   Pest population response to various policy interventions

I have suggested in Saeed and Pavlov (2008) that developing an inventory of metaphorical models addressed to specific episodes whose structure can be extended to a whole class of problems might help to comprehend the latent systems underlying them. This practice is consistent with the modeling process adopted in operations research (Hillier and Libberman 1972) and also with Forrester's position

that there might exist a score or so generic systems that can be applied to a wide range of problems we experience (Forrester 1980). I view the stray dogs model suggested above to represent a metaphorical latent capacity support system that may help in understanding the root causes in a wide range of situations involving undesirable populations and activities. In the following section, I'll attempt to extend this metaphor to address the problems of gang violence that continues to plagues many North American cities and terrorism that continues to persist in South and Central Asian countries in spite of the concerted efforts to eradicate them.

Extending the latent capacity support metaphor to street violence and terrorism

Street violence and more recently terrorism are constant threats to humanity. Both have also drawn much attention from law and order and defense institutions that have often targeted elimination of leaders of these activities as a solution to the problem. Presumably, the leaders are not only responsible for ordering gang killings and terrorist acts, they also actively engage in recruitment of members in both cases.[2] The leaders are also not easy to eliminate since they are often protected by their own security infrastructure and considerable collateral damage may occur in pursuing their elimination. The pursuit of the leader elimination policy has not helped in curbing menace in both cases since a latent structure sustaining recruitment of members into the system stays in tact. In this section, I'll attempt to outline this latent structure for street gangs and terrorists using the stray dogs metaphor as a guideline.

Street violence

Human organizations are often driven by leadership, which emerges from within. The menacing population in the human context can therefore be divided into

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[2] Street violence and terrorism have sometimes been viewed as analogous phenomenon. See, for example: Berry, N., et al. (2004).

member and leader categories that are a part of the same conservative system. The perceived structure of this system is shown in Figure 4 for the case of street gangs. [3]
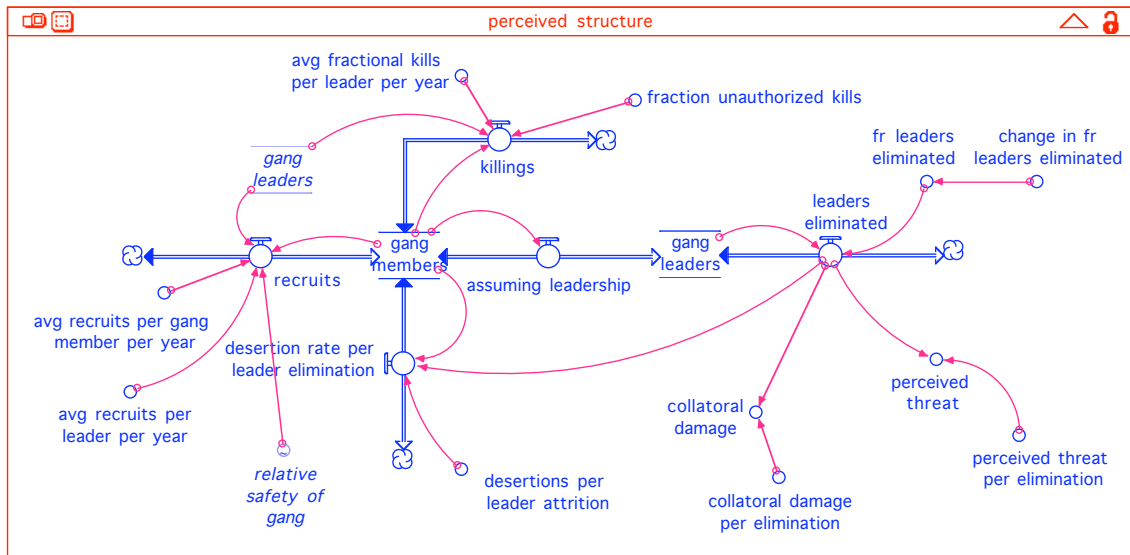

Figure 4:   Perceived structure of street gang activity leading to a policy of leader elimination

Gang members are recruited both by members and leaders, but the yield per leader is much higher than the yield per member. Desertions from member ranks are proportional to the gang population but are drive also by leader attritions, which can occur after an average life of leadership or due to an active leader elimination policy. Gang member eliminations occur through autonomous killings by gang members as well as through leader authorized action. A small fraction of members move to leadership ranks to balance leader attrition.

This system can be initialized in equilibrium. When a leader elimination policy is introduced by stepping up fraction of leaders removed from the streets, the gang

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[3] Causal relationships underlying this model were suggested by my student Sarah Boyer. See also Klein (1997).

population will indeed assume a declining trend if this structure completely represented the gang ecology. Experience shows however that simply eliminating the leaders, who incidentally are also well-protected and not easy to reach, cannot control gangs and their related violence.

There is clearly a latent structure hidden from the eye that neutralizes the intervention to eliminate its leaders. I have added two computed variables – collateral damage and perceived threat to the model of Figure 4 that might precipitate change in gang structure as well as its environment. I have also included an influence of the relative safety in gang on member enlistment. The two computed variables seemingly invoke a chain of events in the latent structure that affect recruitment through changing perceptions about the relative safety of affiliating with a gang. Figure 5 shows the perceived structure of the latent system that possibly sustains the gang in spite of the intervention to eliminate its leaders.

The relative safety of gang that encourages membership is a measure of the differential of the gang security and the ambient safety. The former depends on the gang security infrastructure, the later on the extent of collateral damage arising out of gang operation. Gang security infrastructure is in turn created by investment for maintenance as well as for enhancements invoked by increased perceived threat. It decays due to entropy.
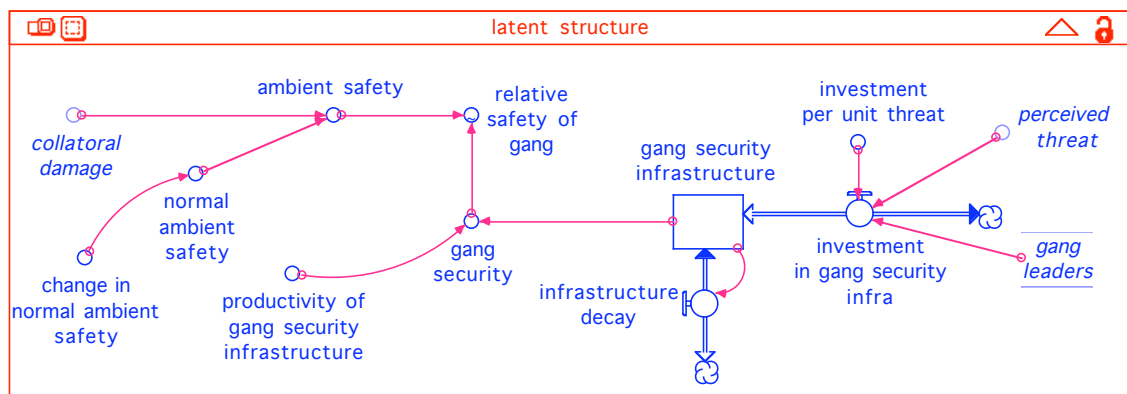

Figure 5: **Latent structure sustaining gang activity in the face of leader elimination policy**

When gang leader elimination rate is stepped up, the ensuing threat forces the gang to invest more in its security infrastructure, which enhances the relative safety in gang. The collateral damage tied to leader elimination on the other hand reduces ambient safety, which further enhances the relative safety of the gang. Enhanced relative safety in turn facilitates recruitment. The intervention is therefore rendered ineffective. The simulated behavior of the system subsuming both the perceived structure of Figure 4 and the latent structure of Figure 5 is shown in Figure 6. The model is started in equilibrium, which is disturbed by stepping up the fraction of leaders eliminated.
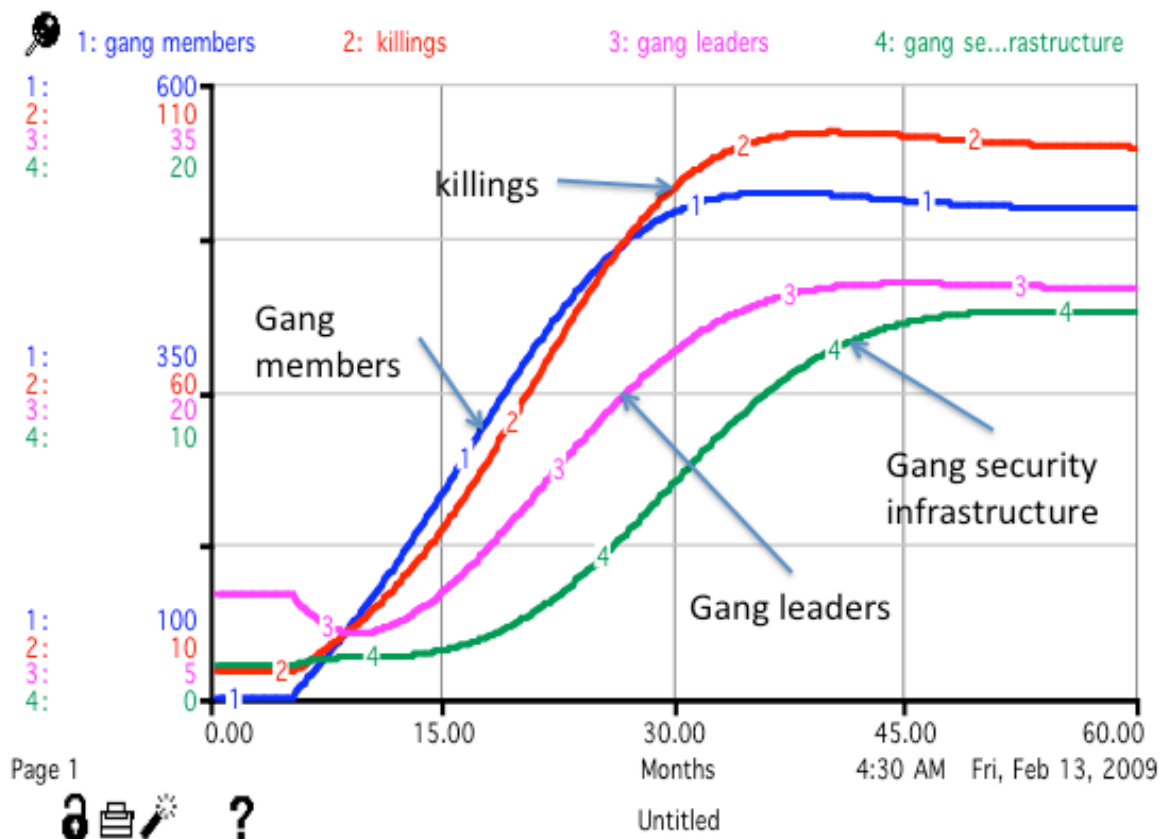

Figure 6: Model response to intervention to remove gang leaders from the streets

The intervention reduces the number of leaders in the short run, albeit it also results in enhancement of the gang security infrastructure and reduction of ambient safety that increase relative safety of gang that boosts its membership. As a result, membership rises and the gang can easily replace its leaders. The gang size in fact increases if nothing is done to build the ambient safety of the community.

On the other hand, when measures are taken to enhance the level of ambient safety by community development and support mechanisms, the membership recruitment process is stifled and the gang activity atrophies over time as shown in the simulation of Figure 7. These simulations are borne out by experience in a number of communities.

Figure 7: **Model response to enhancement of ambient safety through community development**

Terrorism

Terrorism by stateless actors has appeared in the last decade as a mega-menace that threatens to evolve into a global conflict in spite of the concerted military efforts to eradicate it. Learned opinions on the nature this menace have ranged from a clash of major civilizations (Huntington 1996) to culture independent dissidence arising out of sustained mistreatment and deprivation rampant in certain cross-sections of communities (Sen 2006). Notwithstanding the value of these learned views, I wish to surmise that the latent structure sustaining this global menace may not be much different from that sustaining stray dogs in Bangkok or street gangs in North America.

Figure 8 shows the perceived structure of the system that invokes concerted military efforts. As in case of street gangs, the terrorists need leaders to function. Recruitment is done both by the terrorists and their leaders, but the pool they recruit from is more specific than that for street gangs. This pool consists of dissidents often with personal agenda.
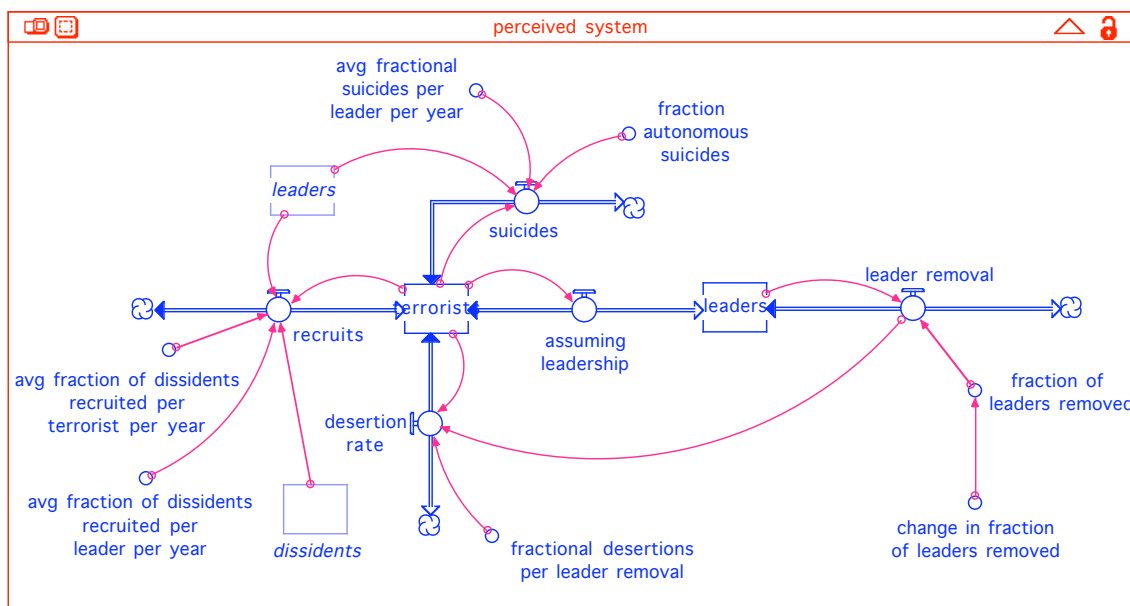

Figure 8:   Perceived structure of terrorist activity

Like street gang members, some terrorists may desert the group when a leader is eliminated. They may also engage in self and member killings through organizing suicidal acts that terrorize the public and kill innocent citizens. These acts are largely undertaken at the instance of the leaders, but some autonomous suicides also occur. The system of Figure 8 would collapse if leaders are eliminated – an expectation that has driven the massive military actions against terrorism, since this would stop suicidal actions, stifle recruitment and increase desertions. Unfortunately, such military actions have hardly made a dent in the phenomenon. Instead terrorist activity seems to have expanded as the military actions to eliminate the leaders increase. There is clearly a latent structure that sustains this activity.

Since terrorists are recruited from a population of dissidents, it would be important to know how the latter are created. Figure 9 shows a simple view of the latent structure feeding the stock of dissidents.
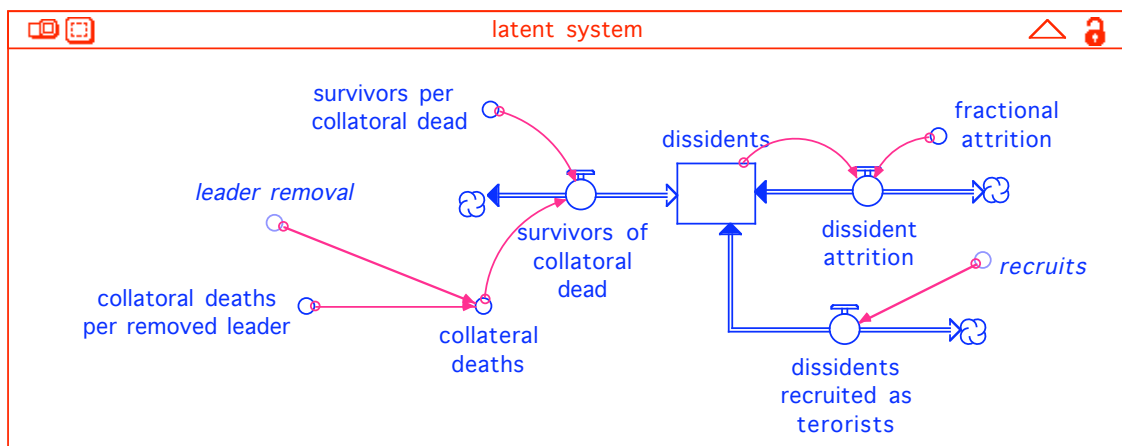

Figure 9:   Latent structure supporting recruitment of terrorists

The, often vengeful, survivors of the bystanders killed when the authorities pursue the terrorist leaders feed the dissidents stock. Since leaders are not easy to reach, this collateral damage can be frightfully high. The dissidents are either recruited as

terrorists or eventually leave the dissident group if their vengeance is diffused which can happen if they are helped to reconstruct their lives or even as time passes.[4] The policy to kill leaders can therefore regenerate dissident population as is borne out by the simulation of Figure 10 as well as by experience.
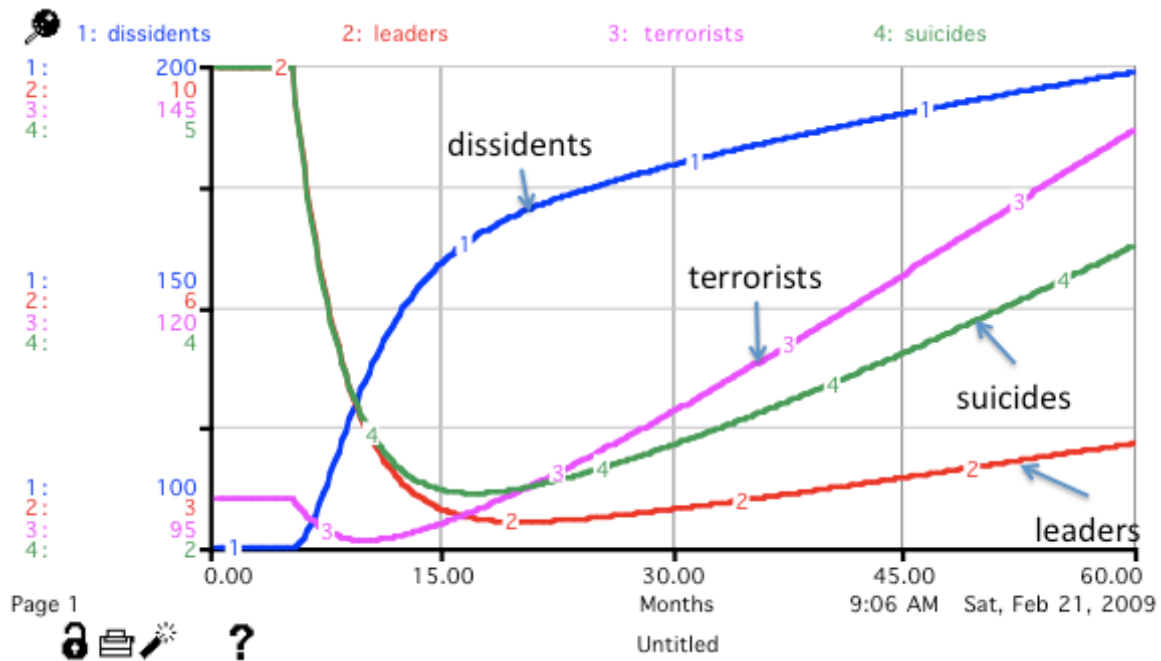

Figure 10:   Terrorist system response to leader elimination intervention

On the other hand, any interventions that help the attrition from the dissident group may create a downward spiral in the terrorist activity as shown in Figure 11. Such attritions can be facilitated by helping the populations affected by the collateral damage to reconstruct their lives or by engaging these populations in constructive economic activity as has been suggested by many observers.
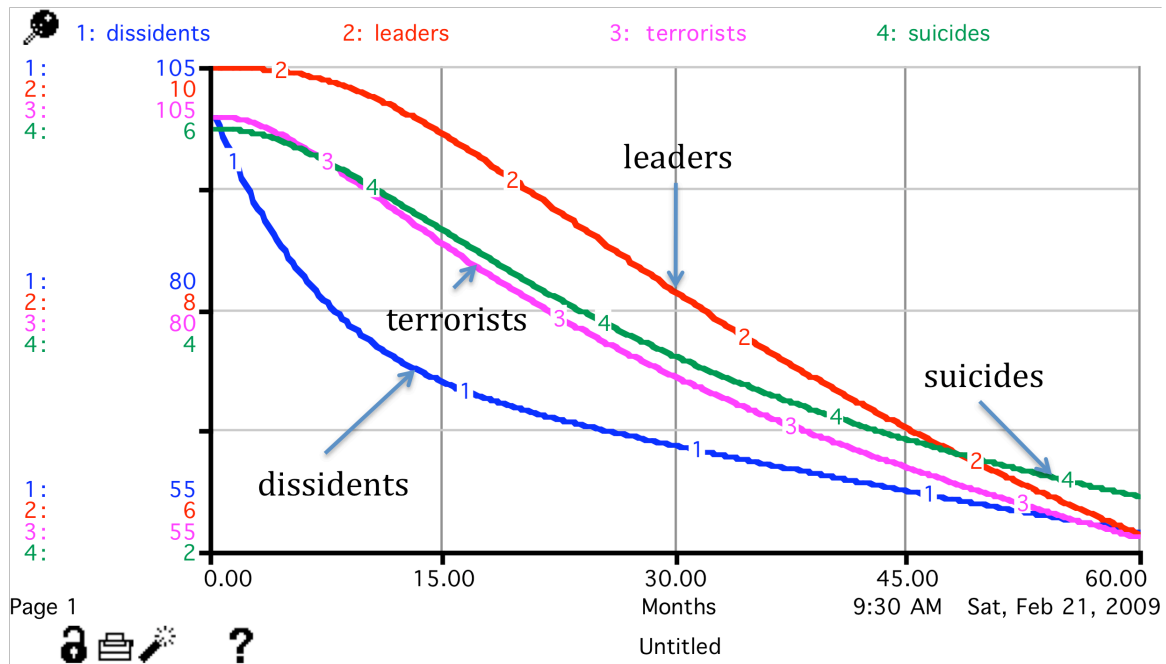
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[4] See also Skarin (2002)

Figure 11:   System response to interventions for diffusing dissidence

Conclusion

A pervasive latent structure providing capacity support to undesirable social phenomenon often renders interventions directly attacking such phenomena ineffective. Stray dogs, street gangsters and terrorists cannot be eliminated by directly killing the perpetrators. Their capacity support mechanisms that are often hidden from the eye must be recognized for designing effective intervention to eradicate them. The real challenge is to bring to fore the latent structure enabling continuation and sometime further growth of the undesirable activities. In all cases, an investigation into motivations of the populations for engaging in the undesirable activity will often lead to the root cause if the metaphor of a latent capacity support system is kept in view. Other examples of activities that have resisted interventions based on truncated perceived structure include crime, alcoholism, drug addiction, overuse and depletion of commons, and even the uncontrolled growth of human population. The metaphor of latent capacity support implicit in the stray dogs story

can help understand the root causes of the resistance to interventions for reversing growth trends in undesirable activities.

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