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THROWING A BIRD: THE COMPLEX NATURE OF CANADIAN FORCES OPERATIONS

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MASTER'S OF DEFENCE STUDIES PAPER

**THROWING A BIRD:
THE COMPLEX NATURE OF CANADIAN FORCES OPERATIONS**

By Major Lisa Elliott

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ABSTRACT

In Afghanistan today, the Canadian Forces faces a dual task of counter-insurgency and nation-building, characterized by a myriad of players, including the Taliban, Afghan politicians, warlords, powerbrokers, other states (both regional and international), as well as the various countries that make up the International Security Assistance Force (ISAF). Given this complex task, it is important to understand the underlying nature of the Afghanistan “problem;” i.e. linear or non-linear. Linear problems or systems are characterized by predictability and can be resolved through step-by-step analysis and action. Non-linear ones, such as Complex Adaptive Systems (CAS), on the other hand, are quite intractable as they are capable of learning and changing. Unlike their linear counterparts, there is no single approach to solving them. In a CAS, there is interaction between at least two mental models, where complex interdependency causes dynamic change in the underlying variables of the conflict. Feedback loops make the overarching conflict unstable and, thus, unpredictable. Unlike a game of chess, there is no “rule list” and rules change as one or more sides attempt to out-manoeuvre another and regardless of how much a person/party wishes to control the “playing field,” self-organization of the system is an inherent aspect of the overall situation. Like many more commonplace aspects of life, war is a CAS, which poses “wicked” problems for commanders, planners and their political masters, particularly when it comes to defining the essence of the problem and subsequent solution formulation. This study will show that the CF is facing a CAS in Afghanistan and that it must employ a form of “soft systems,” non-linear thinking, rather than use a strictly linear approach to problem solving. This includes

dealing not only with the Taliban “enemy” situation but that the CF and its partners (both military and non-military) must also address issues such as economic alternatives, security sector reform, regional grievances and, perhaps most importantly, their own biases and organizational impediments to success; otherwise they will face mission failure.

THROWING A BIRD: THE COMPLEX NATURE OF CANADIAN FORCES OPERATIONS

Dealing with linear versus non-linear problems is like the difference between throwing a stone and throwing a bird – The trajectory of the stone can be calculated precisely using the laws of physics. The trajectory of the bird is far less predictable. – Paul Plsek¹

INTRODUCTION

The Canadian Forces' (CF) largest international operation today is Joint Task Force Afghanistan with 2830 personnel deployed overseas and many more supporting it from Canada.² This operation poses challenges far different from the Cold War because of the character of the Afghan conflict. Not only is there an insurgency threatening the legitimate authority, but government infrastructure is also in its infancy, where the bureaucracy cannot provide basic resources to the population.³ Thus, the CF faces a dual task of counter-insurgency and nation-building, characterized by a myriad of players, including the Taliban, Afghan politicians, warlords, powerbrokers, other states (both regional and international), as well as the various countries that make up the International Security Assistance Force (ISAF).

Given this complex task, it is important to understand the underlying nature of the Afghanistan “problem;” i.e. linear or non-linear. Linear problems or systems are

¹ Paul Plsek as quoted in T. Bentley and J. Wilsdon, “Introduction: The Adaptive State,” in *The Adaptive State – Strategies for Personalising the Public Realm*, ed. T. Bentley and J. Wilsdon (London, UK: Demos, 2003), 26.

² Department of National Defence, “International Operations,” <http://www.comfec-cefcom.forces.gc.ca/pa-ap/ops/fs-fr/jtfa-foia-eng.asp>; Internet; accessed 5 January 2011.

³ Insurgency can be defined as “a popular movement that seeks to overthrow the status quo through subversion, political activity, insurrection, armed conflict and terrorism.” David J. Kilcullen, “Countering Global Insurgency,” *Journal of Strategic Studies* 28, no. 4 (August 2005), 603.

characterized by predictability and can be resolved through step-by-step analysis and action. Non-linear ones, such as Complex Adaptive Systems (CAS), are capable of changing and learning. Unlike their linear counterparts, there is no single approach to solving them and one must take into account several, perhaps unexpected, inputs to the problem.⁴ This study will show that the CF is facing a CAS in Afghanistan and that it must employ a form of soft systems thinking, rather than use a strictly linear approach to problem solving. Importantly, it must deal not only with the Taliban “enemy” situation but must also address issues such as economic alternatives, security sector reform, regional grievances and, perhaps most importantly, its own biases and organizational impediments to success; otherwise it will face mission failure.⁵

The first chapter will outline criteria required to differentiate between linear and non-linear systems and will show that war is in the realm of a CAS. The next chapter will then demonstrate that the CF and its allies are clearly facing a CAS, rather than linear problem with Afghanistan. The subsequent chapter will examine a systems thinking approach, called “soft systems methodology,” to exhibit its utility in understanding non-linear conflicts, such as the one in Afghanistan, and its effectiveness as an aid to military operational design.

⁴ Lorne W. Bentley and Scott M. Davy, *The Paradoxical Trinity* (Kingston, ON: Canadian Forces Leadership Institute, 2009), 14 – 20.

⁵ The term “enemy” in this paper is used to refer to the party to the conflict that is actively targeted by the Coalition Forces in order to be captured or killed. S/he must be acting under the “Taliban” heading to be considered part of the enemy force rather than, for example, a criminal that stops a convoy in order to steal from it. “Taliban” is plural whereas “Talib” is its singular form.

CHAPTER ONE

LINEAR VERSUS NON-LINEAR COMPLEX ADAPTIVE SYSTEMS

A commander must endeavour to understand the breadth and depth of the war that she or he is facing, as without this comprehension, poor choices will be made from which it is later often impossible to recover. Given that war puts human lives on the line, the importance of these decisions cannot be understated. The first step to this understanding is to determine the basic nature of the problem one is facing – linear or non-linear, as each poses a different challenge for problem solving and affects the very essence of a commander’s mission.

The following chapter will look at, first, the criteria required to identify linear systems. The second section will then outline criteria for non-linear systems, known as Complex Adaptive Systems (CAS). It will also discuss one particular sub-category of CAS known as a “wicked problem.” The third part will show that while war may contain elements of linearity, it is truly a CAS in nature.

LINEAR SYSTEMS

The concept of linear systems can best be appreciated through the invention of the mechanical clock. It first appeared in the late thirteenth century in Europe, being used primarily in public places to regulate actions, such as the opening and closing of markets. Technological developments in the late 15th century increased the clock’s reliability, portability and availability, which spurred widespread diffusion. This led to a transformation whereby social life was no longer driven by the natural light cycles of day

and night but rather by division of time into constant units.⁶ Scientifically, this disassociation of time from nature “helped create the belief in an independent world of mathematically measurable sequences.”⁷ Thus, clocks and this new concept of time influenced emerging industrial societies through increased synchronization and regulation of human activities, whether in factories or on the battlefield, as seen with Frederick the Great’s application of systematic drills within his army. The clock became a symbol for the notion of predictable cause and effect and was one of the influences behind linear scientific investigation.⁸

For a system to be considered linear, it must meet two criteria:

1. Outputs Are Proportional to Inputs

Changes in system outputs are proportional to inputs; for example, as the burner under a pot of water is turned up, the temperature of the water increases proportionally. In economics, this is known as “constant returns to scale,” where returns are predictable based on initial input factors.⁹ Mathematically, it is shown as:

$$\mathbf{aL}(\mathbf{M},\mathbf{N}) = \mathbf{L}(\mathbf{aM},\mathbf{aN}) \text{ where “a” is greater than or equal to one.}$$

⁶ Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity* (New York, NY: Columbia University Press, 2009), 38 – 39.

⁷ Lewis Mumford, *Technics and Civilization* (New York, NY: Harcourt, Brace and Co., 1934): 15, quoted in Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity* (New York, NY: Columbia University Press, 2009), 39.

⁸ David Landes, *Revolution in Time: Clocks and the Making of the Modern World* (Cambridge, MA: Harvard University Press, 1983), xix; Bousquet, *The Scientific Way of Warfare*, 39, 56 – 57.

⁹ Alan Beyerchen, “Clausewitz, Nonlinearity and the Unpredictability of War,” *International Security* 17, no.3 (Winter 1992): 59 – 90; <http://www.jstor.org/stable/2539130>; Internet, accessed 30 January 2011, 62; Bentley and Davy, *The Paradoxical Trinity*, 14. For a description of ‘constant,’ ‘increasing,’ and ‘decreasing’ returns to scale, see Wikipedia, “Returns to Scale,” http://en.wikipedia.org/wiki/Constant_returns_to_scale; Internet; accessed 2 January 2010.

2. The Whole Is Equal to the Sum of the Parts

A linear problem can be broken down into successive layers of detail in order to discover the root cause of a problem. This cause can then be “fixed” by systematically examining potential courses of action, choosing and implementing a solution that addresses the issue(s) and then testing it.¹⁰ For example, in a malfunctioning car, diagnostic tests are conducted to isolate the broken part, the part is then replaced and the system is tested. If the car does not function properly, the diagnostic process begins anew until success is achieved. In simple math terms, 2+2 always equals four.

The more intricate the linear problem, the more important it is to follow an orderly flow to resolve it. Linear problems can be complicated but they can still be solved. Thus, “orderliness” and “predictability” are hallmarks of linear systems and, importantly, linearity implies a solution can be found through human effort, if one is diligent enough.¹¹

NON-LINEAR SYSTEMS: THE COMPLEX ADAPTIVE SYSTEM

One type of non-linear system is the CAS, which is antithetical to orderliness and predictability. In these systems, 2+2 may equal six one day, 26 the next and three the day after that. CAS affect many walks of life, from businesses with multiple customers and

¹⁰ Bentley and Davy, *The Paradoxical Trinity*, 14.

¹¹ Australia, Australian Public Service Commission (APSC), *Tackling Wicked Problems: A Public Policy Perspective*, <http://www.apsc.gov.au/publications07/wickedproblems.pdf>; Internet; accessed 18 December 2010, 11; Peter Checkland, “Systems,” in *International Encyclopedia of Business and Management*, 2nd ed., 6304 – 6305; L.W. Bentley, “Encountering and Coping with Complexity: Systems Thinking and Methodologies,” Unpublished, Copy with author, 1.

variable market conditions, medical specialists addressing complex health issues to politicians dealing with regional economic challenges. The following criteria provide a “checklist” for determining if one is facing a CAS:

More Than One Mental Model Is Involved

In this criterion, two or more stakeholders are involved in the CAS and each defines the situation and its underlying causes based on personal experience and deep-seated beliefs rather than necessarily scientific fact:

“Mental models” are deeply ingrained assumptions, generalizations, or even pictures or images that influence how we understand the world and how we take action. Very often, we are not consciously aware of our mental models or the effects they have on our behaviour.¹²

Thus, these models are often not made explicit to others and may not even be considered logical when viewed by another party, which can easily lead to misunderstanding and conflict. Importantly, no one model encompasses all the facts and it is often difficult to convince the holder that s/he might be wrong – one person’s “freedom fighter” is another’s “terrorist.”¹³ Mental models shape who we are and what we believe and can be nearly as individual as snowflakes.

¹² Peter M. Senge, *The Fifth Discipline: the Art and Practice of the Learning Organization* (New York, NY: Doubleday, 1994), 8.

¹³ APSC, *Tackling Wicked Problems*.

There Is Complex Interdependency between Sub-Systems

The second criterion states that one cannot understand the whole system by “disassembling” and examining the parts. Whereas a clock can be broken down into component pieces and then reassembled to produce the same clock, CAS, such as social organizations, are not so amenable. Not all variables are knowable and, even less so, the true nature of their interactions. Importantly, the greater the freedom of action of individual parts and the more linkages between them, the greater is the systems complexity.¹⁴ The stock market and its wild swings are an example of such complex interdependency. Economists have elaborate models to explain market fluctuations, yet professors of economics do not often become rich from their predictions. They may outline economic phenomena in principle but this does not help with accurate predictions for specific shares or timing.¹⁵ It is the interaction between the parts that will yield the more complex, greater whole; 2+2 does not equal four.

CAS Have Feedback Mechanisms

Further building upon the criteria of interdependency, agents within a CAS share information, which influences the other parties, either deliberately or subconsciously. If a system is to survive over time, it must pick-up on this information, recognize any need

¹⁴ Bentley, *Encountering and Coping with Complexity*, 2.

¹⁵ Ludwig Von Bertalanffy, *General Systems Theory: Foundations, Development, Applications*, Revised Edition (New York, NY: George Braziller, 1998), 36, 37.

for change and then successfully take measures to ensure survival (e.g. natural selection in the animal world):

[A system] may be able to survive in a changing environment, which is delivering shocks to it, if it has available both processes of communication and a repertoire of responses which can enable it to adapt to its changing environment.¹⁶

For example, the internet is one tool which enables global human system feedback; as individuals interact while using it, they learn from and influence others, whether through internet dating, business arrangements or terrorist planning. Importantly, the ability to learn leads to continually new and unexpected behaviours, which permanently alter the overall organism. A CAS is an ever-changing system, where some elements will die out and others will amplify through reinforcement, based on feedback.

Outcomes are Unpredictable

Thus, with interdependency and emergent properties, attempts to address a situation often lead to unforeseen consequences. For example, to reduce child obesity, some Australian schools began to offer only healthy foods in their cafeterias. This has led to some children ignoring lunch, saving their money and using it to buy junk food after school. Thus, they are now eating worse than before and are skipping lunch, thereby affecting cognitive processing during afternoon classes.¹⁷ Furthermore, dealing with a CAS is like tossing a stone into a lake, where ripples may expand for years, across a town, region or even globally. It is unlikely that the US personnel supplying arms to

¹⁶ Checkland, *International Encyclopedia of Business and Management*, 6304.

¹⁷ APSC, *Tackling Wicked Problems*, 12.

Osama Bin Laden for use against the Soviets in Afghanistan ever expected to face him as an enemy and to lose American soldiers fighting the Taliban years later. CAS are non-linear and small inputs may cause unpredictable, disproportionately large outputs in the behaviour of the system.¹⁸

CAS Are Self-Organizing

In the final criterion, one finds that control in a CAS is highly dispersed with no central direction. Yet rather than being disorganized, the system is inherently self-organizing. Behaviour is based on competition and/or coordination among agents, with order being emergent rather than predetermined.¹⁹ For example, when driving in traffic, there is no central controller. Basic rules of the road form the basis upon which decisions are made by independent actors. Competition, such as running a light, and coordination, through allowing someone to pull in front of you, take place. While accidents happen, the majority of trips are uneventful.

Conclusion – Linear Versus Non-linear and “Wicked Problems”

Linear problems can be highly complicated but are not intractable. They are clearly definable, in terms of having an identifiable problem “X,” where all parties to the

¹⁸ *Ibid.*, 4.

¹⁹ Bentley, *Encountering and Coping with Complexity*, 3; Paul E. Plsek and Trisha Greenhalgh, “Complexity Science: The Challenge of Complexity in Health Care,” *British Medical Journal* 323, 15 September 2001, 627.

situation agree: that X is the problem; what the system will look like when X is eliminated or fixed; and that the world will be better when X has changed. There is also at least one clear method that can be applied to bring about the required resolution.

Working with a CAS, however, is not such a simple matter. This is especially true when the CAS creates or poses a “wicked problem,” a term coined by H.W.J. Rittel and M.M. Webber, urban planners at the University of California in Berkeley in 1973. In their keystone article, they argued that “there is a whole realm of social planning problems that cannot be successfully treated with linear, analytical approaches.”²⁰ They then used the term “wicked” to label these problems not in the sense of evil but rather something highly resistant to resolution:

[W]e are calling them "wicked" not because these properties are themselves ethically deplorable. We use the term "wicked" in a meaning akin to that of "malignant" (in contrast to "benign") or "vicious" (like a circle) or "tricky" (like a leprechaun) or "aggressive" (like a lion, in contrast to the docility of a lamb).²¹

Importantly, Rittel and Webber outlined critical principles that underlie these problems, which are summarized below, with further clarification on the concepts from John F. Schmitt. Schmitt is a lecturer at the United States National Defence University and Marine Corps School, who has written several articles on military operational design.

There is no Definitive Formulation yet Formulation Drives Solution:

Prior to the existence of a “problem,” there exists a complex web of circumstances. The idea that there is actually a problem only comes into being once

²⁰ APSC, *Tackling Wicked Problems*, 3.

²¹ H.W.J. Rittel and M.M. Webber, “Dilemmas in a General Theory of Planning,” *Policy Sciences* 4, no. 2 (June 1973), 161.

someone decides there is a dissatisfactory situation and that it must be fixed, at which time a definition of the locus of the circumstance is constructed. Critically, this definition will subsequently drive identification of specific solutions. Due to the above criterion of “mental models,” however, the derived locus will inevitably diverge from reality and the ensuing solutions will be inaccurate:

Consider, for example, what would be necessary in identifying the nature of the poverty problem. Does poverty mean low income? Yes, in part. But what are the determinants of low income? Is it deficiency of the national and regional economies, or is it deficiencies of cognitive and occupational skills within the labor force? If the latter, the problem statement and the problem "solution" must encompass the educational processes. But, then, where within the educational system does the real problem lie? What then might it mean to "improve the educational system"? Or does the poverty problem reside in deficient physical and mental health? If so, we must add those etiologies to our information package, and search inside the health services for a plausible cause...and so on.²²

Thus, the formulation of a wicked problem is a problem in itself, where the outcome of this process drives what actions are put into place, whether good or bad.

Wicked Problems have no Stopping Rules:

Spurred by the criteria of “complex interdependency:”

Wicked problems are rarely solved conclusively, but are resolved conditionally and temporarily. Work on a wicked problem does not cease because the problem is definitively solved, but because the problem solvers run out of time, resources or resolve – the solution is deemed “good enough” or “the best that can be done under the circumstances.”²³

²² Rittel and Webber, *Dilemmas in a General Theory of Planning*, 161; see also Schmitt, *A Systemic Concept for Operational Design*, 9 – 10.

²³ Schmitt, *A Systemic Concept for Operational Design*, 10; see also Rittel and Webber, *Dilemmas in a General Theory of Planning*, 162.

Thus, efforts are artificially limited rather than driven by a desired end-state.

Furthermore, the judgment of results (i.e. what is “good enough”) depends upon the views of the individual stakeholders; “different stakeholders will judge the quality of a solution based on individual perspectives and there can be significant disagreement.”²⁴

What one might see as “fixed” may be considered a worsened condition by another. For this particular class of problem, one finds better or worse vice right or wrong solutions as there is no objective measure of success or fixed end point.²⁵

Every Solution is a “One-shot Operation” with no “Menu” from which to Choose:

Given the unique quality of every CAS that is characterized by wicked problems, solutions “do not pre-exist as alternatives from which to choose, like buying a new car. Wicked problems are not multiple-choice. Solutions must be *created* rather than chosen.”²⁶ Because of this element of “creation,” often based on in situ experimentation, one may be able to outline a myriad of potentially viable solutions. Yet one may also come up with nothing feasible, due to factors such as cultural or moral restrictions. For example, in a democratic country, it is neither legal nor acceptable to shoot someone who opposes you politically. However, in some authoritarian countries, this would be an allowable solution to opposition. There are many factors driving determination of solutions, including personal competency and mental model-based parameters, such as religion, culture, and legality.

²⁴ *Ibid.*, 10.

²⁵ *Ibid.*, 10.

²⁶ *Ibid.*, 11.

Even after implementing potential solutions, however, due to complex interdependency, self-organization and no stopping rules, in a wicked problem, one cannot “reset the play” if something goes wrong as one can in a sport’s game:

[E]very implemented solution is consequential. It leaves “traces” that cannot be undone...every attempt to reverse a decision or to correct for the undesired consequences poses another set of wicked problems, which are in turn subject to the same dilemmas.²⁷

This leads to a catch-22; in order to really learn about a problem, one must often experiment with a potential solution but this experiment will then indelibly change the problem.²⁸ Thus, every operation is a one-shot deal and the “solver” must continually adapt to a new set of circumstances, which may be even more stubborn than the initial conditions.

Thus, in a CAS, particularly when faced with a wicked problem, there is no easy answer; one must tolerate high levels of uncertainty and the problem is likely to never be completely solved. It requires an experimental approach where one has to let the system run to see the actual outcome. Then it is consequence management by trial and error.²⁹ While the difference between a linear system and a CAS seems to be identifiable by the given criteria, it is not yet clear into which of these categories the art of war falls. The difference is a critical one as it affects the very nature of how a commander and his staff approach their “war problem.”

²⁷ Rittel and Webber, *Dilemmas in a General Theory of Planning*, 163.

²⁸ Schmitt, *A Systemic Concept for Operational Design*, 11.

²⁹ Plsek, *Working Paper: Some Emerging Principles...*; Senge, *The Fifth Discipline*, 58; Schmitt, *A Systemic Concept for Operational Design*, 10 – 11.

WARFARE: LINEARITY VERSUS NON-LINEARITY

The concepts of linearity and non-linearity have certainly had their influence on military thought and actions throughout history. In the 17th and 18th century, military thinkers became increasingly taken with the ideals of Newtonian science, which suggested that the universe and its occupants were ruled by specific laws of motion. If one could know all the laws and forces operating at a specific moment in time, one would then have perfect knowledge of the world and could choose the correct course of action in order to win a decisive war. This linear system of thinking has persisted through two world wars, the Cold War and still holds sway with many military theorists today. Unfortunately, although having achieved some early success, it has not proven to be a particularly accurate theory of warfare.

The military application of a mechanistic world view started first with bombardment, through the science of ballistics and fortifications, where geometry of construction played an increasing role in force protection measures.³⁰ However, applying the science of clockwork to the movements of men was not far behind. Frederick the Great was the first to apply a significant linear solution to control his army, given limited command and control technologies across increasingly larger battlefields:

[He] was among the first modern commanders to try to command all of his army all of the time, but this could only be achieved by turning it into a mindless, lifeless machine. Here is perhaps the clearest attempt to model an army on the regularity and predictability of clockwork with every cog playing a pre-determined role fixed by the original conveyer of motion. While such an army would be unable to respond dynamically to events on

³⁰ Jarmo Pulkkinen, "Frederick II of Russia and the Clockwork State," <http://academia.edu.documents.s3.amazonaws.com/393462/pulkkinen.pdf>; Internet; accessed 31 January 2011, 113; Bousquet, *The Scientific Way of Warfare*, 53 – 54.

the battlefield, this would nonetheless allow Frederick to experiment with a number of complex, though rigid, tactical deployments. The result was a formidable military machine superior to anything rival states could field at the time and which became a model army which contemporaries sought to emulate.³¹

While initially very successful, this extreme clockwork form of warfare fell out of favour due to the crushing defeat of the Prussian Army at the hands of Napoleon. However, the notion that scientific advances will allow a commander to have full control over the battlefield has persisted. In World War I, for example, the railway allowed commanders to move vast numbers of troops and supplies, increasing the speed of reconstitution; however, it also contributed to huge static fronts, where the “minutial war by timetable...often left generals unwilling or unable to deviate from their original plans, regardless of the actual intentions and actions of the enemy.”³² This led to an immense number of casualties and as one former German soldier put it, the troops became mere fuel for the fire, “just like charcoal, which is hurled under the glowing cauldron of war so as to keep the work going.”³³ Such a mechanistic, linear approach to warfare proved to be very costly, with a total of 6.8 million combat-related deaths by the end of the war, plus many more casualties.³⁴

In World War II, an “industrial web theory” was adopted by strategists. This theory suggested that the enemy’s supporting industrial base could be mapped prior to the

³¹ Bousquet, *The Scientific Way of Warfare*, 57.

³² *Ibid.*, 80.

³³ Ernst Junger, *Der Kampf als Inneres Erlebnis* (Berlin, Germany: E.S. Mittler and Sohn, 1922): in Bousquet, *The Scientific Way of Warfare*, 81.

³⁴ Boris Uralnis, *Wars and Population* (Honolulu, Hawaii: University Press of the Pacific, 2003), 85.

start of hostilities. Then, upon commencement of the conflict, it could be systematically targeted, reducing the enemy's physical ability to fight, quickly leading to his capitulation. This theory was applied by the Allies against Japan, Germany, and German-held territories in Europe, however:

the actual results were far below expectations in terms of materiel and time expended. Germany's industrial infrastructure proved resilient and extremely adaptable, and civilian morale did not collapse...Some 5 years of strategic bombing destroyed entire cities, killed hundreds of thousands of civilians, curtailed industrial output, and crippled transportation nodes.³⁵

Thus, the use of industrial web theory proved to be a major disappointment. Regardless of this massive failure, a scientific, linear approach to warfare continued to hold sway, particularly with the emergence of new information technologies.

In the Cold War, Western intelligence organizations, such as the US Central Intelligence Agency, spent a vast amount of time and money collecting, analyzing and committing to memory every detail possible about the Soviet political and war machines. Yet, even with multiple, vast systems of intelligence working on the problem, few analysts, if any, were able to predict the actual outcome: the dissolution of a superpower. Their systems, as far reaching as they were, could not pick-up on the totality of forces at play in Soviet society, such as the massive strain that defence spending placed on the economy.³⁶ Once again, "perfect information" to inform planners and policy-makers proved elusive.

³⁵ Milan N. Vego, "Systems Versus Classical Approach to Warfare," *Joint Force Quarterly* 52, no. 1 (Spring 2009), 41.

³⁶ Roger Z. George, "The CIA and the Culture of Failure: U.S. Intelligence from the End of the Cold War," <https://www.cia.gov/library/center-for-the-study-of-intelligence/csi-publications/csi-studies/studies/vol53no1/the-cia-and-the-culture-of-failure-u.s..html>; Internet; accessed 3 February 2011.

The post-Cold War era has certainly been characterized by high levels of uncertainty, with insurgency, terrorism and concerns of proliferation of weapons of mass destruction moving to the forefront. At the same time, there has been a growth in the use of networked information technology, combined with increasingly lethal, precise weapons systems on the battlefield. Proponents of these systems believe that the fog of war is caused by an inability to acquire information in real or near-real time and that once they do obtain it, they will be able to “out manoeuvre” the enemy, minimize collateral damage and bring quick victory.³⁷ Yet, experience in countries such as Vietnam, Iraq and Afghanistan prove that the technologically superior force will not necessarily prevail, as “perfect information,” while desirable, is unattainable due to non-linearity in warfare.

War and Non-Linearity

While many military theorists and planners have tried to deal with conflict in a linear fashion, there are others who have recognized its non-linear nature. For example, Carl von Clausewitz (1780 – 1831) was a Prussian officer whose incomplete epic, *On War*, still influences military thinkers today. Clausewitz was writing at a time when the Prussian army had suffered defeat at the hands of Napoleon and he looked to expose what he saw as their prime weakness: “[A]n army made like an automaton by its rigid formations and orders of battle” – ie. a linear force.³⁸ Importantly, his views were in opposition to other theorists of his time, such as Antoine-Henri Jomini and Heinrich von

³⁷ Vego, *Systems Versus Classical Approach to Warfare*, 46.

³⁸ Bousquet, *The Scientific Way of Warfare*, 87.

Bulow, who endeavoured to break war down into component principles, rules and systems. Clausewitz, on the other hand, argued that one needed to study the nature of war as a whole, as war deals with continual uncertainty where many unknowable and intangible elements come into play – in other words, “war,” as will be shown, is by its very nature a CAS, which can pose wicked problems.³⁹

When given a war problem, right from the outset, a commander often has linear parameters or boundaries imposed on his/her planning, such as geographic designation of the permitted area of operation, limits on which parties can be targeted, even within the allowable area of operation, as well as maximum troop and resource levels.

Unfortunately, these parameters impose false limits as boundaries in the real world are quite permeable, malleable and, often, unknowable.⁴⁰ In the terminology of CAS and wicked problems, these boundaries inevitably ignore at least one important mental model that contributes to the conflict (e.g. a “legitimate” indigenous authority figure) and negatively influence complex interdependencies and identification of the locus of the problem. It also subsequently places limits on allowable methods of action and resources.

Thus, solutions based on these “linear” boundaries will inevitably be wrong or incomplete as they do not take all factors into account and leave greater room for feedback mechanisms to be employed (i.e. increased freedom of action for another party). For example, a military commander will be given a specific area of responsibility in which s/he can conduct the fight, such as within the boundaries of the enemy country or

³⁹ Carl von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret (Princeton: Princeton University Press, 1976), 34; Vego, *Systems Versus Classical Approach to Warfare*, 46.

⁴⁰ Beyerchen, *Clausewitz, Nonlinearity and the Unpredictability of War*, 65.

perhaps, if in defence, national boundaries. However, this geographic parameter does not take into account the influence of third-party nations that might be supporting the enemy through arms, training and/or moral support. Particularly in the case of third-party training and sanctuary, unless that commander also attacks this basis of support, s/he may be unable to prevail against the enemy.

Even if a commander were able to take account of the greater range of influences in planning, s/he would likely soon reach logistical and manpower limitations or, perhaps, a political unwillingness to undertake the operations; i.e. reaching the wicked problem point of “good enough” in at least some areas. Even with limitless resources, the dynamic, open and unstoppable nature of a CAS and its wicked problems will further hinder the likelihood of success. A “hermetically-sealed” theatre of war is not possible.

Such a war would need to be:

- (a) an isolated and sudden act without prelude,
- (b) consist of a single decisive act or set of simultaneous ones, and
- (c) achieve a result perfectly complete in itself.⁴¹

As shown previously, this is not possible; war is an open system, conducted over a period of time, through a series of interactive “one-shot operations,” which allow other often unpredictable factors to be introduced. Thus, a “decisive battle,” if such a thing exists, does not lead to a “decisive war;” the linear criterion of additivity (i.e. proportionality) is seldom applicable to war. As Clausewitz wrote:

War, however, is not the action of a living force upon a lifeless mass (total non resistance would be no war at all) but always the collision of two living forces...there is interaction. So long as I have not overthrown my opponent I am bound to fear he may overthrow me. Thus I am not in control: he dictates to me as much as I dictate to him.⁴²

⁴¹ *Ibid.*, 67.

⁴² Clausewitz, *On War*, 77.

War fighting also lacks linear “constant returns to scale:”

the scale of victory does not increase simply at the rate commensurate with the increase in the size of the defeated armies, but progressively. The outcome of a major battle has a greater psychological effect on the loser than on the winner. This, in turn, gives rise to additional loss of material strength [through abandonment of weapons in a retreat or desertions from the army], which is echoed in loss of morale; the two become mutually interactive as each enhances and intensifies the other.⁴³

Conversely, decreasing returns to scale may occur, where massive inputs in terms of soldier’s lives and physical resources yield little return, as was seen in the stalemate of trench warfare in WWI. Importantly, while “war is merely the continuation of policy by other means,” where the commander waging war must take into account the political goal, it must also be recognized that the conduct of war itself “feeds back into the political ends that guide its conduct.”⁴⁴ The influence is not a one-way street; something of which the military commander must be cognizant as it will affect his mission, perhaps changing the very essence of it.

This complex political nature of war is particularly relevant in the case of irregular conflicts. As will be shown by the example of Afghanistan in the next chapter, multifaceted political machinations, both internal and external to its borders, are driving many of the factors behind the conflict, which prevent it from being resolved. These issues are well outside the realm of military action and yet must be resolved in order to bring peace and stability to the country. Thus, war, especially irregular conflict, by its very nature, is unable to meet the criteria for linear systems; returns are not predictable

⁴³ *Ibid.*, 253.

⁴⁴ *Ibid.*, 87; Beyerchen, *Clausewitz, Nonlinearity and the Unpredictability of War*, 69.

based on initial input factors and the problem is most often greater than the sum of its parts. On the other hand, it does meet the criteria for a CAS and poses wicked problems.

CONCLUSION

There are still military theorists today that continue to argue that the “fog of war” can be eliminated if only one can better network systems and increase information and intelligence processing and dissemination. Some of these theorists will even quote Clausewitz; however, what they seem to miss is that:

his famous metaphor of the “fog” of war is not so much about a dearth of information as how distortion and overload of information produce uncertainty as to the actual state of affairs.⁴⁵

Rather than improve a commander’s ability to understand the battlefield, these theorists, driven by the natural urge to overcome uncertainty, use scientific innovations in information technology to potentially make the matter worse rather than better. While this technology certainly has a critical role to play on the battlefield, one must apply it carefully and, importantly, remember to take into account the basic nature of warfare; it is the interaction between at least two mental models, where complex interdependency causes dynamic change in the underlying variables of the conflict. Feedback loops make the overarching conflict unstable and, thus, unpredictable. Unlike a game of chess, there is no “rule list” and rules change as one or more sides attempt to out-manoeuvre another and regardless of how much a commander wishes to control the “playing field,” self-organization is an inherent aspect of the conflict. Thus, like many more commonplace

⁴⁵ Beyerchen, *Clausewitz, Nonlinearity and the Unpredictability of War*, 77; see also Vego, *Systems Versus Classical Approach to Warfare*, 46.

aspects of life, war is a Complex Adaptive System, which poses wicked problems for commanders, planners and their political masters, particularly when it comes to defining the essence of the problem and subsequent solution formulation. This is something that the CF must recognize, particularly, as will be shown, since it is facing a CAS in its mission in Afghanistan.

CHAPTER TWO

CASE STUDY: THE AFGHANISTAN “PROBLEM”

When the US and its allies deployed to Afghanistan in 2001, the Coalition intent was to capture Osama Bin Laden, oust the Taliban who supported him, install a democratically-elected, pro-Western regime, then withdraw.⁴⁶ Working with Afghan warlord Rashid Dostum and the anti-Taliban military-political group, the Northern Alliance, they overthrew the Taliban regime in Kabul and then began what was expected to be rapid nation-building. Southern Afghanistan was largely ignored in this transformation process, however, in favour of building democratic institutions and strong central government in Kabul. Thus, the Taliban retreated to their traditional homeland in the South and by 2005, they began to re-emerge as a threat to the Coalition and the legitimate Afghan government. They were also accompanied in this resurgence by affiliated insurgent groups such as the Haqqani network, another extremist Pashtun movement.⁴⁷ These groups have grown to the point where they now comprise a full-fledged insurgency which threatens the authority and tenuous hold of the central

⁴⁶ Anatol Lieven, “The War in Afghanistan: Its Background and Future Prospects,” *Conflict, Security and Development* 9, no. 3 (2009): 334 – 335; <http://web.ebscohost.com/ehost/pdfviewer/pdfviewer?hid=22&sid=c245358c-ba04-49ed-931b-8133793d06d9%40sessionmgr11&vid=3>; Internet; accessed 7 January 2011; The International Institute for Strategic Studies, “Afghanistan: Historical Background,” http://acd.iiss.org/armedconflict/MainPages/dsp_ConflictBackground.asp?ConflictID=181; Internet; accessed 7 January 2011.

⁴⁷ M. O'Hanlon, "Staying Power," *Foreign Affairs* 89, no. 5 (September 1, 2010), <http://proquest.umi.com/pqdlink?did=2129061141&sid=2&Fmt=3&clientId=1711&RQT=309&VName=PQD>; Internet; accessed 23 January 2011; S. Biddle, F. Christia and J. Thier, "Defining Success in Afghanistan," *Foreign Affairs* 89, no. 4 (July 1, 2010), <http://proquest.umi.com/pqdlink?did=2071053771&sid=3&Fmt=3&clientId=1711&RQT=309&VName=PQD>; Internet; accessed 23 January 2011.

government in Kabul, as well as the overall Coalition mission to bring stability and peace to Afghanistan.

As will be shown, however, risks to the success of the Afghan mission do not stop with the Taliban and affiliated groups. The factors affecting the conflict range from warlord influence to regional and international state actors as well as international and indigenous criminal networks. The threats and other challenges that emerge from these various players are due to the non-linear nature of the problem. Thus, as will be shown, the present Afghanistan conflict clearly meets the criteria of a CAS.

The following sections will utilize the criteria discussed in the previous chapter and apply them to a variety of examples taken from Afghanistan. For “mental models,” the views of the Taliban, Pakistan and India will be examined. A look at heroin networks and the role of Iran will follow, in order to show “complex interdependency.” “Feedback mechanisms” will then be demonstrated by, once again, turning to the Taliban but also key Afghan powerbrokers. Building on these previous examples, the “unpredictability” and “self-organizing” aspects of the system will then be studied, showing the local to global nature of this non-linear conflict.

MORE THAN ONE MENTAL MODEL IS INVOLVED

There are several key mental models that contribute to the complexity of the Afghan conflict, which significantly influence potential approaches for resolution. They include the traditional military category of “enemy” model, where “enemy” is defined as the party to the conflict that is actively targeted by the Coalition Forces in order to be

captured or killed. S/he must be acting under the “Taliban” heading to be considered part of the enemy force rather than, for example, a criminal that stops a convoy in order to steal from it. There are also the regional players of Pakistan and India; Pakistan has specific interests in Afghanistan in terms of border sovereignty and tribal stability issues. It also appears that Pakistan and India are using Afghanistan as a proxy for their own inter-state conflict. Thus, in this case, Afghanistan is affected by issues that do not even originate from within its borders. Due to the length of this paper, not all mental models related to the Afghan conflict will be discussed although several other key ones will be outlined in the “Mental Model” conclusion section.

Enemy

The enemy model is actually comprised of three key sub-models: top Taliban leadership; foreign fighters; and lower-level commanders. The diversity found between these groups makes determining overall Taliban motivation and thus counter-measures complex. The leadership consists of men, such as Mullah Mohammad Omar, the Taliban spiritual leader and former head-of-state under the Taliban regime. To Omar and his closest men, the conflict is as much about recovering their rightful place as rulers of Afghanistan as it is about *jihadi* ideological motivation. On the other hand, there are foreign fighters who are driven by a belief in global *jihad* and thus loyal to the fight against the *infidel* rather than Afghanistan and the Taliban, itself.⁴⁸ These men

⁴⁸ Economist, “Asia: Reflecting on the Taliban; Afghanistan,” *The Economist*, 28 March 2009, 47: <http://proquest.umi.com/pqdweb?did=1668199301&Fmt=3&clientId=1711&RQT=309&VName=PQD>; Internet; accessed 6 January 2011; Carl Forsberg, *Counterinsurgency in Kandahar*, 15.

sometimes exhibit a lower level of respect for the local population than a Taliban leader would show and, thus, their presence can negatively affect local Afghan support for the cause. However, the Taliban leadership deem their expertise and resources to be necessary to the overall fight and thus continue to employ them. At lower levels, some local commanders have built illegal drug and extortion networks to raise funds to pay their fighters. While still fighting under the Taliban banner, they are now driven by personal profit as much as by ideology, which leads to non-insurgency related violence.⁴⁹

Thus, senior Taliban leaders have to deal with severe issues of criminality and counter-productive activities within their ranks, which have, at times, been harmful to the greater Taliban strategy, particularly in winning and maintaining the loyalty of local Afghans:

Senior Taliban leadership is fully aware of the negative reactions garnered by local communities regarding the movement's involvement in kidnappings, extortion, mutilations, bribery and attacking educational systems and students.⁵⁰

Reports also suggest that a financial drain on the Taliban "central treasury" in 2009 was at least partially due to greedy and fraudulent tactical and district level commanders.⁵¹

Thus, these three different actors and their mental models have led to internal Taliban strife over the division of war booty, how to treat local Afghans, the sharing of profits from illegal check points and kidnappings, as well as racketeering from the protection of drug transit routes. Infighting was seen, for example, in Badghis Province

⁴⁹ Economist, *Asia: Reflecting on the Taliban*.

⁵⁰ Program for Culture and Conflict Studies, "Analyzing the Taliban Code of Conduct: Reinventing the *Layeha*," Occasional Paper Series # 3, Department of National Security Affairs, Naval Postgraduate School, Monterey, CA, 6 August 2009 (Copy with Author), 8.

⁵¹ *Ibid.*, 8, 10, 20.

over the division of looted Afghan National Police (ANP) pickup trucks, as well as over the control of “check-points” in Zabul Province, which are used to extort money. Further complicating the matter, there is also conflict between groups based on tribal differences. In some areas, this has led to a form of warlordism over territory rather than a united Taliban movement. Overall, these different mental sub-models make it difficult to determine motivation of Taliban throughout the ranks and in particular regions.⁵² Without having some idea of motivation behind a group, it will be hard to find incentives or disincentives to change their behaviour to a desirable direction. This becomes even more difficult when one considers regional views and their subsequent influence on the “Afghanistan problem,” where Pakistan is one of the prime players in this arena.

Pakistan

The Pakistani model is based on a trinity of issues related to Afghanistan: a bilateral border dispute between the two countries; the destabilizing influence of the Afghan conflict on the Pakistani border regions; and the role of Afghanistan as strategic depth against India.

Bilateral Border Dispute

First, Pakistan considers the Afghan government a rival due to a dispute over delineation of their shared border, which fosters continuing distrust between the two. To

⁵² *Ibid.*, 3 – 4, 10, 21.

Pakistan, it is a legal boundary but Afghanistan does not recognize this line. Today's border is based on the Durand Line, agreed to in 1893 by Abdur Rahman Khan, Afghanistan's ruler from 1880-1901, and Sir Mortimer Durand, the Foreign Secretary of the Colonial Government of India at the time.⁵³ Although Rahman Khan agreed to the border, it unfortunately bisects the Pashtun tribe, which is the largest tribe in Afghanistan (Figure 1). This led to an Afghan claim in 1947, when Pakistan was being created as a sovereign state, "that in the event of the demission of British authority the whole Pathan [Pashtun] country as far as the Indus should revert to Afghan sovereignty."⁵⁴ When this did not happen, in retribution, Afghanistan voted against Pakistan's accession to the United Nations.⁵⁵

Three years later, Afghanistan was openly funding Pashtu raids into Pakistan, which almost led to war between the two neighbours.⁵⁶ Furthermore, the Afghans believe that the July 1946 referendum to determine which country this tribe wanted to join was flawed because a majority of the Pashtu abstained from voting as their choice was only between India or Pakistan and not a sovereign "Pashtunistan."⁵⁷

⁵³ Cynthia Smith, "A Selection of Historical Maps of Afghanistan," *Library of Congress Geography and Map Reading Room*: <http://www.loc.gov/rr/geogmap/pub/afghanistan.html>; Internet; accessed 25 January 2011.

⁵⁴ Keith Cameron, "Who is the Adversary: Pathans, the Taliban and Prospects of Peace," *Canadian Military Journal* 10, no. 3 (Summer 2010), 23.

⁵⁵ Afghanistan was the only country to vote against Pakistan. Frederic Grare, "Pakistan-Afghanistan Relations in the Post-9/11 Era," *Carnegie Papers*, no. 72 (October 2006): http://www.carnegieendowment.org/files/cp72_grare_final.pdf; Internet; accessed 9 January 2011, 3; Milton W. Meyer, *India-Pakistan and the Border Lands* (Totowa, NJ: Littlefield, Adams & Co., 1968), 220.

⁵⁶ Stanley Wolpert, *Roots of Confrontation in South Asia* (New York, NY: Oxford University Press, 1982), 120.

⁵⁷ *Ibid.*, 121; Grare, *Pakistan-Afghanistan Relations in the Post-9/11 Era*, 8 – 9.

Afghanistan has always stated that the 1947 referendum did not satisfy the requirement for self-determination because a substantial part of the Pashtuns [*sic*] boycotted the vote and the referendum was a unilateral step taken without Afghan consultation or consent...[Furthermore] Pakistan was not a successor state to Britain but a new state carved out of British India. Whatever treaty rights existed were therefore extinguished.⁵⁸

Thus, the Pashtun and related border delineation question has caused tension between Pakistan and Afghanistan since Pakistan's creation. Regardless of who has been in power in Kabul, the stance has always been the same; the Pashtun areas on the Pakistani-side of the Durand Line belong to Afghanistan.

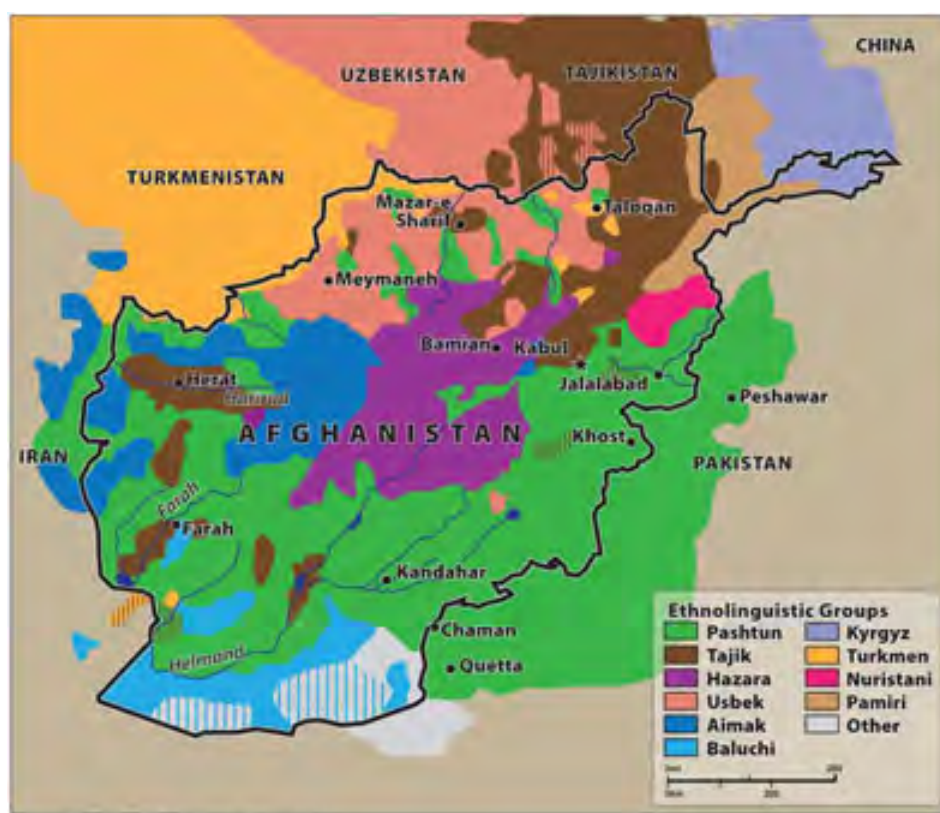


Figure 1: Map of Afghan tribal distribution.

Figure 1 – Map of Afghan Tribes Including Cross-Border Distribution

⁵⁸ Grare, *Pakistan-Afghanistan Relations in the Post-9/11 Era*, 8 – 9.

Keith Cameron, "Who is the Adversary: Pathans, the Taliban and Prospects of Peace," *Canadian Military Journal*, vol. 10, no. 3 (Summer 2010), 22.

The issue of Pashtu solidarity and its importance for the Afghan government should not be underestimated. Culturally, Afghans as a whole identify very strongly with family and tribal affiliations. "Afghan" nationhood rates far behind in importance and for some, it does not rate at all. This particularly applies to the Pashtu tribal groupings in the south, which have their own honour code, known as Pashtunwali. This code stresses kinship, hospitality, and sanctuary, but also places emphasis on revenge for attacks, perceived or otherwise, against family. Thus, it provides a high level of security and cohesion for its families, reinforced through a culture of violence and long-held grudges.⁵⁹ Historically:

Pashtuns [*sic*] have dominated their neighbors and have avoided subjugation or integration by a larger nation. As one elderly Pashtun tribesman told Mountstuart Elphinstone, a British official visiting Afghanistan in 1809, "We are content with discord, we are content with alarms, we are content with blood . . . we will never be content with a master." This characteristic makes Pashtuns the perfect insurgents.⁶⁰

This insular security/revenge nexus is an explosive combination for a government in Kabul. If the Karzai government were to accept the border in its present location, renouncing reunification of the Pashtu, it would be seen as a move to marginalize the tribe. Many Pashtu are already defensive, believing the Uzbek and Hazara tribes are gaining ground in their ability to control the political and economic reconstruction

⁵⁹ Cameron, *Who is the Adversary*, 2, 21.

⁶⁰ Thomas H. Johnson and M. Chris Mason, "No Sign Until the Burst of Fire: Understanding the Pakistan-Afghanistan Border," *International Security* 32, no. 4 (Spring 2008), 50.

process.⁶¹ Thus, inflaming Pashtun nationalism, through recognition of the border, would feed the insurgency and likely lead to an anti-Karzai movement.

On the other side of the border, this problem is equally volatile for Pakistan. “The NWFP [North West Frontier Province] accounts for 20 percent of Pakistan’s territory, and ceding it to Afghanistan would open a Pandora’s Box and raise, once again, doubts about the viability of Pakistan,” as an independent nation.⁶² Secession might also inflame Pakistani-Pashtu, who are not necessarily interested in becoming “Afghans,” triggering further violence and instability in the border region and potentially a movement for a sovereign “Pashtunistan.” Thus, preserving the present border can mean a difference between life and death for Pakistan.

In today’s international political environment, this diplomatic border issue leaves Pakistan in another difficult position. It must continue to resist Afghanistan’s demand for a redrawing of their boundaries in order to maintain regional stability and potentially survive as a sovereign entity. But now, Afghanistan is being supported by the powerful US and its allies in the Global War on Terror (GWOT). Pakistan is also considered a key ally in this war and, thus, it must continually “reconcile its bilateral and regional objectives with the absolute necessity to preserve and constantly reassert its strategic value to the United States”.⁶³ If it were seen to threaten Afghan stability, it could lose vital US support, including annual allotments of billions of dollars in military and civilian

⁶¹ Grare, *Pakistan-Afghanistan Relations in the Post-9/11 Era*, 10.

⁶² *Ibid.*, 16.

⁶³ *Ibid.*, 3.

funding, such as that through the Kerry-Lugar-Berman legislation authorizing \$1.5 billion per year for five years to improve social and economic conditions in Pakistan.⁶⁴

Importantly, Pakistani interest in maintaining its border has led it to intervene in Afghan politics. For example, when the Soviets invaded Afghanistan, Pakistan, with US support, backed seven resistance parties, which were a balance between Pashtu ones, in deference to its own population, and Islamic extremists, such as the Taliban. The US wanted to curb Russian influence and Pakistan hoped that the Islamist groups would be able to transcend ethnic divisions and finally accept the border location. When it realized that some of these organizations, such as Gulbuddin Hekmatyar's HiG, could not seize Kabul and were not willing to recognize the Durand Line, Pakistan shifted the weight of support to the Taliban.⁶⁵ Thus, due to its critical vested interests, Pakistani support will go to that person or group which is most able to meet its political objectives. This border issue then continues to fuel mistrust between the two countries, particularly given Pakistan's historical support for the Taliban. This mistrust is only further compounded by the insurgent-driven instability in its border region.

Destabilizing Influence on Pakistani Border Region

Second, Pakistan sees its western neighbour as a destabilizing influence, fueling insecurity within Pakistan:

⁶⁴ Malik Zafar Iqbal, "An Appraisal of the Afghanistan-Pakistan Strategy to Counter Terrorism," *Parameters* 40, no. 2 (Summer 2010), 20, 24.

⁶⁵ Grare, *Pakistan-Afghanistan Relations in the Post-9/11 Era*, 9.

Pakistan's stability has been gravely undermined by the twin blowback from Afghanistan: first the Russian occupation which bequeathed a witches brew of militancy, weapons and drug proliferation and 3 million Afghan refugees; second the unintended consequences of the 2001 US intervention which pushed the conflict into Pakistan and further fuelled the forces of militancy.⁶⁶

Certainly, Pakistan does have legitimate reason for concern. The Russian engagement in Afghanistan led to militant and civilian refugees into Pakistan, which was followed by another such flow after the Taliban took control and started applying their brutal form of governance. More recently, after the ousting of the Taliban from power by the American-led coalition, the US and several of its allies turned their attention to an invasion of Iraq. This left little support for the fledgling government of Afghanistan to counter the growing Taliban insurgency in the south and east of the country. When the US and its allies finally noticed the growing insurgent threat, they moved forces into the South and began combat with the Taliban. Feeling the allied pressure, thousands of Taliban fighters and virtually their entire senior leadership took refuge at different times in the Federally Administered Tribal Areas (FATA), NWFP and Balochistan in Pakistan, which are predominantly Pashtu in make-up (Figure 2).⁶⁷ Here, the Taliban blend of Pashtun nationalism and extremist religious ideology caused militancy to spread in the region, which has become their home ground for training, force generation and resupply; it is unlikely the Taliban could survive without this refuge. This has placed a burden on the Pakistani military, which is forced to maintain large numbers of troops in the region in order to continually combat the militants. The army remains committed to fighting the

⁶⁶ Maleeha Lodhi, "Executive Summary of Dr Maleeha Lodhi's Testimony: The Impact of Afghanistan on Pakistan," <http://foreign.senate.gov/imo/media/doc/LodhiTestimony091001a1.pdf>; Internet; accessed 25 January 2011, 1.

⁶⁷ Johnson and Mason, *No Sign Until the Burst of Fire...*, 42.

militants although there are many in the Pakistani population who either support the Islamists against what they see as a US crusade or, on the other side of the coin, wonder when the US will repay them for their great sacrifices in supporting the American campaign against terror.⁶⁸ Either way, the ongoing border issues feed into Pakistani mistrust of US intentions vis-à-vis the future of Pakistani security.

⁶⁸ Grare, *Pakistan-Afghanistan Relations in the Post-9/11 Era*, 5; Iqbal, *An Appraisal of the Afghanistan-Pakistan Strategy...*, 17 – 18; Randall L. Koehlmoos, “Positive Perceptions in US-Pakistan Relationship,” *Parameters* 40, no. 2 (Summer 2010), 50 – 51.



Figure 2 – Regional Political Map

Source: Perry Castaneda Library, “Pakistan Political Map,”

http://www.lib.utexas.edu/maps/middle_east_and_asia/pakistan_pol_2002.pdf; Internet, accessed 28 January 2011.

Pakistan must also, from time-to-time, face uninvited cross-border bombing attacks on insurgent targets within its territory by American forces based in Afghanistan.

In 2010, more than 110 missiles struck Pakistani-territory, which was double the total

from the year before.⁶⁹ Pakistan suspicion of US goals is further fueled by incidents such as the one with US-citizen Raymond Davis, who was arrested by Pakistani authorities after shooting two men he claimed tried to rob him. It was later reported that he was the acting-head of Central Intelligence Agency efforts in Pakistan and involved in gathering intelligence inside that country in order to find targets for further drone attacks. This case “provoked a surge in anti-American hostility” in Pakistan, much as a similar incident, in reverse, would likely do in the US.⁷⁰ Overall, the missile attacks and espionage incidents are considered a direct violation of sovereignty by Pakistanis, further fueling disenchantment with their American ally and turning some support toward the Taliban and affiliated groups.⁷¹ Continued escalation of the conflict in Afghanistan will undoubtedly have further negative consequences for Pakistan, both physically and politically, where additional influxes of militants and refugees will increase tensions in already tenuous areas of the Pakistan border region. It will also erode the “fragile political consensus in Pakistan to fight militancy.”⁷²

From Pakistan’s point of view, it needs to support whoever is most likely to stem the spread of militancy within its border areas and bring a semblance of peace and stability. The question thus remains in the eyes of the Pakistanis; can the Karzai government bring the necessary stability or is it something the Taliban are better suited to

⁶⁹ Rasool Dawar, “U.S. strike kills 8 in Pakistan tribal area,” *Washington Post*, 28 January 2011.

⁷⁰ Rob Crilly, “Raymond Davis was acting head of CIA in Pakistan,” *Telegraph*, 22 February 2011, <http://www.telegraph.co.uk/news/worldnews/asia/pakistan/8340999/Raymond-Davis-was-acting-head-of-CIA-in-Pakistan.html>; Internet; accessed 25 March 2011.

⁷¹ Iqbal, *An Appraisal of the Afghanistan-Pakistan Strategy...*, 22; Koehlmoos, *Positive Perceptions in US-Pakistan Relationship*, 48.

⁷² Lodhi, *Executive Summary*, 3; see also Cameron, *Who is the Adversary*, 23.

do? It must be remembered that, when in power, the Taliban controlled Kabul, as well as 27 out of 32 provinces, which is essentially an unparalleled feat in Afghan history.⁷³ Or is there someone else altogether who can help Pakistan with its border stability issues? The answer will affect Pakistani actions toward Afghanistan and, thus, the Coalition's mission in that region.

Strategic Depth Against India

Finally, Afghanistan is a pawn in the ongoing tensions between Pakistan and India, which is undoubtedly the most important of Pakistan's three perspectives on Afghanistan. From its birth, Pakistan has faced a difficult Afghan neighbour to its west and, importantly, one it considers an enemy to its east – India. Since 1947, India and Pakistan have fought three wars against each other, nearly started four others, still face-off with large numbers of troops across their shared border and have participated in a nuclear arms race to counter the other.⁷⁴ They also compete through proxy in Afghanistan.

Until 1992, India always supported the ruling government in Kabul, hoping to use the Pashtunistan issue to hem in Pakistan on two sides. In 1992, when the Pakistan-backed Mujahedeen entered Kabul, India turned its support to whoever opposed Pakistan.

⁷³ Amir Ahmed Khuhro and Syed Noor Shah Bukhari, "Pakistan's Interests and its Recognition to Taliban Regime: An Analysis," *Interdisciplinary Journal of Contemporary Research in Business* 2, no. 4 (August 2010); <http://proquest.umi.com/pqdweb?did=2163980811&Fmt=3&clientId=1711&RQT=309&VName=PQD&cf=c=1>; Internet; accessed 28 January 2011, 148.

⁷⁴ Iqbal, *An Appraisal of the Afghanistan-Pakistan Strategy...*, 22.

Once the coalition arrived in Afghanistan, India opened consulates and participated in humanitarian work in Afghanistan, such as building roads and schools in an effort to ensure it maintained influence within the country. India is the fifth largest donor of reconstruction aid to the country.⁷⁵

These actions raise great concern for Pakistan, which sees itself being surrounded by India and its allies. This has heightened tensions, fueling a series of accusations and counter-accusations between Pakistan and India. Overall, the relationship between the two countries has deteriorated since 2003, compounded by attacks such as those in Mumbai in 2008, which were planned by terrorists originating from Pakistan.⁷⁶

Yearly military exercises further contribute to and signify the degree of tension between the two states. The Indian Army “Yodha Shakti” exercise, in early 2010, practiced joint army-air force integration and was conducted virtually at the same time as the Pakistani “Azm-e Nau.” The intent of the exercises was clear – to be prepared to defeat the other state’s military.⁷⁷ Thus, it is a spiral of accusations and tension, with both sides taking an increasingly harder stance and working to build military capabilities and develop allies in Afghanistan, in order to counter the influence of the other.

⁷⁵ Grare, *Pakistan-Afghanistan Relations in the Post-9/11 Era*, 11; Iqbal, *An Appraisal of the Afghanistan-Pakistan Strategy...*, 22 – 23; Evan A. Feigenbaum, “India’s Rise, America’s Interest,” *Foreign Affairs* 89, no. 2: 76-91; <http://proquest.umi.com/pqdlink?did=1976066211&sid=5&Fmt=3&clientId=1711&RQT=309&VName=PQD>; Internet; accessed 28 January 2011.

⁷⁶ Grare, *Pakistan-Afghanistan Relations in the Post-9/11 Era*, 12; Feigenbaum, *India’s Rise, America’s Interest*; Aljazeera, “Pakistan admits Mumbai attack link,” *Aljazeera*, 12 February 2009, <http://english.aljazeera.net/news/asia/2009/02/2009212134151817760.html>; Internet; accessed 25 March 2011.

⁷⁷ Saurabh Joshi, “India, Pak hold simultaneous war drills,” <http://www.stratpost.com/india-pak-hold-simultaneous-war-drills>; Internet; accessed 28 March 2011; Ajay Banerjee, “On display, Army’s swift-strike capability,” *The Tribune*, 9 May 2010, <http://www.tribuneindia.com/2010/20100510/main6.htm>; Internet; accessed 28 March 2011.

The ongoing conflict over Kashmir also indirectly affects the insurgency in Afghanistan. The Kashmir dispute consumes vast resources and troops along the Line of Control, with an estimated Pakistani force of regular and paramilitary troops of 150,000 – 200,000 and an Indian force of 200,000 – 250,000 regular troops.⁷⁸ Thus, Pakistan, with its already struggling economy, finds it difficult to gather enough troops to fight the growing militancy in its border regions with Afghanistan. Pakistan will arguably not have enough troops for its western border until sufficient trust grows between India and Pakistan allowing them both to draw down their forces in Kashmir. Pakistan can then redistribute them to the Afghan-Pakistan border.

Furthermore, one must consider how the ongoing US rapprochement with India feeds into Pakistan's view of the problem. As the US builds up its relationship with India, Pakistan sees itself being internationally marginalized, particularly given that the US has had an on-again, off-again relationship with Pakistan, using it when needed and then "discarding" it afterward. The drone attacks and espionage incidents in Pakistan by the US only further reinforce this lack of trust. Furthermore, India pushes the US to declare Pakistan a terrorist state and to seize its nuclear weapons:

Such a request only adds to Pakistan's fear of Indian-inspired agendas within US actions...These security concerns are based on the belief that Pakistan needs to continue to fight India for its existence...Countering India is Pakistan's basis for its nuclear deterrence, the need to secure its eastern border, and maintaining the defense budget as such a high priority...Pakistan believes the United States has the leverage to control India, and therefore by default, sees Indian efforts to destabilize Pakistan as condoned by America.⁷⁹

⁷⁸ Tom Wright, "Thinning the Lines on the Line of Control," *The Wall Street Journal*, 20 April 2010, <http://blogs.wsj.com/indiarealtime/2010/04/30/thinning-the-lines-on-the-line-of-control/>; Internet; accessed 28 January 2011.

⁷⁹ Koehlmoos, *Positive Perceptions in US-Pakistan Relationship*, 49.

Thus, Pakistani insecurity in its relationship with the US and the concomitant need to find an ally to buffer against India undoubtedly drives much of Pakistan's foreign policy in the region.⁸⁰ It needs to keep Indian influence out of Afghanistan and its shared Afghan-Pakistani border region so that it does not find itself surrounded by hostile forces; it needs Afghanistan as "strategic depth." Thus, as mentioned earlier, this means backing whatever party will both support it and bring stability, according to its mental model.

In the Pakistani view, Afghanistan is not only a bilateral problem but also a regional one and, given its relationship with the US, an international one. Pakistan, willingly or not, is drawn into the conflict and must leverage tribes to build its border-delineation case, combat Taliban and related militancy within its borders and use Afghanistan to counter its prime enemy. Importantly, this enemy, India, has its own view of Afghanistan.

India

India's mental model with respect to Afghanistan is influenced by its relationship with Pakistan, China and the US. Pakistan is the central of these, which India sees as a domestic threat and a bilateral rival. Domestically, India has suffered a string of terrorist hits within its border, the most recent and high profile being the 2008 attacks in Mumbai, which were planned and supported from the Pakistani-side of the border. Although not all attacks on Indian targets originate from Pakistan (it also has to deal with its own leftist

⁸⁰ Grare, *Pakistan-Afghanistan Relations in the Post-9/11 Era*, 8.

Naxalites), there seems to be enough evidence to give India serious cause for concern.⁸¹ This becomes particularly worrying to India when it sees Islamic extremism growing within Pakistan as well as reports that “Pakistan’s nuclear arsenal now totals more than 100 deployed weapons, a doubling of its stockpile over the last several years,” which edges it ahead of India in terms of number of nuclear weapons.⁸²

Further complicating Pakistani-Indian tensions is the support Pakistan receives from China:

Since the Sino-Indian border war of 1962, China has aligned itself with Pakistan and made heavy strategic and economic investments in that country to keep the common enemy, India, under strategic pressure. Interestingly, China's attempts to improve ties with India since the early 1990s have been accompanied by parallel efforts to bolster the Pakistani military's nuclear and conventional capabilities vis-a-vis India. It was the provision of a Chinese nuclear and missile shield to Pakistan during the late 1980s and 1990s that emboldened Islamabad to wage a "proxy war" in Kashmir without fear of Indian retaliation.⁸³

At present, China has a commitment to supply Pakistan with at least two nuclear-energy reactors and has major investments in Pakistan.⁸⁴ Thus, China increases and complicates the general Pakistani threat to India. Given the fact that China, with whom India has spotty relations, is also involved in diplomatic, humanitarian and investment projects in Afghanistan, it is only natural that India would feel compelled to take an active role in Afghan reconstruction, development and political influence to ensure it has positive

⁸¹ Feigenbaum, *India's Rise, America's Interest*.

⁸² Karen DeYoung, “Pakistan doubles its nuclear arsenal,” *Washington Post*, 31 January 2011.

⁸³ Mohan Malik, “The China factor in the India-Pakistan conflict,” *Parameters* 33, no. 1: 35-50; <http://proquest.umi.com/pqdlink?did=301391621&sid=12&Fmt=2&clientId=1711&RQT=309&VName=PQD>; Internet; accessed 29 January 2011, 36.

⁸⁴ DeYoung, *Pakistan doubles its nuclear arsenal*.

relations with at least one country in the region.⁸⁵ India needs Afghanistan to counter what it sees as its neighbours' threatening actions.

What then is the US role in this regional power play? It maintains relationships with all four countries, where each one hopes to use the US to counteract or at least balance a hostile neighbour. In the case of India, since the late-1990's, the US has developed a growing stake in Indian growth and reform, particularly as recent estimates suggest that the Indian economy will be in the top-five internationally by 2030. Between 2004 and 2008, trade between the two countries rose from \$30 billion to \$66 billion.⁸⁶ Thus, the US is playing a key role in supporting Indian growth. Their relationship is still constrained, however, particularly when it comes to differing views on Afghanistan, Pakistan and China. India needs the US to stay in Afghanistan to ensure its stability and that it does not sway dramatically towards Pakistan in relations. Thus, many Indians are concerned about President Obama's insistence on setting a withdrawal timeline. India is also concerned by what it sees as a recent US tilt towards Pakistan, through increased aid and military cooperation.⁸⁷ Finally, given China's close relationship with Pakistan, India remains suspicious of China:

And as U.S. officials are devoting increasing time and energy to cultivating the U.S.-Chinese relationship, Indians are asking whether Washington envisions a role for India in maintaining a balance of power in Asia, or whether the Obama administration views India as tangential to U.S. priorities there.⁸⁸

⁸⁵ Christopher Bodeen, "China Steps up Investment in Afghanistan," *The Huffington Post*, 24 March 2010, http://www.huffingtonpost.com/2010/03/24/china-steps-up-investment_n_511549.html; Internet, accessed 29 January 2011.

⁸⁶ Feigenbaum, *India's Rise, America's Interest*.

⁸⁷ *Ibid.*

⁸⁸ *Ibid.*

Therefore, the multitude of US relations in the region appears to increase rather than allay fears of the various states in relation to one another. For India, since it cannot intervene directly in either China or Pakistan, it must bring as much influence to bear as it can in Afghanistan. Once again, Afghanistan is a pawn in a greater regional and international game.

“More Than One Mental Model” – Conclusion

The previous discussion outlined three key mental models applying to the “Afghanistan problem.” However, there are many others that play a role in the conflict. Some mental models relate to parties such as religious leaders, who range from moderate supporters of western efforts in Afghanistan to radical Islamists who support the Taliban in their strictest measures. There are also warlords, political elites, and local businessmen who profit from the war perhaps more than they would from a state of peace, as well as criminals involved in the drug trade. Elements of each of these will be described in the criteria listed below. There are also the myriad of tribal views in Afghanistan where sub-tribes can take different sides in the conflict. For example, the Ishaqzai, from the Pashtun tribe, are more likely to support the Taliban and its goal of running the country, free from Western influence. On the other hand, Popalzai, also Pashtun, predominantly support the government and want to see it stay in power and continue to receive foreign aid. One must also consider Non-Governmental Organizations (NGOs), as well as the different

nations making up the Coalition Forces, such as the US.⁸⁹ There is also the role of an emerging China, Russian interests and opposition to the US, as well as the economic concerns of Iran and Middle Eastern countries who need access to the Arabian Ocean through the deep water port of Gawader in Balochistan, Pakistan, with transit through Afghanistan to reach it. Thus, when trying to understand the conflict, one must consider more than just Taliban motivation, if even that can be fully understood. Importantly, it is the interdependency between many of the players that makes the problem particularly intractable.

THERE IS COMPLEX INTERDEPENDENCY BETWEEN SUB-SYSTEMS

Although the previous section looks at some of the “parts” within the Afghanistan CAS, one cannot understand the totality of the problem just by examining the mental models. This is due to the dynamic interdependency between the components. In the case of Afghanistan, this can be seen through both the national and international nature of the illegal drug trade, as well as the role of Iran with respect to the conflict.

Heroin Networks

Heroin is a major income source in Afghanistan where production and transportation are facilitated through extensive national and international criminal

⁸⁹ Carl Forsberg, “Counterinsurgency in Kandahar: Evaluating the 2010 Hamkari Campaign,” http://www.understandingwar.org/files/Afghanistan%20Report%207_16Dec.pdf; Internet; accessed 7 January 2010, 9 – 11.

networks. Some estimates suggest that Afghanistan produces up to 90 percent of the world's heroin, both growing and processing the poppies. In 2006, it was estimated that Afghan farmers planted 165,000 hectares (637 square miles) of poppy. According to experts, this was one of the biggest narco-crops in history.⁹⁰

This illicit industry thrives not because government forces cannot stop it but rather because many support it, with senior politicians, police chiefs and judges implicated. Even President Karzai appears to have a role by blocking eradication efforts that negatively affect his key supporters in Southern Afghanistan, as well as ensuring weakness in prosecution mechanisms. For example, in 2007, he selected a convicted heroin dealer to head his anti-corruption commission and several personnel, known as corrupt, for police chief positions. There are also continuing reports that his brother, Ahmed Wali Karzai, the chair of the Kandahar Provincial Council, is involved with the drug trade.⁹¹

As mentioned previously, however, Taliban commanders also profit from heroin, requiring the money to maintain personal and fighter networks. This is collected as a percentage "tax" levied on opium farmers and a per-kilogram tariff on those who transport the loads. Furthermore, in recent years, they have begun to charge protection money to traffickers, as well as demanding supplies, such as vehicles. There are reports that even at the senior leadership level in Quetta, Pakistan, they receive regular payments

⁹⁰ Thomas Schweich, "Is Afghanistan a narco-state?" *New York Times – International Herald Tribune*, 24 July 2008, http://www.nytimes.com/2008/07/27/magazine/27AFGHAN-t.html?_r=1&ref=opium; Internet; accessed 8 January 2011. Thomas Schweich is a former US senior narcotics analyst and ambassador appointed to deal with counter-narcotics efforts in Afghanistan. In his article, he describes several unsuccessful efforts to eradicate poppies and the drug trade in Afghanistan.

⁹¹ *Ibid.*; Marten, *Warlordism in Comparative Perspective*.

from narcotics traffickers as a fee for operating in Taliban-controlled areas. It is estimated that the Taliban earn as much as \$300 million a year from the opium trade.⁹²

Thus, the drug trade provides critical funding to the insurgency but also supports those ostensibly fighting against it. Political, criminal, patronage and other interdependencies make rooting out this insurgency-enabler very difficult. This is only further reinforced by the US Department of Defense and some of its allies who see counternarcotics efforts as outside their purview, needing to be settled by someone else once war-fighting is over. Unfortunately, “the fighting is unlikely to end as long as the Taliban can finance themselves through drugs – and as long as the Kabul government is dependent on opium to sustain its own hold on power.”⁹³

Iran

Iran is also a case of complex, conflicting, interdependent relationships in Afghanistan. During the Soviet occupation, Iran created an "ideological sphere of influence" by empowering fellow Shi'ite Muslims in Afghanistan, its branch of Islam, to counteract Sunni-Muslim dominance, particularly the majority Sunni-Pashtun tribe. It also built a "political sphere of influence" by unifying Dari and Persian-speaking minorities, who ascended to power. Unfortunately for Iran, this contributed to the civil war of the 1990s and the subsequent rise to power of the Pashtun-dominated Taliban.

⁹² United States (US), House of Representatives, “Warlord, Inc.: Extortion and Corruption Along the U.S. Supply Chain in Afghanistan,” <http://www.whs.mil/library/Warlord.pdf>; Internet; accessed 14 December 2010, 39.

⁹³ Schweich, *Is Afghanistan a narco-state?*

Iran vehemently opposed the former Taliban regime, considering them “narco-terrorists” and disagreeing with the way they combined elements of Islam and Pashtunwali to build their own version of Islam, which Iran considered un-Islamic and repressive. The brutality of the Taliban regime also led to massive refugee flows into Western Iran, causing humanitarian and security problems for Iran that are still very prominent today.⁹⁴

More recently, Iran has worked to create an “economic sphere of influence,” endeavouring to become a “hub for the transit of goods and services between the Persian Gulf and Afghanistan, Central Asia, India, and China.”⁹⁵ It has done this through its traditional support of Shi’ite-Muslims in Herat, the Afghan province that borders Iran. Iran’s work in Herat has helped to stabilize the area, suppressing the growth of a Taliban presence.⁹⁶ Iran also supports non-Pashtun tribes, such as the Uzbeks, Tajiks and Hazaras and groups, such as the Northern Alliance. These tribes and groups are all in direct competition with President Karzai and his Pashtun majority, as well as generally opposed to the Taliban; these actions are all in keeping with traditional Iranian links to Afghanistan.

On the other hand, Iran also directly supports the Karzai government, welcoming President Karzai with open arms in Tehran, as well as providing him with money (reported to be just under \$2 million per year). This money is likely meant to ensure an

⁹⁴ Mohsen Milani, “Iran and Afghanistan,” *United States Institute of Peace*, <http://iranprimer.usip.org/resource/iran-and-afghanistan>; Internet; accessed 08 January 2011; Mohsen M. Milani, “Iran’s Policy Towards Afghanistan,” *Middle East Journal* 60, no. 2 (Spring 2006): 235-256; <http://www.jstor.org/stable/4330248>; Internet; accessed 8 January 2011, 235, 243, 249 – 253.

⁹⁵ Milani, *Iran’s Policy Towards Afghanistan*, 235.

⁹⁶ Mohsen M. Milani, “Tehran’s Take,” *Foreign Affairs* 88, no. 4 (July 1, 2009); <http://proquest.umi.com/pqdlink?did=1768605571&sid=6&Fmt=3&clientId=1711&RQT=309&VName=PQD>; Internet; accessed 29 January 2011.

Iranian-friendly government in Kabul, even a Pashtun-dominated one, in order to counter US influence.⁹⁷ Yet, there are also reports that Iran provides its former enemy, the Taliban, with weapons, through its Iranian Revolutionary Guard Corps and that it has been releasing Al Qaeda terrorists from its prisons so that they can join the fight in Afghanistan and Pakistan.⁹⁸ Thus, Iran appears to be hedging its bets on all fronts, with respect to Afghanistan, supporting opposing tribal and ideological groups at the same time. From the American and allied points of view, this makes it difficult to determine if Iran contributes to stability or instability in Afghanistan and to understand the effect it has on the overall system. There are clearly complex interdependencies at work in the Afghan conflict. In particular, as individuals and groups share information and influence each other, the problem becomes even more dynamic and difficult to untangle.

CAS HAVE FEEDBACK MECHANISMS

Interactions within a CAS lead to emergent behaviours as parties learn from each other and adapt to survive. Those who do not adapt eventually are eliminated from the system. Thus, the element of feedback, deliberate or unconscious, further increases the non-linearity of a situation. With respect to the “Afghan problem,” both the Taliban and certain powerbrokers exemplify this ability to adapt to their changing environment.

⁹⁷ Dean Nelson, “Hamid Karzai admits office received ‘bags of money’ from Iran,” *The Telegraph*, 25 October 2010, <http://www.telegraph.co.uk/news/worldnews/asia/afghanistan/8085808/Hamid-Karzai-admits-office-received-bags-of-money-from-Iran.html>; Internet; accessed 29 January 2011.

⁹⁸ Myra MacDonald, “Iran’s role in Afghanistan,” *Reuters*, 27 March 2010, <http://blogs.reuters.com/pakistan/2010/03/27/irans-role-in-afghanistan/>; Internet; accessed 08 January 2011; Barney Henderson, “Iranian soldier captured in Afghanistan,” *The Telegraph*, 24 December 2010; Milani, *Iran and Afghanistan*.

Taliban

Although a dispersed organization, built around decentralized control, the Taliban have a strong feedback mechanism, which quickly leads to evolution in their tactics, particularly when countering Coalition Force targeting efforts. They continually find ways to ensure their own force protection, whether through organizational changes or new measures to protect information flows, making them harder to track. For example, in 2006, they fought against Canadian and allied forces in the district of Panjwayi, to the West of Kandahar City, through primarily traditional force-on-force warfare. Dubbed *Operation Medusa* by the allies, the Taliban lost a significant number of fighters, far more than did the Coalition.⁹⁹ Since that time, the Taliban have increasingly moved away from conventional tactics to asymmetrical ones, such as Improved Explosive Devices (IEDs), the primary killer of Coalition Forces in Afghanistan. IEDs enable them to kill Coalition Forces, sometimes in multiple numbers, at the same time as allowing their personnel stand-off safety, through the use of either remotely-detonated or unmanned IEDs. They also challenge Coalition Force protection measures by continually adapting how they hide the IEDs, as well as how they design and build them, which hinders detection methods.¹⁰⁰

⁹⁹ Duty and Valour, "Operation Medusa," http://cdnmilitary.wikia.com/wiki/Operation_MEDUSA; Internet; accessed 29 January 2011.

¹⁰⁰ Author's personal experiences as Senior Analyst for the Afghan team in Chief of Defence Intelligence, August 2008 – March 2009; US, House of Representatives, *Warlord, Inc.*, 14 – 15. David Kilcullen also discusses this evolutionary process for insurgents in Kilcullen, *Countering Global Insurgency*, 611, 615.

The Taliban have also adapted their strategic approach to the insurgency over the years. One of the critical enablers in any insurgency is the support, or at least acquiescence, of the local populace. The Taliban were never a popular regime amongst Afghans, due to their brutal methods. Yet they have found a critical niche to fill, which gives them credibility amongst the people. The Afghan legitimate justice system is virtually non-existent in most parts of the country. Therefore, the Taliban provide travelling “courts,” to which people bring their grievances and receive what most Afghan civilians consider fair and swift justice. While it certainly does not meet western standards, it is considered quite lawful by Afghans, who would otherwise likely never get resolution on issues ranging from crimes to property disputes. Thus, for very little cost in terms of money and personnel resources, the Taliban are increasingly building themselves a legitimate role in the eyes of the average Afghan. Even if Afghans disagree with the Taliban regime as a whole, they are becoming indispensable to the everyday lives of Afghans.¹⁰¹

Predicting future Taliban actions has proven to be particularly difficult, whether in the areas of combat or governance. Just when the Coalition seems to gain a level of advantage over them, the Taliban find a new way to skirt around the measures. They are extraordinarily intelligent and adaptive, as are many of their fellow Afghans, who have chosen to find other ways to obtain power in Afghanistan, such as through warlordism.

¹⁰¹ Author’s personal experiences, August 2008 – March 2009.

Warlords

Afghan “warlords” have also proved adept at adjusting to systemic feedback, which is particularly exemplified by the growth and role of private security companies. A “warlord” can be determined through four criteria; first, they have trained, armed men working for them, which they use to:

take advantage of the disintegration of central authority to seize control over relatively small slices of territory. Second, their actions are based on self-interest, not ideology. Third, their authority is based on charisma and patronage ties to their followers. Fourth, this personalistic rule leads to the fragmentation of political and economic arrangements across the country, disrupting the free flow of trade and making commerce and investment unpredictable.¹⁰²

At present, 80 percent of US military supplies, as well as many Coalition provisions, are transported via land, almost solely by Afghan trucking companies, which require protection by private security companies. These security contracts are lucrative and men, such as Commander Ruhullah, have used this war as a profiteering opportunity to build a personal empire for themselves.¹⁰³

Before September 11, 2001, Commander Ruhullah was relatively unknown in Afghanistan. Today, he is the single largest security provider for the U.S. supply chain in Afghanistan...[He] dominates the private security business along Highway 1, the main transportation artery between Kabul and Kandahar.¹⁰⁴

¹⁰² Kimberly Marten, “Warlordism in Comparative Perspective,” *International Security* 31, no. 3 (Winter 2006/7), 44 – 45: <http://ejournals.ebsco.com/Article.asp?ContributionID=10800780>; Internet; accessed 20 December 2010, 48.

¹⁰³ Like many Afghans, Ruhullah appears to use only one name. US, House of Representatives, *Warlord, Inc.*, 6, 9, 17.

¹⁰⁴ *Ibid.*, 17 – 18.

Ruhullah is only one of a number of “emergent” and powerful warlords. Abdul Razziq controls the busiest border crossing from Pakistan into Afghanistan (Spin Boldak), charging his own personal “import taxes” and using control of the crossing to smuggle drugs and other illegal products and is estimated to be earning millions through his illegitimate businesses. Although illiterate and only in his early 30s, Razziq has managed to secure the government position of Chief of Staff, Afghan Border Police for this region, giving him legal hold over the crossing. As part of this hold, he commands 3500 border police and has used fellow Achekzai tribal contacts to build an Achekzai empire, successfully marginalizing the competing Noorzai tribe, which appears to push the Noorzai towards the Taliban. Even though he is known to be corrupt, amazingly, he has been repeatedly embraced by the Coalition for the supposed degree of stability he brings to that region. On top of these newly minted powerbrokers, there are also pre-9/11 warlords who ostensibly disarmed and demobilized their militias under a government-sponsored program but have managed to reconstitute them by becoming private security companies for the Coalition.¹⁰⁵

The US government has recognized the threat to their mission posed by these warlords; “At the behest of Congress, the Department of Defense has promulgated extensive regulations intended to improve oversight and accountability of private security contractors.”¹⁰⁶ Unfortunately, on the ground in

¹⁰⁵ *Ibid.*, 18 – 20, 23 – 26. Kimberly Marten also discusses the role of warlords in Afghanistan as being counter to government growth and stability. Marten, *Warlordism in Comparative Perspective*, 41 – 73.

¹⁰⁶ US, House of Representatives, *Warlord, Inc.*, 18.

Afghanistan, these measures seem to be having little effect. For example, Ruhullah claims never to have heard of the regulations and that they do not apply to him. Private security companies working for the US are not supposed to use weapons more high-powered than AK-47s, yet many of them carry heavy machine guns and RPGs.¹⁰⁷

Importantly, these security company contracts were initially simply a means of income for men such as Rohullah but, through maneuvering, many of them have built legitimacy and influence in Afghanistan, eliminated rivals and created a personal militia. As the Afghan government and Coalition Forces discuss ways to eliminate or control these “security firms,” these warlords are conducting political maneuvering in Kabul to protect and further legitimize their companies.

Both the Taliban and the Afghan warlords constitute highly adaptive groups, using politics, legal position, money, violence, coercion and traditional patronage networks to increasingly solidify their positions in Afghan society. When one puts up road blocks to stop them in one area, they find another direction in which to pursue their interests. Importantly, their ability to change with the situation leads to unpredictable results, with which the Coalition Forces must grapple.

¹⁰⁷ *Ibid.*, 18.

OUTCOMES ARE UNPREDICTABLE

Building on previous examples, the non-linearity and thus instability of the situation can be shown. For example, to deplete critical insurgent funding, the heroin trade must be greatly reduced. However, such efforts would also affect Karzai supporters and thus potentially his hold on the government in Kabul. Loss of power for Karzai and associates might then enable a larger number of non-Pashtu to take control, which would cause increased disgruntlement and unrest in the Pashtun-dominated South. Some Pashtu already feel marginalized and are discontented with the loss of any seat of power in Kabul to another tribe. This unrest could then lead to a civil war for a sovereign “Pashtunistan,” which would inevitably spill over into Pakistan to include fellow Pakistani-Pashtu.¹⁰⁸ This could, in turn, threaten the stability of both Pakistan and Afghanistan.

On the other hand, one might still experience civil unrest even if this counter-narcotics fight did not lead to a movement for an independent “Pashtunistan.” The powerful southern Pashtun warlords might instead choose to fight the northern tribes they see as wresting their power away from them. This could then pull in Pakistan, which would most likely support the Pashtu, as well as Iran, which would be more inclined to align with the northern tribes. Both of these countries could supply weapons, increasing the magnitude of the conflict. India would also be unlikely to merely sit by and watch, instead choosing to support anti-Pakistani parties to the conflict. Thus, putting pressure

¹⁰⁸ Cameron, *Who is the Adversary*, 23.

on one point in this CAS could lead to outcomes well beyond intended consequences: a hallmark of non-linearity.

CAS ARE SELF-ORGANIZING

As mentioned in the previous chapter, control in a CAS is highly dispersed with no central direction. Yet the system is still inherently self-organizing. Behaviour is based on competition and/or coordination, with order being emergent rather than predetermined. For example, when the US and allies removed the Taliban from power in 2001, they were unable to immediately replace them with a functioning government, which created a power vacuum in Afghanistan. Following this criterion of CAS, actors, such as pre-existing warlords and the new powerbrokers, went to work building and strengthening allegiance networks. This was done either in cooperation or competition, with the weaker players being removed from the game.¹⁰⁹

Remnants of the Taliban also retrenched themselves, first in their traditional southern homeland provinces and then working their way back out through Pashtun pockets in other parts of the country.¹¹⁰ When the Coalition removes a Taliban player from this system, such as senior commander Mullah Dadullah Lang in May 2007, there is a period of disarray in the sub-system before he is replaced by appointment or infighting. For someone of Dadullah Lang's stature, it may take months to find an adequate

¹⁰⁹ Author's personal experiences, August 2008 – March 2009.

¹¹⁰ *Ibid.*

substitute, whereas less time is needed for lower level personnel.¹¹¹ Regardless, he is eventually replaced through Taliban self-organization.

As shown previously, regional players, such as Iran, Pakistan and India also intervene, playing different roles depending upon their needs of the moment. Thus, there is no central agent that can be removed in order to “solve the problem.” Rather, there is a series of individuals and sub-systems that coordinate and/or vie for resources and political predominance. Removing or supporting any particular one will have a ripple effect throughout the system and, as shown, under the last criterion of “unpredictability,” the result may be well outside intended consequences.

CONCLUSION

The present war in Afghanistan is clearly a CAS, characterized by multiple mental models, complex interdependency, feedback mechanisms, unpredictability and self-organization, where many key parties to the conflict do not even live within Afghan borders. The following diagram shows the relationship between some of these state actors:

¹¹¹ *Ibid.*; International Security Assistance Force, “Mullah Dadullah Lang killed in security operation,” <http://www.nato.int/isaf/docu/pressreleases/2007/05-may/pr070513-370.html>; Internet; accessed 10 January 2011.

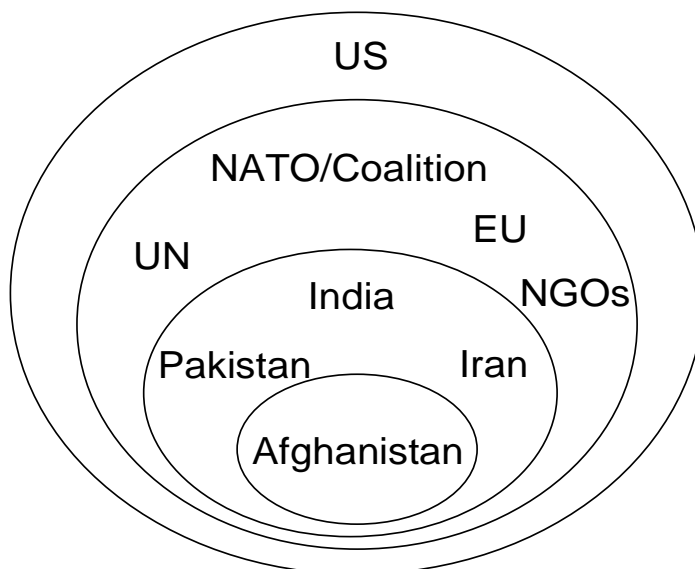


Figure 3: Inter-State Influences on Afghanistan

Settling this conflict has a very strong regional as well as global dimension, where stabilization efforts must be directed from the village to international level and include a military, economic, security sector and diplomatic component. The US, in particular, and its allies must also remain cognizant of the fact that they are an integral part of the Afghanistan CAS and its wicked problems, both affecting and being affected by them. Their dynamic role is something of which they do not always seem aware, as shown by the private security company example. Until they include themselves in their analysis of the situation, they will miss key factors influencing the conflict. Particularly from the perspective of intervention, as shown with wicked problems, the initial step of labeling or defining the locus of the problem creates boundaries on what can later be done to deal with the issues. For example, if the Taliban are defined as the prime concern in Afghanistan, the most obvious approach (and the one chosen as the main Coalition tool) is the removal of this enemy through lethal and non-lethal targeting. However, if one, instead, believes the conflict is caused by the lack of a stable, democratic government in

Afghanistan, then the approach swings away from attrition of the Taliban toward governance building. On the other hand, if the weak economy in Afghanistan is identified as driving people toward the insurgents for lack of other viable options, then economic development would lead the Coalition efforts in Afghanistan. These three “courses of action” call for different resources and force structures, in particular, the balance between civil and military personnel. Importantly, even they miss out on the regional dynamics influencing the situation, such as the Pakistani-US-Indian triad of relationships. Thus, definition of the problem is the first critical step to choosing an appropriate way forward. In this regard, the Coalition seems to have a spotty record.

Operation Enduring Freedom, the original US and allied response into Afghanistan after 9/11 appears to have been initially correct in its assessment as it was very successful in routing the Taliban from power and crippling the Al Qaeda (AQ) network in that country:

[This] initial phase of war was appropriately conventional. Attrition warfare, capitalizing on superior firepower, was used against an enemy that presented a lucrative array of targets.¹¹²

Given the conventional disposition of the Taliban and AQ, the method worked well. However, once the Taliban disappeared, following the principle of the “one-shot operation,” so did the conventional fight as elements of the CAS adapted themselves. Unfortunately:

[a]fter being confronted with a drastically altered operational setting, the orientation of the U.S. military did not change. In fact, as the war became increasingly unconventional, the U.S. response became more conventional. The command arrangements evolved into a large and

¹¹² Hy S. Rothstein, *Afghanistan and the Troubled Future of Unconventional Warfare* (Annapolis, MD: Naval Institute Press, 2006), xiii.

complex structure that could not (or would not) respond to the new unconventional setting.¹¹³

Thus, once the first battle was won, there seems to have been no proper reexamination and redefinition of the problem at hand, which is counter to the flexibility needed to work within a CAS. Even if the Taliban today are still an impediment to stability in Afghanistan, using traditional military force as the centre piece of the counter-insurgency campaign has proven to be fallacious as the insurgency has spread, rather than contracted. Therefore, the Coalition needs to reconsider what it is facing; otherwise, it will fail to accomplish its mission. As Rittel and Webber point out:

one of the most intractable problems is that of defining problems (of knowing what distinguishes an observed condition from a desired condition) and of locating problems (finding where in the complex causal networks the trouble really lies).¹¹⁴

Given the importance of Islam to Afghan culture, as well as Pashtunwali to its largest tribe, which straddles the Pakistani-Afghan border, perhaps commanders and politicians need to ponder the role *religion* and *ideology* play in the conflict. Conventional warfare tactics, with their emphasis on kinetic strikes through superior firepower, can have the opposite of the intended effect by handing the Taliban a moral victory when the wrong target is hit, there is an unacceptable level of collateral damage in the eyes of Afghans, or attacks into Pakistan are seen as violations of sovereignty. This then shifts support from the Coalition states to the Taliban, with the Pashtu tenet of revenge further degrading the Coalition position. On the other hand, the Taliban often play on Coalition mistakes, labeling their opponent as *infidels* and invaders, using both

¹¹³ *Ibid.*, xiv.

¹¹⁴ Rittel and Webber, *Dilemmas in a General Theory of Planning*, 159.

religion and culture as an effective propaganda tool. Unfortunately, it becomes obvious that religion is not considered to be a key factor in the conflict by at least some member of the Coalition, given the fact that Canada, operating in the key southern province of Kandahar, has merely two imams in the Canadian Forces, who are able to serve in Afghanistan only intermittently.¹¹⁵ Discounting such non-military aspects seems dangerous indeed for the overall mission.

This mischaracterization of the conflict is due to more than just misidentification of key insurgency enablers. There are also organizational and attitudinal impediments preventing the US and allies from adequately understanding the fight at hand. First of all, when planning for a mission, military commanders must often take the tools they have and apply them to the problem rather than determining a priori what is needed and building the force package from the requirement. While they have some leeway to build a proper force, they are constrained by budgetary, time and personnel restraints placed on them by their home governments (i.e. an aspect of the wicked problem “good enough” rule). Commanders can make some changes within their overall structures, such as transferring resources from conventional to unconventional forces (e.g. to Special Operations Forces) but there is a limit to what they can do and the transition is a slow one, due to recruiting, training and budgetary controls, as well as a myriad of vested interests. Furthermore, “all good commanders seek to get into the battle whether or not they lead the best-suited force” and it is difficult to tell one’s political masters that there are not enough forces when several units sit idle in garrison, even if they are the wrong

¹¹⁵ Captain Suleyman Demiray, email to author, 01 March 2011.

ones for the job.¹¹⁶ Finally, post-Cold War, many western militaries struggled to find a new niche for their services and to prove their relevance; joining a “fight” became a matter of life and death with respect to funding and other resources. These organizational challenges, therefore, drive the building of force packages and, subsequently, courses of action open to commanders.

The second impediment to properly understanding the CAS at hand involves western attitudes towards the conflict. Counter-insurgencies can be protracted and success is difficult to measure. For both civilian and military leaders, as well as the populace who provide critical support for overseas efforts:

it means a shift in expectations. For the most part, [unconventional warfare] is devoid of clean solutions and clear victories. Nor is it usually rapid. This means a willingness to accept lengthy commitments and incremental progress. None of these adjustments will be easy. But all of them are necessary and important if the United States is to thrive in the complex and dangerous environment of the twenty-first century.¹¹⁷

Given western militaries’ traditional and continuing emphasis on speed, violence and measurable effects in war, there is now a challenge in developing the attitudes necessary to deal with a non-linear and wicked problem, which often requires slow and incremental efforts at change over prolonged periods. However, until these mind-sets do change, the US and its allies will continue to fight the wrong war. Critically, given the present organizational and attitudinal impediments, they have closed the door on valid avenues for action and have, instead, chosen some that are proving to be counterproductive. The Coalition partners must ensure they clearly understand the complex problem they face, particularly as it adjusts, if they wish to make significant progress. Importantly, any

¹¹⁶ Rothstein, *Afghanistan and the Troubled Future...*, 168.

¹¹⁷ *Ibid.*, 178.

analysis *must* include the integral role that they themselves play in the overall system rather than holding onto the linear, naïve belief that they are neutral and can take an objective approach to the problem. When it comes to dealing with a CAS and its inherent wicked problems, these are not simple matters, as the above sections have shown. Therefore, a form of non-linear thinking must be used to match the non-linear conflict being faced. Soft Systems Methodology is one such tool that can be used to better appreciate the intricacy of a CAS.

CHAPTER THREE

SOFT SYSTEMS METHODOLOGY: SENSE-MAKING FOR THE WAR PROBLEM

The purpose of theory in our world is to expand the range of personal experience, which is the best aid to judgment in war; it is meant to educate the mind of the future commander, or more accurately, to guide him in his self education.¹¹⁸

INTRODUCTION

Just as a problem can be considered linear or non-linear, depending upon the criteria which it meets, systems thinking can be broken down into “hard” and “soft.” Hard systems thinkers see problems as meeting the criteria of linear systems, meaning that a definitive solution is achievable. This mode of thinking is based on engineering concepts of design to meet a specific end-state. Soft systems thinkers, on the other hand, see the world as something being continually constructed and reconstructed by human beings (i.e. non-linear), where “the *process of inquiry* into it can be organized into a system.”¹¹⁹ Thus, the key difference between the two is that hard systems thinkers see the *problem space* as a system, whereas soft systems thinkers see the *process of inquiry* as the system – there is a shift away from a world system to a system of inquiry.¹²⁰

Figure 4 shows this graphically:

¹¹⁸ Beyerchen, *Clausewitz, Nonlinearity and the Unpredictability of War*, 87.

¹¹⁹ Checkland, *International Encyclopedia of Business and Management*, 6305; Bentley and Davy, *The Paradoxical Trinity*, 39.

¹²⁰ Peter Checkland, *Systems Thinking, Systems Practice* (West Sussex, UK: John Wiley and Sons, 1999), A10.

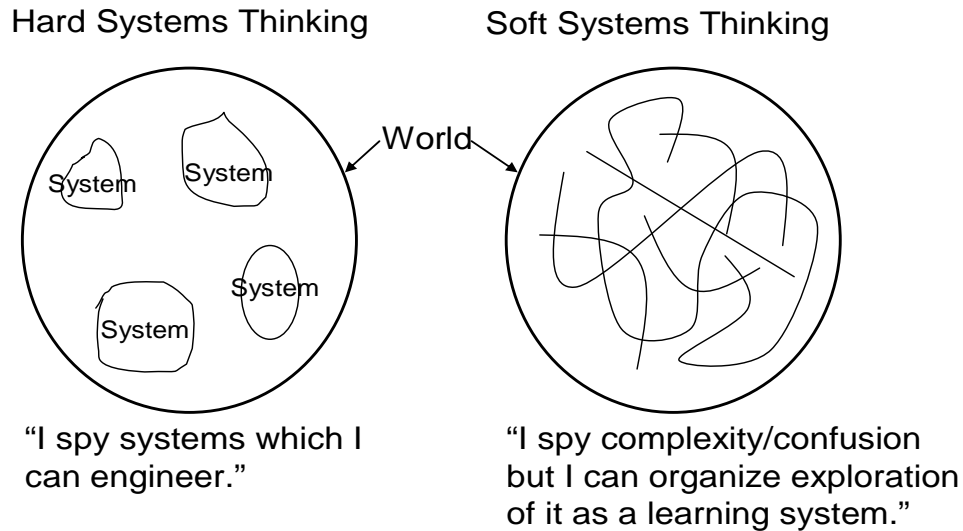


Figure 4 – Hard Versus Soft Systems Thinking View of the World
 Based on: Peter Checkland, *Systems Thinking, Systems Practice* (West Sussex, UK: John Wiley and Sons, 1999), A11.

If the Afghan conflict is a CAS characterized by wicked problems, hard systems thinking, by its very linear nature, cannot help one sufficiently understand this problem. A different approach to sense-making, therefore, must be considered. “Soft Systems Methodology” (SSM) is one such technique that can be used to approach a CAS. SSM is a learning system or a system of inquiry that:

[m]akes use of models of purposeful human activity, each based on a particular, declared, world view (since purposeful activity seen as ‘freedom fighting’ by one observer may be interpreted as ‘terrorism’ by another). These models are used as devices to explore problematical situations. Comparing models with the perceived real world structures a debate about change, a debate which tries to find accommodations between conflicting interests.¹²¹

The key lies in understanding the mental models at play in the situation to frame properly the problem. This framing, in turn, will suggest potential courses of action to move the

¹²¹ Checkland, *International Encyclopedia of Business and Management*, 6305.

situation toward a more desirable model of the world. In military parlance, this problem structuring is known as “operational design:”

Operational design is a bridge between the strategic end state and the execution of tactical tasks. The elements of operational design help operational commanders clarify and refine their concept of operations by providing a framework to describe operations.¹²²

The key here is that the operational *design* must come first in order to inform *planning*, which then leads to *execution* and implies moving from a broad conceptual basis to a specific concrete one:

By way of a metaphor, design is the thematic sketches of an architect based on conversations with the client and an appreciation of the surrounding environment within which a building will exist. Planning is the blueprints of the engineer, based on the architect’s design, from which the building will actually be constructed [i.e. execution].¹²³

The CF presently uses the “Operational Planning Process” (OPP) to drive both the design and planning phases of an operation.¹²⁴ While OPP and its US counterpart, the Military Decision-Making Process, provide solid step-by-step frameworks for producing plans, they are too linear when it comes to the initial design phase, representing “an Industrial Age way of thinking.”¹²⁵ Furthermore, complexity theorists, such as Henry Mintzberg, argue that formal planning mechanisms (e.g. OPP) can actually discourage the type of thinking required to deal with a CAS – “a state of openness and easy flexibility that

¹²² United States, Department of the Army, “FM 3-0 Operations,” February 2008, <http://www.fas.org/irp/doddir/army/fm3-0.pdf>; Internet; accessed 11 March 2011, 6-1.

¹²³ Schmitt, *A Systemic Concept for Operational Design*, 6.

¹²⁴ Canada, Canadian Forces, B-GL-005-500/FP-000 *Joint Doctrine Manual: CF Operational Planning Process* (Ottawa: National Defence, 2008), 1-11.

¹²⁵ Bentley and Davy, *The Paradoxical Trinity*, 31.

encourages people to step back from operating reality and question accepted beliefs.”¹²⁶ Instead, they keep planners and analysts mired in detail, following a linear path through the problem space rather than presenting an overall holistic view of the situation prior to stepping down into the construction of specific plans:

Design and planning are both necessary for dealing with complex operational situations, but while planning activities are well represented in both [military] doctrine and practice, design is largely absent. When design occurs today, it usually occurs implicitly within the mind of an individual, and not as an explicit group activity leveraging the intelligence of the group.¹²⁷

Thus, it is necessary to have a separate methodology from OPP in order to conduct this critical design phase. SSM, with its conceptual models of purposeful human activity based on worldviews, is one such tool that can be used. The relationship between SSM (design), OPP (planning) and execution is shown in Figure Five below:

¹²⁶ Henry Mintzberg, *The Rise and Fall of Strategic Planning* (New York, NY: The Free Press, 1994): 144, quoted in Bentley and Davy, *The Paradoxical Trinity*, 31.

¹²⁷ Schmitt, *A Systemic Concept for Operational Design*, 8.

Operational Design, Planning, and Execution

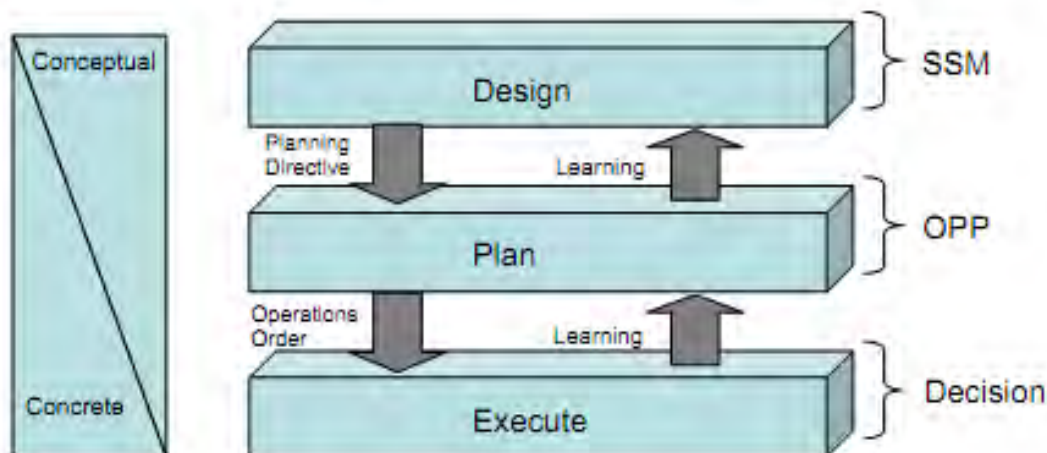


Figure 5 – Relationship between Operational Design, Planning and Execution
 Source: Lorne W. Bentley and Scott M. Davy, *The Paradoxical Trinity* (Kingston, ON: Canadian Forces Leadership Institute, 2009), 33.

It should be noted that although there is only a single set of arrows pointing up to indicate learning, the connections are not this linear. Even as the plan is being written or the operation is being executed, the design can be updated as more information is uncovered, which in turn will affect planning and execution. It must be an iterative, dynamic process. The key point behind this diagram lies in the separation of the methodologies employed in the design and planning stages. When working within a CAS, SSM should be used as the design/framing tool and OPP for planning.

The following sections will outline the basic tenets of SSM and illustrate their utility as an approach to sense-making with regard to the Afghan conflict. It will begin by showing how one frames elements of the problem using SSM and then move on to an explanation of modeling sub-systems. After this, the discussion will turn to the use of these models to structure debate, and finally, defining and taking action. Throughout

these sections, the previously described issue of heroin and its role in supporting the Taliban funding and logistics network will be used to illustrate the points covered.

APPROACHING THE AFGHAN CONFLICT THROUGH SSM

SSM is comprised of four basic activities: framing the problem, modeling, using the models to structure debate, and defining/taking action. Each of these elements, as well as their sub-activities, will be outlined below:

Framing the Problem – “Finding Out”

This activity initiates the SSM process and contains four steps to help determine factors underlying the problem. These steps include: Building a “rich picture,” Analysis One (Clarifying the Intervention), Analysis Two (Social), and Analysis Three (Political), as described below.

Rich Picture

One first builds a visual representation, known as a “rich picture,” to capture the main players, structures, and viewpoints from the situation. While a similar product could be composed with prose, as the saying goes; a picture is worth a thousand words. This image is meant to encourage holistic rather than reductionist thinking through visual

representation and cognitive stimulation.¹²⁸ The following figure shows a rich picture, which begins to illustrate the illegal heroin network in Afghanistan and its links through to the international arena. The phrase(s) in quotation next to an actor give a synopsis of his/her point(s) of view:

¹²⁸ John Poulter and Peter Checkland, *Learning for Action: A Short Definitive Account of Soft Systems Methodology and its use for Practitioners, Teachers and Students* (West Sussex, UK: John Wiley and Sons, 2006), 24 – 27; Checkland, *Systems Thinking, Systems Practice*, A16.

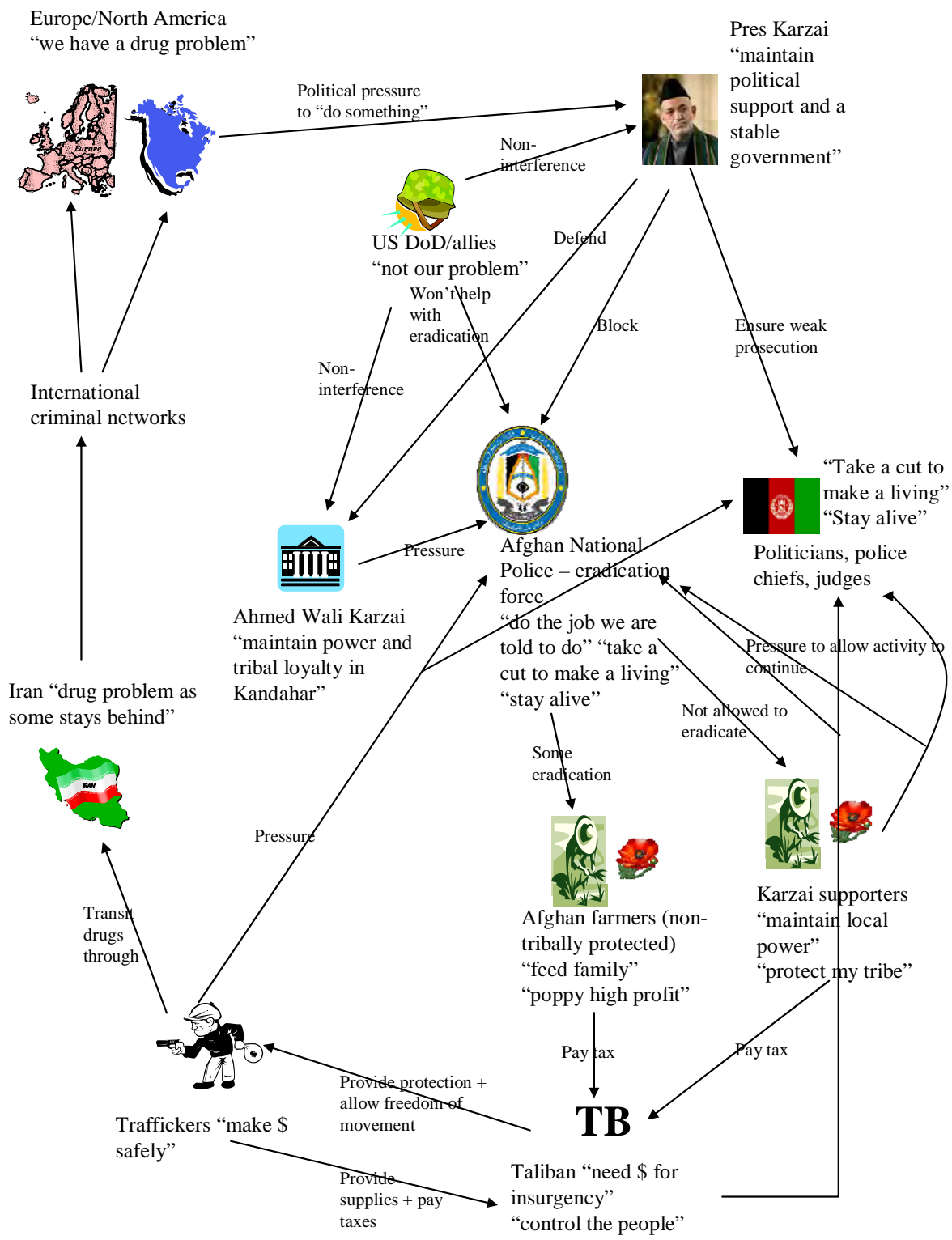
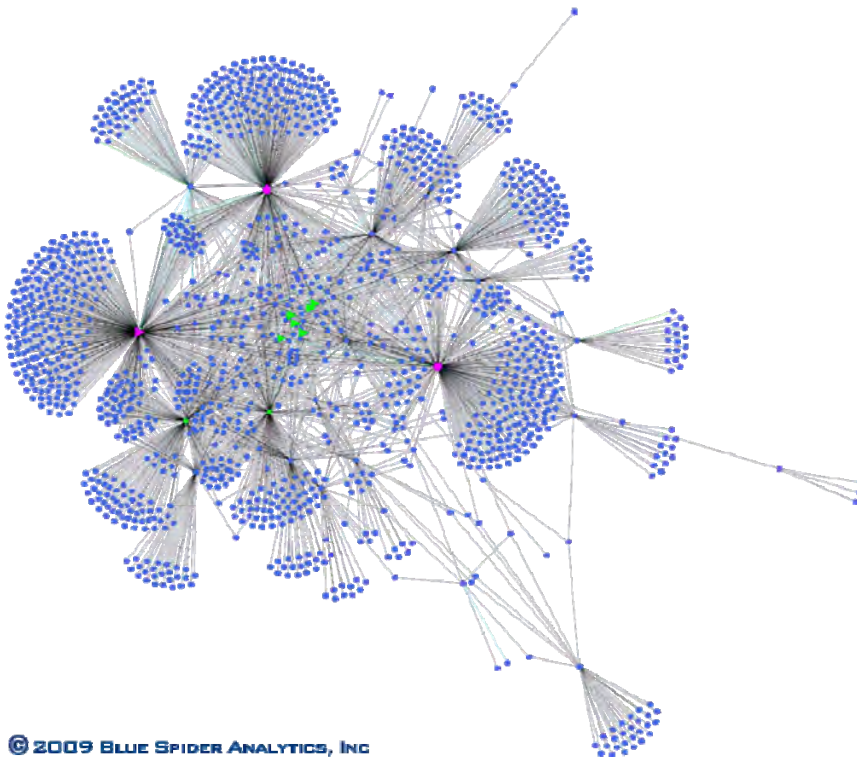
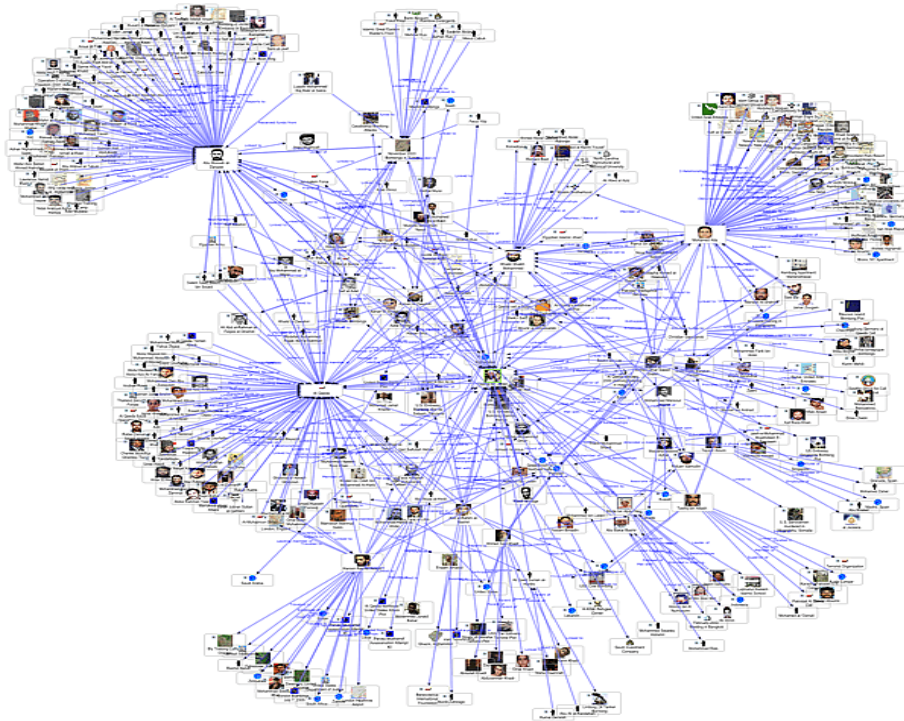


Figure 6 – Heroin Network Rich Picture

This rich picture illustrates some of the complex interdependencies and feedback mechanisms that constitute the drug issues with respect to Afghanistan. It is only the beginning and could easily grow as more information is gathered to take into account, for example, views of Taliban sub-groups, varying coalition perspectives, as well as different elements within Iranian society. Importantly, its utility is in providing a starting place for discussion rather than a definitive portrait.

Pictorial illustrations of relationships are not new to military analysts. Link analysis charts are often used to make sense of vast streams of data although they are normally aimed at individuals within a particular network such as criminals or Taliban and are used as a tool to inform targeting. They can be extremely complicated, utilizing software to create and analyze output. A rich picture differs in that one is not looking for critical nodes to attack but, rather, trying to understand, in a broader sense, the complexity of relationships, as well as key stakeholders, viewpoints and motivations. Thus, they are a way of capturing impressions and insights rather than detailed social networks. Traditional military or police link analysis charts, such as the ones below, are not necessary in SSM and will actually detract from the ability to have a holistic discussion. If greater detail is required on a specific actor, then a separate rich picture should be made for it. Network analysis, as below, may, however, become necessary at a later time when specific measures, such as kinetic targeting, must occur but this follows rather than leads the SSM practice.



© 2009 BLUE SPIDER ANALYTICS, INC

Figure 7 – Traditional Link Analysis Charts

Source: FMS Advanced Systems Group, “Social Network Analysis,” www.fmsasg.com; Internet; accessed 13 February 2011; Blue Spider Analytics, “Network Analysis,” <http://www.bluespiders.net/>; Internet; accessed 13 February 2011.

Analysis One (Clarifying the Intervention)

Once the rich picture is developed, the next step is to conduct what is known in SSM as “Analysis One (Clarifying the Intervention).” This step simply endeavours to spell out certain roles that generally exist within every problem and to ensure that the commander and his staff take into account all key players. The first role is that of “client,” the one prompting the investigation to happen. The second is that of “practitioner,” the entity that carries out the SSM-based inquiry. Finally, there are the “issue owners,” the ones affected by the present situation and any future outcome. It is important that they be thought of as “roles,” as they may consist of either a person or group, each of who can fill more than one role.¹²⁹ For example, in the case of the heroin issue, the coalition International Security Assistance Force (ISAF) might be a client, by deciding that something must be done, then the practitioner by supplying assets to deal with it, and, finally, the issue owner as the outcome affects its mission. The table below indicates some of the key practitioners, clients and issue owners related to illegal narcotics in Afghanistan from the ISAF point of view:

Role of Client (prompts investigation)	Role of Practitioner (conducts SSM investigation)	Role of Issue Owner (affected by situation/outcome)
ISAF (in order to find ways to deny Taliban critical funding)	Military analysts throughout ISAF chain of command	ISAF/North Atlantic Treaty Organization
	Other governmental analysts (e.g. US Drug Enforcement Administration (DEA))	Major drug receiving countries (e.g. US, Canada, European states)
		Taliban
		Karzais
		ANP

¹²⁹ Poulter and Checkland, *Learning for Action...*, 28.

		Poppy farmers
		Judges, politicians, police chiefs
		Iran
		International criminal networks
		Local traffickers

Table 1 – Analysis One: Clarifying the Intervention

Analysis Two (Social)

The next step is known as “Analysis 2 (Social).” This step examines roles, norms and values to understand the “social reality” of a situation as human action often lies outside the realm of strictly linear logic and, instead, relies on cultural context and emotions. The first category of “roles” is defined as “social positions which mark differences between members of a group or organization.”¹³⁰ These positions may be formally recognized, such as a president or minister of justice, or informal (e.g. mentor to the president, “the one who always blocks new legislation.”) The informal roles, in particular, can tell you a lot about a culture, whether in the business setting or within ethnic groups. The following table illustrates some of the roles found in the Afghan problem space from the point of view of the role-holder in order to better understand their own mental models:

<u>Formal</u> roles	<u>Informal</u> roles
US/Allies <ul style="list-style-type: none"> • Protector of home population through expeditionary operations • War-fighting force first (rather than counter-insurgency force) 	US/Allies <ul style="list-style-type: none"> • Military force which fights designated “bad guys” (i.e. “we fight the clear-cut enemy”) • Rule follower

¹³⁰ *Ibid.*, 31 – 34.

<ul style="list-style-type: none"> • Defender of legitimate governments • Upholder of western-based law and order 	<ul style="list-style-type: none"> • Big bureaucracy (slow to change)
Karzais <ul style="list-style-type: none"> • Political leaders, taking care of all Afghans, regardless of tribe • Upholders of the constitution 	Karzais <ul style="list-style-type: none"> • Pashtun, with concomitant responsibility to protect family and tribal members and their interests • Ahmed Wali Karzai – key powerbroker in Kandahar and a rival to powerbrokers from other tribes
ANP, judges, police chiefs <ul style="list-style-type: none"> • Protectors of all Afghans, regardless of tribe 	ANP, judges, police chiefs <ul style="list-style-type: none"> • Protectors of family and tribal members, both physically and monetarily
Taliban <ul style="list-style-type: none"> • Protectors of “true” version of Islam • Rightful rulers of Afghanistan • Freedom fighters trying to rid one’s country of invaders 	Taliban <ul style="list-style-type: none"> • Arbiters of proper Sharia justice versus the corrupt and un-Islamic version touted by the US puppet government

Table 2 – Analysis Two (Social): Roles

Importantly, in this analysis, the roles are considered from the point of view of the group to whom they belong as this helps one understand the dynamics of that group within its own context. For example, a “freedom fighter” is a “freedom fighter” vice “terrorist,” regardless of what the practitioner actually believes from his/her side of the conflict. One must endeavour to keep personal bias out of the labels, to understand better the differing world views of each party. It might still be useful, however, to consider separately labels given by other groups. For example, the Taliban might see President Karzai as a “puppet” of the West and the Coalition Forces as Christian invaders. President Karzai, in turn, might consider many of the Taliban to be fellow Afghan or Pashtun “brothers” rather than criminals. These labels point toward some of the subtleties of the situation and indicate alternate options for action. For example, if I

consider you to be my “brother” rather than a criminal, I might find reconciliation to be the most desirable outcome. Commanders and analysts must understand these labels if they expect to appreciate how different parties interact with each other.

As one can see from Table Two, formal and informal roles can conflict. President Karzai and his brother both have formal high-level governmental roles, which dictate that they should be unbiased in their support for one tribe or another. As the informal roles show, they also, according to Pashtunwali, have a responsibility to care for their immediate and extended tribal family. This includes ensuring economic and political strength and influence. Reconciling these roles can make actions seem erratic or unpredictable to an outsider. Other roles, such as the US and allies “warfighter” or “upholder of western-based law and order” will actually culturally limit their approach to a problem and the actions considered feasible. Thus, this step in SSM is critical in understanding the formal and informal roles taken by parties to a problem and how they might view (i.e. label) one another.

The next step in Analysis Two is to examine the norms within groups, which are defined as “the expected behaviours associated with, and helping to define, a role.”¹³¹ Examples of these norms can be found in Table Three below:

Norms (Expected behaviour within the culture)
US/Allies <ul style="list-style-type: none"> • Protect the force (includes troops and other government departments’ personnel working with the military) • Follow the rules (e.g. military standard operating procedures, military law, Law of Armed Conflict, Geneva Conventions) • Follow strict ethical and moral boundaries based on Western standards • Go in, do the job, get out (get things done quickly; 6 month to one year tours)

¹³¹ *Ibid.*, 33.

<ul style="list-style-type: none"> • Ensure actions are acceptable to home audience ('CNN test') • Efficiency and business approach to relationships (build and release relationships quickly and easily) • Be up front – tell the truth and if you make a promise, you keep it • Punctuality is important - Timings are precise (if a meeting is scheduled for 1000 hours, you start at 1000 hours and get straight to business so that you can get onto the next task as quickly as possible) • (Publicly) admit when you have made a mistake. • Stories are told chronologically.
<p>Karzais, ANP, judges</p> <ul style="list-style-type: none"> • Prestige and saving face are critical to maintain power. Thus, you make a promise even if you do not intend to keep it, as long as you save face with both the person to whom you have made the promise, as well as any third-party observers. It is also about protecting the honour of your family/tribe, which is considered critical. This can lead to “honour killings” of own family members. • For Pashtu: Follow the tenets of pashtunwali (kinship, hospitality, sanctuary, revenge) • Build a relationship with someone before you do business with them. It takes time to build a relationship but, once built, it is very strong. Slow to trust. • Time is unimportant. Meetings often start late, beginning with extensive social talk. Business talk comes late in the meeting and sometimes not at all.
<p>Taliban</p> <ul style="list-style-type: none"> • Prestige and face-saving, as above. • Pashtunwali is also a driver of behaviour; however, this is mixed with a strong form of Wahhabist Islamic ideology, giving it a character and code of conduct of its own.¹³² • Protect the Taliban network and maintain your allegiance to the brotherhood of fighters above all else. • Time is unimportant – “we can wait out the US and its allies. They will leave eventually, just as the British and Soviets did.” • Stories are told according to their central theme, such as “injustice” or “need for revenge,” vice chronologically. Thus, generation-old grudges are held onto until they can be avenged. Stories of past glory, such as fighting against the Soviets, also bolster morale and maintain fighting spirit much more strongly than in Western society.

Table 3 – Analysis Two (Social): Norms

¹³² For a description and analysis of the formal Taliban code of conduct, see Program for Culture and Conflict Studies, “Analyzing the Taliban Code of Conduct: Reinventing the *Layeha*,” Occasional Paper Series #3, Department of National Security Affairs, Naval Postgraduate School, Monterey, CA, 6 August 2009.

The above table shows that norms can differ vastly between groups and potentially lead to conflicts, misunderstanding, and mistrust. A coalition force commander who thinks he is being efficient may be taken as brusque and disrespectful by an Afghan powerbroker. On the other hand, an Afghan making a promise to save face, that is later broken, may be seen as unreliable to a Westerner and, thus, someone with whom it is not worth allying. Norms can also explain the motivation behind a fighting force, such as the Taliban, and how it can diverge from its opponents'. Again, it is critical to understand the differences and similarities between cultures.

The final step in Analysis Two is to consider “values.” These are the standards or criteria “by which behaviour-in-role gets judged.”¹³³ People will often make positive or negative judgments about others based on observed or reported behaviour and these judgments can subsequently affect their actions towards them. Table Four outlines some of the values that are relevant to the Afghan conflict:

Values (Criteria for judging behaviour)
What the US/Allies value: <ul style="list-style-type: none"> • Assertiveness and decisiveness (be seen as strong and in charge) • Quick decision-making (consensus is not necessary) • Reliability (judged through one’s ability to fulfill promises) • Those who act morally and lawfully according to western standards
What the Afghan people (in general) value: <ul style="list-style-type: none"> • Graciousness – do not make a public affront to another; show hospitality through food and drink even if you do not have much. • Doing what you must to save face, which includes making promises that are not necessarily always kept. Also, avenging affronts, taking as long as necessary to properly obtain “justice” even if that means decades or longer (i.e. family can continue the effort for vengeance.)

¹³³ Poulter and Checkland, *Learning for Action...*, 34.

- Ability to make critical alliances and/or align with the “right side” (e.g. can one survive today in the face of the Taliban and other violence (criminal and/or Coalition-perpetrated) and also survive after the Coalition has withdrawn.)
- You are a good and proper person if you can provide for your family, sometimes including a very extended family.
- Those who do what is necessary to survive within limits of the culture, even if that does not meet legal standards, especially if it protects your family (relates to above point.)

Table 4 - Analysis Two (Social): Values

As shown in the above analysis, providing for one’s family is very important in Afghan culture where central government has always been very weak in offering services to its populace. Thus, the ability to be self-sufficient is a critical skill. Consider then that many Afghans are presently making money off the war effort, such as through provision of services to the Coalition, where interpreters make far more money than local teachers. When the Coalition is gone, unless there is significant improvement in the Afghan economy, there will be a very high number of unemployed personnel, especially given that the current rate of unemployment is 35%.¹³⁴ Therefore, the average Afghan must make as much money as possible now in order to have sufficient stores to survive the eventual post-Coalition period. Given that this can mean the difference between life and death for some families, it may be less important to earn money legally than it is to have adequate savings; thus, illegal actions, such as growing poppies and swindling money from coalition states, may be considered presently acceptable.

This issue of survival also relates to the criteria of making critical alliances, whether that is with the US and its allies or the Taliban. Coalition personnel must

¹³⁴ United States, Central Intelligence Agency, “Afghanistan,” <https://www.cia.gov/library/publications/the-world-factbook/geos/af.html>; Internet; accessed 16 February 2011.

understand which alliance(s) serve an actor in the present but also will be beneficial post-Coalition. This knowledge may help explain what can be seen by a westerner as conflicting or unusual relations and make predicting another's actions potentially a little easier.

Overall, when conducting Analysis Two, it becomes apparent through the Afghan example that there are key cultural differences that need be taken into consideration before parties can successfully work together. These roles, norms and values will either open up new possibility for action or close certain doors, if something is deemed to be culturally infeasible. There is also a dynamic interrelatedness among these elements; the role taken by a particular party affects others' expectations of them and how their behaviour is judged in the future. For example, if someone in the Coalition seriously insults an Afghan local, even if inadvertently, that person and their family might develop long-term mistrust for all Coalition personnel. These roles, norms and values can potentially pigeon-hole parties either for good or for bad.

Analysis Three (Political)

The last step in "Framing the Problem" is called "Analysis Three (Political)." This step endeavours to determine what commodities signal power within a group and how this power is obtained, used, protected and relinquished. Similar to Analysis Two, there is a formal and informal component. An examination of power structures will reveal critical elements of interdependency, mental models, and self-organization. Power politics are an important influence on what does and does not get done in an organization

or society; thus, it also informs cultural feasibility of particular aspirations for action.¹³⁵

Table Five below gives examples of power commodities as related to the Afghan conflict:

<u>Formal</u>	<u>Informal</u>
<p>US/Allies</p> <ul style="list-style-type: none"> • Rank (obtained through experience and time in the military) • Formal regulations, which either allow or disallow actions, as provided by domestic and international regulatory bodies (e.g. judicial, military, financial) • Power is protected through military might, as well as political and/or economic coercion by home government • Power is relinquished through a formal Transfer of Command Authority at the end of one's time in theatre 	<p>US/Allies</p> <ul style="list-style-type: none"> • Operational experience (number of tours) • Military to which you belong (i.e. US most powerful military; thus, its members will likely have more informal power than those hailing from a smaller, less influential military) • Control over reconstruction or development funding through home government programs • Control over lethal military forces • Personal physical fitness and stamina under stress • Structural power can overshadow weak personal power
<p>Karzais, other powerbrokers</p> <ul style="list-style-type: none"> • Tribal position (normally obtained through endorsement by fellow tribe members) • Government position through legal vote (which may be linked to tribal position through patronage or influence over voters) • Power is protected through the use of legitimate instruments of political power, personal influence, patronage and coercion. • Power may be relinquished through formal political mechanisms if one holds a government position. It may also be lost if one is dishonoured and subsequently tribally marginalized. 	<p>Karzais, other powerbrokers</p> <ul style="list-style-type: none"> • Level of wealth • Mujahideen credentials (from fighting the Soviets) • Backing by the US/Allies through moral or physical support • Personal power can overshadow structural power • Traditionally – older age, which would denote experience and wisdom. Wealth can override this one in the present wartime environment but age is still important; i.e. “listen to your elders.”

¹³⁵ Poulter and Checkland, *Learning for Action...*, 35 – 36.

Severe physical disability may not be enough to reduce personal power.	
<p>Taliban</p> <ul style="list-style-type: none"> • “Rank” within the Taliban hierarchy (obtained through “street credibility,” i.e. proven abilities on the battlefield) • One may be forced by the hierarchy to relinquish power when one loses credibility as a fighter and leader. 	<p>Taliban</p> <ul style="list-style-type: none"> • Mujahideen credentials (fighting the Soviets or the present Coalition) • Ability to inflict casualties on Coalition soldiers (through direct fighting, laying of IEDs or support to the fighter network) • Ability to provide funding and human resources (i.e. fighters) • Ability to encourage/coerce the support/acquiescence of the local population • Tribal affiliation can give you support within the local population • Personal power can overshadow structural power

Table 5 - Analysis Three (Political)

As shown, within the US military and its allies, formal, structural power holds great sway and can be used to overcome weak personal power. However, within Afghan society, personal power and credibility are key elements to maintaining one’s position in society. The agenda put forth by an elected or appointed government member may actually be that of the powerbroker behind him. He may, in fact, only be the official face of the real power “behind the throne.” Thus, in traditional western military circles, identifying key decision makers can be quite straight forward. On the other hand, it can be quite complex for a westerner to pick out the key powerbrokers within the Afghan context. Yet to be successful, one must do just that.

From the commander’s point of view, using SSM in this manner ensures that a broad number of cultural and civilian, “non-enemy” influences (known as “human terrain” in military jargon) become an integral part of the operational design and that

analysts and planners include them in planning products and target packs. Although certain links between players may be indicated (e.g. tribal, business), cultural aspects, as above, generally do not make up an explicit part of planning products. Perhaps it is thought that this information is implicitly understood as most personnel receive pre-deployment cultural briefs and gain experience during the tour. However, it is not safe to make this assumption, given varying experience and cultural comprehension levels, particularly when these products are being read by future rotations and the originator is no longer available to explain it. This SSM document builds a vital record for future personnel to draw upon. Furthermore, if the “human terrain” information is not explicit in a document, it may not have been sufficiently considered in the first place, bringing into question the validity of the analysis. As shown above, these cultural elements are key to properly understanding a problem, both in the early days of a deployment, when the commander and troops are still learning about the other players, and throughout the operational tour to ensure that all local personnel are not lumped together as if they are a single monolith in terms of values, norms, roles and power commodities. SSM ensures that this critical gap is filled. It also supplements, not replaces, the types of link analysis charts shown in Figure 7; they each have a significant role to play.

For any of the above activities used in framing the problem, the limitation, as with everything in a CAS, particularly a wicked problem, lies in the fact that they are only a snapshot in time and will inevitably change. Therefore, they must continually be updated. Regardless, as each step is built upon, one can develop a richer understanding, helping the practitioner to adjust responses to the CAS within which he or she is working.

Importantly, these steps also form the basis for the next activity, which involves producing a model of a worldview.

Modeling or “Making Purposeful Activity Models”

One now begins to build models, known as “worldviews,” which form the basis for future debate and comparison:

Since each model is built according to a declared single worldview (e.g. ‘the Olympic Games from the perspective of the host city’) such models could never be descriptions of the real world. They model *one way* of looking at complex reality. They exist only as devices whose job is to make sure the learning process is not random, but organized, one which can be recovered and reflected on.¹³⁶

These views are the “taken-as-given” assumptions held by a person or group, which cause them to interpret the world in a particular way; in other words, they are “mental models,” as defined in previous chapters.¹³⁷ To examine these worldviews, one starts with a “Root Definition,” which is “a statement describing the activity system to be modeled.”¹³⁸ This Root Definition is built using the “PQR formula;” do P by Q in order to help achieve R, where they answer the questions what, how and why, respectively. Importantly, in this formula, Q is the transforming process. Using the issue of Taliban funding derived from the illegal narcotics industry in Afghanistan, one could put forth the following Root Definition:

¹³⁶ *Ibid.*, 38.

¹³⁷ In this chapter, they will be referred to as worldviews rather than mental models, in order to differentiate from the concept of “model building” that will be discussed with respect to SSM.

¹³⁸ Poulter and Checkland, *Learning for Action...*, 38, 60.

An Afghan-orchestrated, Coalition-supported system to counter funding to the Taliban (“P”), by decreasing the requirement and desire for illegal crops to be grown in Afghanistan (“Q”), in order to help weaken the Taliban’s ability to sustain its fighting so that the Coalition may eventually withdraw from Afghanistan (“R”).

In this case, the worldview is that of the US and its allies in countering the Taliban insurgency and eventually ending the Coalition mission in Afghanistan.

Another possible Root Definition, this time from the point of view of President Karzai, could be:

A strong Afghan economic system based on legitimate commerce (“P”), by decreasing dependency on illegal crops (“Q”), in order to help weaken the Taliban’s ability to threaten my country and government, while still allowing me to be the President (“R”).

While looking to address the same issue of illegal crops and the support they provide to the Taliban, the perspectives are very different. In the first one, the intent is to defeat the Taliban to the point they are no longer able to fight. In the second, the emphasis is on weakening their ability to threaten the government. In this latter instance, once the Taliban are weakened from lack of funding, military defeat is one option to marginalize them. However, there are other equally valid ways of meeting the desired end-state (“R”), such as reconciliation and allowing them a legitimate seat in government. Thus, Root Definitions describe only one worldview.

The understanding behind a specific Root Definition can be further enriched by also building a generic model of the activity, based on the mnemonic CATWOE. Figure Eight below illustrates the meaning of this mnemonic:

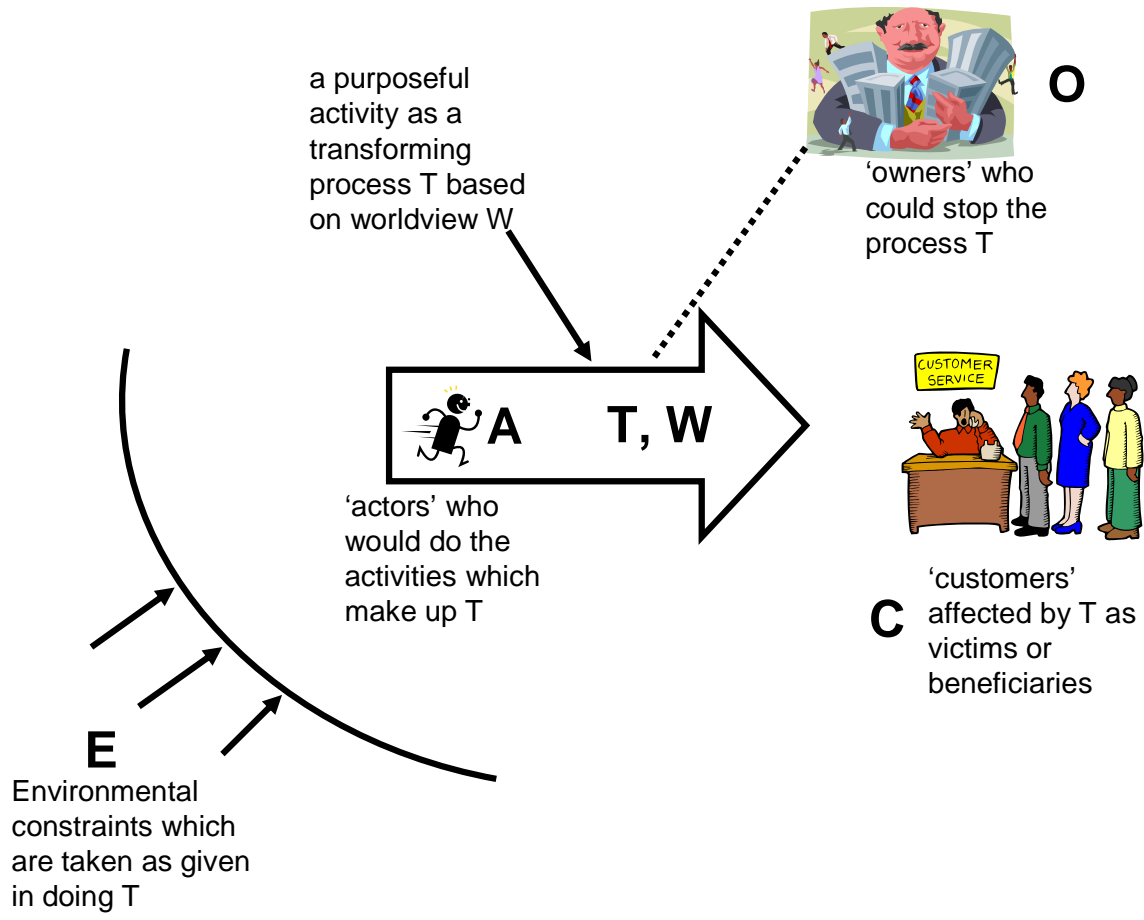


Figure 8: CATWOE (Used to Enrich Root Definitions)

Thus, using the Coalition Root Definition outlined above as the basis for further development, CATWOE can be broken out as follows:

T = Transforming process	Decreasing the requirement and desire for illegal crops to be grown in Afghanistan
W = Worldview	Decreasing the poppy crops and related trafficking activities will decrease funding to the Taliban, making it more difficult for them to sustain their logistics and, thus, level of fighting.
C = Customers (victims or beneficiaries)	Farmers (either victims or beneficiaries depending upon measures taken to stop them from growing poppies and encourage them to plant other crops; i.e. straight eradication versus help with alternate crops)
	Iran (beneficiary through reduced drugs)
	North Americans/Europeans (beneficiaries through reduced heroin)
	Taliban (direct victims)

	Pakistan (beneficiary if weakened Taliban decreases extremist issues within its borders)
	Judiciary (victim/beneficiary depending upon measures taken; i.e. Simply firing judges rather than addressing the pressures on them will lead to victims. Decreasing interference in their work can lead to beneficiaries.)
A = Actors (who would do the activities that make up the Transformation)	President Karzai (through personal power, legislative changes, governmental reforms)
	Coalition states (through funding, advice, military support to eradication, political pressure)
	Farmers (by planting different crops, learning new techniques of cultivation)
	Afghan Ministry of Rural Reconstruction and Development (responsible for agricultural initiatives)
	Banks/other financial organizations (by helping rectify negative debt situations where farmers owe money to powerbrokers and are, thus, forced to plant high-income poppy crops. Banks can also give loans for new business initiatives, which provide economic alternatives.)
	Afghan Ministry of Industry (supporting economic alternatives)
	Afghan National Army and ANP (eradication, arrest insurgents)
	Mullahs (by preaching against drugs)
O = Owners (Those able to stop the Transforming process)	President Karzai (political and personal pressure)
	Powerbrokers (personal pressure, coercion)
	Taliban (personal pressure, coercion)
	Criminals (personal pressure, coercion)
E = Environmental (Constraints taken as given in doing T)	Karzai can only be legally removed; e.g. voted out, impeached (moral obligation of the Coalition to follow the rule of law)
	Afghan-face on all activities that interact with the general population in order to increase acceptability to the populace (this is a practice mandated to the Coalition Forces by the ISAF commander)

Table 6 – CATWOE Used to Enrich Root Definition of Coalition Worldview

Through CATWOE, the Root Definition is now built into a clearer worldview, outlining key factors, such as the list of actors who can aid in the transformation, as well

as owners who could support or impede development of the new system and, importantly, the environmental constraints of this viewpoint. Given a different worldview, there may be some parties to the issue that might not consider “Karzai can only be legally removed” to be a constraint (e.g. Taliban, criminal networks or, perhaps, certain powerbrokers who might be willing to consider assassination.) It is important to also develop a Root Definition and CATWOE for each of these differing views, as they bring out the complexity of the situation and show more clearly how changing one part of the CAS would have ramifications in another area. For example, as previously described, clamping down on powerbroker illegal actions in Southern Afghanistan may affect political support to Karzai. If he loses support, it could then change the tribal balance of power in the Afghan legislature, which might lead to a Pashtun nationalist uprising, increasing instability in Afghanistan. Thus, building multiple models is critical to later worldview comparisons.

Now that the CATWOE is completed for this Root Definition, it is beneficial to consider measures of performance by which to judge the system as it progresses.

According to SSM, the following three criteria should be considered as a minimum:¹³⁹

1. Efficacy – criteria to tell whether the transformation is working (producing the intended outcome). For example:
 - a. Decreased hectares of poppy are harvested;
 - b. Increased hectares of legal crops are harvested;
 - c. Increased number of successful prosecutions of drug trafficking crimes;and

¹³⁹ *Ibid.*, 42.

- d. Reports of decreased pressure on and killing of police and judges.
2. Efficiency – criteria to tell whether the transformation is being achieved with a minimum of resources:
 - a. Funding from other critical projects, such as healthcare, is not being diverted to counter-narcotic efforts; and
 - b. Judges and police work is more effective, giving greater overall value to society.
 3. Effectiveness - criteria to tell whether the transformation is helping to achieve some higher-level or longer-term goal:
 - a. Taliban losing the support of the Afghan populace, leading to eventual defeat/marginalization of the Taliban;
 - b. Reports of decreased Taliban funding;
 - c. Reports of increased Taliban infighting over funding; and
 - d. International community deems Taliban to be losing.

While these are generally the minimum measures of performance that need to be considered, there may be others deemed appropriate to the situation. In this case, it would be important to add the “ethicality” of the transformation; i.e. “is this transformation morally correct.”¹⁴⁰ Measures might include answers to the following questions:

- a. Are only legitimate, legal military targets the object of lethal attack?
- b. Do the activities meet Afghan and international law?
- c. Are the activities morally acceptable to Afghans?

¹⁴⁰ *Ibid.*, 43.

d. Are the activities morally acceptable to Coalition home populations?

Once the Root Definition and supporting information is determined, one then outlines three groups of activities, which will subsequently be used to graphically build the specific model. These clusters are known as: “Group One – Activities deriving from the transformation process,” which in this case involve “a system to counter funding to the Taliban;” “Group Two – Activities upon which the transformation is dependent,” which involve the process itself (“decrease requirement and desire for illegal crops to be grown”); and “Group Three – Activities concerned with dealing with the transformed entity,” which are connected with the output of “weakened Taliban ability to sustain the fight.”¹⁴¹ Carrying on with the counter-narcotic problem, examples are outlined in Table Seven below:

<u>Group One</u> (Activities deriving from the transformation process) <i>“system to counter funding to the Taliban”</i>
<ul style="list-style-type: none"> • Obtain and maintain a positive working relationship between Coalition and Afghan-government officials with respect to counter-narcotic efforts. This must include relations in the areas of political, economic, military and social development.
Define sub-systems: <ul style="list-style-type: none"> • By which the Taliban receive money related to the illegal drug industry. • Related to the illegal drug industry, which are non-Taliban and prevent it from being defeated. • Affecting growth of the overall legitimate economy (e.g. agricultural, industrial, services), which might be used to counter the narcotic industry.
<ul style="list-style-type: none"> • Take action to change the system, to include model building, designing plans, experimenting with these plans, evaluating results, and documenting and reporting results in a retrievable format.

¹⁴¹ *Ibid.*, 47, 184 – 185.

<p><u>Group Two</u> (Activities upon which the transformation is dependent) <i>“decrease requirement and desire for illegal crops to be grown”</i></p>
<ul style="list-style-type: none"> • Identify appropriate personnel skills required to conduct tasks in various areas.
<ul style="list-style-type: none"> • Acquire and/or train appropriate skilled professionals, both domestic to Afghanistan and international.
<ul style="list-style-type: none"> • Increase international and Afghan awareness of the issue. Develop and maintain their support for countering it.
<p><u>Group Three</u> (Activities concerned with dealing with the transformed entity) <i>“Weakened Taliban ability to sustain the fight”</i></p>
<ul style="list-style-type: none"> • Ensure key parties continue to understand and accept the overall value of the transforming process (e.g. President Karzai, local farmers) in order to maintain momentum of the efforts.

Table 7 – Building Groups of Activities which Form the Basis of Visual Model

Once outlined, these activities are then plotted graphically, connecting them with arrows to indicate dependency of one or more activities upon another; in other words, determine the order in which they need to occur. Monitoring and control activities are also added to the model at this point in order to ensure criteria by which a change can be judged as successful or complete are taken into account. The monitoring activities are based upon the measures of performance, as identified previously, but also include other mechanisms, such as reporting procedures, that would need to be implemented. Figure Nine shows the model for the groups of activities listed in Table Seven:

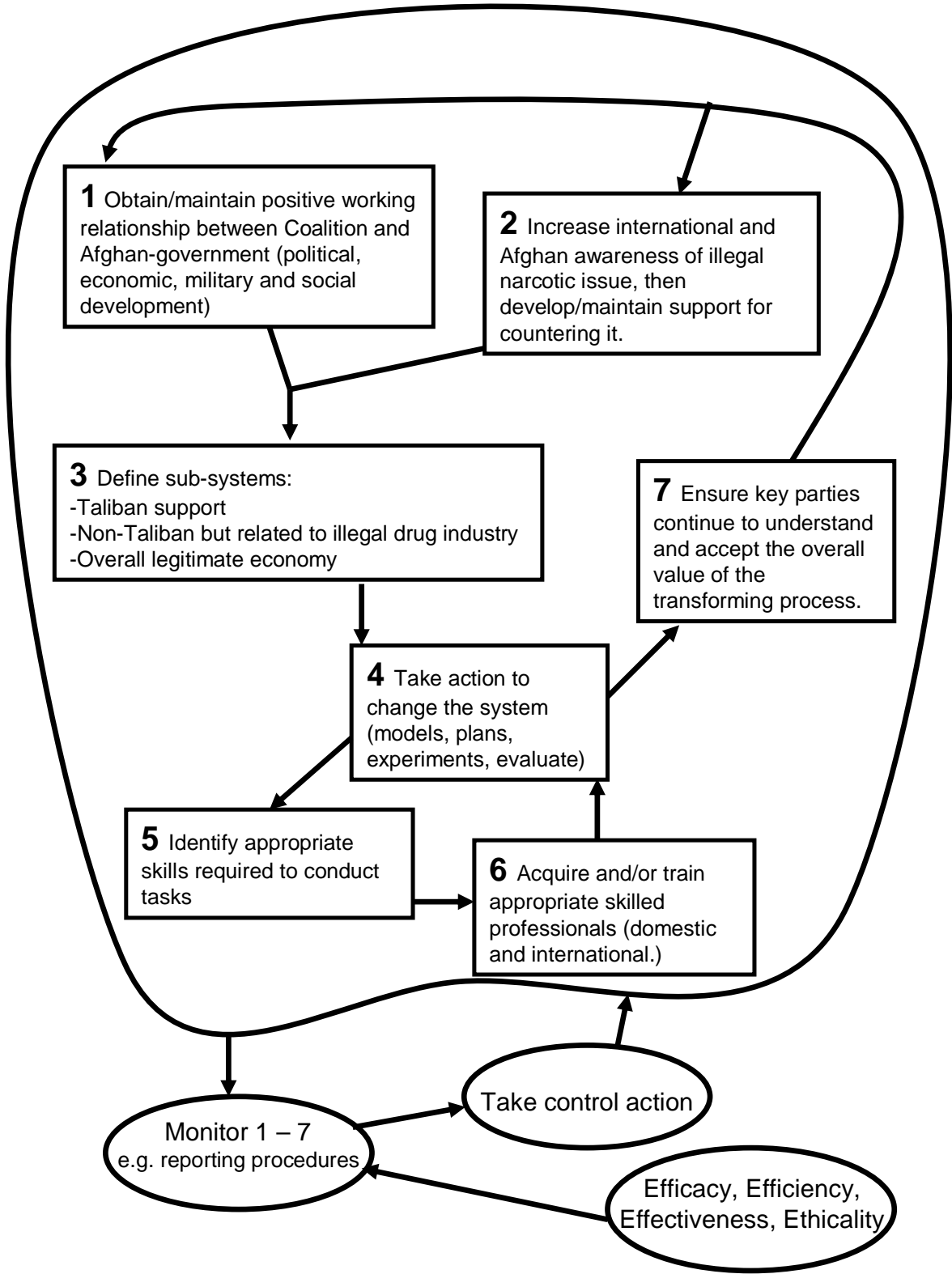


Figure 9 – Model of Worldview

As can be seen above, there are only seven activities within the core of the model. This number is based on work by the cognitive psychologist, George Miller, whose studies suggested that “the human brain may have the capacity to cope with around seven concepts simultaneously,” also come to be known as the “rule of 7 ± 2 .” While Miller’s theory is not definitively proven, this number certainly allows the model to be examined holistically and prevents one from being overwhelmed by detail during later model comparison and debate.¹⁴² Eventually, however, one will need to expand upon each activity in greater detail, especially number four, which addresses actions to be taken. Sub and sub-sub-models can be designed, if required, with appropriate debate at each level. This ensures that rather than becoming stove-piped models, each still fits into the one above it, ensuring a level of coordination of action and analysis and decreasing the probability of disconnection.

It is important to remember that Figure Nine is only one worldview for determining means to weaken the Taliban ability to fight. For example, one could model the problem from the perspective of local civilian support in helping the Taliban sustain their fight, considering elements such as the furnishing of safe-havens, non-reporting of Taliban activities to legitimate authorities and the provision of sons to fight with the insurgents. The explicit use of these different worldviews is a key distinction between SSM and traditional intelligence and operational methodologies. While conventional methods certainly endeavour to consider the multiple mental models involved (i.e. “get into the heads of the other parties,”) they do not normally construct models for each specific worldview, except for the “enemy.” Thus, SSM is clearer in encouraging one to

¹⁴² Bentley and Davy, *The Paradoxical Trinity*, 44.

examine the problem from multiple viewpoints before trying to produce a plan to tackle it.

Similar to OPP, SSM model-building brings out actions necessary to move forward and in what order they must occur (called “decisive points” in OPP.) When done for several worldviews, SSM will suggest multiple alternative paths and the decisive points relevant to each, from which a commander can choose, once debate (as outlined in the next step) has been conducted. This is similar to “course of action development” in OPP except that OPP is generally conducted utilizing only two worldviews, normally that of the CF and its partners and another for the adversary. Thus, use of SSM encourages analysts and planners to look outside the “us or them” paradigm and can uncover options that may not otherwise have been revealed, alleviating “tunnel vision” during operational design. It will also help illuminate a fuller range of what could be counter-productive activities by other players (e.g. a powerbroker with vested interests in the status quo). Therefore, the key step is to conduct multiple iterations of modeling, using the previously outlined steps, for other worldviews. Once these models are complete, one can move to the next activity, which uses them for debate and further exploration.

Using the Models to Structure Debate

As noted previously, none of these models fully describe reality as the true nature of a CAS is unknowable and the models are based on a specific worldview; however, they do allow for a way to organize inquiry and debate on the issues at hand. Without this solid structure in place, as Checkland and Poulter point out in their book on SSM:

[T]ypical discussions among professionals are characterized by a remarkable lack of clarity...different voices will be addressing different issues; different levels, from the short-term tactical to the long-term strategic, will be being addressed; different speakers will assume different timescales. The resulting confusion will then provide splendid cover for personal and private agendas to be advanced.¹⁴³

Vested interests are always an impediment to constructive debate and finding subsequent solutions. Furthermore, each member of the debate, if they are an owner, actor or customer, must remember that they are *part* of the problem; in essence, a co-creator of it. Therefore, each party must understand their role in the situation in order to bring their biases to the surface so that they can be adequately addressed. One must continually ask, “what is my own mental model and how does it contribute to the complex interdependencies of the circumstance.” The previously outlined issue with private security companies in Afghanistan exemplifies this aspect; the US and its allies were simply looking to protect their supply shipments and believed it would be beneficial to hire Afghans and, thus, inject money into the economy (besides the fact that it was probably easier and cheaper to employ local contractors). However, they did not anticipate the ripple effect this would have on Afghan society, which has arguably degraded rather than improved the security situation.

Further to vested interests, there are other natural human tendencies at work, which tend to affect perceptions. For example, professional analysts are taught to look for facts that corroborate or deny the situational model they are examining. Yet, in reality, they more often seek information to *confirm* the model. As a matter of fact, in many situations, one does this “so insistently that we even welcome disaster as long as it

¹⁴³ Poulter and Checkland, *Learning for Action...*, 49.

corroborates our beliefs – the ‘I told you so’ scenario.”¹⁴⁴ In general, it is difficult to rid oneself of a personal worldview and this view predisposes us to think in a certain way, whether deciding to accept or reject something. Importantly, to the individual, the worldview represents reality rather than one *representation* of reality.

In general, there are four key mental actions affecting the development of specific worldviews and their subsequent application to new experiences. The first is known as “deletion.” One cannot deal with all the data continually bombarding the brain; therefore, the brain ignores some of it and builds understanding with what it consciously chooses to see. This prevents overwhelm and helps to reinforce one’s present model, allowing for stability.¹⁴⁵ The second is “construction,” which involves seeing what is *not* there rather than deleting what is. Ambiguous situations, in particular, will encourage construction. When facing uncertainty, one looks for patterns in order to make sense of the situation. While this can be a useful aid in comprehension, one may instead see patterns where they do not actually exist in order to decrease ambiguity. Our brains are like a non-linear system in this sense; they will endeavour to bring order to the chaos in front of them.¹⁴⁶

The brain also processes through “distortion,” by amplifying some parts of an experience and diminishing others. This allows one to adjust perception of the event in order to better fit incidents with one’s existing model and, thus, make sense of the situation. “Even professional researchers...show the same tendency to distort

¹⁴⁴ Joseph O’Connor and Ian McDermott, *The Art of Systems Thinking* (San Francisco, CA: Thorsons, 1997), 63 – 64.

¹⁴⁵ *Ibid.*, 66.

¹⁴⁶ *Ibid.*, 68.

perceptions of the world rather than change the mental structures we use to give us our bearings.”¹⁴⁷ Fourth and final, people “generalize” by taking one or two experiences and extrapolating to represent a whole class of experiences. This allows one to take previous learnings and apply them to new situations. This can often be very beneficial, allowing one to build upon experience and accept new ones; however, it can also lead to oversimplification or using an unrepresentative example to characterize a broader group, which is reinforced by the other actions of distortion, construction and deletion.¹⁴⁸

In order to counter these four tendencies, SSM models act as devices to provide a baseline and parameter for discussion. This is accomplished by using the models as a source to evoke questions based on a common framework. For example, one could examine a specific activity within a model and ask whether it actually exists in the real situation and if so, who does it, how, when and can someone else do it. Used in this group discussion, one is also likely to uncover elements of the model that were missed in the original construction, which might drastically alter how one looks at the problem and expose potential courses of action. Debate will also hopefully bring out each party’s biases and taken-as-given assumptions, questioning their veracity. Overall, questions can be about activities, dependencies or measures of performance, with the models as a guide.¹⁴⁹

There are three basic approaches to utilizing the models to structure debate. The first is to have a general discussion about improving the situation in the presence of the

¹⁴⁷ Checkland, *Systems Thinking, Systems Practice*, A11.

¹⁴⁸ O’Connor and Dermott, *The Art of Systems Thinking*, 69 – 70, 114.

¹⁴⁹ Poulter and Checkland, *Learning for Action...*, 50 – 51.

models. This method can work well in inter-cultural situations, such as is faced in Afghanistan. It allows one to have a debate utilizing the different cultural parameters and worldviews and to look for areas of accommodation between them. The second approach is more formalized, where one develops a matrix ahead of the meeting, listing elements from the model down one side (e.g. activities, dependencies) and the questions to be asked across the top with a column for summary comments. The task is then to fill out the matrix through debate. The trick here is to avoid becoming bogged down or slave to the matrix. It is the end-state of drawing out the key learnings rather than filling out the matrix that matters.¹⁵⁰

As a method to draw out lessons, these two approaches in SSM are similar in intent to wargaming in OPP. However, normally in wargaming, potential enemy courses of action are played out against friendly ones to ensure that the commander can win against the enemy when he executes his plan. Thus, it is generally adversarial rather than accommodating. This seems to be more habit of usage than a necessity of the methodology as it could easily support wargaming a plan to non-kinetically influence a powerbroker or legitimate player. Yet, building on previous stages, if sufficient worldviews are debated, the SSM approach will be more likely to explicitly consider the “human terrain” as a whole, including the interlinked relationships driving a CAS, ensuring a comprehensive overview. The key will be taking the time to compare sufficient mental models.

The final and third technique in structuring debate involves taking the model and writing out a scenario based upon it. The group then compares this story with similar,

¹⁵⁰ *Ibid.*, 51 – 52.

real world accounts, using them to improve upon the scenario. This works well in situations that are expected to be repeated, such as a system to start up a new chemical plant.¹⁵¹ In this case, the refined narrative would then serve as a guideline for future start-ups. In the CF, a scenario could be written for a system to design generic organizations for missions. In essence, they offer a structured way of producing a “Standard Operating Procedure,” of which the military is so fond. This is not something for which OPP is normally used. In the Afghanistan case, one might start with an account from Columbia’s experience with counter-narcotic efforts to determine if there are common elements and potentially useful activities that could be applied in Afghanistan. In general, any of the three SSM methods could be used to structure discussion about the situation, in order to help define specific action for improvement.

Defining and Taking Action for Improvement

Finally, although SSM is primarily a method to structure learning in the operational design phase, the normal expected outcome of the process is to define actions to improve the situation (i.e. contribute to the planning phase). In SSM, this is done by identifying areas for accommodation amongst key actors, owners and, possibly, customers. Importantly, “accommodation” differs from “consensus:”

A true consensus is the rare, special case among groups of people, and usually occurs only with respect to issues which are trivial...[As] individuals enter the world with different genetic dispositions and then have different experiences in the world, there will always be differences of opinion resulting from different worldviews. So, if a group of people are to achieve agreed corporate action in response to a problematical situation,

¹⁵¹ *Ibid.*, 52 – 54.

they will have to find an accommodation. That is to say they will have to find a version of the situation with which they can all live. These accommodations will of course involve either compromise or some yielding of position.¹⁵²

Although some accommodation may be found early in the process, as discussion progresses using the models, worldviews will surface and entrenched positions may shift, both of which can allow for further agreement. Thus, the process of defining action to be taken is an iterative procedure. Regular debate will be necessary to keep the issue moving forward and to adjust to recent changes in the CAS that did not exist when the model was first developed.

In order to define action, the problem should be studied from three angles – structural modifications, processes or procedures, and attitudes. For example, in the counter-narcotic case; structural changes may need to occur in the judiciary to allow better prosecution, procedures may be required to enforce zones of poppy eradication, and farmers' attitudes changed towards the ethicality and profitability of growing poppies. There may also be attitudinal adjustments required by the US and its allies, such as expected timelines for problem remediation, which may take substantially longer than anticipated by Coalition members and their governments. Many organizations find it easy to lay the burden of transformation on structure alone. Studies show that large organizations tend to restructure themselves every 18 months to two years. However, what is often forgotten is that these new configurations normally require concomitant changes in processes and attitudes. Otherwise, people will simply revert to doing exactly

¹⁵² *Ibid.*, 55.

what they were doing previously but under a different name.¹⁵³ Sustainable change must consider all three areas.

Given the critical element of “attitude,” any agreed upon action must be culturally feasible, as can be seen by the inclusion of the “ethicality” measure of performance – “are the activities morally acceptable to Afghans?” It must also be culturally acceptable to the US and its allies. If it is not, the Coalition partners and their home governments will not support it and the action may be doomed to failure from counter-political pressure or lack of resources. In general, when looking to improve a situation, finding accommodation between parties must be broadly, rather than narrowly, considered given the complex interdependencies of a non-linear problem. It also important that once changes are implemented, they are monitored and adjustments, deletions or additions made as the system adapts itself to these new measures. Given the self-organizing nature of a CAS, SSM is a continual process of investigation and learning.

Criticisms and Difficulties with Use of SSM

Criticisms of SSM involve two key points; psychological resistance to change and lack of application of social theory. As discussed previously, the models revolve around worldviews, which are compared in order to find differences and, notably, accommodation between them. This accommodation is then worked into the plan. However, SSM seems to lack recognition of the difficulties that exist in changing

¹⁵³ *Ibid.*, 57.

individuals' or groups' belief systems, which may be necessary for decisive action to take place. As shown with the tendencies to generalize, delete, distort and construct:

Merely to outline possible *Weltanschauung* [worldviews] is not enough – people display a considerable resistance to change. Their construct systems tend to be self-stabilizing and self-validating.¹⁵⁴

While SSM does recognize that preparatory actions might need to take place to pave the way for major changes, these pre-conditions will likely never overcome certain groups' opposition to something such as counter-narcotic efforts (e.g. Taliban, certain powerbrokers). Thus, it may never be possible to find sufficient accommodation to adequately accomplish the mission. Coercive actions, such as targeting of Taliban, and the political removal of key impediments may be necessary.

There are also institutional dynamics affecting change that can be difficult to overcome. Military forces are trained for the lethal application of force, whether on the offence or defence. Military operations such as counter-insurgency and nation-building have not traditionally been part of the training plan for organizations such as the CF, which is primarily driven by their experiences in World War I, II and the Cold War. The CF has normally been very conventional-based and, therefore, the transition to fighting in present-day Afghanistan is necessitating critical changes in equipment and modes of thinking. Importantly, the mindset of the force and the type of equipment that they have determine the kind of information that is collected and the operations that will subsequently result from this information.

¹⁵⁴ J.C. Mingers, "Towards an Appropriate Social Theory for Applied Systems Thinking: Critical Theory and Soft Systems Methodology," in *Systems Thinking*, vol. 4, ed. Gerald Midgley, 1 – 13 (London, UK: Sage Publications Ltd., 2003), 11.

In the CF, the approach and equipment have not yet sufficiently changed to deal with counter-insurgency and nation-building. For example, several years have been spent in Afghanistan building databases on Taliban (i.e. enemy) personnel, logistics, and ways of fighting, through the use of technical means, such as imagery and signals intelligence. Human intelligence has played a role but has often been overshadowed by technical collection.¹⁵⁵ In comparison, there is scant information on local powerbrokers, tribal dynamics affecting reconstruction and governance and criminal networks, which, as has been shown, play a critical role in the overall conflict.¹⁵⁶ Most of this latter type of information must be collected through human intelligence at various levels. Unfortunately, at present in the CF, the majority of troops, especially those who come into contact with Afghans on a daily basis, never receive any kind of human intelligence training.

The unbalanced nature of CF collection and, thus, the intelligence database which it builds has led to operations primarily focused on kinetic actions to remove Taliban fighters. On the other hand, they have either left malign powerbrokers intact or actually reinforced their positions in Afghan society, which negatively affects nation-building.¹⁵⁷ Thus, the institutional bias, in terms of mind set and equipment, built into a traditional military force can negatively affect and greatly distort the type of operations undertaken.

¹⁵⁵ Human Intelligence (HUMINT) is defined as “[a] category of intelligence derived from information collected and provided by human sources.” Canadian Forces, B-GJ-005-200/FP-000 *Joint Intelligence Doctrine* (Ottawa: National Defence, 21 May 2003).

¹⁵⁶ Major General Michael T. Flynn, Captain Matt Pottinger, and Paul D. Batchelor, “Fixing Intel: A Blueprint for Making Intelligence Relevant in Afghanistan,” http://www.cnas.org/files/documents/publications/AfghanIntel_Flynn_Jan2010_code507_voices.pdf; Internet; accessed 16 May 2010.

¹⁵⁷ US, House of Representatives, *Warlord, Inc.*, 17 – 20, 23 – 26.

If an analyst tries to put forth a non-traditional “target pack,” (e.g. something that may only include influence rather than killing or capturing) there can be institutional resistance to it, if it necessitates a major change in means of operating to execute it.¹⁵⁸ This resistance then has a follow-on psychological effect on the analyst who will eventually, either willingly or unwillingly, alter target packs to meet the operators’ implied requirements. If s/he does not do this, the analyst will be marginalized and/or berated for never producing anything of use. This resistance also affects what collectors will endeavour to gather as their information builds the target packs.

Admittedly, it is not an easy matter to simply ask the warrior to one day fight a conventional war and the next counter-insurgency, particularly when training time, personnel and financial resources are limited. Both types of conflict, as well as support to governance, reconstruction and development require great skill, dedication and sophisticated training. However, in order to be successful, the intervention force (i.e. the practitioner of SSM) must seek to understand its own institutional dynamics and what it will take to overcome resistance to change. It must ensure its organization, in terms of mind set and equipment, matches the task at hand.

There also appears to be a gap in SSM when it comes to applying social theory to problems. SSM takes worldviews at face value and does not seek to find an explanation for their inherent beliefs in terms of the structure of society.¹⁵⁹ Worldviews are based on dissimilar experiences (i.e. varying initial input factors), which are important to understanding the problem at hand. For example, there are different structural precedents

¹⁵⁸ Author’s personal experiences as Senior Analyst for the Afghan team in Chief of Defence Intelligence, August 2008 – March 2009, as well as during deployment to Afghanistan.

¹⁵⁹ Mingers, *Towards an Appropriate Social Theory...*, 11.

contributing to President Karzai's or a powerbroker's view than there are for the average low-level Taliban leader. Tribal affiliation may be one of these factors but a proper application of social theory would be needed to uncover inputs in order to alter outputs.

These deficiencies in SSM may be due to the types of problems against which it has been applied in the past rather than an inherent flaw in the methodology. Its use has most often been financed by and employed to change public and private sector institutions. Thus, results have generally favoured these "paying customers:"

In its practical application, the methodology has generally been used in a way which is conservative, legitimating and preserving the [worldview] of a particular group of people – those in positions of power and authority... To avoid this, it needs to take more account of the problems of attaining distortion-free communications such as those created by unequal power relations and unequal opportunities to present, discuss and question differing viewpoints.¹⁶⁰

In a war context, this might be quite difficult to achieve, where allowing the Taliban a voice has not yet proven feasible. Traditionally, in lieu of this, commanders use the information that they gather first-hand through their experiences in the field as well as that given to them by their analysts and advisors (i.e. from a very small group of worldviews). Many of these traditional information or "target" packages, as shown above by the unbalanced nature of collection, are biased and do not necessarily support counter-insurgency and nation-building operations over the long-term. Thus, many worldviews are not being considered when building an operational design.

Ignoring divergent voices, which inform the mental models up for debate, comes at a cost in terms of finding a way forward that does not make the problem worse. Given the nature of a CAS, non-traditional worldviews, with the opportunity for debate, must be

¹⁶⁰ *Ibid.*, 11 – 12.

heard. Again, this is certainly not an easy task when one of these voices belongs to the “enemy” but then to some people, such as President Karzai, the Taliban are not “enemy” but “brothers” with whom one needs reconciliation. Thus, the problem is not necessarily with the methodology but more in its limited historical application, as well as the creativity and great effort (e.g. political will) that would be required to properly apply it in different and unorthodox situations, such as the wicked problem in Afghanistan.

Conclusion

SSM, with its construction of models based on worldviews, allows one to question current practices and beliefs in order to hypothesize potential courses of action; in other words, the resultant models are perfect for use as “straw men”. Importantly, they also provide a formal way to capture learning, which is critical in a theater of operation such as Afghanistan, where Coalition military personnel rotate out, on average, every six months to a year. Hard-won operational knowledge can be quickly lost with such frequent rotations; therefore, databases documenting the learning process are critical to moving the mission forward, rather than taking steps backward every time a unit leaves and is replaced by a new one. At present, operational databases contain final products but much of the critical information that informed these documents remains in the heads of planners and analysts, departing when they do. Thus, new personnel must relearn much of it, wasting precious time and resources. SSM offers one way to help capture some of this critical data.

The following figure summarizes the process of SSM, using its own model construction:

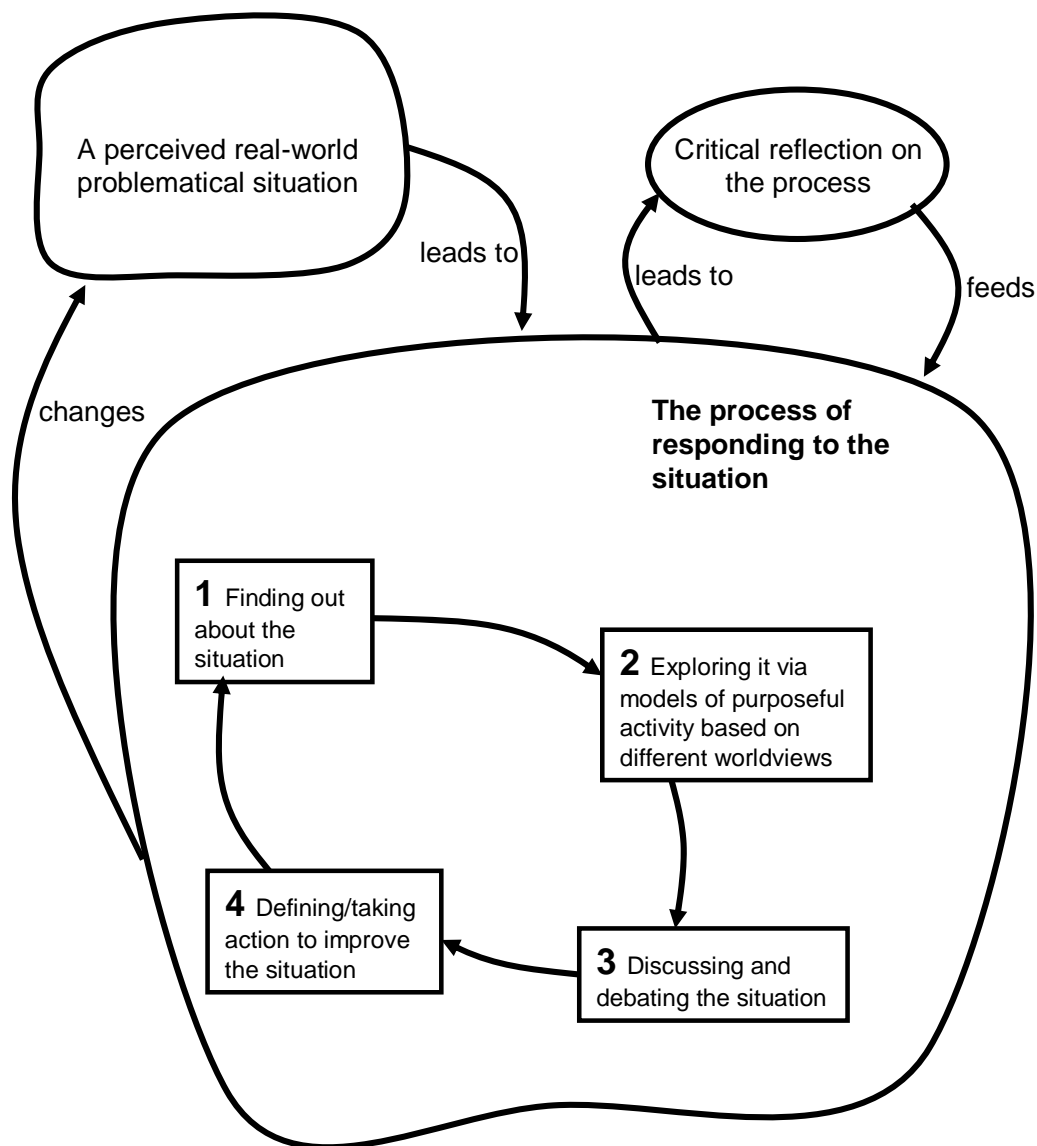


Figure 10 – SSM Summarized as a Model¹⁶¹

Compared to traditional methods of military analysis and planning, SSM appears to make greater consideration of the human element, particularly informal and formal roles, social norms, values and power commodities taken from multiple worldviews.

¹⁶¹ Poulter and Checkland, *Learning for Action...*, 62.

These well-developed mental models then have a key influence on course of action development, contributing building blocks for plans. They expand upon the traditional concept of enemy and friendly capabilities of weapon systems and logistic supplies. Importantly, SSM is less linear than methodologies such as OPP, allowing it to better adapt to the realities of a CAS. Yet, it need not replace OPP. On the contrary, it should supplement it, with SSM used for framing the problem in the initial design phase of a campaign to ensure a holistic view, then OPP utilized to produce the detailed plan. They are complimentary rather than contradictory techniques.

Given the nature of a CAS, even with SSM, the perfect “answer” or “solution” will never be found. Rather, SSM demonstrates that a “methodology, properly interpreted as a set of guiding principles, is not to produce ‘answers’ ...it is to enable you, the user, to produce better outcomes than you could without it.”¹⁶² Thus, it is a never-ending process of learning and adjusting as, with any CAS, taking action to improve the situation will inevitably change its character in an unpredictable direction.

¹⁶² Checkland, *Systems Thinking, Systems Practice*, A31.

CONCLUSION

The style is not so much of a traveler who knows the route, but more of an explorer who has a sense of direction but no clear route. M. Clarke and J. Stewart¹⁶³

This research paper was intended to examine the underlying nature of the Afghan conflict and whether the general CF approach to it is correctly focused. Unfortunately, it appears that commanders, analysts and planners often take a linear, enemy-focused view, which can unnecessarily limit courses of action. War, at its very heart, is a CAS, meaning combatants face inherent uncertainty as to its future form. Elements such as complex interdependency, feedback and self-organization make outcomes unpredictable and, with a wicked problem in particular, one must act in order to determine outcome but then this outcome cannot be undone if it turns out to be undesirable. Importantly, identifying the locus of the problem is innately difficult, if not impossible, yet this definition drives subsequent action so it is critical to get it as correct as possible. Military commanders and their staffs must accept and work within this ambiguity and while greater application of technology will provide some intelligence, it will not be sufficient to adequately understand the human element of the conflict.

With Afghanistan, the conflict certainly meets the criteria of a CAS, complicated by the fact that many involved parties reside outside its borders. There are local, regional and global elements that need to be addressed, which reach into the military, economic, security sector and diplomatic realms. Given that the major thrust of the effort to date has been military and security related, it is unlikely that the situation will vastly improve until more resources are directed to the other two areas, primarily diplomatic. The US, in

¹⁶³ M. Clarke and J. Stewart, "Handling the Wicked Issues—A Challenge for Government," (Birmingham, UK: University of Birmingham, School of Public Policy Discussion Paper, 1997), 15.

particular, has a key role to play, balancing relations with India, China, and Pakistan, as well as confidence building measures with Iran. Yet, this does not excuse the military side of the house; the alliance must better consider its personal role in this CAS. Until it fully acknowledges that it is an integral piece of the puzzle rather than impartial actor, it will continue to incorrectly frame the problem, with subsequent errors in action.

However, this will necessitate military cultural changes, with concomitant organizational, training and equipment adjustments.

Significant to this new mindset, commanders, analysts and planners must include non-linear, soft systems approaches to problem formulation and operational design. A flexible process of inquiry such as SSM will encourage this way of thinking. SSM is particularly adept at bringing under consideration critical aspects of “human terrain,” such as informal and formal roles, norms, values and power commodities. By using this methodology, the building blocks for courses of action, both military and non-military (e.g. diplomatic, economic) will emerge. Importantly, SSM is based on worldviews, which encourages the intervention force to consider a diverse group of players, perhaps uncovering some even more important to the overall problem than the immediate enemy threat. It can also help the intervention force to include, compare and contrast its own mental model with others in the analysis, which is vital to problem formulation, as outlined above. Without this step, success is unlikely and the problem is liable to be intractable.

SSM does not replace present military planning tools such as OPP. It is, instead, a significant force multiplier that can augment OPP during the initial operational design stage. OPP, as a military tool, generally points to a military solution; SSM can broaden

this out to ensure better consideration of the human factors and to elicit building blocks for future courses of action. However, no methodology will work unless collection means are matched to the conflict at hand. During the technological-based Cold War, signal and imagery collection were key to determining the enemy's intentions and disposition. In counter-insurgency, such as the Afghan conflict, technical collection has a role but is subordinate to human intelligence. Importantly, one must utilize the tools to gather information on a variety of players; the enemy is only one piece of the puzzle and perhaps even a minor one in the end. This collection then builds the database which is the institutional memory upon which future commanders, planners and analysts draw. It is a critical lifeline from one rotation to the next. If the database is unbalanced, then intervention force knowledge and understanding will be unbalanced, leading it to take action that can hinder rather than help the situation. This balance in collection is not solely an intelligence problem but rather one that runs from collector to analyst and planner and, finally, to the commander.

SSM is not the only methodology that can be used to examine a non-linear conflict. Future research should study the role that others can play, such as the Conflict Diagnostic Framework presently used for state development efforts, to determine whether they also can augment the process and where they would fit into it (e.g. operational design, planning or ongoing tracking phase).¹⁶⁴ There is also a need to explore specific dynamics underlying CF cultural impediments to change:

Organizational culture can be enabling in that it fuels the accomplishment of organizational goals. It can aid in building a solid corporate team.

¹⁶⁴ United Nations Department of Economic and Social Affairs, "Early Warning and Early Response Handbook Version 2.3," http://cpr.web.cern.ch/cpr/library/tools/ew-handbookfinalen_v2.3.pdf; Internet, accessed 12 April 2011.

However, it can also inhibit experimentation and marginalize people who have ideas that are at odds with the organizational culture.¹⁶⁵

In light of this, one must examine factors, such as the role of individual service versus joint mechanisms for planning, recruiting and training, as well as the role of financial constraints. The same issues should also be studied for other government partners, in order to understand their biases and viewpoints for conducting inter-governmental planning.

Soft systems thinking methodologies must be included throughout military members' careers. For example, basic training could include elements to familiarize members with the concepts. Royal Military College should also ensure officer cadets are practiced in a variety of analysis techniques to give them options when facing a new problem. Later courses, such as the Army Operations Course, naval and air force professional development, and the Joint Command and Staff Program require formal soft systems thinking modules for all students, especially when planning with OPP is being taught. This will allow OPP to be augmented and broadened with complementary tools. Intelligence analysts of all ranks also need to be exposed to soft systems thinking and must use different methodologies during career courses and while on exercises.

Furthermore, there must be regular joint exercises and planning groups between the CF and its other governmental partners so that all parties are familiar with the process and can contribute greater breadth and depth to the worldviews under examination. For actual operations, planning efforts need to include non-traditional partners, such as representatives of the various mental models at play. This could include former fighters, indigenous politicians, community leaders, those with in-depth knowledge of crime

¹⁶⁵ Rothstein, *Afghanistan and the Troubled Future...*, 177.

issues and regional players. It will take imagination, political will and economic support to accomplish this but if one is serious about improving the situation, it is necessary. It is also only through regular usage in a variety of venues that individuals will become comfortable with the tools and be able to competently implement them during actual operations.

There is no simple or single solution to a CAS, such as the Afghan conflict. It requires an experimental approach where, often, one must let the system run to determine outcome and then adapt before taking the next step. One must take the role of explorer and plot the route as the journey progresses as there is no pre-existing map for a Complex Adaptive System.

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