Training on Cultural Aspects of Planning Humanitarian Assistance Operations

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ABSTRACT

The migrations forced by natural disasters and wars influence the logistics and security plans for Internally Displaced Populations (IDP) camps. In failed states that are the usual environment for Stability Operations, IDP camps are a potential recruiting ground for terrorists (Kahn, 2008; IRIN, 2011). The mix of cultural groups and the perceived legitimacy of the authorities organizing the camps influence the security of the camp, how the IDPs choose the camp where they go for help, and the potential for unrest and terrorism.

This paper demonstrates this approach to training leaders to consider cultural aspects during the planning of humanitarian assistance missions using the flooding of the Indus river in the Sindh valley of Pakistan during August of 2010 as an example. The paper describes an adaptation of the FAPV™ model for organizing the training (Frank, Hill, & Johnson, 2010) that includes familiarization with the cultural groups in the area, acquiring knowledge about the IDP camps in the area, their capacity and leadership, practice in prioritizing supplies and security forces, and validating resource allocations against models of expected unrest. A synthetic population was constructed to provide a geospatially and demographically accurate population database of households in the flooded areas. A simple agent-based model derived from the synthetic population is used to assess the number of IDPs at 12 IDP camps. Using the work of Gurr (1970) on relative deprivation, Epstein (2002) on unrest models, and Fair, Malhotra, & Shapiro (2010) on support for political violence the model estimates the movement of internally displaced populations to IDP camps based on proximity to the camps, hardship levels expected in the camps, and cultural and political legitimacy of the authorities in the camps, and the likelihood of unrest. This approach provides geo-specific human terrain for training on humanitarian assistance missions.

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INTRODUCTION

The migrations forced by natural disasters and wars have a major impact on the logistics and security plans for Internally Displaced Populations (IDP) camps. In failed states that are the usual environment for Stability Operations, IDP camps are a potential recruiting ground for terrorists (Kahn, 2008; IRIN, 2011). The mix of cultural groups and the perceived legitimacy of the authorities organizing the camps have an impact on the security of the camp and how the IDPs choose the camp where they go for help. IDP households make decisions about where to go for help based in part on cultural considerations as well as availability of supplies and distances to the camps.

Background

A multiyear effort launched by the United States Department of State (DOS) in March 2009 with a primary aim of increasing the size of the Foreign Service by 25 percent and the civil service by 13 percent. This effort has placed great emphasis on the importance of training personnel to fulfill the leadership role in world affairs and to advance and defend U.S. interests abroad (US GAO, 2011). As the lead U.S. foreign affairs agency, DOS personnel require certain knowledge, skills, and abilities in order to equip them to address the global security threats and challenges facing the United States. This includes the threat of Al-Qaeda and other terrorist organizations, HIV/AIDS and other pandemics, environmental degradation, nuclear proliferation, and failed states. The Foreign Service Institute (FSI) of the DOS is the primary provider of training for the department's more than 66,000 Foreign Service, civil service, and locally employed staff worldwide. DOS training includes a mix of delivery mechanisms, which include classroom, distance learning and on-the-job training.

The GAO report (US GAO, 2011) highlighted elements of effective training programs and identified several key weaknesses in the DOS strategic approach to workforce training. The DOS is expanding the use of advanced technologies to enhance training. The latest DOS annual training plan identified 20 new custom distance learning courses developed by FSI during the prior year. Data has reflected the amount of time spent by personnel in the completion of distance learning courses has more than doubled in recent years, increasing from 113,000 hours in fiscal year 2006 to 254,000 in fiscal year 2009.

Overview of the Paper

This paper describes an approach for training leaders which considers cultural aspects during the planning of humanitarian assistance missions. This approach is based on creation of a geo-specific, demographically consistent human terrain that can be generated rapidly for training on a specific mission. This paper describes an Interactive Multimedia Instruction (IMI) level 3 training aid to help learners understand the interactions of geography with social and cultural factors which effect migration of refugees. This training aid has been developed from recent Open Source literature and demographic data using a general social science framework.

A FRAMEWORK FOR INCORPORATING CULTURAL INFORMATION INTO TRAINING FOR MISSION PLANNING

Cultural Training Requirements

A major design goal for interactive training is the development of outcome-based training (Vane, 2010), or the revealing to the learner the consequences of his or her decisions. Outcome-based training is a significant design challenge when tradeoffs involve both near-term and long-term consequences. This is often the case in many humanitarian assistance missions, as well as those for whom mitigating political radicalization is a goal. Additional challenges include incorporating both social and cultural factors into the decision-making, since these factors vary from location to location.

A Stability Operations Decision-Making Framework

The training is built around a decision-making framework that considers three main components of a stability operation: provision of public goods and services, supporting political participation and accountability, and public safety and security (Brinkerhoff, Johnson, & Hill, 2009). Analysis is based on the U.S. Army Field Manual for Stability Operations (HQDA, 2008). Based on their experience in reconstruction, they describe tradeoffs and options for each of these three components. This training addresses two of those components: provision of public goods and services and public safety and security.

Adapting the FAPV™ Training Framework

The training is built around the Familiarize, Acquire, Practice, and Validate modes of the FAPV™ training framework (Frank et al., 2003) to provide culturally appropriate feedback.

In the Familiarize mode, the learner views maps and overlays which reflect the geographical distribution of different cultural, social, and linguistic groups. The goal of this portion of the training is to provide situational awareness of the cultural environment and the geographic distribution of different cultures.

In the Acquire mode, or "show me" mode (Dargue et al., 2006), the learner acquires the basic knowledge to understand the options of their decision. For this example, the locations of the IDP camps and the cultural attributes of the population are presented to the learner. In this training application, the level of interactivity available is limited to navigation of the geographic and demographic data and access to supporting documentation about cultural viewpoints and relationships.

The Practice mode, or "let me try" (Dargue et al., 2006) mode, increases the level of interactivity and requires that the learner apply their Situational Understanding. After the learner makes decisions, the migration and unrest models are updated to reflect those decisions. The learner can conduct a repeated series of "what-if" explorations of the consequences of different decisions.

In the Validate mode, or "test me" (Dargue et al., 2006) mode, all feedback is saved and documented in an After Action Review (AAR) that can be uploaded to a Sharable Courseware Object Reference Model (SCORM) conformant Learning Management System (LMS). The AAR shows the predicted consequences of the learner's decisions.

A CASE STUDY: PAKISTAN FLOODS

This paper uses the 2010 flooding of the Indus River in Pakistan as the background case study for the training.

Indus River Flooding August 2010

During August of 2010, there was unprecedented flooding of the Indus River in the Sindh valley of Pakistan. Figure 1 shows the outline of Pakistan and highlights the specific area of the Sindh valley used in this case study. The following quotes describe the extent of the disaster which remains an ongoing challenge to the Pakistan nation.

"Across Pakistan, most of the 14 million people who fled their homes in August are rebuilding their lives. According to the UNHCR some 166,000 people are living in 240 camps and roadside settlements, down from 3.3 million in October." (Walsh, 2011).

"A 'humanitarian crisis of epic proportions' is unfolding in flood-hit areas of southern Pakistan where malnutrition rates rival those of African countries affected by famine, according to the United Nations. In Sindh province, where some villages are still under water six months after the floods, almost one quarter of children under five are malnourished while 6% are severely underfed, a Floods Assessment Needs survey has found." (Walsh, 2011).

"In Sindh Province, approximately 109,000 hectares of land east of the Indus River remain underwater … floodwaters are expected to remain in Jamshoro and Dadu districts, Sindh Province, until mid-March. According to the Office of the U.N. High Commissioner for Refugees (UNHCR), approximately 128,000 people remained displaced in 188 relief camps in Sindh as of January 18. This reflects an 87 percent decrease from the number of people in camps in September 2010. However, camp population figures may not include individuals living in spontaneous settlements and secondary displacement sites near areas of origin." (OFDA, 2011).
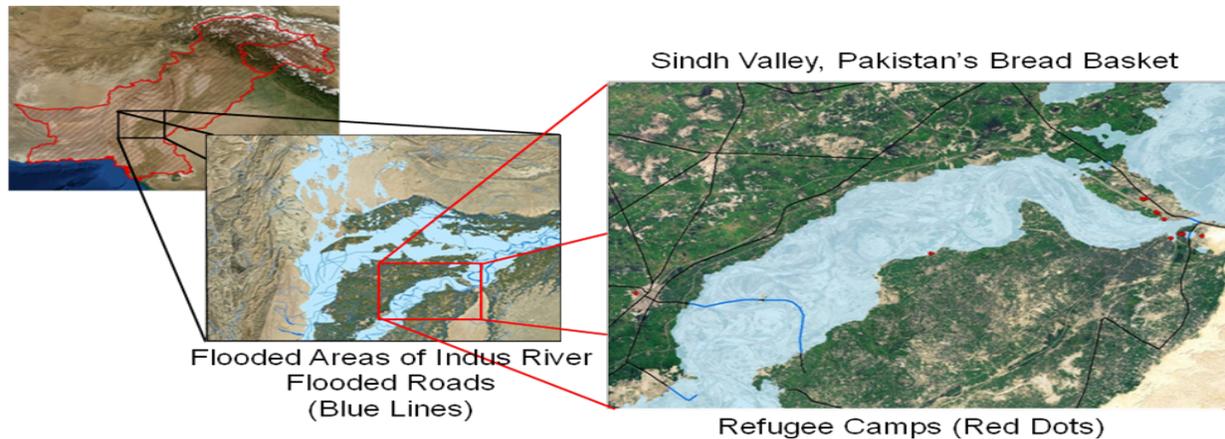
Figure 1: Indus River Flooding in Pakistan, August 2010

Social and Cultural Issues in Central Pakistan

The area of interest includes urban and rural areas with a mixture of Baluchi and Sindhi ethnic groups as constituents. Near Sukkur, there are areas of integrated Baluchi and Sindhi villages affected by the flooding (shown in green) as well as primarily Sindhi groups (shown in blue) to the North and East of Sukkur. The Baluchi (shown in red) are strongly nationalistic and are organized by tribes. The Sindhi are Sufi Muslims that are organized into feudal structures with strong village leaders. In areas with mixed groups there is a long history of cooperation and strong economic ties that cross cultural barriers. This cultural information is used to influence the migration patterns of the IDPs.
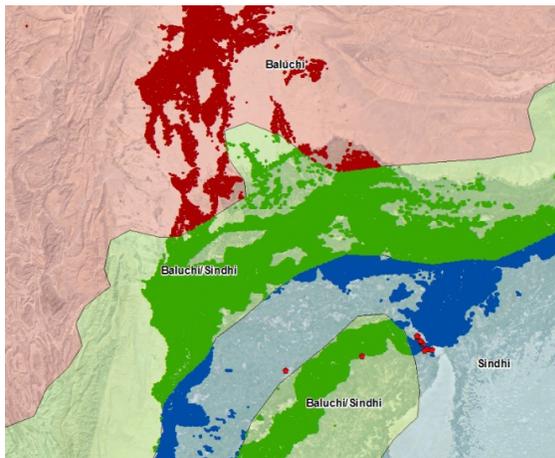

Figure 2: Cultural and Social Groups in Pakistan

CONSTRUCTING THE IDP MODEL

The overall process for constructing a model of IDP migrations and the likelihood of unrest in the IDP camps includes the following three steps:
1. Generating and positioning the basic synthesized households located in the flooded areas

2. Populating those households with agents
3. Determining which IDP camp is the most likely destination for each of these households

Construction of a Synthetic Population of IDPs

Agent-based models are built on microdata (i.e., data on individual agents), not on aggregated population summary data. Microdata, where each data element is associated with a specific agent, allow researchers to specify and model important population characteristics and structures. For example, microdata on a single household of four would contain information about age, sex and relationships for each individual to the household and to each other.

To place the households on the landscape, a dasymetric process was used for locating them within the LandScan grid cells such that the count of individuals from the synthetic data within the grid cell matched the LandScan population totals for the grid cell (Wheaton et al., 2009). After calculating the grid cell location for each household, a randomized positioning process was used to place the households randomly within the grid cell.

Figure 3 reflects the results of this process for households and IDP camps near the city of Sukkur. The light blue background shows the extent of the flooding of the Indus River. Only households in the flooded area are considered as possible IDPs. To the east is the Pano Aqil airfield, used to ferry humanitarian supplies. The M65 highway connects Sukkur to the Indus highway to the north. The yellow dots represent a synthetic population of Sindhi households generated from Pakistan census data of the flooded area that would likely be displaced. The orange dots represent mixtures of Sindhi and Baluchi households that would likely be displaced.
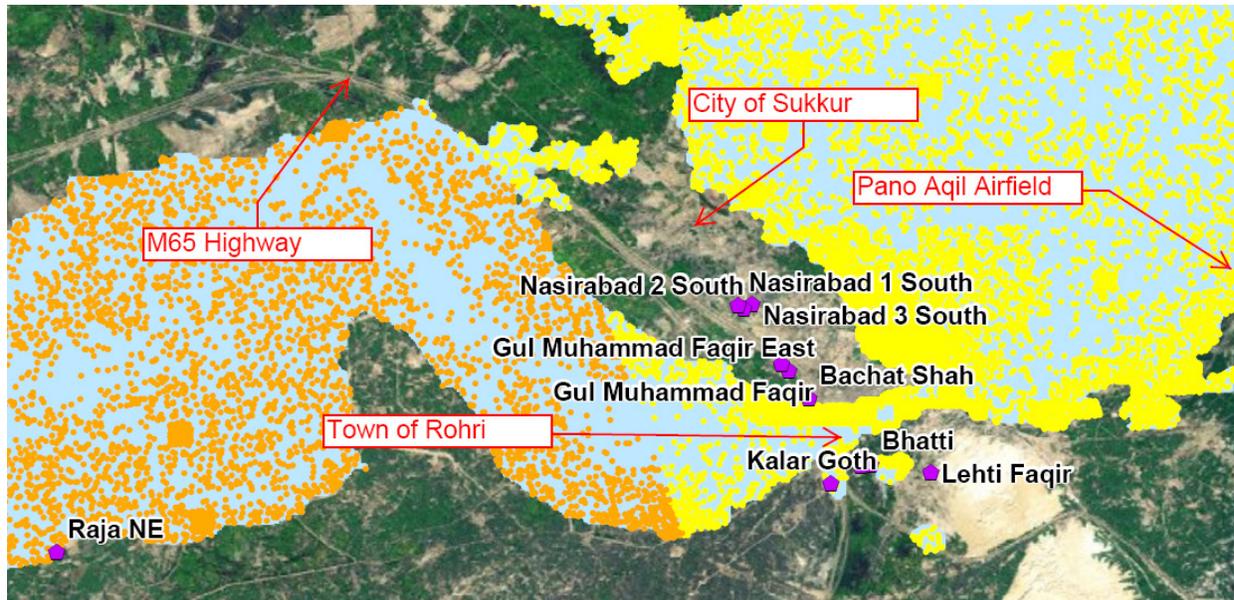
Figure 3: Distribution of Ethnic Groups Around IDP Camps for Flood Victims

IDP Migration to Camps

Figure 4 shows an initial estimate of how IDPs might migrate to camps. For this migration, each synthetic IDP household has been associated with the nearest IDP camp. This is shown by the color coding of the generated households. More sophisticated mappings are possible that take into account passable and impassable roads and rivers.

Adapting the Migration Based on Perceived Quality of Life

This training application combines Joshua Epstein's (2002) model of potential unrest with Thomas Gurr's (1970) theory of relative deprivation to forecast potential unrest in the camps. For this planning exercise, the decision-maker controls two key variables: the priority of support for distribution of supplies to the IDP camps and the priority of support for security forces patrolling the camps.

Each camp is represented by a collection of groups, where each group has a specific cultural attribute (in this case either Baluchi or Sindhi). Each group has a single type of original location from before the flood (either an urban or rural location).

The Epstein model asserts that if the difference between the level of grievance and the perceived risk is high, then unrest is likely in the camp. This model remains consistent with the U.S. Army doctrine on counterinsurgency (HQDA, 2007). This doctrine advocates a combination of government support, such as economic reconstruction, with carefully targeted strikes against violent insurgents.

Estimating Grievance
The Epstein model estimates the grievance level G of the IDPs as a function of hardship H and the legitimacy L of the camp authorities, as shown in equation 1.

$$G = H \bullet (1 - L)$$

(1)

Estimating Hardship
The level of hardship is estimated based on the level of overcrowding as mitigated by the priorities of logistical support. An additional factor uses Thomas Gurr's (1970) theory of relative deprivation to compare average quality of life before the flood and after the flood. Those households estimated to have a larger level of difference in quality of life are assigned a higher level of perceived hardship. For this example, IDP households from urban locations are assumed to have a higher level of perceived hardship than those from rural locations.

Pakistan Flood Relief Demonstration

Camp Name	Camp Ethnic Group	IDP Background	Level of Overcrowding	Camp Authority	Priority of Logistical Support	Priority of Security Support
Lehti Faqir	Sindhi	Rural	2,098%	Baluchi Pakistan Police	High Priority	Low Priority
Bhatti	Sindhi	Urban	330%	Sindhi City Elder	Low Priority	Low Priority
Kalar Goth NE	Sindhi	Urban	16%	Sindhi City Elder	Low Priority	Low Priority
Kalar Goth	Baluchi,Sindhi	Urban/Rural	214%	Baluchi City Elder	Low Priority	Low Priority
Bachat Shah	Baluchi,Sindhi	Urban/Rural	1,031%	Sindhi City Elder	Low Priority	High Priority
Gul Muhammad Faqir East	Sindhi	Rural	160%	Sindhi DCO	Low Priority	Low Priority
Gul Muhammad Faqir	Baluchi,Sindhi	Urban/Rural	11%	Baluchi DCO	Low Priority	Low Priority
Nasirabad 3 South	Sindhi	Urban	362%	Baluchi DCO	Low Priority	Medium Priority
Nasirabad 2 South	Sindhi	Urban	3%	Sindhi City Elder	Low Priority	Low Priority
Nasirabad 1 South	Baluchi,Sindhi	Urban/Rural	198%	Sindhi City Elder	Low Priority	Low Priority
Raja NE	Baluchi,Sindhi	Urban/Rural	439%	Baluchi Tribal Chief	Low Priority	Low Priority
Sher Muhammad Kalhore	Baluchi,Sindhi	Rural	1,583%	Sindhi DCO	Medium Priority	Low Priority

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Figure 4: Practicing Use of Acquired Knowledge by Entering Priorities of Support and Security

Estimating the Legitimacy of Camp Authorities

Legitimacy of authority is based on whether the groups in a camp have respect for the camp authorities. Each group at a camp estimates the legitimacy of the camp authority based on a general rating of the authority that is consistent with the past experience of the group and whether the authority is of the same social or tribal background as the group. Those camps with mixed social and tribal backgrounds are assumed to have more perceived differences, consistent with Thomas Gurr's (1970) theory of relative deprivation across groups.

The legitimacy of local governments (in this example, the IDP camp authorities) is an important influence on whether government support efforts, such as economic development or income support programs, will be effective. If the populace believes that it will be marginalized and will not benefit from the economic development, then it will continue to hold a grievance or dissatisfaction with the status quo. This may also be related to their support for groups that employ violence (Berman, Shapiro, & Felter, 2008, 2009/2010). Similarly, if the populace perceives that the local government, including its police and security forces, are not competent to deliver goods and services in a timely manner, then economic assistance will be ineffective.

Estimating Perceived Risk

The level of perceived risk is estimated based on the priority of support for security missions at the camp. Higher priorities for security missions generate higher levels of perceived risk on the part of insurgents, reducing the likelihood of unrest.

Calculating Migrations

If a group at a camp perceives that it can reduce its level of hardship by moving to a different camp with equal or better perceived legitimacy, then the group divides into those that are staying in the current camp and those that are moving. The results of these migrations are illustrated in Figure 5. Note the differences in the levels of overcrowding, which are based on the migrations.

Calculating Likelihood of Unrest

Using the Epstein (2002) model, the likelihood of unrest is calculated based on the value of the grievance as moderated by the perceived risk of unrest, which is a function of the priority of security at the camp.

Pakistan Flood Relief Demonstration

Group Name	Group Type	Location	Level of Overcrowding	Camp Authority	Priority of Supply	Priority of Security	Level of Hardship	Legitimacy of Leadership	Likelihood of Unrest
Lehti Faqir	Sindhi	Rural	1,057%	Baluchi Pakistan Police	Top Priority	Low Priority	Significant	Sindhi group Highly Unlikely to recognize Baluchi Pakistan Police	Likely
Bhatti	Sindhi	Urban	155%	Sindhi City Elder	Low Priority	Low Priority	Significant	Sindhi group Likely to recognize Sindhi City Elder	Highly Unlikely
Kalar Goth NE	Sindhi	Urban/Rural	1,316%	Sindhi City Elder	Low Priority	Low Priority	Unbearable	Sindhi group Likely to recognize Sindhi City Elder	Likely
Kalar Goth	Baluchi,Sindhi	Urban/Rural	64%	Baluchi City Elder	Low Priority	Low Priority	Significant	Baluchi,Sindhi group Highly Unlikely to recognize Baluchi City Elder	Likely
Bachat Shah	Baluchi,Sindhi	Urban/Rural	595%	Sindhi City Elder	Low Priority	Top Priority	Great	Baluchi,Sindhi group Likely to recognize Sindhi City Elder due to Top Priority of security.	Highly Unlikely
Gul Muhammad Faqir East	Sindhi	Urban/Rural	596%	Sindhi DCO	Low Priority	Low Priority	Great	Sindhi group Likely to recognize Sindhi DCO	Unlikely
Gul Muhammad Faqir	Baluchi,Sindhi	Urban/Rural	11%	Baluchi DCO	Low Priority	Low Priority	Significant	Baluchi,Sindhi group Highly Unlikely to recognize Baluchi DCO	Likely
Nasirabad 3 South	Sindhi	Urban	280%	Baluchi DCO	Low Priority	Mid Priority	Great	Sindhi group Unlikely to recognize Baluchi DCO	Unlikely
Nasirabad 2 South	Baluchi,Sindhi	Urban/Rural	19%	Sindhi City Elder	Low Priority	Low Priority	Significant	Baluchi,Sindhi group Highly Unlikely to recognize Sindhi City Elder	Likely
Nasirabad 1 South	Baluchi,Sindhi	Urban/Rural	254%	Sindhi City Elder	Low Priority	Low Priority	Great	Baluchi,Sindhi group Highly Unlikely to recognize Sindhi City Elder	Highly Likely
Raja NE	Baluchi,Sindhi	Urban/Rural	993%	Baluchi Tribal Chief	Mid Priority	Low Priority	Significant	Baluchi,Sindhi group Highly Unlikely to recognize Baluchi Tribal Chief	Likely

Figure 5: Consequences for Assignments of Support and Security Forces

AUTOMATING THE MODEL CONSTRUCTION PROCESS

This form of training is most useful for the "ready" phase of the Army Force Generation (ARFORGEN) process; where the model is used to reflect the physical and socio-cultural/human terrain of the operational environment in the theater where a unit will be deployed (Frank, Hill & Johnson, 2010). Tools such as the Operating Environment Scenario Generation Tool (OE SGT) have been developed to rapidly generate the human socio-cultural model behind training for the operational environment. OE SGT can be used to annotate synthetic environment databases of the physical terrain with the distribution of tribal, political, and military organizations. The tool can import and display affiliations and relationships, inter-relating these organizations and annotate relationships with cultural, ethnic, religious, and geopolitical measures. Similarly, it can import and annotate event data that influences evolving attitudes towards services provided by camp authorities and friendly forces. Finally, it can export this information in Military Scenario Definition Language (MSDL) format that can be consumed by OneSAF or other simulations.

FURTHER WORK

Further work is required to validate the training model using historical data. This can be accomplished by making use of validation strategies developed for infectious disease models (Roberts et al., 2009). At this point in the training development the model is implemented with a form of fuzzy logic, appropriate for the level of open-source data used for this execution. The ultimate version will use historical data to determine the probability coefficients for the predictions.

The current model assumes complete information on the part of the IDPs in terms of overcrowding levels, camp authorities, and priorities of supply and security. An improved model would include realistic communication patterns for the IDPs. These communications patterns can be inferred from collected data. The improved model would include data on political perceptions of villagers, extremist activity in the area, and development data on poverty levels, access to potable water, and similar socioeconomic information.

Effort is also needed to provide explanations for results in an AAR. The reviews should clearly document the reasoning and calculations used to determine predictions of unrest. The legitimacy column, shown in

Figure 5, is an initial step towards an explanation of these calculations.

Additional work is planned for near real-time modeling of refugee migrations that can interact with combat simulations such as OneSAF.

CONCLUSIONS

Cultural factors play a role that interacts with the physical terrain in determining the movement of disaster victims. In this paper, the geography of the Indus River valley in Pakistan determines the flood victims.

A process is described for generating a geo-specific synthetic population of disaster victims that is consistent with available demographic data about the cultural heritage of the individuals in the population. This synthetic population and a mapping program were used to develop an initial pattern of migration by disaster victims to IDP camps. The initial pattern of migration has been adapted to consider cultural factors.

Cultural factors are also used in the model to predict the likelihood of unrest based on estimates of hardship, legitimacy of camp authorities, and level of support as prioritized by the learner.

The FAPV™ model provides a framework for "learning by doing" training that includes different social and demographic characteristics of disaster victims and how those characteristics may influence migration patterns. This training can provide the learner with information to predict unrest and levels of recruitment into organizations using violence. In this case study, the "doing" element is the learner's decisions about the priorities of logistical and security support for multiple IPD camps.

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