Policy Simulation in a Warzone: System dynamics in Afghanistan

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Introduction

Operation Enduring Freedom in Afghanistan (OEF-A), started in response to the events of 9/11, 2001 with the first American troops arriving in country within the month on October 7, 2001. The war in Afghanistan has continued for over a decade and has led to significant costs for the United States and its coalition partners. International Security Assistance Force (ISAF) casualties have surpassed 3000, with more than 2000 of them American, and the total US cost is now over $600 billion. While the expenditures of time, personnel, and money have been significant, the efficacy of the overall intervention is very much in question. One particularly striking statistic has been the expansion of Taliban *shadow governance* (Cordesman 2011, 26). The increasing presence of insurgent leaders and courts supplants the legitimate Government of the Islamic Republic Of Afghanistan (GIROA) that the coalition is there to support. Between 2005 and 2009, insurgent shadow governance increased from a mere handful of Afghanistan's 34 provinces to all 34. Given the current, increasingly obvious tensions between Afghanistan and ISAF as the 2014 elections approach (e.g., Londono and Sieff 2013), this early Taliban expansion can be seen as a precursor of later policy problems. The question then becomes how to reconcile this counterintuitive policy outcome (Forrester 1971) – the increased Taliban presence in Afghanistan – given the significant expenditures of time, personnel, and money to prevent this very thing from happening?

The paper describes a system dynamics policy simulation engagement undertaken with the US special operations command in Afghanistan between August 2011 and February 2012 and is organized into three sections. First, the basic mission and motivation for the engagement are reviewed. Second, the results of and lessons learned from the engagement are discussed. Third, a reference mode (Sterman 2000) is begun to support a more extended system dynamics-based study that addresses the counterintuitive outcomes of the Afghan intervention specifically and of the problems associated with nation building more generally (Dobbins 2003).

Operational Background

Special operations forces in Afghanistan perform basically two types of operations: counter-terror (CT) and counterinsurgency (COIN). CT operations are short-term, kinetic, direct actions such as those portrayed in *Zero Dark Thirty* (Bigelow and Boal 2012) and performed primarily by US Navy SEALs. COIN operations, in contrast, are long-term, non-kinetic, indirect operations that focus on building host-nation security, governance, and development capacity. COIN is thus a variation of the Foreign Internal Defense (FID) mission that has been performed by US Army Special Forces since 1952 (US Army 2009). System dynamics simulation modeling was provided to support counterinsurgency (COIN) operations generally and governance (political) and development (economic) studies specifically in the Afghanistan theatre of operations. Initial insight that system dynamics would be applicable to COIN was taken from current publications (Kilcullen 2010, ch. 6), prior research on Afghanistan with the government customer, and prior country modeling work done with DARPA that combined security, governance, and development operations within a single analytic framework (Lofdahl 2010).

COIN is implemented in Afghanistan though the Village Stability Operations (VSO) and Afghan Local Police (ALP) program in which local Afghans are trained by US Army Special Forces Operational Detachments Alpha (ODAs) to protect their own villages against unwanted Taliban influence (Saum-Manning 2012). VSO/ALP operations take place in the context of the past 30 years of Afghan history, which features three separate wars: the first ten years were spent fighting the Soviets who invaded the country and tried to install a communist government. The Soviets were eventually expelled with the help of American arms shipments, but this led to a ten year civil war that ended with the country under control of the Taliban. After the Taliban aided and abetted the 9/11 attacks, the US invaded which has led to another ten years of conflict fighting the Taliban and standing up the internationally sponsored legitimate government, GIROA. There are several significant problems currently facing VSO/ALP operations. First, there is no tradition of communication and cooperation between the central Afghan government and the country's outlying regions, so ODAs must initiate and establish working relationships between central and local government officials that more developed countries take for granted. Second, after thirty years of war, many of the traditional Afghan leaders have been killed or have gone into hiding, so the ODAs must locate legitimate local leaders with whom to work. Note that ODAs performing a VSO/ALP missions have the opposite problem of SEALs performing CT missions – whereas SEALs need to find bad guys to engage, ODAs need to find good guys to build up. Figure 1 shows a meeting with local leaders, called a *shura*, who are being asked officially to accept ALP in Yahya Khel District, Paktika Province. Third, once local leaders and police have been identified, trained, and put in contact with GIROA, then the ODAs can move onto the next district and train more local leaders and police. Ensuring that the gains made by ODAs persist has been an ongoing challenge.

Figure 1. A VSO/ALP meeting or *shura* between local Afghan leaders and ODAs in Yahya Khel District, Paktika Province

Building Models

The system dynamics modeling team worked as quantitative analysts for the command and focused on key questions, the first of which was a quantitative analysis of ALP training. Several factors complicated this analysis. First, the individuals for whom we were working at the command were not the same people who saw the value of system dynamics modeling, who invited us to go to Afghanistan, and who put us under contract. It turns out that it is much more difficult, complex, and time-consuming to get into a war zone than the system dynamics team originally anticipated, and the associated time delay caused us to miss the command team with whom we had previously worked. Second, the individuals for whom we were working were much more applied and gounded and much less academic and abstract than the previous command team, which immediately created a modeling confidence and acceptance challenge. After a few weeks of creating various Vensim demos and trying to engage the command directly, we chose to address the analysis challenge in a more indirect fashion.

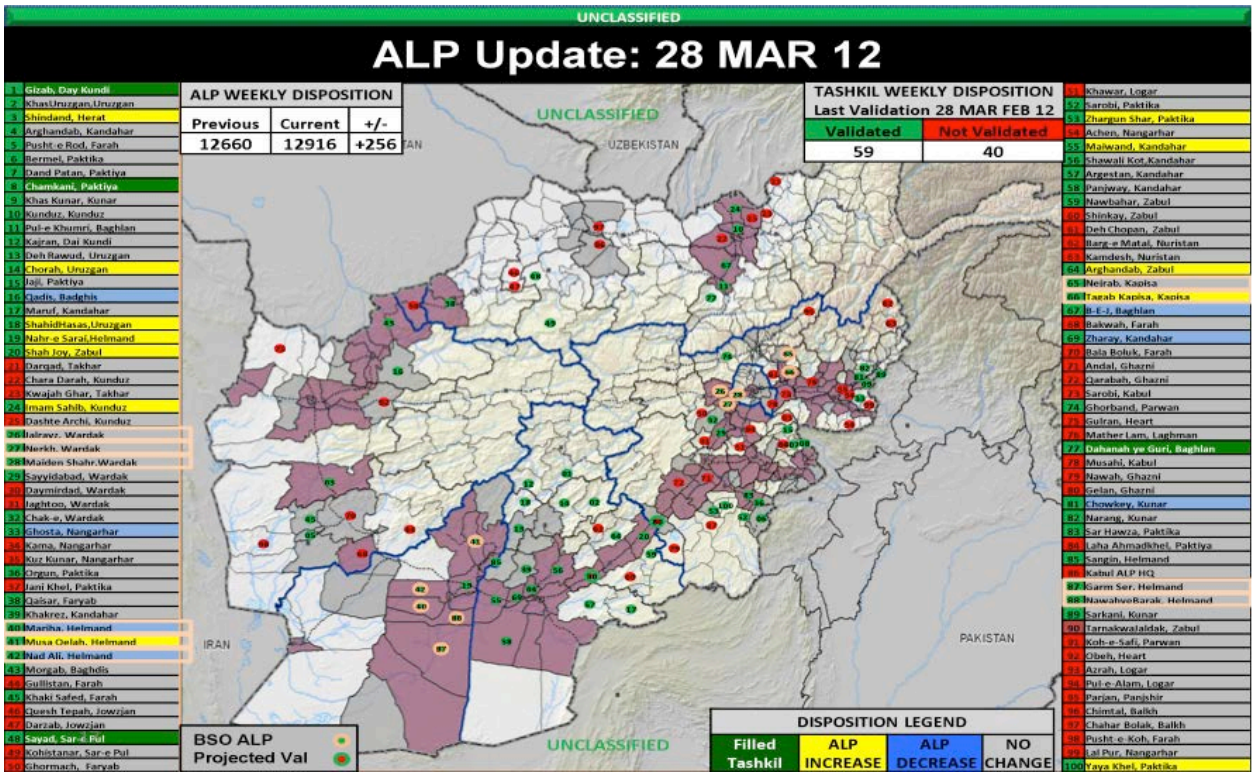

Figure 2. Map based analysis for the 100 districts with ALP

Figure 2 shows the standard graphic that the command uses to track ALP progress on a weekly basis. Afghanistan has approximately 300 districts, and 100 of them have been selected for ALP (Saum-Manning 2012). The upper limit of ALP in a district is called a *tashkil*, is negotiated with GIROA, and works out to about 300 per district. The total number of ALP is usually reported in aggregate as shown in Figure 3.

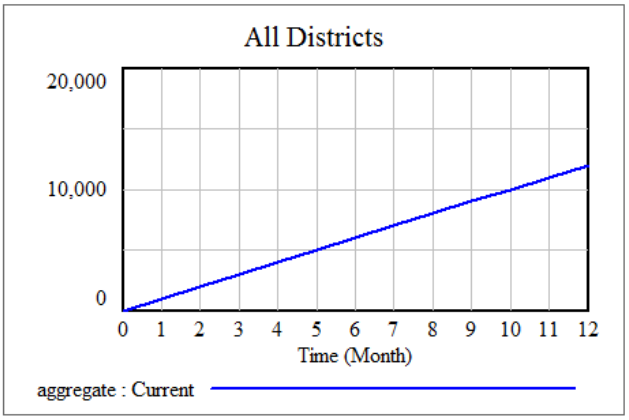

Figure 3.Aggregate ALP number for all districts combined

The system dynamics team, after working with the special operators for several months, realized that complex and abstract analyses were not going to be accepted by the command, at least not initially. They wanted the opposite of, “DARPA hard,” which is “operationally simple.” Given the type and format of quantitative ALP information that was being collected and presented to the command, the system

dynamics team made two innovative recommendations. First, an operationally simple model was created that showed the key relationships that were necessary to create and keep ALP numbers increasing as shown in Figure 4. The intuition here derived from Warren (2002) in that linear stock-and-flow relationships, as opposed to complex feedback relationships, can provide strategic insight to and elicit confidence from decision makers.

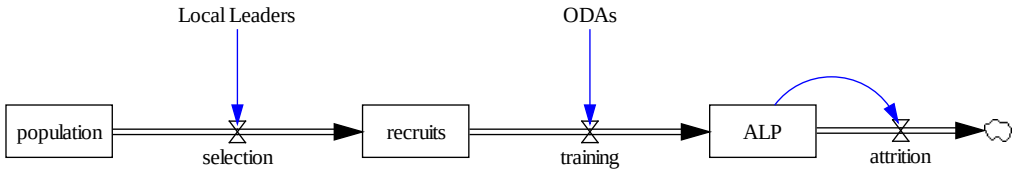

Figure 4. Systems model of ALP training

Figure 4 shows that there are three system features that are required to keep total ALP numbers increasing. First, and most obviously, there must be enough ODAs to train the recruits and increase ALP. Second, the must be enough members of the population available to be recruited, and this led to a discussion with the command about the factors associated with this recruiting pool. For example, there must be enough raw to actually be recruited, they must not be doing something else that precludes their participation in the ALP program, and they must not be intimidated by the Taliban to the level that they won't volunteer. Note that village elders rather than ODA perform the recruiting as they can attest to the character of the recruits. Third, once they ALP force has been created, care must be taken that they don't leave, which is a considerable problem in Afghanistan where some military units face attrition rates of up to 20 to 30% per year. We made clear to the command that every soldier who is kept is another who does not have to be trained. Seeing these factors in a graphical and related stock-and-flow fashion was deemed useful by the command.

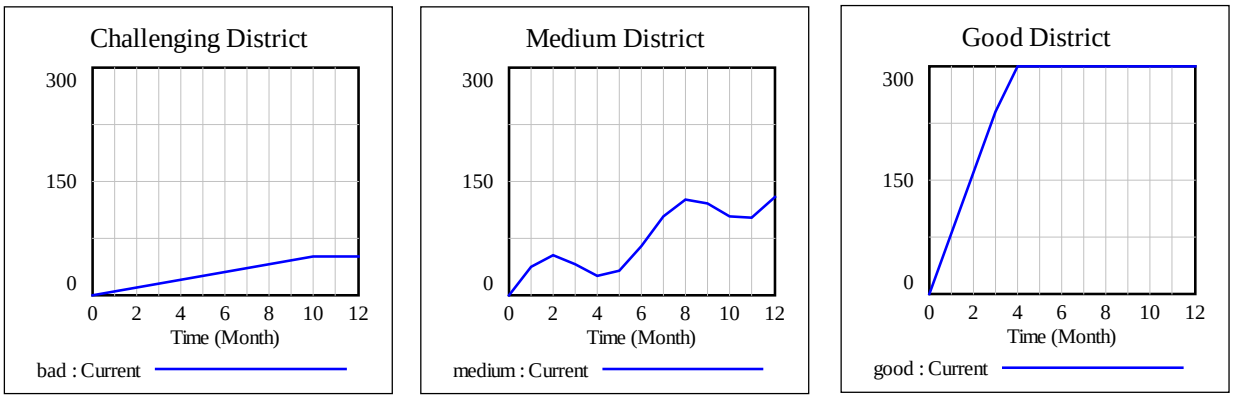

Figure 5. Disaggregated ALP analysis by type of district

Figure 5 shows the second innovation, disaggregating the overall ALP numbers of Figure 3 and displaying them on a single district basis. Doing so revealed that each district was in one of three basic modes. First, the graph on the far left, a "Challenging District," shows that despite

ongoing engagement by the ODA with local Afghan officials, ALP had reached a minimal level and was not progressing. Second, in the "Medium District," there had been some progress made, but there had also been some problems. Such districts required either additional study to determine what had happened or additional attention to ensure that previous gains were not lost. Third, a "Good District" will feature a ready pool of capable and motivated recruits and comes up to tashkil quickly. The command found these district level graphs informative, and their presentation led to prolonged and lively discussions with the commander. One of the key insights from this analysis was concerned the placement of ODAs, which is only a 12 man element. Special Forces are naturally aggressive and want to go to challenging districts, but a too challenging district could mean wasted effort because there is not hope for success or worse, casualties. We recommended that it is likely better to focus initial efforts on medium to good districts and then push from these established areas into more challenging districts.

Next Steps

After this initial quantitative, systems based analysis, the command had the system dynamics team work on a more qualitative analysis about how to prepare for the upcoming 2014 elections that will replace Afghan President Hamid Karzai. These elections will be the last real opportunity for ISAF to influence the future course of events in Afghanistan, but the flawed 2009 elections to not provide reasons for optimism as they featured both fraud and violence. There is reluctance on the part of the US military not to interfere with local politics, but if COIN seeks to build up host nation security, governance, and development capacity, then politics is key part of that governance component. Afghan scholar Thomas Barfield (2011) recommends three significant political changes for 2014: (1) Karzai must step down from power, (2) political parties must be allowed to form, and (3) political power must devolve from Kabul to the countryside. Getting US foreign to commit to these goals has been difficult even though they would contribute significantly to mission success.

In addition to the Afghan political system, consideration should be given regarding how the American intervention could have been better managed and achieved better results. This goal motivated the original command team who wanted to have a system dynamics capability available to address these important yet hard to analyze factors. An interesting dynamic occurred while we were there in that people in uniform would take us behind closed doors and vent about what they thought the real problems were because we were free to think and write about them in ways that they were not. The first observation concerned the large amounts of money that were sent to Afghanistan that swamped the local economy and taught the Afghan leadership to be dependent rather than self-sufficient (Cordesman 2010). Why would any Afghan leader work on developing relationships within Afghanistan when an order of magnitude more money could be made cozying up to the Americans? A rent-seeking

framework would be useful to order an economic analysis based on the key components of the Afghan economy, which we identified as War, Aid, Legitimate, Drugs, and Other (WALDO). Sadly the legitimate economy was dwarfed by the other economic components, and GIROA doesn't come close to collecting the taxes necessary to support the state and instead depends on foreign donations and capital flows. The Taliban, with its drug based economy, actually does a much better job of collecting taxes and matching its expenditures with its income.

Second, the personnel system of the US Army works against COIN success. Afghanistan is a tribal country with a social system that is based on long-term personal relationships. US Army personnel rotate through on a yearly basis, so relationships are constantly being formed and broken, which leads to problems in a tribal society. Moreover, promotion within the Army is based on Officer Evaluation Report (OER) bullets, which makes the leadership loathe to take risks. This manifests itself in the ODAs by doing everything possible not to let the Afghans who they are training fail, even if this means doing their work for them, which hinders learning and thwarts competence (Heifetz, Grashow, and Linsky 2009). To risk failure and increase learning would put the soldiers' promotion at risk. In this manner, the very competence of US special operations forces works against the training of Afghans that is the whole reason behind their mission. The Army's rotation schedule combined with its promotion policies combine to prevent the long-term and consistent engagement with Afghans that is necessary to achieve COIN success. Lofdahl (2012) provided an initial system study using causal loop diagrams, but continued analysis of the dynamic, interrelated, and complex factors associated with international interventions and the exploration of possible improvement strategies is necessary to increase the likelihood of strategic mission success.

Conclusion

OEF-A is winding down, but like Vietnam, it is less successful than it should be given the expenditure of time, lives, and money. Figuring out what happened, and why, and what could be done better next time is not only important from a lessons learned perspective but also to honor those Americans and coalition partners who gave their lives in Afghanistan. System dynamics offers an almost unique capacity to blend the security, governance, and development factors of COIN together in a holistic, unified fashion. The question remains though, why did US foreign policy achieve such counterintuitive results in Afghanistan, and what could have been done better? Answering this question will a more comprehensive system dynamics will have two important impacts. First, US special operations forces are likely to operate in Afghanistan past the 2014 elections, so an improved understanding of the forces at play there will help protect the forces that remain as well as help them achieve their mission. The experience of this modeling team indicates that system dynamics is probably more applicable at the strategic rather than tactical levels, though it can help provide insights that inform data collection and

visualization at the tactical level. Second, the world is full of troubled locations in which US special operations forces may operate – for example, three countries that immediately present themselves are Nigeria, South Sudan, and Mali (Francis 2013). A well constructed system dynamics simulation effort could help articulate the span of policy possibilities and help apply scarce forces and resources to their maximum effect. The importance of these countries, the value of these forces, and the mistakes of past interventions all indicate that there is room for intervention improvement, and system dynamics has the possibility to help.

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