The Need for Interdisciplinary Analysis in Support of the Multi-Agency

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ABSTRACT

The "multi-agency" characteristic of international interventions to restore peace and stability to a conflicted region reflects the complexity of the challenge of carrying out this task. The "multi-agency" itself brings additional complexity to the problem that cannot be resolved through traditional management approaches that differentiate a problem into relatively independent components and allocate those components to responsible agencies. The result is a need for collaboration amongst agencies, but these agencies may have limited experience in effective collaboration, different cultures and different understandings of the problems or solutions. Analysis of "multi-agency" collaboration and human networks in general is immature. Given these characteristics of the "multi-agency" problem, effective analysis will require the insight that only a truly interdisciplinary approach can provide. In this regard, the analysis faces some of the same collaborative challenges of the multi-agency.

INTRODUCTION

The theme for Cornwallis XII was analysis for "multi-agency" support. The *Call for Papers* amplified this by stating that: "Interagency, multi-agency, whole of government, 3D (Defence, Diplomacy and Development) – each of these is a representation of the need for integrated and joined up planning and operations for peace and stability." It was further explained that this was a natural progression in the themes of Cornwallis workshops in that these workshops have "stressed the increasing complexity of the conflict environment" and the "critical need to develop a more comprehensive understanding".

Workshop themes are not intended to be rigidly interpreted but to provide a general guidance on the nature of the issues to be discussed. However, the persistence of the theme

in Cornwallis workshops, as noted in the *Call for Papers* – and sampling of papers from previous workshops (Maxwell, 1996; Clarke and Dewey, 1998; Johnson, 1998, de Coning, 1999; Lidy, 2000; Holshek, 2003, Babcock, 2006, Mitchell, 2007) will confirm this, implying that there may be something deeper in the term "multi-agency" (or its equivalents) that may be a reflection of the essential nature of the problem of achieving peace and stability in a conflicted region; and that this may have epistemological implications for analysts.

WHAT IS "THE MULTI-AGENCY"?

The "multi-agency" associated with restoring peace and stability is not merely many, similar agencies but many agencies of differing types. Again, the Cornwallis XII *Call for Paper* explains: "You will see uniforms of many militaries and police forces, diplomats, humanitarians, relief workers, and private sector representatives of many differing occupations. You will also see the people of the country in which you are working." However, it is not simply that there are many agencies - we live in a world surrounded by many agencies, but that these many agencies have a shared or common purpose. "All these people share more than a geographic commonality, they also share a purpose," as stated in the *Call for Papers*. This view of many agencies working to a shared purpose for peace and stability is well documented in previous Cornwallis workshops and in other sources as is the perceived need for these many agencies to improve coordinated or integrated planning and operations (Clarke and Dewey, 1998; de Coning, 1999; Lidy, 2000; Department of the Army, 2003; Maxwell, 2003, Babcock, 2006, Mansager, 2006).

From an etymological perspective, the term "multi-agency", applied to the circumstances of historical interventions to restore peace stability, seems quite correct. "Multi" is from the Latin word, *multus*, for "much or many". "Agency" has the same root as "agent", which is the Latin, *agree*, which is "to drive, to lead, to act or to do". Therefore, the "multi-agency" consists of many actors or agents seeking to lead, to act or to do. Notice that there is no requirement that these many actors do this in coordination or consultation or not. They may be very integrated or completely independent. What is not correct is to assume that the "multi-agency" is a single actor acting with "unity of purpose", even if that is what many constituents of the "multi-agency" might believe or seek as a goal. It's worthwhile to consider a couple of other prefixes that might be attached to the root "agency". Another common term used in place of the "multi-agency" is "inter-agency". "Inter" is itself a Latin word meaning "between, among or in the midst". Taken strictly interagency should refer not to the collective whole of the "multi-agency" but the relationships among constituent agencies. This takes us a step closer to the search for improved coordinated or integrated planning and operations as good interagency relationships would seem to be a necessary precondition for that improvement. However, there is no evidence that good relationships alone are sufficient for the desired coordination or integration.

Consider one final prefix, "trans", even though "trans-agency" is not a common one. "Trans" is also Latin and means "across, beyond, through or so as to change". This is very close to the word "transgress" (Latin: *transgressus*) which means "to step beyond or across, to go beyond the limits". While none of these words, multi-agency, inter-agency or trans-agency, alone seems sufficient, "trans-agency" does seem to indicate the desired goal of improved coordination or integration; in particular, that such as state of improvement would indicate that the various agencies have gone beyond their normal limits so as to change their

nature. It's worth considering if that is what each individual agency would desire, but more of that follows below in a discussion on collaboration. In any event, this very short etymological discussion has highlighted three aspects of the "multi-agency": (1) that of many agents acting, leading or driving planning or operations, (2) the existence of many agents leads to the requirement to manage relationships, and (3) that this situation leads to a pressure to transform, whether consciously or not, on the part of the various agencies.

THE "MULTI-AGENCY" AND COMPLEXITY

A key characteristic of the "multi-agency" is not just that it is composed of a large number of agencies, but that they represent a wide diversity in terms of:

1. Functions such as security, judicial, governmental, social and even commercial services.

2. Sectors including governmental, both national and international, voluntary and private.

3. Nationalities, including both foreign and indigenous.

This wide diversity is a requirement of the need on the part of an indigenous population with the support of the international community to restore all aspects of national life following a destructive internal conflict. Re-establishing a normally functioning society must be multi-dimensional. This has implications for the much desired "unity of effort" inherent in notions of coordinated or integrated planning and operations. In the midst of the inevitable chaos that results from hundreds of agencies engaged in restoring a normal (or, in other words, a peaceful and stable) society, such "unity of effort" has an obvious appeal. However, the normal functions of society must be multi-faceted. For example, agencies are not free to set priorities amongst essential services like food, shelter, energy or even to ignore the longer term restructuring that will be necessary for stability. The "multi-agency" will need to address many needs simultaneously. In fact history shows that events may quickly alter perceived priorities. A good example is that an American city, New Orleans, was devastated by a natural event and not by terrorists despite the priority of Department of Homeland Security being the latter. Equally so the task of restoring a peaceful and stable society requires balancing all the demands of a normal society. The "multi-agency" does not have the luxury of fixing one thing at a time.

The consequence of the need for the "multi-agency" to pursue a multi-faceted course of action is that this presents the "multi-agency" with a problem construct of considerable cognitive complexity (Bieri, 1955). A way to measure the level of complexity in a construct is to identify the degree of differentiation, the number of distinctions or separate elements by which the problem can be analyzed and the need for integration, the number of connections and relationships amongst the separate elements which need to be considered (Crockett, 1965). This is the problem construct facing the multi-agency. It should be noted that the military planning process is designed to reduce the cognitive complexity of the task of commanding; and it is a desire to emulate, consciously or not, the military planning process that gives rise to notions of "unity of effort". However, the goal of defeating an enemy's armed forces has much greater clarity and focus than that of restoring the functions of a

peaceful and stable society. "Unity of effort" may be very misplaced if the "effort" proves ill-chosen, which is very likely given difficulties experienced in places such as the Balkans, Haiti, Afghanistan and Iraq.

Traditionally, which, in this case, more or less means as a result of the industrial revolution, societal problems were divisible into discrete elements each of which could be allocated to a separate agency in a vertically structured management system. Interactions between separate agencies were, relative to the "peace and stability" task mentioned above, minimal, which is to say that typical industrial age societal management problems had a lower demand on cognitive complexity; at least as perceived by the designers of the management structures. Increasingly those structures are proving inadequate to a number of modern challenges in a very connected globe. As noted by Dr. Fuerth, a former White House security advisor (Fuerth, 2006), when writing of national security:

> *… the range of knowledge and the need for attention to the complex interactions among different clusters of problems exceed what can be handled by the vertically structured management system we presently employ. In the 21st century the security of the United States can no longer be preserved as a consequence of military power alone. National security is now a compound function …*

This would seem to equally apply to the task of restoring a peace and stability to a conflicted region. The inadequacies noted by Dr. Fuerth have been noted in the U.S. military as it seeks to develop new networked command and control structures. While there may be a degree of immaturity in current network-centric operational concepts, the effort of the military to develop these concepts represents a degree of dissatisfaction with previous command and control structures. This could be seen as a caution to replicating those structures and their associated processes within the "multi-agency" and its task of restoring peace and stability.

There are several other related concepts to the one articulated above which merit mention. These include complex adaptive systems, system-of-systems engineering and wicked problems.

The multi-faceted problem of restoring peace and stability is a complex one in that it involves multiple, diverse and interconnected elements. However, a particular attribute of the problem that should be considered is that it is primarily a human problem. Humans are noted for their ability to adapt and learn; and, hence, the "human" problem will be dynamic in its qualitative nature. In addition, control of such systems tends to be highly dispersed and decentralised. This is a special case of a complex system, which is a complex adaptive system (Holland, 1993). Complex adaptive systems present an additional challenge to that of merely complex systems; they adapt in response to changes in the environment. So, not only is the "multi-agency" faced with a problem requiring a high degree of cognitive complexity, the problem changes with time and in response to the actions of the "multi-agency". A suitable understanding of the problem at one time may not be sufficient at a later time. A satisfactory solution at one time may not be suitable at a later time, and may even give rise to unforeseen additional problems. In addition, any solution may likely need to be implemented over a dispersed and decentralised human or social network with the potential for competition as well as cooperation amongst the constituent elements of the network.

System-of-Systems engineering is a recent approach that has developed in response to the complex nature of many current societal problems. It is applied to large scale inter-disciplinary problems involving multiple, heterogeneous, distributed systems at multiple levels within multiple domains (Keating et al., 2003). Within this concept, the systems-of-systems engineers must acknowledge uncertainty in requirements and constituent systems as well as taking into account consideration of the multiple levels and domains. The aim is not to optimize a given system, but to optimize a network of systems to meet a specific objective. System-of-systems concepts and engineering approaches are still in their infancy. Even if these systems-of-systems engineering approaches were well developed, the general, ambiguous objective of "restoring peace and stability" could hardly described as a specific one.

'WICKED' PROBLEMS

The final concept worth considering is that of the "wicked problem." This term was first used by Rittel and Weber (1973) to articulate the challenge of identifying scientific solutions to social problems for which there can be no undisputable concept of public good. As an example, the goal of "establishing peace and stability" in Afghanistan is one shared by the Afghan government, the international community and the Taliban. The variance in this "shared purpose" is in the details of how to do it.

Rittel and Weber identified several characteristics of wicked problems:

1. There is no definitive formulation: An understanding of a problem depends upon the solution being conceived. The process of formulating the problem and conceiving of the solution are identical. What is required is a model of planning as an argumentative process in which the concept of problem and solution emerge.

2. There is no "stopping" rule: There are no criteria to say when a solution has been found. Work is terminated for reasons that are not inherent to the logic of the problem but external reasons.

3. Solutions are not true-false, but good-bad: No solution can be identified which is a correct or true solution. Instead, solutions are judged by individuals or groups, according to their value sets, as good or bad.

4. There is no immediate or ultimate test of a solution: Solutions, after being implemented generate consequences which may only become apparent after an extended period of time. Given the unbounded nature of this extended period of time, there is no way to fully appreciate all consequences.

5. Every solution is a "one-shot operation." Solutions to wicked problems, once implemented produce consequences which cannot be undone. There can be no trial and error. Every attempt or trial counts significantly.

6. Solutions are not enumerable: It is not possible to prove that all solutions have been identified and considered.

7. Every problem is essentially unique: Despite two problems having many similarities they will differ in ways that have important consequences; and it will not be possible to be certain that the differences outweigh the similarities.

8. Every problem is a symptom of another problem: The level at which a problem is considered is dependent upon the analyst's confidence in dealing with that level. The higher the level of a problem's formulation, the more general it becomes and the more difficult to address.

9. The existence of a discrepancy can be explained in numerous ways and the choice of explanation determines the resolution: The attitude or world-view of the problem solver determines the choice in explanation. Explanations are chosen which seem most plausible to the problem solver.

10. The problem solver has no right to be wrong: The problem solver is liable for the consequences of an implemented solution.

Without going through each item in detail, it is readily apparent that the problem of "restoring peace and stability to a conflicted region" fits many, if not all, of the criteria of Rittel and Weber. Given that the problem is "wicked", the multi-faceted nature of the "multi-agency" presents many challenges in coordinating and integrating planning and operations. Every agency will have its own world view, its own concept of the problem and its own concept of an acceptable solution. In this context "unity of effort" is unlikely to be an *a priori* condition of success. Rather, there is more likely to be an on-going argumentative process amongst the changing constituents of the "multi-agency" as the "multi-agency" seeks to solve a variety of issues that are a reflection of the worldviews of constituents.

Success is also not likely to be a singular event, but a series of events as determined by the constituent agencies. In this mix of constituent agency worldviews, problem perceptions and solutions, coherence more likely emerges from the cooperative and competitive interactions of the various constituent agencies than as a result of coordination and integration. Despite the intrinsic difficulties of a complex problem and the additional impediment in achieving a common understanding of that problem, the large number of constituent agencies in the "multi-agency" and the importance of addressing the problem of conflicted regions demand the "multi-agency" strive for better cooperation. However, this requires a realistic understanding of why agents cooperate and how they do so.

THE NEED FOR COLLABORATION

The need for cooperation is well understood by agencies with experience in stability and support operations. The US Army field manual for stability and support operations (Department of the Army, 2003) includes the following among important considerations for stability operations:

- Leverage interagency, joint, and multinational cooperation; and

- Enhance the capabilities and legitimacy of a host nation.

Key considerations for support operations include:

- Coordinate actions with other agencies; and
- Hand over to civilian agencies as soon as feasible.

Ignoring the distinctions made by the US Army between stability and support operations, these highlighted considerations indicate the importance placed on cooperation between the US military and other organizations in these or similar types of operations. It is worthwhile to consider both some definitions of cooperation and related terms as well as to briefly review the literature on cooperation amongst agencies of various types.

The words, "cooperation", "coordination" and "collaboration" are sometimes used interchangeably. Sometimes the words are arranged in a scale such that "collaboration" indicates higher integration than "coordination". However, the dictionary definition of these words indicates that the words do have related by distinct definitions, and that these distinctions are more subtle than can be represented by a linear scale of improved integration of planning and operations.

> "To cooperate" is to act or work with others or associate with others for mutual benefit. This equally applies to the behaviour of members of single team as to independent agencies who act or work together according to the circumstances of the moment.
>
> "To coordinate" is to bring into common action, movement or condition. It implies some attempt to harmonize actions, movements or conditions. Coordination is a result of at least some degree of cooperation.
>
> "To collaborate" is to cooperate with another agency with which one is not immediately connected. In war time it has a negative connotation of cooperating with the enemy. Within an academic or technological situation it has a positive connotation of working jointly in an intellectual endeavour. Regardless, collaborating implies working with others with whom there is not a normal connection.

From these definitions it can be seen that the need to coordinate planning and operations implies the need to collaborate, which is to cooperate with other agencies with which an agency does not have an "immediate connection". The act of coordinating or cooperating within a given agency is thus seen as normal activity for that agency. This understanding of collaboration is also found in academic literature. Collaboration is seen as a "temporary arrangement in which two or more actors work together toward a single common end requiring the transmutation of materials, ideas or social relations to achieve that end" (Parker and Selsky, 2004). However, despite the joining of resources and ideas, there is a natural tension, between autonomy and alliance, which results in ambiguity and complexity within collaborating structures. The complexity associated with collaborating should be seen as additional to the complexity inherent in the problem. This complexity cannot be swept away with an assumed planning principle of "unity of effort". The complexity is intrinsic to the act of collaborating.

There is no general theory of collaboration that would be applicable to all collaborating actors in all situations. Existing theories can be categorized into six classes (Gray and Wood, 1991). These are:

1. Resource Dependent Theory: The key questions for an agency concern achieving stability and reducing uncertainty with respect to the environment without increasing dependency on other agencies. At the domain level (i.e., the "problem" level) the questions shift to the circumstances of collaborating and the resulting patterns of resource distribution.

2. Corporate Social Performance Theory – Institutional Economics Theory: The key agency questions within this type of theory relate to social role and responsibilities as well as social legitimacy. The domain level questions concern the allocation of roles and responsibilities among agencies.

3. Strategic Management Theory – Social Ecology Theory: The key agency questions address the threats and opportunities in the agency's environment. A key domain level question is how agencies regulate self-serving behaviours to achieve collective goals.

4. Microeconomics Theory: Within this theory class the agency's key concern is achieving efficiency in transactions with other agencies. At the domain level the concern is overall efficiency in transactions.

5. Institutional Theory – Negotiated Order Theory: At the agency level the issue concerns how that agency achieves legitimacy from the institutional environment. Domain level issues concern the process of granting legitimacy within a social system and the shaping of alliances by the institutional environment.

6. Political Theory: The relevant questions at both the agency and domain levels deal with power dynamics amongst agencies and the distribution of benefits within a network of stakeholders.

Each type of theory addresses one or more of *a priori* conditions for collaboration, the process of collaboration and the outcome of collaboration. None do so comprehensively (Gray and Wood, 1991). As well, and as indicated in these short explanations of each class of theory, there is a need to consider both agency as well as domain level issues. However, not surprisingly, since agencies are the typical means of funding research, most research concerns agency level and not domain level issues. Further insufficient attention has been given to issues that "lie between the partners, not within either partner" (Parker and Selsky, 2004). The act of collaborating results in a new or emergent culture at the interface between agencies. Trust and power, for example, are key mechanisms for coordinating relationships and are elements of this emergent culture, only arising after the formation of a partnership or collaboration.

A review of the literature shows that many important questions concerning collaboration require the further development of theory as well as the collection of supporting empirical data. Similar conclusions were arrived at by a recent review of the state of network science, for which collaborative networks are an important example, in a study commissioned by the

US Army (Committee on Network Science for Future Army Applications, 2005). The major conclusions of this study were that:

1. Networks, biological, physical and social, had a pervasive influence and were indispensable to the workings of the global economy and the defence of the United States;

2. The fundamental knowledge needed to predict the properties of large networks and vital social networks is primitive; and

3. In spite of the need and high interest, funding policies and practices are not focussed on accumulating fundamental knowledge and research is fragmented.

In addition, we should not presume that better collaboration within the "multi-agency" will necessarily be sufficient for success. Turcotte and Pasquero (2001) noted that while multi-stakeholder collaborative roundtables have been presented as a means to address complex problems, the reality, in a case study, was that consensus was achieved only on general principles, learning was limited to networking competencies and innovation was incremental only. However, Turcotte and Passquero concluded that giving general direction for a problem was still useful and could not have been achieved except through collaboration. Given the characteristic of "wicked" problems identified Rittel and Weber (1973) in that the process of problem formulation is identical with that conceiving of a solution, consensus on general direction may be a critical one for the "multi-agency."

THE NEED FOR INTERDISCIPLINARY ANALYSIS

The Committee on Network Science for Future Army Applications (2005) identified a number of research areas of relevance to a future "networked" US military. A few are specific to combat operations, but most are also relevant to the "multi-agency". These areas include:

- Modelling, simulating, testing and prototyping of very large networks;
- Command and control of joint or combined networked forces;
- Impact of network structure on organisational behaviour;
- Security and information assurance of networks;
- Relationship of network structure to scalability and reliability;
- Managing network complexity;
- Improving shared situational awareness of networked elements; and
- Enhanced network-centric mission effectiveness.

Addressing these research topics will require the knowledge of a wide range of disciplines. This is likely true even for specific topics if the example of distributed decision making is typical (Schneeweiss, 2003):

> *Thus, distributed decision making addresses an important and rapidly developing field in general decision theory. It comprises areas as diverse as multi-level optimization, multi-stage stochastic programming, hierarchical production planning, multi-agent systems, principal agent theory, supply chain management, managerial accounting, contract theory, auction theory and many other domains. In most cases these areas are part of different disciplines like operations research, computer sciences, economics, game theory, management accounting, organizational theory, psychology, sociology and others.*

Interdisciplinary studies (Thompson-Klein, 1990) are revealing on the challenge in conducting this type of research. The modern notion of disciplines is a product of the industrial revolution and the need for specialization and the evolution of the natural sciences. The distinction between multi-disciplinarity and interdisciplinarity is that the former can be merely the collation of perspectives of different disciplines, but that the latter indicates an integrative perspective as well. Interdisciplinary researchers like Thompson-Klein have noted that academic institutions are structured to reinforce multi-disciplinarity and not interdisciplinarity.

As well there is a paradox inherent to interdisciplinarity in the need for disciplines recognizing good work while at the same recognizing that the disciplines themselves are inadequate, otherwise there would have been no need for interdisciplinary investigation. This tension has led in some cases for interdisciplinary areas to become disciplines in their own right. However, doing so tends to isolate the interdisciplinary area from developments in the original disciplines. Alternatively, researchers will move in and out of disciplinary and interdisciplinary work with the result that the interdisciplinary field fails to achieve the critical mass necessary for significant advancement of knowledge. Balancing the need of one's discipline with the intellectual demand of interdisciplinary work is a significant challenge.

Thompson-Klein has identified several demands that give rise to interdisciplinary work. Most fall within the confines of academia, but one is an original social demand which cannot be contained within a single disciplinary frame. This type of problem-focused research has led interdisciplinary researchers to the concept of "transdisciplinarity" (Thompson-Klein, 2003). A "transdisciplinary" approach requires the cooperation of researchers, practitioners and stakeholders to solve complex problem. Our original social problem could be considered to have a fractal-type quality.

The complexity of the problem of restoring peace and stability is arguably one of finding a new agreement for societal collaboration within a conflicted region. This collaborative problem appears again as a central problem in the need to improve cooperation within the "multi-agency" and again in the collaborative research necessary to investigate the problem of improving "multi-agency" coordination. It would seem that only by the effective practice of collaboration can researchers provide collaborative solutions for practitioners within the "multi-agency" so that they are better able to address the problems of collaboration within a conflicted region.

SUMMARY

This paper has followed a trail which has led from the complex, "wicked" problem of restoring or maintaining peace and stability to the complex, "wicked" problem of cooperative planning and operations of the "multi-agency" to the complex, "wicked" problem of the interdisciplinary research needed to improve "multi-agency" cooperation. The traditional management processes, based on the differentiation and allocation of problems and which have served society well throughout the 20th century seem no longer adequate. Yet novel, networked approaches remain poorly understood despite the claims made for such approaches in solving complex social problems. Research is needed, but that research, by the nature of the problem, will be of a complex, interdisciplinary nature.

BIBLIOGRAPHY

Babcock, S., 2006. *A Framework for Integrating Civil-Military Responses to Conflict: Network Enabled Operations in Support of Defence, Diplomacy and Development*, Cornwallis X: Analysis for New and Emerging Societal Conflicts, Clementsport, N.S.: Canadian Peacekeeping Press, 92-107.

Bieri, J., 1955. *Cognitive Complexity-Simplicity and Predictive Behaviour*, Journal of Abnormal and Social Psychology, 51, 263-268.

Clarke, W. C. and G. Dewey, 1998. *The Comprehensive Campaign Plan*, Cornwallis III: Analysis for Peace Operations, Clementsport, N.S.: Canadian Peacekeeping Press, 137-152.

Crockett, W. H., 1965. *Cognitive complexity and impression formation*. Progress in experimental personality research Volume 2, 47-90. New York, New York: Academic Press.

De Coning, C., 1999. *Civil-Military Interactions in the Post-Cold War World*, Cornwallis IV: Analysis of Civil-Military Interactions, Clementsport, N.S.: Canadian Peacekeeping Press, 66-86.

Committee on Network Science for Future Army Applications, 2005, *Network Science*. Washington, D.C: The National Academies Press,.

[The] Cornwallis Group, 2006. *Cornwallis XII: Analysis for Multi-Agency Support, Call for Papers*.

Fuerth, L., Spring 2006. *Strategic Myopia: The Case for Forward Engagement*, The National Interest, No. 83, 58-63.

Holland, J. H., 1993. *Complex Adaptive Systems*, Cambridge, MA: MIT Press,

Holshek, C., 2003. *Interdisciplinary Peace Operations Professional Development: Investing in Long-Term Peace Operations Success*, Cornwallis VII: Analysis for Compliance and Peace Building, Clementsport, N.S.: Canadian Peacekeeping Press, 51-70.

Johnson, T. H., 1998. *Confusion in the Midst of a New Foreign Policy Force: Analyzing the Task Structure of Peace Operations*, Cornwallis II: Analysis for and of the Resolution of Conflict, Clementsport, N.S.: Canadian Peacekeeping Press, 293-331.

Lidy, M., 2000. *US Management of Complex Contingencies, Potential Global Partners, and Challenges to Achieving Unity of Effort*, Cornwallis V: Analysis for Crisis Response and Societal Reconstruction, Clementsport, N.S.: Canadian Peacekeeping Press, 341-356.

Keating, C., R. Rogers, R. Unal, D. Dryer, A. Sousa-Poza, R. Safford, W. Peeterson and G. Rabadi, 2003. *System of Systems Engineering*, Engineering Management Journal, Vol. 15, No. 3, 36-45.

Mansager, T. B., 2006. *Interagency Lessons Learned in Afghanistan*, Joint Force Quarterly, No. 40, 80-84.

Maxwell, D., 2003. *Integrated Strategic Planning for Sustainable Peace*, Cornwallis VII: Analysis for Compliance and Peace Building, Clementsport, N.S,: Canadian Peacekeeping Press, 137-150.

Maxwell, D. T., 1996. *Supporting Decision-Makers in Future Conflicts: A Decision Theoretic Perspective*, Cornwallis I: Analytical Approaches to the Study of Future Conflict, Clementsport, N.S, Canadian Peacekeeping Press, 206-226.

Mitchell, I. M., 2007. *Stakes in the Ground: Taxonomy for Analysis of Civil-Military Transitions*, Cornwallis XI: Analysis for Civil-Military Transitions, Clementsport, N.S,: Pearson Peacekeeping Press, 303-314.

Parker, B. and J.W. Selsky, 2004. *Interface Dynamics in Cause-Based Partnerships: An Exploration of Emergent Culture*, Nonprofit and Voluntary Sector Quarterly, Vol. 33, No. 3, 458-488.

Rittel, H. J. and M. M. Weber, 1973. *Dilemmas in a General Theory of Planning*, Policy Sciences, No. 4, 155-169.

Schneeweiss, C. A., 2003. *Distributed Decision Making*. New York, New York: Springer.

Thompson-Klein, J., 1990. *Interdisciplinarity: History, Theory and Practice*. Detroit: Wayne State University.

Thompson-Klein, J., 2001. *Transdisciplinarity: Joint Problem Solving Among Science, Technology and Society*, Birkhauser.

Turcotte, M.-F. and J. Pasquero, 2001. *The Paradox of Multistakeholder Collaborative Roundtables*, The Journal of Applied Behavioural Science, Vol. 37, No. 4, 447-464.

Turcotte, M.-F. and J. Pasquero, 2003. *US Army Field Manual FM 3-07 (FM 100-20), Stability Operations and Support Operations.*, Headquarters, Department of the Army, Washington, D.C.