 Supplementary files are available for this work. For more information about accessing these files, follow the link from the Table of Contents to "Reading the Supplementary Files".

The War on Terrorism
Conditions for Success and Failure

Authors:

Bahaa Eldin Aly Abdel Aleem
Dahlia Mohamed Rasmy

Emails:

baleem@idsc.net.eg
darasmy@iti-idsc.net.eg

Telephone:

+20101500466
+(202)7343555

The War on Terrorism : Conditions for Success and Failure

Authors: Bahaa E. Aly and Dahlia M. Rasmy

Information and Decision Support Center (IDSC) / Quantitative Economic Analysis
Sector (modeler)

Information Technology Institute / IT Instructor

1 magles el-shaab st.

Quantitative Economic Analysis Sector (4th floor)

Information and Decision Support Center (IDSC)

Cairo, Egypt

or

4 Ahmed El-haseb st. Apartment 10, Roda,

Cairo - Egypt

Phone/Fax: (202)7343555 – (+2)0101500466 / (202)3868429

E-mail addresses: darasmy@iti-idsc.gov.eg, darasmy74@hotmail.com,

baleem@idsc.net.eg

Abstract

Though terrorism has been a problem for decades, but now it has developed both in size and sophistication to a terrifying extent. The 11th of September attacks on various targets in the U.S.A. are living evidence of this. These radical developments of terrorist attacks raise serious questions about the effectiveness of the counter terrorism scenarios used until the 11th of September. Such scenarios range from various security precautions to prevent terrorist attacks to hunting down terrorists and destroying their training facilities.

This simulation-based study inspects the effectiveness of the American reaction to the 11th of September events, namely: The War on Terror. The model simulates the war from its beginning till the elapse of two months, a period in which the major military operations took place. The model shows the behavior of the Americans during the war as well as various behaviors including those of the terrorists, western media coverage and the Arab and Islamic world. Analysis of the model reveals the reasons*

* True at the time of this work.

why the war failed in achieving some of its major goals and suggests a much more effective strategy in dealing with the problem.

Assumptions

The following is a brief summary of the various constants and non-linear relations among other assumptions used in this study:

- The *normal level of military intervention* is initialized to one bombing per week (1/7 bombing per day), which is a reasonable assumption for an ordinary war.
- The *Time to change intervention level* is the time required to bring more warplanes to achieve the *desired level of intervention*. It is initialized to one since warplanes can travel that distance (from the U.S.A. to Pakistan) in a single day or less.
- The *tolerable anger* (on the American side) is the normal anger when there are no terrorist attacks or any provoking actions. It is initialized to (0.5) to indicate the presence of a small amount of anger even in the normal atmosphere as a result of the normal media activity against Arabs and Moslems.
- The *anger build up time* is initialized to 1.5 days minus the ratio (*achievable Taliban threats/Taliban threats*). This is to indicate that *Taliban threats* make the Americans angrier through shortening the time for their anger build up.
- The effect of western media is a non-linear relation between the *time for anger draining* and the ratio (*western media justifying war/normal media coverage*). *Normal media coverage* is set to one indicating the normal coverage of any war that has nothing to do with the Americans. As the ratio *western media justifying war/normal media coverage* increase the effect decreases from one to zero and since the *time for anger draining* is divided by the effect, thus it is longer when the *western media justifying war* is larger.
- The *distance ratio (min distance/max distance)*: A distance ratio of one means that the strike is inside the United States. In addition, the *distance ratio* implies the severity of the strike i.e. if an American embassy is destroyed in Africa; the *distance ratio* would be more than if a couple of Americans are killed in Mexico.
- The *afghani population* is an array of two elements: civilians, which are the majority of the afghani people (namely 22 millions) and Taliban that represents the terrorist regime and its cooperatives (500,000 people)*.
- Two key constants are presented: *deaths per bombing* and *refugees per bombing*. These two constants determine the number of civilian deaths/refugees per bombing and the number of Taliban deaths/refugees per bombing. By

* We assume this number.

Taliban refugees we mean run away people/defectors. Along with the *level of military intervention*, these two constants determine the two outflows from the stock, namely: *civil casualties and Taliban casualties*. The *targeted bombing effect* is represented as a policy.

- The *time to perceive victims* is set to seven days, which is a reasonable time to count and announce the number.
- The *acceptable war victims*' constant is set to 1000 people (which is approximately the average casualties in a normal short term war).
- The *Effect of western media justifying war on Islamic anger* which is a non-linear S-shape relation ranging from 0 to 2 as the quantity (*Western media justifying war/Normal media coverage*) grows from 0 to 10. The non-linear relation is S-shape because the indicated Islamic anger will grow significantly at the beginning as the western media keeps on justifying killing civilians and using various prohibited weapons. However, the *Indicated Islamic Anger* will start to be less sensitive to the media coverage and will eventually saturate.
- The *Effect of War Victims on Islamic Anger*, which is a non-linear goal seeking relation with the *Indicated Islamic Anger*. In this relation, as the war victims' ratio increases to 20 (i.e. war victims are 20 times those in a normal short term war) the *Indicated Islamic Anger* grows in a goal seeking behavior up to saturation at 3. This is assumed because the *Indicated Islamic Anger* is normally at 0.5 (the assumed *Normal Islamic Anger*) which means that it has grown up to 6 times of its normal value.
- The *Potential Terrorists* represents mainly a segment of the youth in the Islamic world. These youth are subject to various manipulations by radical people taking advantage of the on going war and its surrounding atmosphere. These manipulations lead to the transfer of some of these youth from rational people into the *Potential Terrorists* stock through the *agitation rate*. The *agitation rate* is equal to the *agitation Activity*. The *Agitation Activity* is the number of *active terrorists* divided by the *time for agitation*, which is set to 25 days*.
- The *Average Strike Casualties rate* and the *Average Casualties* stocks are both averaged over the *Averaging Time* that is set to 90 days.*
- The *Strike Casualties rate* is calculated from the *Current Terrorist Strike Rate* (from the *Terrorist Generation* block) multiplied by the *Normal Casualties per Strike* that is set to 5.*

* A reasonable assumption taking into consideration the war atmosphere which facilitates the job of agitation

* This value for the averaging time is chosen so that to calculate reasonable numbers of casualties resulting from terrorist attacks, since these attacks don't occur very frequently.

* This is the average casualties per strike in the real world. By casualties we mean dead and wounded people as well.

Simulation and Behavior Discussion

The First Simulation run discusses the first thirty days of war. The *American Anger* is set initially to 0.5 to indicate the existence of anger even without any terrorist attacks. This is due to the continuous anti-Islam media activity. The *Islamic Anger* is also set to an initial value of 0.5 to indicate the existence of anger against the U.S. because of its provoking policies towards the Middle East region.

The distance effect is at its maximum (i.e. the *Min Distance* is set to 5. Thus the *Distance Ratio* is 1) to indicate that the strike was severe and inside the U.S.

The *Government Support* check button is checked to indicate that at the beginning of the war there was government support for terrorists at Afghanistan by the Taliban regime.

The *Targeted Bombing* effect is not applied at this run because at the first month of the war there was almost blind bombing. The American air force was bombarding civilians, Taliban the United Nations buildings and every thing else.

Running the model with the above conditions results in the following behavior:

1. The *American Anger* level (Figure 1) is growing almost linearly with an inclination of about 15 degrees.

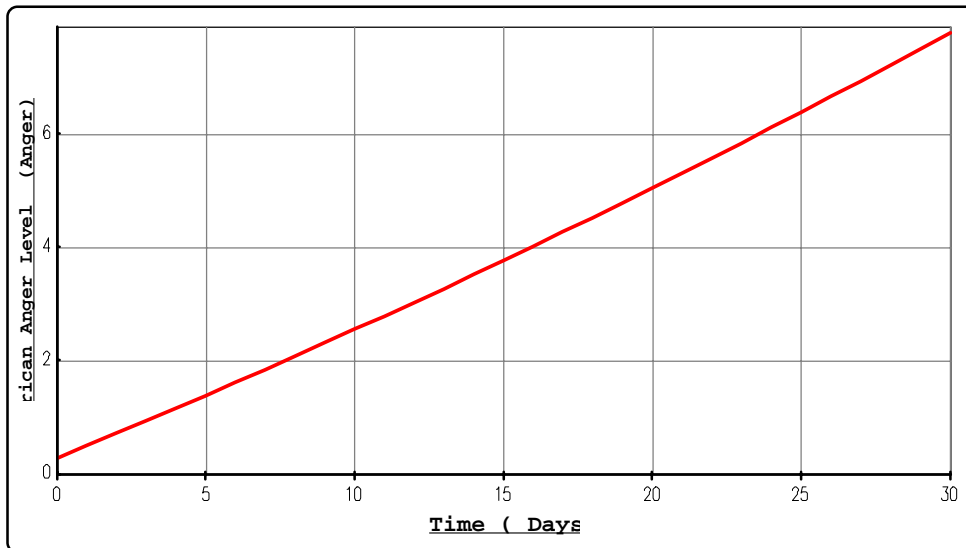


Figure 1

The level is at 7.9 anger units. Given that the *Tolerable Anger* (normal anger) is 0.5 anger units then the *American Anger* is almost 16 times the normal level of anger. This is very normal because of the size and number of terrorist attacks that happened in one day. Also considering the number of victims in those

attacks (instant 5000 deaths) and the mass destruction that happened to several places considered as civilization (World Trade Center) and security (Pentagon) marks in the U.S. makes it very normal that the *American Anger* increases in a rather radical manner.

2. As the *American Anger* level increases as described above, and since that the anger level along with the distance ratio (which is set to its maximum) are the soul controllers of the anger ratio which determines the *Desired Level of Intervention* then, it is very normal that the *Desired Level of Intervention* increases and accordingly the *Level of Military Intervention* (Figure 2) will increase too.

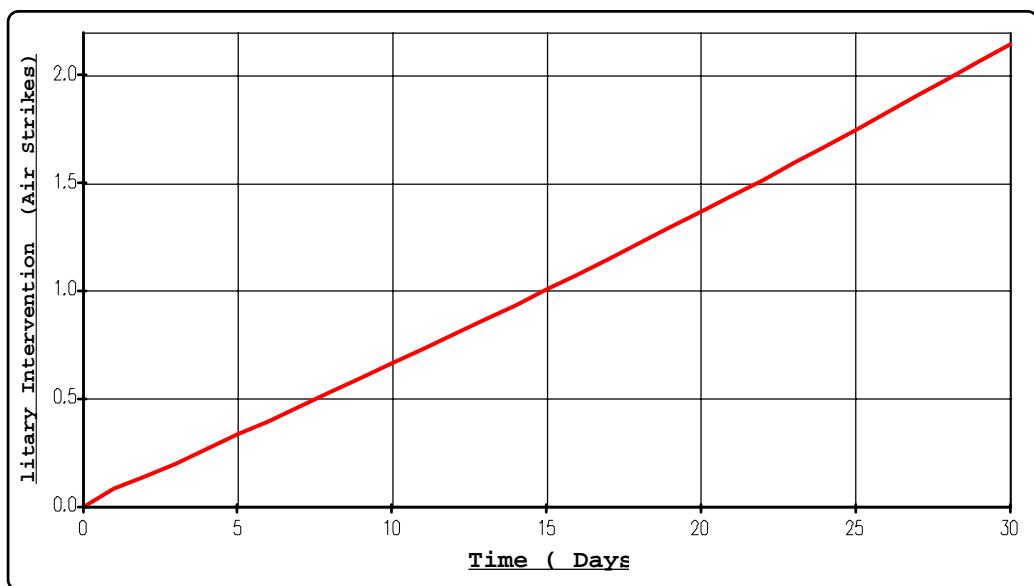


Figure 2

As illustrated in the run: the *Normal Level of Military Intervention* is about 0.14 and the *Level of Military Intervention* is 2.14 i.e. 15 times the *Normal Level of Military Intervention* (increasing in almost a linear manner). This is not only normal (because of the *American Anger* increase) but it is also what really happened. The Americans were very heavily bombarding everything in Afghanistan in a very violent manner.

3. The expected result of the heavy military intervention described above is large numbers of war victims (both deaths and refugees). The *War Victims* graph (Figure 3) shows about 22,000 people in the first 30 days of war. Considering the number of *Acceptable War Victims* in a short-term war, which is considered to be 1000 people, the number of *war victims* in the discussed case is very large. For only 30 days of war, 22,000 victims are truly large.*

* The numbers of refugees in reality is far beyond this number.

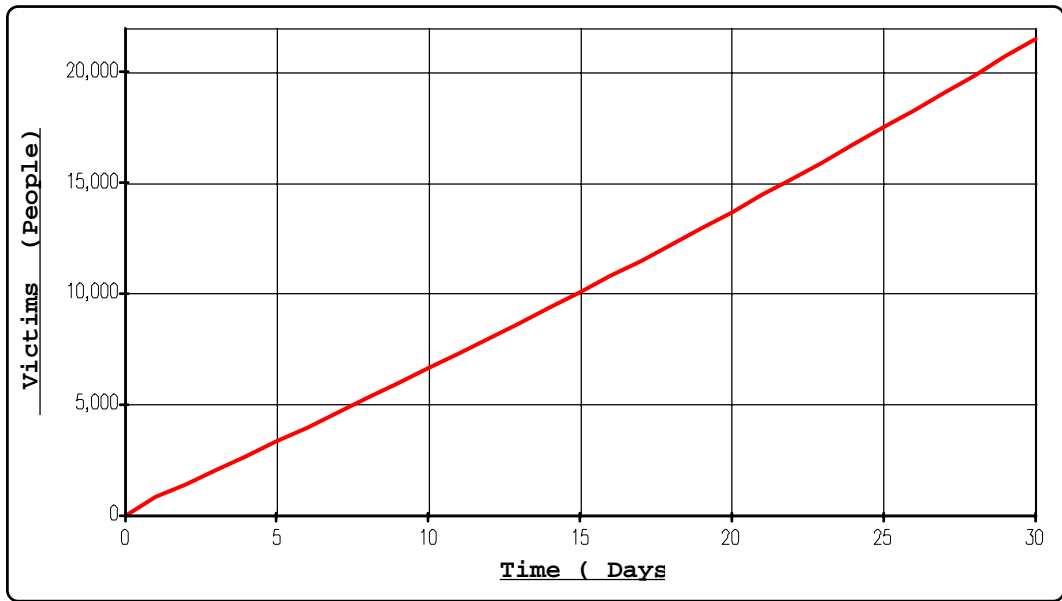


Figure 3

4. Moving to the *Islamic Anger* level (Figure 4) shows an exponential growing anger currently at a level of about 9.5. The *Islamic Anger* level is initially at 0.5 and it is driven by two variables, *War Victims Ratio (Average War Victims/Acceptable War Victims)* and *The Western Media Justifying War*. These two variables are both increasing because of the increasing *Level of Military Intervention*. Thus, it is normal that the *Islamic Anger* level increase in the described behavior.

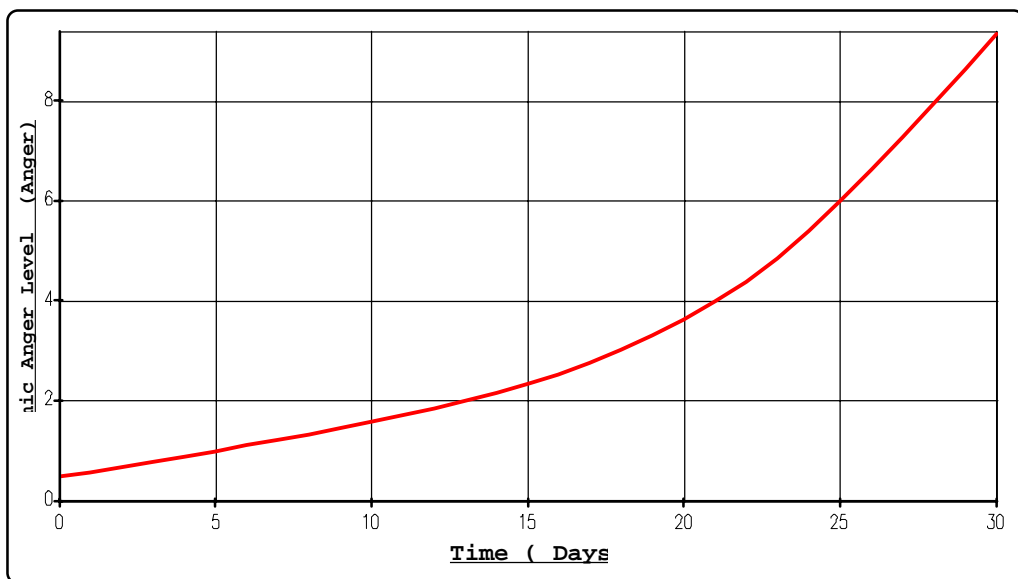


Figure 4

Turning into real life: Afghanistan is a Moslem country and it is being blindly bombarded because of a minority of terrorists (compared to the population being punished by the war) living there or because of dictator regime (Taliban) which caters terrorists, a regime that is forced on the people there. This mental model is inside almost each and every Moslem in the world. Thus, it is very natural to get such an exponentially increasing behavior for the level of *Islamic Anger*.

5. Next we move to the number of *Active Terrorists* (Figure 5).

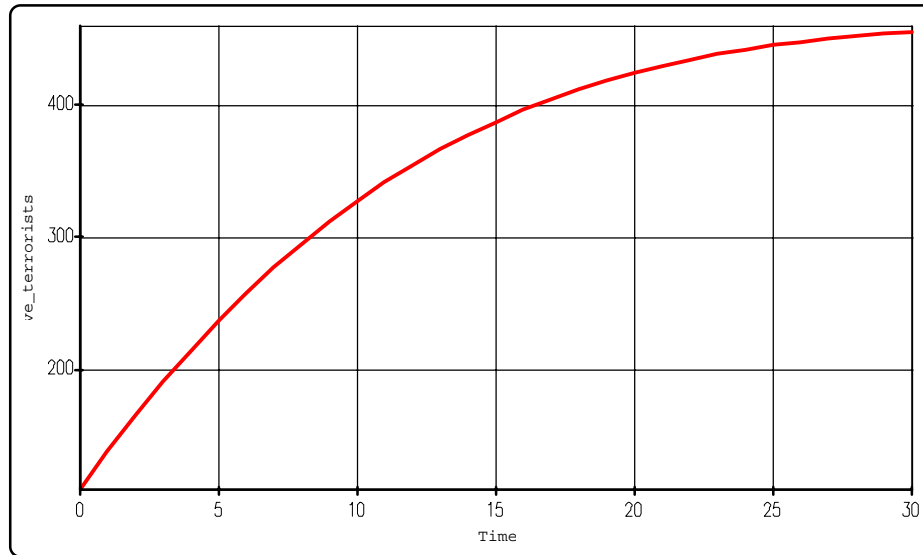


Figure 5

The graph shows a goal seeking behavior that saturates at 460 people. This increase of the *Active Terrorists* numbers at the beginning is due to the effect of the *Islamic Anger Ratio* ($\text{Islamic Anger} / \text{Normal Islamic Anger}$) on the *Agitation Activity* (this activity is responsible for increasing the number of terrorists), which enforces the *Agitation Activity*. Then the number of *Active Terrorists* starts to increase in a decreasing manner until it saturates due to the *Actions to reduce number of terrorists* (described in the *Terrorist Generation* block of the stock and flow diagram) and the *Terrorist Bombing Casualties*, which also reduces potentially the number of active terrorists.

6. Finally, the *Average Strike Casualties Rate* represents the rate at which people are averagely hurt by terrorist attacks. The behavior shown in Figure 6 reveals that the average number of strike casualties is relatively very small. Although

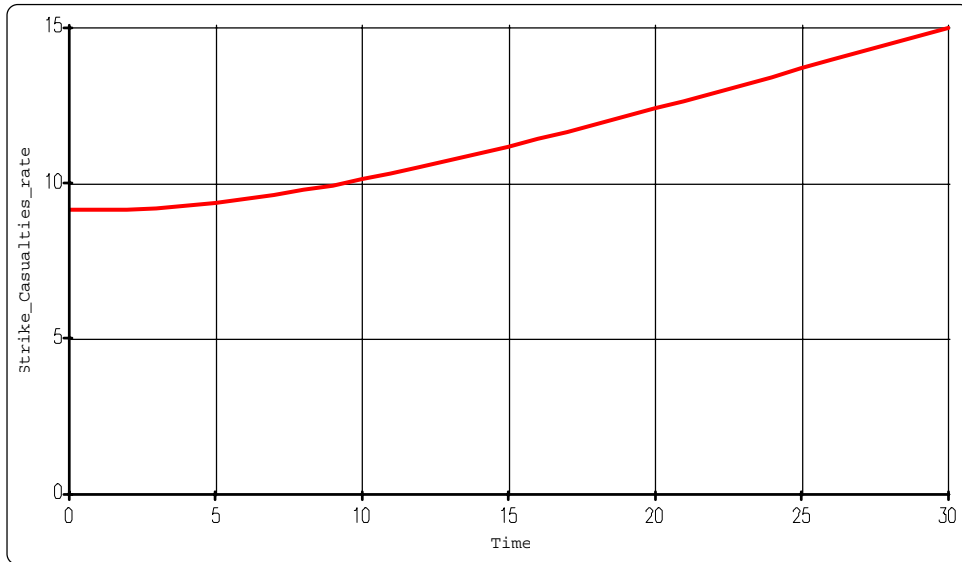


Figure 6

it is increasing rapidly at the beginning (due to the increase of terrorist number and eventually terrorist attacks) it starts (in a short time) to increase at a very slow rate and it is almost leveling towards its end. That last part of the behavior is due to the actions taken to reduce the number of terrorists either by war, arresting, assassination or other means.

The Second Simulation run discusses the period from the 7th of November till 28th of the same month, a period of 21 days. We consider this period the middle of the war.

The distance effect is at its maximum (i.e. the *Min Distance* is set 5) to indicate that the strike was severe and inside the U.S.

Here we will apply the *Targeted Bombing* that we check on those 4 variables:

1. Civilians Refugees
2. Taliban Refugees
3. Taliban Deaths
4. Civilians Deaths

This effect could be considered as a policy, we applied it when we saw that the random bombarding the American Air Force did, led to a big number of war casualties (from civilians) fueling the Islamic Anger and so on as we know how the chain will go from the CLD.

So we decided to target on the Taliban people-The Terrorists- for 2 reasons:

- To express an important issue, that America could get rid of the assumed terrorists by targeting them instead of bombing everywhere leading to thousands of innocent casualties. Accordingly, achieving its goal to get rid of the terrorists.
- To decrease the number of war casualties (especially the death and refuges of civilians) leading to a decrease in several number of variables as we mentioned before. Balancing the situation.

Running the model with the above conditions will lead to the following results:

1. The *American Anger Level* (Figure 7) is increasing linearly but with a small slope reaching approximately 4.9 anger units.

Compared to the first run at the beginning of the war the *American Anger Level* reached 7.9 anger units, which was so high. This happened due to applying the *Target Bombing*, achieving a success to get rid of the terrorists, and lessening the American anger for taking a revenge of the terrorists (those who did the 11th September attacks) according to their sayings.

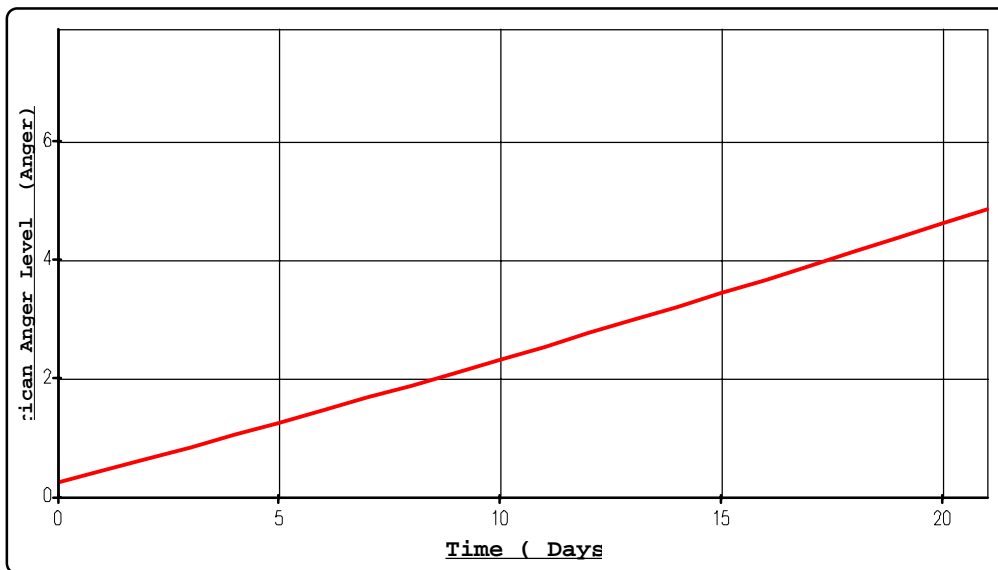


Figure 7

2. Accordingly, as the American Anger decreases so does the *Level of Military Intervention* (Figure 8).

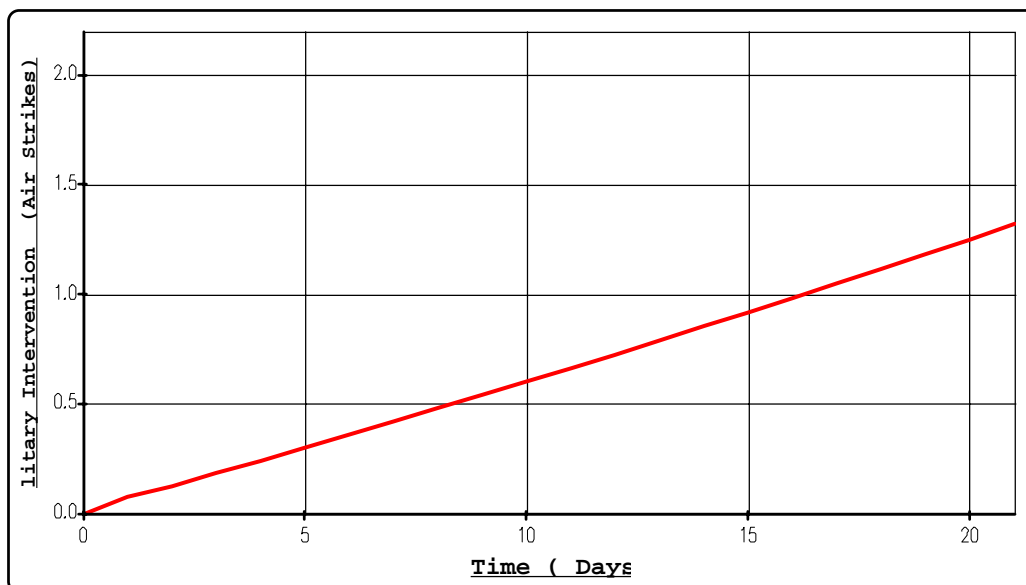


Figure 8

The *Level of Military Intervention* is increasing linearly but with a small slope reaching 1.4 compared with the first run the *Level of Military Intervention* was 2.14. Normally, we can see that there is a drop due to the policy we chose.

3. As expected when the *Level of Military Intervention* decreases so will the *War Victims* (Figure 9).

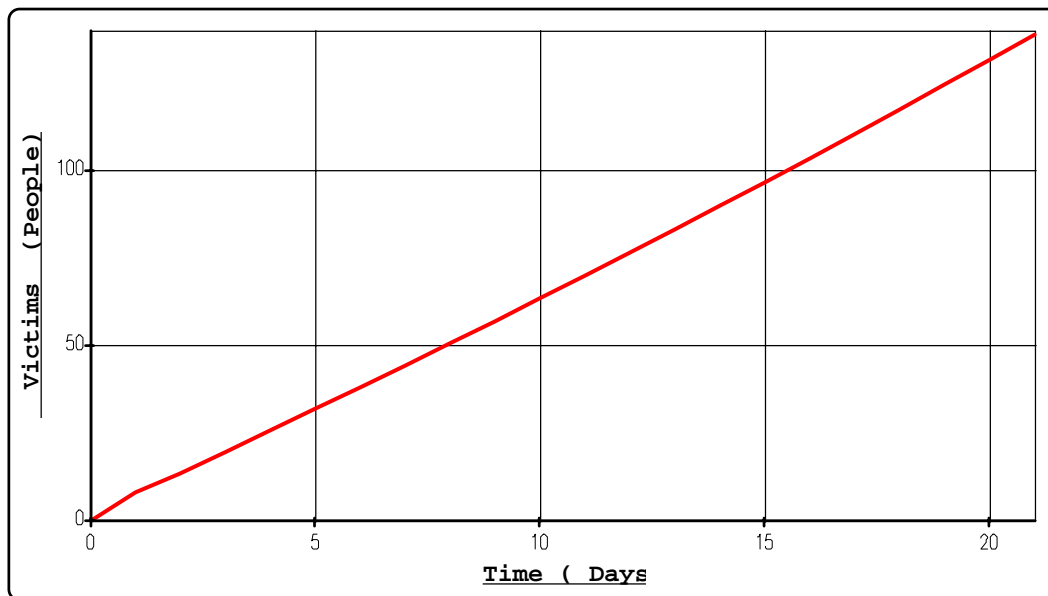


Figure 9

The target bombing as I mentioned before targets the Taliban people only so the civilians won't die at the same rate as before.

From the behavior we can see that the *War Victims* is linearly increasing but reaching to a maximum of 140 people compared to the first run that reached about 22,000 people which was a very high number of victims. Also from here we can figure that the victims are even less than the *Acceptable War Victims* which makes sense cause the war isn't a normal war it is a war against specific people who are the terrorists.

4. Moving to the *Islamic Anger Level*, you will find astonishing behavior, an increasing linear rate but with a very small slope meaning an increasing slowly (Figure 10).

We can now see that the *Islamic Anger Level* became 2.8 anger units compared with the previous level that was 9.5 anger units. Which I think can be astonishing for some people but it isn't because what hurt the Muslims more is the death of the Afghanis especially being Muslims and innocent. From what was said explains the shape of the behavior.

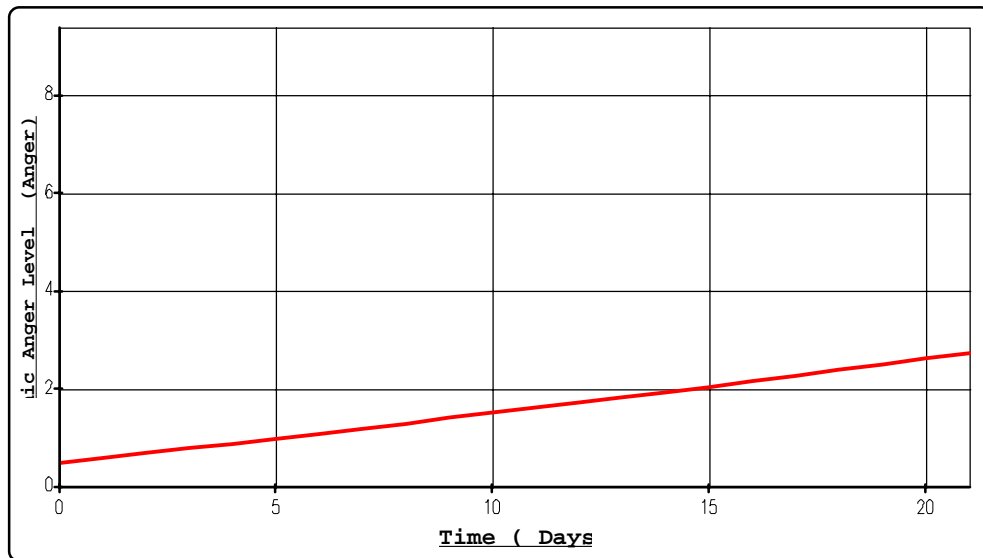


Figure 10

- Next comes the number of the *Active Terrorists* (Figure 11) that is taking a goal seeking behavior then beginning to decrease.

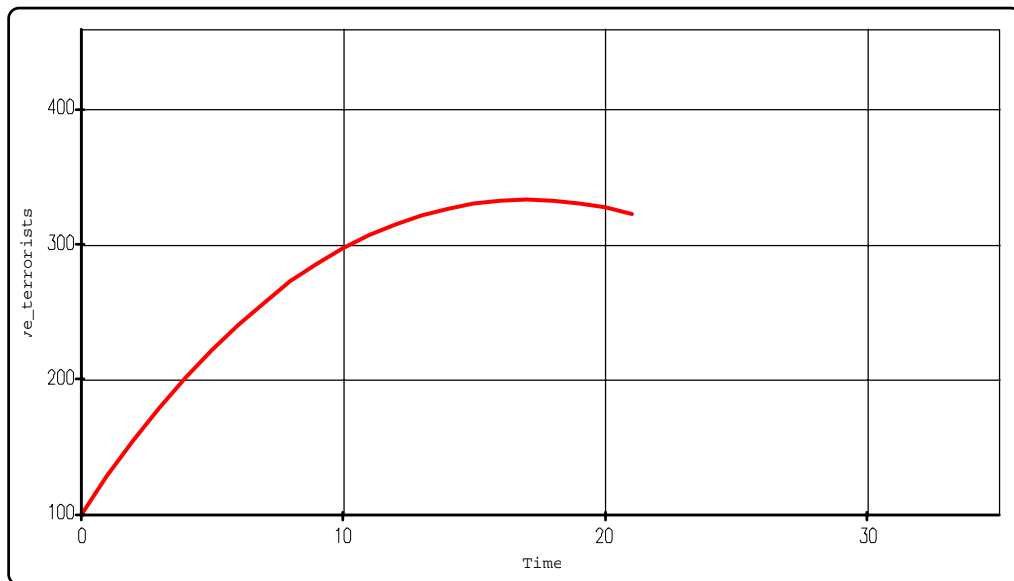


Figure 11

The number of the *Active Terrorists* reaches about 340 people (a saturation point) compared with the first run where they reached 460 people, and then begins in a decreasing manner. This is an indication of achieving a success when applying this policy.

- Accordingly, a decrease in the number of the *Active Terrorists* will lead to a decrease in the *Average Strike Casualties* (Figure 12).

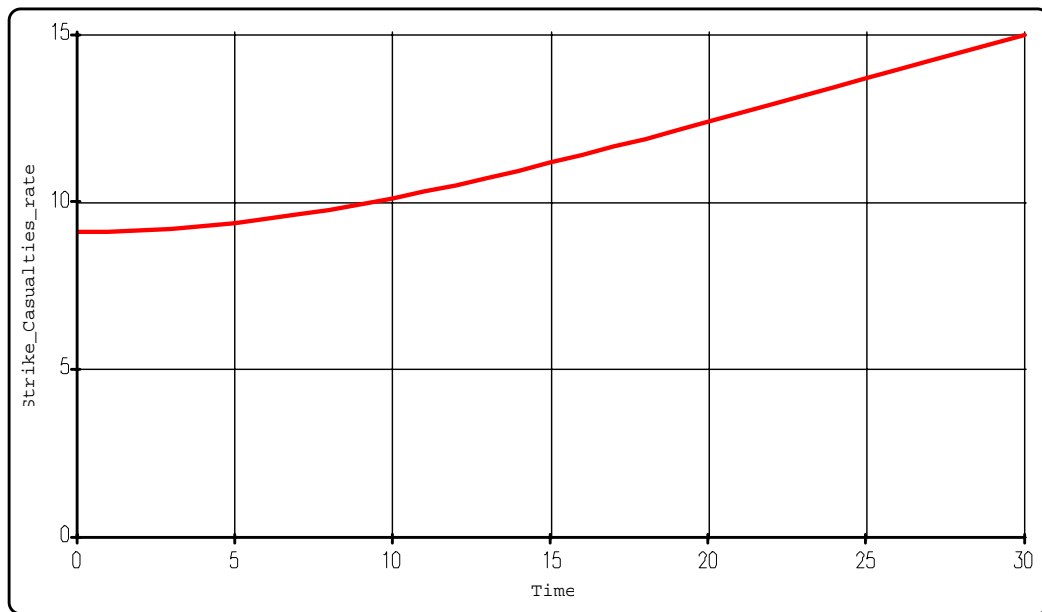


Figure 12

We will find that the behavior is increasing exponentially for a short time then begins to increase linearly. Reaching 11.4 compared with the previous run that was 15.1 as we can see there is a considerable drop in the *Average Strike Casualties*. Normally that happens due to the decrease in the number of Strike attacks done by the terrorists.

As we can see from the previous behaviors the *Target Bombing Policy* achieved its goal to balance the situation after the elapse of 30 days from the war.

The Third Simulation run discusses the implementation of a policy called *Search for Real Terrorism Causes*. All parameters and effects including *American Anger*, *Islamic Anger*, *Min Distance*, *Distance Ratio*, *Government Support* and the *Targeted Bombing* are at the same values as the second run.

First, a new block named “*Search for Real Terrorism Causes*” is added to the stock and flow diagram. This block describes a policy that is more effective than any massive war like the one conducted by the U.S. in Afghanistan. The real reasons behind terrorism are not many but they are major and can’t be changed easily. If the U.S. really seeks justice and peace for its people then the States should re-consider its foreign relations and external policies in the Middle East region. However, and since that is not feasible at least in the near future, then the policy we are offering here cuts the way short for everyone.

The described policy is about going after the real criminals and bringing them to justice in a way that will harm no one but the real terrorists. This way, the *American Anger* will decrease and may vanish and at the same time no innocent people will be harmed. Thus, the *Islamic Anger* won’t increase because of any anti-terrorism actions. Moreover, many factors increasing the number of terrorists will be decreased or totally eliminated if this policy is correctly conducted. Such factors may include the *Agitation Activity*, *Time for Agitation* and *Time for Recruitment*. On the other hand, the implementation of this policy will increase other factors that would help to totally eliminate terrorism, factors such as the *Actions to reduce Number of Terrorists*.

Running the model under with this policy in consideration will result in the following behaviors:

The *American Anger* level (Figure 13) is growing linearly at a very slow rate (small slope), reaching a maximum of 1.8 which is an incredible decrease (as the *American Anger Level* reached a max of 4.9 in the second run) that the war by itself didn’t achieve. This decrease is because we tackled the root of the *American Anger* namely: the casualties of the terrorist strikes. This variable was decreased by the policy (will be demonstrated in a moment) as a result of the terrorist numbers and attacks decrease (also achieved by the policy and will be shown later in this discussion).

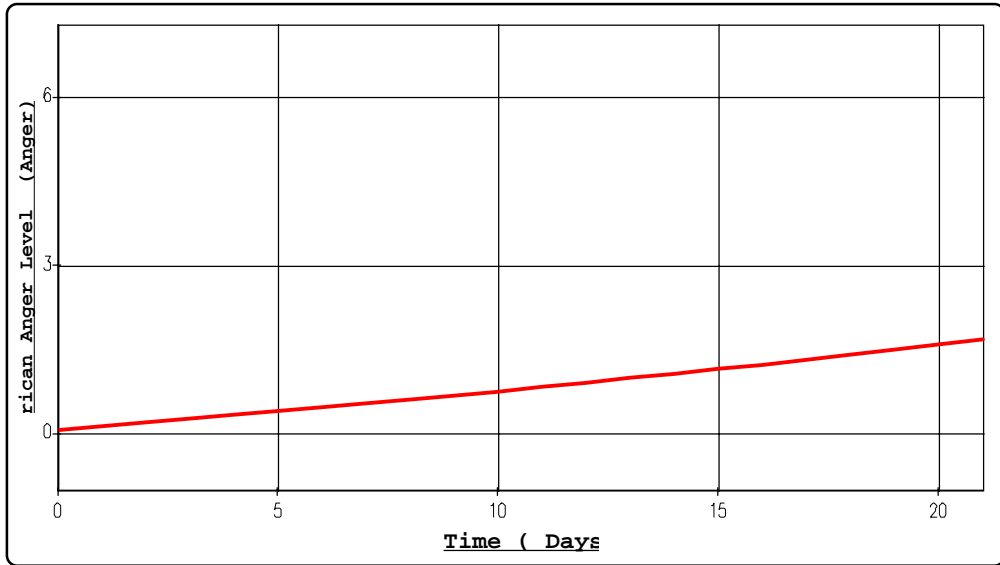


Figure 13

As a result of *American Anger* level decrease so does the *Desired Level of Intervention* and *Level of Military Intervention* (Figure 14). As shown, the *Level of Military Intervention* has reached a max level of only 0.46 (instead of 1.4 in the second run).

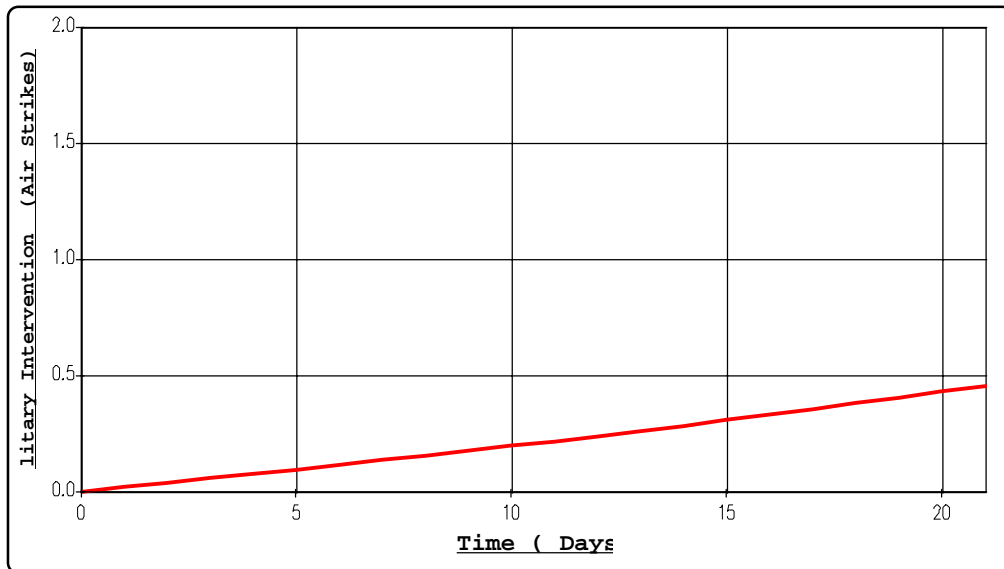


Figure 14

The *War Victims* (Figure 15) has also decreased but in a rather slow manner (since it has decreased significantly in the second run as a result of the *Targeted War* policy). It settled at a max of 49 (instead of 140 victims in the second run).

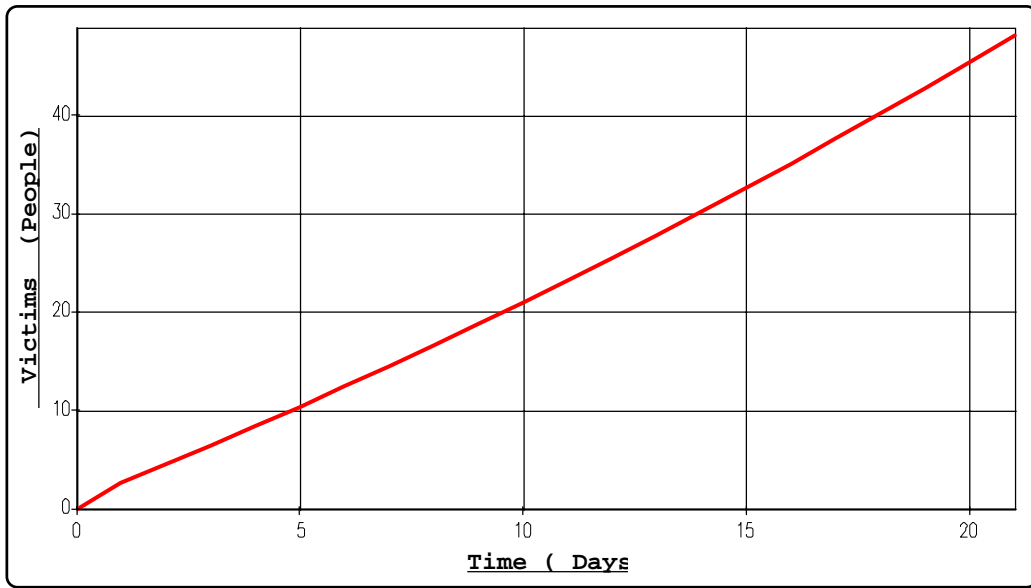


Figure 15

Since it is driven mainly by the number of *War Victims*, the *Islamic Anger* has slightly decreased from 2.8 in the second run to 2.7 here (Figure 16).

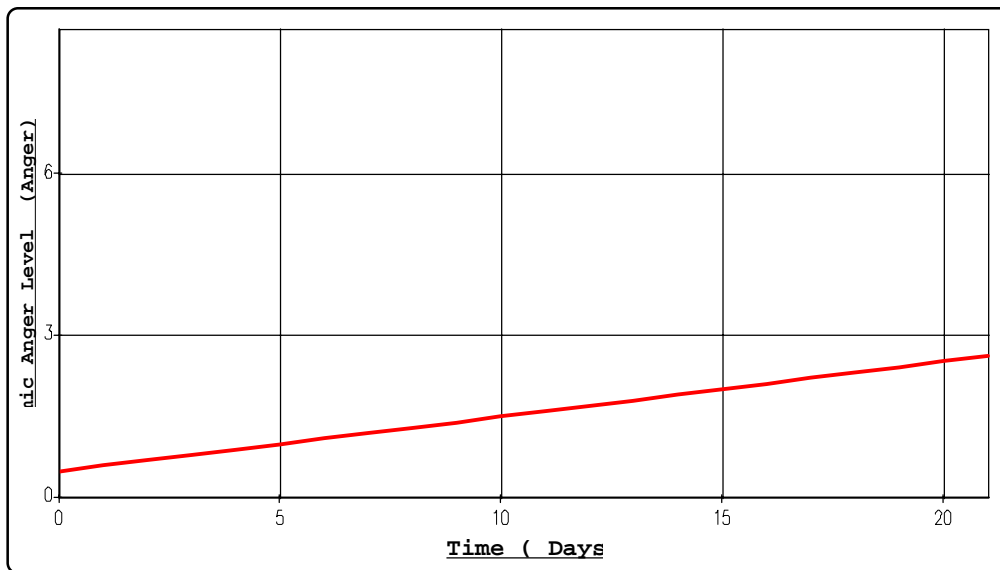


Figure 16

The policy resulted in a large decrease in the number of *Strike Casualties* from 11.4 in the second run to 3.7 here (Figure 17).

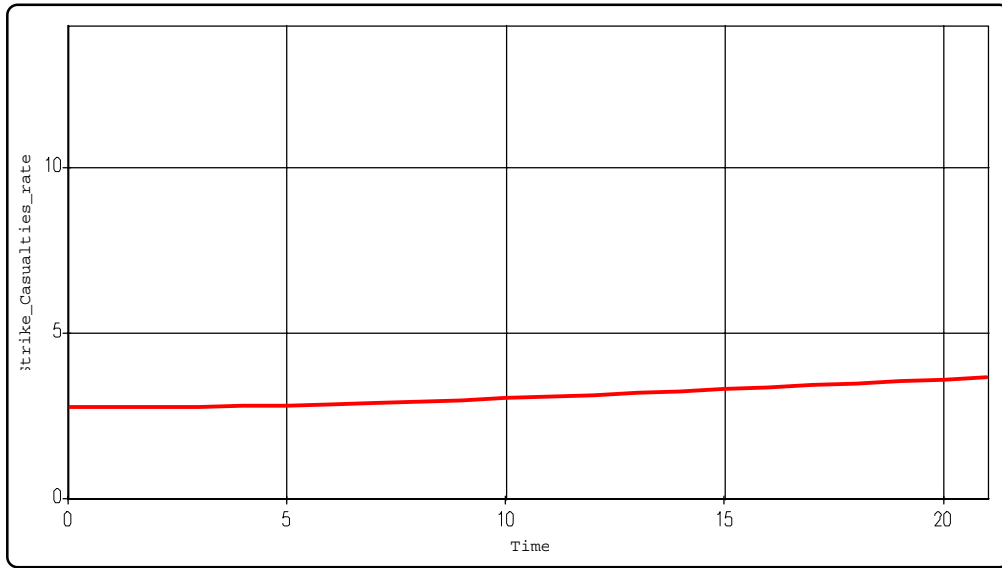


Figure 17

This shows the effectiveness of the policy in minimizing the effect of terrorist attacks.

Finally, the policy led to a small reduction in the number of *Active Terrorists* but. However, the policy succeeded not only in retaining the goal seeking behavior of the *Active Terrorists* curve but it also flattened the curve further (Figure 18).

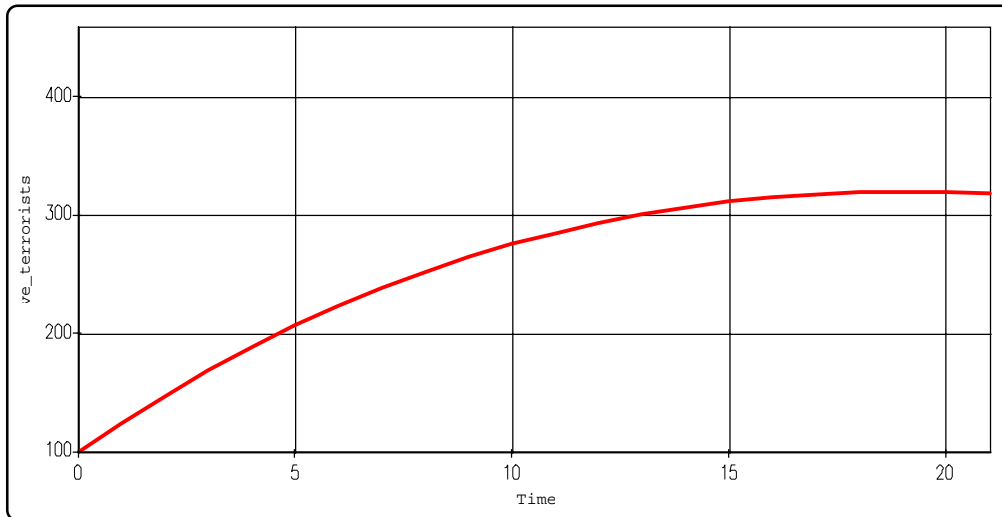


Figure 18

This is normal because as the policy proves effectiveness in eliminating some *Active Terrorists* and neutralizing the effect of terrorist attacks, other *Active Terrorists* will

either be wise and retire or stop their activity until this policy stops which is not likely to happen. So, if the policy continues, it will eventually end the age of terrorism forever.

Conclusion

As seen from the various simulations' behaviors (under different time spans, initial conditions and policies) that the *Strike against Terrorism* is not at all the *Absolute Justice* it is claimed to be.

To summarize the defects of this solution we can say that:

- ➔ The major and most apparent defect is the massive and blind bombarding of a whole people. It looks like dropping an airliner full of innocent people just to take out a runaway criminal on that flight or like sinking an ocean cruiser just to take out a couple of killers on board.
- ➔ Taking the previous point into consideration along with the use of forbidden weapons in the *Strike against Terrorism* can easily lead to the following conclusion:
Even if the Americans were fighting terrorism (as we all and the whole world believe); the actions they took in the war makes it seem more like retaliation. It has been said in the American media by American officials that "We lost 5000 people in one day", this statement along with many other statements in various occasions support the retaliation point of view of the war.
- ➔ Even if we believe that any war has casualties and even if we go further to believe that it doesn't matter what you step on in your way to achieve the great goal; if these beliefs hold in many situations and if they are acceptable in wars, no human being can accept two million refugees in a severe desert winter and thousands of innocent dead people (either victims of the American bombarding or of the northern alliance's massacres in the cities they gained after the American bombarding).

Now that the war is about to end, we are all happy mainly because of two results:

- ❶ The Taliban regime has ended for good.
- ❷ Al-Qaeda terrorist network has been almost completely destroyed.

However, a couple of questions remain unanswered:

- ❶ Is the new regime in Afghanistan better than the old one?
- ❷ Has terrorism really ended by the end of America's holy war in Afghanistan, especially that Bin Laden is still out there?

Only time will give the right answers to these and other questions as well...

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