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Abstract

One group of targets attacked using armed force was the Iraqi electrical system. A direct impact of that attack was the damaging of four hydroelectric power plants, six thermoelectric power plants as well as several other power plants and it was suspected that a few deaths or wounds were a direct side effect on civilians. The damaging of 10 power plants resulted in the there being a lack of power both for Iraq’s military facilities as well as for civil uses. Attacks are ideally defined as acts of violence done against an enemy done either when attacking or when defending but it also needs to be specified on what level is it done. On a tactical level attacks are defined as single attacks or individual attackson each target such as the ones on the electrical power plants. that it is balanced with military interests/necessity which is also not specified by International Humanitarian Law. These civilian losses are such losses that have the traits of being concrete, direct and overall which bear the same definition as the traits concrete, direct and overall applied in military advantages or conversely, if the military advantages do not bear the traits of being concrete, direct and overall.

Keywords: Proportionality of Aerial Attacks, Iraqi Electrical Power Systems, First Gulf War.

1. Introduction

On 17 January Coalition Forces who were authorised based on UNSC Resolution 678 (1990) of 29 November 1990 began an air war, followed by a war on the ground against Iraqi forces. This is due to Iraq having invaded and subsequently annexing the whole of Kuwait on 2nd August. This air war consisted of two campaigns done consecutively, Operation Instant Thunder which was then followed by Operation Desert Storm.

One group of targets attacked using armed force was the Iraqi electrical system. A direct impact of that attack was the damaging of four hydroelectric power plants,¹ six thermoelectric power plants² as well as several other power plants and it was suspected that a few deaths or wounds were a direct side effect on civilians³. The damaging of 10 power plants resulted in the there being a lack of power both for Iraq’s military facilities as well as for civil uses. Said lack of power for the Iraqi military resulted in the disabling of the facilities which supported Iraq’s military strength and aided in reducing Iraq’s ability to respond to Coalition attacks.⁴ This was the military advantage that was intended by the operation against the Iraqi electrical power system.

Conversely the severe shortage of power for Iraqi civilians resulted in nabit facilities such as those for health, food and sanitation were unable to function, for example; food processing plants, clean water, sewage treatment and disposal systems, hospitals, farming systems including irrigation and food storage facilities were unable to function. As a result, Iraqi civilians experienced a shortage of food and clean water as well as their environments becoming dirty due to sewage overflowing inside and outside their homes. Another consequence was that civilians suffered from malnutrition and infectious diseases which were further exacerbated by the lack of available treatment facilities and it was surmised that over 70,000 civilians died.⁵

The existence of those two effects due to the use of force towards electrical production resulted in debates regarding the proportionality of those attacks. On one side, the attacks towards the Iraqi electrical power system was viewed as being proportional.⁶ And on the other, it was viewed as being disproportional.¹ The

¹Human Rights Watch, Needless Deaths In The Gulf War, Civilian Casualties During the Air Campaign and Violations of the Laws of War, A Middle East Watch Report, New York, p. P.169
²Ibid p.171
⁶Coalition forces, for example, viewed that attack as being proportional due to the existence of a large military advantage (though not one
difference in views raises the issue regarding the vagueness of assessing the proportionality of the attacks on Iraqi electrical facilities in the First Gulf War. Therefore, this paper will discuss how to assess the proportionality of attacks on electrical power systems such as those belonging to Iraq in the Gulf War I. The discussion will include: what is an attack?, what do civilian losses and military advantages incurred by these attacks? And how you calculate the proportionality of those attacks under International Humanitarian Law and the principles of justice.

2. Definition of Attacks on Electrical Power Systems

2.1 Definition of Electrical Power Systems

A common power system consists of four basic subsystems namely: generation, control, transmission and distribution.\(^1\) The **generation subsystem**, consists of: turbine and generators driven by; steam, hydro (water), a source of heat (thermal), nuclear and others (oil-diesel). These sources of energy provide power to make the turbine blades rotate the generators which will then produce electricity in bulk.\(^2\) Replacement components for turbine and generator are usually not readily available due to an expensive capital cost, so damages to the turbine and generator can cause long-term losses.\(^3\)

The **control subsystem** serves as the brain of the national electricity grid that coordinates the generator facilities to manage the transfer of emergent power and its increase reliability.\(^4\) A control center may be located fused or separate from the generator, attacks on the control subsystem could result in failure which roles like a snowball throughout the entire system, causing widespread and excessive equipment failure.\(^5\)

The **transmission subsystem**, such as transformers which receive electricity and convert it into a higher voltage for transmission through high voltage power lines.\(^6\) **Distribution subsystems** presents a much less favorable target for the use of air power. After electricity has been transmitted to a high voltage power line, it will be then accepted at a load center, converted down to a lower voltage or “stepped down” and then distributed to users across the network. Transformer step down stations are smaller and provide a hard to identify target for air attacks. Unlike other larger subsystems, they are a standard design and are much easier to replace.\(^7\) As a result, the impact of air strikes on this part of the system are short-term and are limited to the area provided by that transformer.\(^8\) In the Iraq war case, those strikes were directed at least at the generator subsystem consisting of four hydroelectric power plants and six thermoelectric power plants.

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\(^1\) HRW for example viewed the commander of the forces as having misused the rule of proportionality by giving inappropriate weight to the perceived military advantage of the attack (Ibid). In other words, the military advantages of that attack is not as large as it was assumed as it did not include the civilian losses which would encourage them to topples Saddam Hussein.

\(^2\) HRW for example viewed the commander of the forces as having misused the rule of proportionality by giving inappropriate weight to the perceived military advantage of the attack (Ibid). In other words, the military advantages of that attack is not as large as it was assumed as it did not include the civilian losses which would encourage them to topples Saddam Hussein.


\(^5\) Ibid., 6.


\(^7\) Griffith, *Strategic Attack of National Electric Systems, p.7*


\(^9\) J.W. Crawford, III*The Law of Non-Combatant Immunity and The Targeting of National Electrical Power Systems* CDR, online pada dl.tufts.edu/file_assets/tufts/UP149.001.00042.00010
2.2 Definition of Attack form the Humanitarian Law Perspective

In Humanitarian Law, there is a term associated with war; military and attack. Though there is no explanation on the term military. There was however an explanation on the definition of attack in article 49 Additional Protocol I Geneva 1977 as being; “acts of violence against the adversary, whether in offence or in defence”. Who is meant by adversary was not explained further. Given there being prohibitions on deliberately carrying out attacks on civilians and civilian objects in this Additional Protocol, these acts of deliberate violence only points to the oppositiona and its military. Yet the question remains, why the attacks were not regarded as acts of violence against opposition combatants and military objects. Does this mean that the definition of opponents is not only combatants and military objects as individuals or separately but also as capabilities such as, during Gulf War I, telecommunications and C3 systems (Command, Control, and Communications) or even electrical power system. Apropos these capabilities were divided into multiple targets which were separate and therefore acts of violence against these capabilities were a combination of attacks against each target, are these combination attacks also included in the definition of an attack as well. This is not explained further. Thus there is no clear boundaries regarding attacks in Humanitarian Law.

Knut Dormann said that “the concept of attack as defined in this provision refers to the use of armed force to carry out a military operation during an armed conflict”.

This definition also does provide any clarity on whether or not the attack which had to be disproportional, were a combination of attacks on individual targets or were they separate.

2.2.1 Definition of Attack from the Perspective of the Levels of War

Use of force or war in present times generally have the following: involving the use of troops which has risen dramatically, involves the geographical expansion of the theater of war and/or operations, increasing the distance of the theater of war from the “center”, a relatively long duration, increasing complexity of war because it no longer consists of a single battle (decisive) or a limited number of battles, but a series of battles that happen either simultaneously or successively, organized into campaigns and operations. In addition to the features above, the use of force or war have other common characteristics which is they have a certain common purpose, such as to defend a friendly form aggression by other parties. To achieve this general goal, war or the use of force must be systematically arranged into multiple levels or tiers.

Generally, scholars or military manuals recognize that war is structured on three levels. But there is also three-level more to add to this as well as another level and some give slightly different names for all three of these levels. What is clear is generally recognized that the war can generally be divided into three levels namely:

1. **Strategic level**

This is a level that exists on the national level/nationality or national/multinational. On the strategic there are the following characteristics;

   - War has not occurred between a nation/country and its enemies

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2. The term attack has been often use in the rules in the Additional Protocol I Geneva 1977 and also found in Additional Protocol II Geneva 1977.
6. Robert Bateman for example divides use of armed force or war into four levels; Political level, Strategic, Operational, and War Tactics. Even further Milan N Vego, says that the four levels of war are; national strategy, theatre strategy, operational and tactics (Milan N Vego, Joint Operational warfare: Theory and Practice, 2007, p 79
7. See for example Ryan Christian Else who divides the levels of uses of armed forces or war into three levels called; strategic campaign, tactical campaign and certain tactical operation (see; Ryan Christian Else, Proportionality In The Law of Armed Conflict The Proper Unit of Analysis For Military Operations, Else Post Macro Docx 4/11/2011, pp 200-2001 online at https://www.stthomas.edu/media/schooloflaw/pdf/2lp/volume5no1Else_195-213.pdf.
- Nation or one group of nations who will battle has defined national and multinational security objectives and determined guidelines, the development and use of national resources to achieve the national and the multinational security objectives.\(^1\)

- When a movement or cause for the use of armed force occur, the highest authority in the country (head of state/head of government) in accordance with the constitutional system prevailing in the country creates a national policy with respect to national and multinational security goals.\(^2\) For example how to restore situations back to its original state before the cause (for example; restoring the legitimate government of friendly countries)

- As the name implies, it was decided on this strategic level; strategies, namely those on how to use the armed forces and other instruments of national power to secure national objectives or multinational. This strategy is referred to as the national military strategy. In national military strategy, national policy is translated as a strategic military purposes by akin of National Command Authority.\(^3\) National strategic military purposes, of course in accordance with the national policy that is for example how to restore the situation back to its original state before the cause that to happen. In the context of the Gulf War, for example, the goal of national or multinational or national policy or national strategic military goal is to restore the government of Kuwait ousted by Iraqi military forces.\(^4\) In realizing these national strategic military purposes strategy is also planned out (which of course, national), which is referred to as a theater strategy is a strategy of war to the regional level (national or multinational). This strategy has its own goal to achieve the national strategic military goals or national policies.\(^5\) In the Gulf war the goal of strateg theatre is to, for example, disable Iraqi forces in Iraq and Kuwait.

2. Operational Level

To carry out the purpose of theatre strategy and national strategic military purposes it needs the use of armed force. The use of armed force starts from the theatre scale known as campaigns then broken up into operations or major operations. Therefore this level is referred to as the operational level which is the level at which campaigns and major operations or operations are conducted and sustained to accomplish strategic objectives within a particular region or area\(^6\). This explanation shows that at the operational level, there are two main levels of activity namely the use of armed force;

a. Campaigns or as some refer to as strategic campaigns\(^7\) are activities that use armed forces containing these traits; 1) consists of a set or series of interrelated operations or main operation or campaign tactical,\(^8\) 2) done in a certain time\(^9\) atau or in other words there is limited time to do this activity, 3) is performed in a chamber or specific place that is called the theater of war\(^10\) intended as a given geographical area where the campaign occurs,\(^11\) 4) carried out by a large number of troops with diverse abilities and units led by senior officers, the maximum of which is the general,\(^12\) 5) to achieve certain goals are referred to as strategic objectives\(^13\) which is the purpose of theatre strategy and ultimately also the military purposes of national strategy. A Example of campaigns in the 1991 Gulf War are Operations Desert Shield and Desert Storm.\(^14\) The objectives to be achieved are the objectives of theatre strategy, namely the destruction of the Iraqi Armed Forces in the South Euphrates,\(^15\) that the achievement of this goal also means the achievement of national policy or national strategic military purposes, for example the restoration of the government of Kuwait which was annexed by Iraq.\(^16\)

\(^{1}\) FM3-0 Chapter 2 Unified Action - Reliable Security Information online at http://www.globalsecurity.org/military/library/policy/army/fm/3-0/ch2.htm

\(^{2}\) Ibid

\(^{3}\) Ibid

\(^{4}\) See Figure 2-1 about The Levels of War dalam FM3-0 Chapter 2 Unified Action - Reliable Security Information online at http://www.globalsecurity.org/military/library/policy/army/fm/3-0/ch2.htm

\(^{5}\) The strategical purpose of Gulf War was theater. For example destroying of Iraqi army weapon in South Iraq.

\(^{6}\) Ibid

\(^{7}\) Ryan Christian Else, op cit.

\(^{8}\) See Ryan Christian Else; Directorate Language Services, SADF, Joint Military Dictionary, p. 277; Panos Mavropoulos, p. 97; FM3-0 Chapter 2 Unified Action; British Army, Army Doctrine Publication, p. 4-1.

\(^{9}\) See Ryan Christian Else; Directorate Language Services; British Army, Army Doctrine Publication, p. 4-1.

\(^{10}\) James Jacobs, NATO APP-06 (2013)

\(^{11}\) Robert Bateman, Op cit.

\(^{12}\) Ryan Christian Else, pp 200-201

\(^{13}\) Ryan Christian Else; Directorate Language Services, SADF, NATO APP-06 (2013); Bunyamin Tuner, British Army, Army Doctrine Publication, 2009.

\(^{14}\) See Figure 2-1 tentang The Levels of War dalam FM3-0 Chapter 2 Unified Action - Reliable Security Information online at http://www.globalsecurity.org/military/library/policy/army/fm/3-0/ch2.htm

\(^{15}\) Ibid

\(^{16}\) Ibid
b. Operations or main operations or major operations or also often called tactical campaigns\(^1\) are activities which involve the use of armed forces with the following characteristics; is a part of campaigns which consists of a series of tactical actions (battle, engagement and strike) done with a variety of coordinated combat power by one or more agencies,\(^2\) carried out within a certain span of time,\(^3\) in a room or a specific place referred to as the operational area\(^4\) which becomes a part or a fragment of the theatre of war,\(^5\) committed by a small amount of troops as a fragment of the entire army campaign\(^6\) led by middle-ranking officers,\(^7\) to achieve certain goals which are referred to as operational objectives.\(^8\) This objective is related to the purpose of the campaign which is the realization of the goal of this operation thus the campaign objectives or the goals of theatre strategy or strategic military purposes are also manifested.

In the Gulf War, this operation consists of; The operation against the regime (the senior authority of decision making) of Iraq, the operation against the Strategic Integrated Iraq Air Defense System, operations against the NBC warring abilities of (Nuclear, Biological and Chemical) Iraq, operations against important Iraqi power projection, infrastructure and military production, operations against Iraqi military and mechanical equipment in Kuwait. This operation can be divided into sub operations depending on the complexity in achieving the goals or objectives of operation, as seen in Gulf War I.

### 3. Tactical level

Some also call this the tactical operations level.\(^9\) To realize the goal of the operation or suboperation, the operation or suboperations are done through separate battles or attacks within that operational area. Hence the use of the term strike which raises; battle,\(^10\) (battles involving large units such as corps),\(^11\) engagement,\(^12\) (battles involving smaller units at the level of divisions or lower),\(^13\) small unit sand crew actions\(^14\) (for example one tank unit confronts/engages another tank unit).\(^15\) Use of force at the tactical level aims to (kill, destroy/ruin) targets whose death, destruction or ruin is the primary objective the operation strives to fulfill (use of armed force or war on an operational level).

The purpose of using armed forces at the top level is assisted by the fulfillment of the purpose of armed forces at the lower levels and so on until the realization of the objectives of the strategic level. In the context of the use of armed force or air war by coalition forces against Iraqi forces, the structure of the air war can be collated in the following table:

<table>
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<tr>
<th>Tactical Level</th>
<th>Sub-Sub-Operations</th>
<th>Sub-Operations</th>
<th>Sub-Operations</th>
<th>Operations</th>
<th>Operation</th>
<th>Operational Level</th>
<th>Strategic Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attack to destroy Command Post (Post Mjand Military and Political Headquarters(HQ) M&amp; P m the national in Baghdad and in other places in Iraq)(^16) Or places where Saddam Hussein controls the operation.</td>
<td>Sub-Operations (SS Op I) Against Iraq's electrical power system Objective Disable electrical powersystems associated with the military and especially Iraqi command and control facilities</td>
<td>Sub-Operation Against Command Control Systems To disable the leaders' control and command (C2) facilities (facilities used by Iraqi military leaders, including Saddam Hussein to coordinate their military actions)(^17)</td>
<td>Operation Against regime (oritasan kapasitas senior) Irak (Op I) To isolate and incapacitate the Iraqi regime (senior decision-making authority) (making leaders hide or move around, thus making it difficult for them to control their military forces and civilian population or even to follow the</td>
<td>Operation Against Desert Storm (ODS) To isolate and incapacitate the Iraqi regime (senior decision-making authority) (making leaders hide or move around, thus making it difficult for them to control their military forces and civilian population or even to follow the</td>
<td>Operation Instant Thunder (OIT) and Operation Desert Storm (ODS) To realize the goals set at the strategic levels</td>
<td>Theatre Strategy Objectives (TSO); Inca-pacita-ting</td>
<td></td>
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<tr>
<td>Suboperations Against</td>
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\(^1\)Ryan Christian Else, loc cit.


\(^3\) British Army, *Army Doctrine Publication*, p. 4-1.

\(^4\) FM3-0 Chapter 2 Unified Action, loc cit.

\(^5\) Panos Mavropoulos, p. 97; FM3-0 Chapter 2 Unified Action; British Army, *Army Doctrine Publication*, p. 94

\(^6\) See Panos Mavropoulos, p. 97; FM3-0 Chapter 2 Unified Action; British Army, *Army Doctrine Publication*, p. 97

\(^7\) Ryan Christian Elsepp 2001-2003

\(^8\) Panos Mavropoulos, p. 97

\(^9\) Ryan Christian Elsepp 2001-2003

\(^10\) FM3-0, Loc cit

\(^11\) See the battle between US Corp VII and Iraqi Corp XII.

\(^12\) Ibid

\(^13\) Ibid

\(^14\) Ibid

\(^15\) Ibid

\(^16\) Ibid, see also See Andrew Rosenthal, *No Ground Fighting Yet; Call to Arms by Hussein,* "The New York Times, January 17, 1991 sebagaimana ditukip dalam Part II: The Air War advantage Iraq Background. Op Cit, see Paragraf on The Target In Iraq.

<table>
<thead>
<tr>
<th>Sub-Sub Operation Against Iraq's electrical power system (SS Op I)</th>
<th>Operation Against Iraq's Strategic Integrated Air Defense System (Op II)</th>
<th>Sub-Sub Operation Against Iraq's Strategic Integrated Air Defense System (Op III)</th>
<th>Operation Against Iraq NBC (Nuclear, Biological and Chemical) Warring Capabilities (Op III)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disable electrical power and networks associated with the or Iraqi armed forces, including HPP and TPP and several other power plants</td>
<td>Attack to destroy; Crippling or destroying air defense and command and control centers in Iraq, destroying SAM (surface-to-air-missiles), AAA (anti-aircraft artillery), C3 (command, control, communications, and computer systems), and several other power plants</td>
<td>Disable electrical power and control systems built in France named Kari from Iraq's Strategic Integrated Air Defense System</td>
<td>Objective: Disable Iraqi air troops and air fields; Attack to destroy; Bombing the Al-Andir complex, 40 miles south of Baghdad, reported to have suffered minor damage</td>
</tr>
<tr>
<td>Disable electrical power and networks associated with the or Iraqi armed forces, especially those related to C3</td>
<td>Attack to destroy; Interdicting Iraqi airfields and SAM sites in Iraq, destroying SAM, AAA, C3, and Intermediate to upperlevel air defense centers (ILADCC)</td>
<td>Enable the air force forces in the Middle East</td>
<td>Telecommunications Command, Control and Communications (C3) Systems (SS Op II) to; Disable Telecommunications and C3 Systems which comprise the ability to issue orders to the military and security forces, receive reports on the status of the operation, and communicate with senior military and political leaders Crippling Iraq's internal radio and television systems so, Reduce the ability to broadcast out of the country and can only broadcast sporadically within the country, so its use as propaganda is not properly utilized. Civilian radio and television can no longer be used to back up military communication, control and command.</td>
</tr>
<tr>
<td>Operation Against Iraq's Strategic Integrated Air Defense System (Op II)</td>
<td>Objective: Obtain and maintain air supremacy to allow unhindered air operations</td>
<td>Objective: Disable Iraq's Strategic Integrated Air Defense System</td>
<td>Objective: Disable Iraq's Strategic Integrated Air Defense System</td>
</tr>
</tbody>
</table>

The Air War Aadvantagest Iraq Background: Op Cit, lh. Paragraf on The Target In Iraq.

1 Chapter VI- The Air Campaign, Loc cit
3 Human Rights Watch, Needless Deaths In The Gulf War, Civilian Casualties During the Air Campaign and Violations of the Laws of War, A Middle East Watch Report, New York, p.169
4 Ibid, p.171
5 Ibid
6 Chapter VI- The Air Campaign, Loc cit
7 Chapter VI- The Air Campaign, Lo cit
8 Ibid
9 Ibid
10 Ibid
11 Ibid
12 Ibid
14 Chapter VI- The Air Campaign, Loc cit
15 Ibid
16 Ibid
17 Ibid
18 Ibid
19 Ibid
20 Ibid

<table>
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<tr>
<th>Sub-Sub Operation</th>
<th>Objective</th>
<th>Attack Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tactical Sub-Sub Operations Against Iraqi electrical power systems (SS Op I)</td>
<td>Disable electrical power and networks associated with the researching, producing and storing of NBC (Nuclear, Biological and Chemical)</td>
<td>- Bombing the Baghdad Nuclear Research and Development Center (NRDC) - Attacking Iraqi biochemical (BIOCHEM) weapons stores or cooled biochemical weapon storage bunkers.</td>
</tr>
<tr>
<td>Sub-Operation Against Iraqi electrical power systems (SS Op I)</td>
<td>Disable electrical power and networks associated with the researching, producing and storing of NBC (Nuclear, Biological and Chemical)</td>
<td>- Bombing the Baghdadi Nuclear Research and Development Center (NRDC) - Attacking Iraqi biochemical (BIOCHEM) weapons stores or cooled biochemical weapon storage bunkers.</td>
</tr>
<tr>
<td>Sub-Operation Against the production and storage sites of NBC (Op IV)</td>
<td>Disable military production and storage facilities.</td>
<td>- Attack to destroy many targets that must be eliminated, for example: - military facilities (MIF) - repairation facilities (RF) - spare parts production (SPP) - Large military complexes At-Taji - seven primary ammunition storage facilities for example (PASF) - Ammunition storage facilities at Ar-Rumaylah - 19 secondary ammunition storage facilities (SASF). Each consisting of a number of individual ammunition storage bunkers.</td>
</tr>
<tr>
<td>Sub-Sub Operation Against Iraq’s electrical power system (SS Op I)</td>
<td>Disable electrical power systems and electrical networks associated with military equipment production and storage sites.</td>
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</tr>
<tr>
<td>Main Sub-Operations Tactical Sub Campaigns against Scud missiles, launchers, and their production and storage facilities (S Op VI)</td>
<td>Disable military production and storage facilities.</td>
<td>- Attack to destroy many targets that must be eliminated, for example: - military facilities (MIF) - repairation facilities (RF) - spare parts production (SPP) - Large military complexes At-Taji - seven primary ammunition storage facilities for example (PASF) - Ammunition storage facilities at Ar-Rumaylah - 19 secondary ammunition storage facilities (SASF). Each consisting of a number of individual ammunition storage bunkers.</td>
</tr>
<tr>
<td>Sub-Operation Against oil distillation and distribution (S Op VII)</td>
<td>Disable oil distillation and distribution to combat Iraq’s long term oil production capabilities.</td>
<td>- Attack to destroy oil distillation facilities (ODF) which have direct military uses, not longterm raw oil production. - To destroy or damage those targets</td>
</tr>
<tr>
<td>Sub-Operation Against Iraq’s electrical power system (SS Op I)</td>
<td>Disable electrical power systems and electrical networks associated with distilling oil</td>
<td>Attack to destroy electrical power production and electrical networks associated with distilling oil and several other power plants</td>
</tr>
<tr>
<td>Sub-Operation Against Iraq’s Naval Forces and ports (S Op VIII)</td>
<td>To disable naval forces and port facilities, “so the Coalition navy may move further into the North of the Persian Bay to increase the pressure on Iraq’s troops and to better support their ground</td>
<td>To do actions such as: - Attacking Iraq’s naval ships (NS) especially those with Silkworm Rockets and Exocet - Capturing Kuwaiti patrol ships (KPS) equipped with Exocet - Targeting port facilities and anti-ship missiles - Attacking port facilities (PF), such as</td>
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# Operation Against Iraq’s military and mechanical tools in Kuwait (

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<thead>
<tr>
<th>Operation</th>
<th>Sub-Operation</th>
<th>Objective</th>
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<tr>
<td>Against Iraq’s military and mechanical tools in Kuwait</td>
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<tr>
<td>Sub-Operation</td>
<td>Against functioning Bridge, Road and Railway connections</td>
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<tr>
<td>Sub-Operation</td>
<td>Against Army Unit including the Republican Guard Forces Command at the Kuwait Theatre Operation</td>
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</tbody>
</table>

Based on the above table, attacks as an act of violence occurs on two of the three levels namely the Operational and Tactical Level. The difference between the two levels of attack is whereas on the Tactical Level, attacks are meant as individual acts of violence aimed at separate targets. In the context of attacks on Iraq’s electrical power system, these attacks are meant as acts of violence against each hydroelectric power plant, thermoelectric power plant, and oil-fired power plant located separate from each other. Four hydroelectric power plants were attacked namely [12], Saddam Dam/Mossul Dam in the Ninawa governorate, Haditha Dam in the Al Anbar Governorate, Samarra Dam in the Salah ad Din Governorate and Dukan Dam in the Sulaymaniyah Governorate. On the other hand six thermoelectric power plants were in Basra, situated north of Baghdad. The other power plants damaged by Coalition air strikes were the power plants al-Shu'ayba and al-Najiebiya in Basra. The objective of these attacks were to damage or destroy those power plants.

On the Operational Level those attacks were meant as acts of violence against Iraq’s electrical power system which were aimed at disabling said electrical power system. Because this goal could only be achieved if those tactical attacks against those power plants succeeded, thus attacks on an Operational Level are a group of a series of tactical attacks on each of the aforementioned targets. Therefore there are two definition of attacks with each belonging to one of two different levels of war.

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1. Ibid
2. Ibid
3. Ibid
5. Ibid
10. Chapter VI- The Air Campaign
11. Chapter VI- The Air Campaign
2.3 Definition of Military Advantage and Civilian Losses Arising from Attacks Against Iraq’s Electrical Power System

2.3.1 Definition of Military Advantage

2.3.1.1. Definition of Military Advantage From The Perspective of Humanitarian Law

In Humanitarian Law terms found relating to this case is the military advantage anticipated. This term is found in all the rules of international law relating to proportionality such as; Article 51 Paragraph 5 b, Article 57 Paragraph 2 (a) (iii), Article 57 Paragraph 2 (b) of Additional Protocol to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflict (Protocol I of 1977), Article 3 para 3 (c) the 1980 Protocol II to the CWC, article 3 para 8 (c) Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices as amended on 3 May 1996(Protocol II as amended on 3 May 1996), Article7 cand7 dii Second Protocol to the Hague Convention of 1954 for the Protection of Cultural Property in the Event of Armed Conflict The Hague, 26 March 1999 (now called the Protocol II Den Haaq 1999) and Article 8 para 2 (b) (IV) Rome Statute of the International Criminal Court, which states;

"…which would be clearly excessive in relation to the concrete and direct overall military advantage anticipated.”

Thus the term military advantage is followed by the limitations of being concrete, direct, overall, and anticipated. In Humanitarian Law, there is no specific definition of military advantage. Only in several humanitarian laws which discuss the definition of military objects are we able to discover that military advantages are seen from two sides namely; the ruling party or the party using that military object and the attacker of military objects. From the side of the ruling party or the user of military objects, military advantages are effective contributions made by those military objects to military acts done by the ruling party to achieve the objective of an attack or an operation. Military advantages or effective contributions by those military objects may arise because of the nature of said object, location, objective or use by the ruling party. From the side of the attacker, military advantages are born as a result of those attacks which totally or partially destroy, capture, or neutralize a certain military objects thus ending its effective contribution towards the ruling party’s military acts thus weakening the attacked military power.

Thus it is not the destruction, capture, nor neutralization of said military objects that becomes the military advantage, but it is the effect that arises as a result which then weakens the opponent’s military force or the ruling party’s. This is in line with the 1868 St. Petersburgh Declaration Renouncing the Use, in Time of War, of Explosive Projectiles Under 400 Grames Weight which states that the only legitimate object which States should endeavor to accomplish during war is to weaken the military forces of the enemy.

What is meant by concrete, direct, overall, and anticipated is also not explained further in the aforementioned rules of International Humanitarian Law. Especially related to the terms concrete and direct, hints begin to appear in the sentence drafted by the committee III when the Additional Protocol I was being negotiated, namely;

The expression "concrete and direct" was intended to show that the advantage concerned should be substantial and relatively close, and that advantages which are hardly perceptible and those which would only appear in the long term should be disregarded. Based on this sentence it can be said that the military advantage to be taken into account must be substantial (tangible) and apparent (perceptible), close (within a causal connection with the attack) and do not arise in the long term. The definition of a concrete military advantage can be seen in the words substantial (tangible) and apparent (perceptible). However in the records of the negotiation, the borders of what is substantial and apparent is not seen, whether this means that the military advantage accounted for is merely physical and thus moral, spiritual or mental advantages may be disregarded is not clear. The Committee Established to Review the NATO Bombing Campaign Against the Federal Republic of Yugoslavia, in its final report to the Prosecutor of the ICTY in 2000 states that:

“...While stopping such propaganda may serve to demoralize the Yugoslav population and undermine the government’s political support, it is unlikely that either of these purposes would offer the “concrete and direct” military advantage necessary to make them a legitimate military objective.


2 See also Spain, Penal Code (1995), Article 613 (1) (b), as also quoted in Jean-Marie Henckaerts and Louise Doswald-Beck (Ed.), Customary International Humanitarian Law, Cambridge University Press, para 342, p. 185.


4 The logic of military advantages for the ruling party or the practical user is to disadvantage the attacker, conversely advantages for the attacker will be detrimental to the ruling party or user.

This opinion apparently demoralizes (lowering of moral support or spirit) the population of Yugoslavia and weakens political support for the governor which is not something that is a concrete military advantage. Thus based on this committee’s opinion it can be said that moral advantages are not included in the definition of a concrete military advantage. However, the opinion of this committee is merely as a guide as it does not have binding legal force.

Regarding the definition of a direct military advantage, the sentence the committee III adopted above can be seen to have the words relatively close and those which would only appear in the long term should be disregarded. Thus there are two elements to the direct definition namely; first, the distance of a causal link between a military advantage and an attack must be close, however how close the link between a military advantage and an attack is not clear and second, the emergence of the military advantage must be immediately after an attack was conducted, not in the long run, where the boundary between immediately and not or long term and short term is unclear. In relation to the attacks on Iraq’s electrical power plant, there is a causal link between the attack and the paralysis of the Iraqi leaderships’ control and command systems as well as the control, command and communication systems of the Iraqi armed forces.

It can be seen that at least one stage must be passed before achieving a military advantage in the form of the disabling of the Iraqi leadership’s control and command system and the Iraqi armed forces’ command, control and communication systems, which would be the disabling of Iraq’s electrical power system. This phase would not exist or would be truncated had the attacks been aimed at the enemy’s command, control and communications system. The lack of clarity on the boundaries between military advantages and attacks could allow these military advantages to be called indirect military advantages Conversely the perpetrator would refer to it as a direct military advantage.

In terms of the time of the emergence of the military advantage, the disabling of the Iraqi leadership’s command and control system and the Iraqi armed force’s command, control and communications system. Disabling control system and Iraqi Commander Iraqi armed forces’ command, control, and communications system were not immediate or was soon after the attack occurred. This is due to the possibility of the existence of mobile electric generators to replace the electrical flow formerly supplied by the attacked power plants. Because there is no clear boundary between immediate or not and long term or short term and cause or effect in International Humanitarian Law, thus the disabling of the Iraqi leadership’s command and control systems and the Iraqi armed forces’ command, control and communications systems, can be called an indirect military advantage or conversely the perpetrator may claim it as a direct military advantage.

Regarding the term overall, the statute did not explain what it meant. The ICRC in the Rome conference stated that;

*The word “overall” could give the impression that an extra unspecified element has been added to a formulation that was carefully negotiated during the 1974–1977 Diplomatic Conference that led to [Additional Protocol I] and this formulation is generally recognized as reflecting customary law. The intention of this additional word appears to be to indicate that a particular target can have an important military advantage that can be felt over a lengthy period of time and affect military action in areas other than the vicinity of the target itself. As this meaning is included in the existing wording of the 1977 Additional Protocol I, the inclusion of the word “overall” is redundant*

The ICRC’s explanation shows that military advantages also include effects of the attack which cause the success of military actions or attack in areas aside from the target area. This suggests that military advantages that are included into calculations are not only those military advantages from an attack against a certain object but also advantages in the form of effects which cause the success of military actions or attacks in other areas.

In relation with the whole of military advantages, Solf takes the example of the primary military advantage from the Allied attack on Germany at the Pas de Calais which was thought of by the Allied forces not to weaken Germany’s military power in that area, but to trick Germany into believing that the Allies’ amphibious attack would take place at the Pas de Clais and not Normandy Beach. Because of that, the anticipated military advantage of that attack was not associated with their value to the enemy.2 Solf’s explanation shows that military advantages also include the effects attacks have on the success of military actions or attacks in areas aside from the target area which, in this case would be the effect the Pas de Clais attack had on the Allies success in seizing Normandy.

Outer explains that separate actions in an operation which is described as specific attacks which are almost never done for its own purpose but for a larger integrated goal.3 Furthermore, it is said that within the overall more complex campaign framework of a warring party an individual may calculate the relative military value of an individual attack’s specific goal.4 Thus the definition of an overall military advantage according to

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2 Solf, ‘Art.52’ in Bothe, Partsch and Solf, New Rules for Victims of Armed Conflict, pp. 324 ff
3 Outer, ‘Methods and Means of Combat’, p. 162.
4 Ibid, p. 119
these scholars is a benefit calculated from the overall individual attack interlinked in a greater purpose namely the purpose of the operation or event the campaign.

The term overall military advantage is also used by several countries namely; Netherlands¹, Benin², Togo³, Burundi⁴, Georgia⁵, USA⁶, Germany⁷, Mali⁸, Egypt⁹ and Canada.¹⁰ Aside from that in The 2000 UNTAET Regulation No. 2000/15, this term can also be found. Out of all these sources there is no clear definition of the term overall. Only in the statement of the US Department of the Army In 1991, in reaction to an ICRC memorandum on the applicability of IHL, which states;

“The concept of “incidental loss of life excessive in relation to the military advantage anticipated” generally is measured against an overall campaign. While it is difficult to weigh the possibility of collateral civilian casualties on a target-by-target basis, minimization of collateral civilian casualties is a continuing responsibility at all levels of the targeting process”.¹¹

Furthermore in the Statement of US Department of Defense In 1992, in its final report to Congress on the conduct of the Gulf War it is written;

“It prohibits military action in which the negative effects (such as collateral civilian casualties) clearly outweigh the military advantage. This balancing may be done on a target-by-target basis, as frequently was the case during Operation Desert Storm, but also may be weighed in overall terms against campaign objectives”.¹²

Based on these two statements it can be said that the definition of overall can be contrasted with the target by target definition. This is in line with Canada’s opinion;

The military advantage at the time of the attack is that advantage anticipated from the military campaign or operation of which the attack is part, considered as a whole, and not only from isolated or particular parts of that campaign or operation.¹³

Thus it is clearer that the definition of an overall military advantage is the advantage obtained from attacks on the targets of an operation or campaign as a whole.

2.3.1.2. Definition of Military Advantage Based Upon the Levels of War

To see military advantages from the perspective of the Levels of War in relation to attacks or bombings against Iraq’s electrical power facilities such as power plants there are two things to pay attention to namely; 1) whether the attacks or bombings against those power plants caused a direct military advantage, 2) on the level of war did the attacks or bombings against those power plants cause a direct military advantage which is concrete, overall and apparent. As per the explanation above, war can be divided into three levels namely Strategic Level, Operational Level and Tactical Level. Whether there are military advantages on all levels, this depends on what the target is, whether its destruction, capture or neutralization directly weakened the opponent’s military strength. Attacks against a pure active military target which strengthens the enemy’s military forces which result in its destruction, capture or neutralization may cause a direct military advantage on a tactical level. However, attacks on dual use objects such as electrical power whose role can be replaced by small and mobile electrical generators, the military advantage on a tactical level is questionable. Based on the explanation in sub-chapter 2.2.1.1. on the definition of a military advantage from the perspective of humanitarian law, military advantage from the perspective of the levels of war can be seen in the following table.
Table 2. Military Advantage of Coalition Forces From the Destruction of Iraq’s Electrical Power System

<table>
<thead>
<tr>
<th>Lv. War Specifications</th>
<th>Tactical</th>
<th>Operational</th>
<th>Strategic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct/Indirect</td>
<td>Direct or Indirect Military Advantage?</td>
<td>Direct or Indirect Military Advantage?</td>
<td>Direct or Indirect Military Advantage?</td>
</tr>
<tr>
<td>Concrete/Abstract</td>
<td>Concrete Military Advantage</td>
<td>Concrete Military Advantage</td>
<td>Concrete Military Advantage</td>
</tr>
<tr>
<td>Target by Target/Overall</td>
<td>Target by target</td>
<td>Overall</td>
<td>Overall</td>
</tr>
</tbody>
</table>

Based on the table above we are able to know:

1. Coalition forces’ military advantage on a tactical level
   On a tactical level there is:
   a. The lack of clarity on whether the military advantage in the form of the Iraqi leadership’s control and command system and Iraqi armed forces’ control, command and communications system are direct advantages or indirect advantages of the attack on Iraq’s electrical power plant. This is due to the lack of clarity with regards to the boundaries on how far is the relation between military advantages and attacks in order to determine whether or not the advantage was direct or indirect. Aside from that the boundary between immediate and not immediate or long term and short term in terms of when the military advantage occurs. Only if the direct military advantage was intended as a military advantage that arises once an attack occurs then there is no direct military advantage at the time the attack on the power plant occurred. There is only the direct effects which are the destruction of the power plant and the possibility of death or injury of the people who were around the plant during the war.

b. Concrete Military Advantage
   Though there is uncertainty on whether a concrete military advantage is something that is only physical or whether it may include spiritual or even mental, what is clear is that military advantages generated by the attack on Iraq’s power plants were predicted to have produced a concrete military advantage as in figure three above. It is just that these gains have not been obtained shortly before the attack. However it is predicted that the profit will be gained after passing through as seen in figure 3 above. Because there are 12 power plants thus the concrete advantage is regarded as having been donated by each object attacked which is 1/12 for each of the arising military advantages, such as 1/12 for the disabling.

c. Target by target military advantage.
   Because an attack is an act aimed at each target which has been set at the Operational Level, thus logically military advantages obtained are target by target advantages or military advantages from each attack on each target. In the case of attacks on those Iraqi power plants, arises the question whether the disabling of the Iraqi leadership’s command and control system as well as the Iraqi armed forces’ control, command and communications system were military advantages born as a result of target by target attacks seeing as the effects which directly occurred was merely the shutting down of the flow of electricity. If the disabling of the Iraqi leadership’s command and control system as well as the Iraqi armed forces’ control, command and communications system were considered military advantages obviously the question of whether said advantage were direct or indirect advantages from those attacks on Iraq’s power plants must be asked again.

2. Coalition forces’ military advantage on an Operational Level
   On an Operational Level, namely on the level of sub-Operation, military advantages gained by the coalition forces’ attack on the power plants in Iraq based on figure 3 above is estimated to have been of six types;
   a. Disabling the Iraqi leadership’s control and command (C2) system
   b. Disabling the Iraqi armed forces’ control, command and communications (C3) system
   c. Disabling Iraq’s integrated air defense system
   d. Disabling Iraq’s nuclear, biological and chemical (NBC) research, production and storage facilities
   e. Disabling the Iraqi military’s production and storage sites
   f. Disabling Iraq’s oil distribution and distillation.

On the Operational Level, the military advantage obtained by coalition forces, as an indirect effect of the attack on Iraq’s power plants, based on figure 3 above is estimated to have been of four types;
   a. The disabling and the isolating of the Iraqi regime as a result of the effect on a sub-operation level namely; disabling the Iraqi leadership’s control and command (C2) system and disabling the Iraqi armed forces’ control, command and communications (C3) system
   b. Obtaining and maintaining the air supremacy of coalition forces as a result of the effects on a sub
In terms whether it is concrete or not, the military advantage because it can be clearly seen. The military advantage on a Strategic Level, namely on the sub operation level, military advantage gained by coalition forces by targeting or targets attacked overall.

A loss on the Operational Level are all losses arising from attacks on each target at the tactical level. Indirect losses such as civilian deaths due to disease and malnutrition appear at this level. Losses on a Strategic Level is much. Most are not the direct result of an attack. As shown in the schematic above, around 170,000 Iraqi civilians, mostly children died due to the disabling of various systems that are essential for maintaining environmental sanitation and nutritional needs of the population caused by the shutting down of electricity due to the bombing of Iraq’s power plants. Regarding the overall specifications, as has been done above, it is not found in civilian losses. This raises uncertainty regarding whether the civilian losses should be calculated target by target or target by target overall.

2.3.2.1. Definition of Civilian Loss from the Perspective of Humanitarian Law

Within the rules of International Humanitarian Law, there is no mention of the term civilian loss as a counterpart to the term military advantage. Civilian losses have been directly specified by several items; loss of life or injury to civilians or damage to civilian objects, environment and cultural property. There was also no specification such as concrete, direct, and overall such as the ones found in military advantages. Although not mentioned, specifications such as concrete and direct, but by mentioning the items; loss of life or injury to civilians or damage to civilian objects, environment and cultural property, civilian losses that are meant are only the civilian losses that are concrete and direct. Even though civilian losses may also be invisible (intangible) such as the grief of the bereaved family, trauma from the attack, expenditure of time, energy, thought for healing wounds, and loss of functions important to family and society. Aside from that there is no visible loss such as costs incurred for healing. Other losses that may arise include the possibility of there being derivative losses.

In the 1991 Gulf War, the death or injury of civilians as a direct result of the attack did not amount to much. Most are not the direct result of an attack. As shown in the schematic above, around 170,000 Iraqi civilians, mostly children died due to the disabling of various systems that are essential for maintaining environmental sanitation and nutritional needs of the population caused by the shutting down of electricity due to the bombing of Iraq’s power plants. Regarding the overall specifications, as has been done above, it is not found in civilian losses. This raises uncertainty regarding whether the civilian losses should be calculated target by target or target by target overall.

2.3.2.2. Definition of Civilian Losses from the Perspective of the Levels of War

Civilian loss from the perspective of the levels of war it can be seen in terms of direct and indirect loss, concrete or not and target by target or overall. On a Tactical Level, with an emphasis on target by target attacks, civilian losses arising are those from each target. These losses are direct losses that can be concrete and not concrete. Concrete losses such as death, injury, damage to civilian objects, environment and cultural objects. Instead direct and abstract losses are mental losses such as grief from the bereaved families, trauma of the attack, expenditure of time, energy and thought for wound healing and loss of functions important to family and society. A loss on the Operational Level are all losses arising from attacks on each target at the tactical level. Indirect losses such as civilian deaths due to disease and malnutrition appear at this level. Losses on a Strategic Level is the sum of all losses that existed on all operational levels. Civilian losses that arise are no longer only from the
result of the operation against Iraq’s electrical power system, but also as a result from Iraq’s strategic integrated air defense system and other operations.

2.4 Calculating the Proportionality of Attacks against Iraq’s Electrical Power System based on the Principles of Justice

2.4.1 Principles of Justice

Aristotle, in his books *Nicomachean Ethics*, discussed justice from two sides. First is justice as compliance with the law. Here it is defined as compliance with the law. Justice means complying with the law, conversely unjust means not complying with the law.1 Second is justice as equality. Here justice is defined as equality or not accepting more than what one has a right to or truthful. Conversely, injustice according to equality is the not applying of balance or accepting more than their rights or dishonest.2

There are two kinds of justice in terms of equality namely; firstly, distributive justice and secondly, corrective justice. Distributive justice is justice executed in the distribution of rewards, prosperity, and other assets that can be shared from the community that can be allocated amongst its members evenly or unevenly.3 For there to be justice, according to Aristotle, there should at least be four requirements (elements), namely; first, two people to whom justice will be served to, second; two parts to be distributed to the two aforementioned people, third; that those two be equals, fourth; the two parts given are also equal. Therefore if people are not equal then they will not have equal parts.4

Instead corrective justice injusti ice that provides the corrective principle in private transactions …transactions that are voluntary or not.5 Another example of voluntary transaction is “sale, purchase, loan for consumption, pledging, loan for use, depositing, letting (they are called voluntary because the origin of these transactions is voluntary)”.6

On the other hand, involuntary transactions are said to be;

“some are clandestine, such as theft, adultery, poisoning, procuring, enticement of slaves, assassination, false witness, and (b) others involve force, such as assault, imprisonment, murder, robbery with violence, mutilation, abuse, insult.”7

As in distributive justice, corrective justice is also justice according to equality, namely; equality not based on geometry, but based on mathematical proportionality.8 For example when someone commits a crime or benefits from the losses of others it creates two sections of a line (perpetrators and victims) which are not equivalent. According to Aristotle “the judge tries to equalize it; for in the case also in which one has received and the other has inflicted a wound, or one has slain and the other been slain, the suffering and the action have been unequally distributed; but the judge tries to equalize things by means of the penalty, taking away from the gain of the assailant.”.9 The equality portrayed by Aristotle as a midpoint between a line divided into two equal parts. On the other hand, inequality is portrayed as the dividing of a line into inequal parts so that one part is larger than the other. So that it returns to being equal, the judge needs to take a part of the larger half and give that part to the smaller half so that the midpoint divides that line into two equal parts. This can be seen in the following opinion;

“it is as though there were a line divided into unequal parts, and he (the judge) took away that by which the greater segment exceeds the half, and added it to the smaller segment. And when the whole has been equally divided, then they say they have ‘their own’ — i.e. wheth they have got what is equal.* The equal is intermediate between the greater and the lesser line according to arithmetical proportion. Its for this reason also that it is called just (dikaios), because it is a division into two equal parts (dikha), just as if one were to call it dikhaion; and the judge (dikastēs) is one who bisects

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2 Aristotle, Op cit. 1129a

3 Ibid. 1131a

4 Ibid. For example if individuals A and B are not equal, the rights divided to them are also not equal, conversely if those individuals were equal, the rights divided would also be equal. (See Kelsen, H Op. cit. p. 148).

5 Ibid. This corrective justice, according to Hans Kelsen, is done by the judge in finishing conflicts and in giving out punishments to criminal suspects. (Hans Kelsen. Op cit. p 148.)


7 Ibid.

8 Ibid. 1131b. The equity portrayed by Hans Kelsen is not just something of two ratios, but it is a balance of two things, especially two losses or two gains. From the side of voluntary transactions, for example are barters which require services and payment to those services which are worthy. From the side of involuntary, for examples between crime and punishment, where the punishment must be equal with the crime. (Hans Kelsen. Op cit. Page. 150).

(dikhaștēs). For when something is subtracted from one of two equals and added to the other, the other is in excess by these two; since if what was taken from the one had not been added to the other, the latter would have been in excess by one only.  

Further on it is explained;

"By this, then, we shall recognize both what we must subtract from that which has more, and what we must add to that which has less".

When that intermediate has been achieved, this is what is just as stated in the following;

"it is plain that just action is intermediate between acting unjustly and being unjustly treated; for the one is to have too much and the other to have too little."

As stated above that the intermediate is the mid-point, this of course begs the question, how is that intermediate achieved or balanced? Aristotle answers by stating the following;

"For it is not two doctors that associate for exchange, but a doctor and a farmer, or in general people who are different and unequal; but these must be equated."

As such, because what must be equal are two different things which means that there will be no mathematical equality, thus these two things must go through equalization. The equalization is done with the following methods;

1. Reciprocal exchange.

Reciprocal exchange is portrayed by Aristotle as a return in kind as per his statement:

"Men seek to return neither evil for evil — and if they cannot do so, think their position mere slavery — or good for good — and if they cannot do so there is no exchange, but it is by exchange that they hold together."

2. Proportioning two parts that are reciprocally interchanged

On this, Aristotle says;

"But in associations for exchange this sort of justice doeth men together — reciprocity in accordance with a proportion…."

This means that returning in kind, such as returning evil with evil or good with good needs to be proportional. Aristotle does not explain what is meant by said proportion or proportionality. Hans Kelsen then explains it as one’s portion being appropriate with the other. Thus, what is meant by corrective justice, according to Aristotle, is the intermediate or midpoint between two different things that can be achieved through proportional reciprocal exchange.

Based on this theory, it can be seen then in order to achieve the intermediate someone must both experience gain and loss or at least gain without losing anything or if someone else loses something he should also gain something else of at least the same portion of his loss.

This justice can be embodied by a state of law or in relation to international armed conflicts can also be embodied by the international community through an organization or an institution of international law. In that organization or institution of international law legal protection in the form of laws of war are provided. That protection includes military interests/necessity and humanitarian interests as well as a balance between the two.

2.4.2 Balancing the Definition of Military Advantage and Civillian Losses in order to Achieve Justice Between Military Interests and Humanitarian Interests of Civilians

In the attack against Iraq’s electrical power system in the Gulf War I, the effect on civilians and military can be seen that attacks on Iraq’s electrical power plant caused a double effect namely on civilians and on the military. Though they are both affected, but the effects experienced by the two are different including the specifications that follows. For the military, the effects they effects they received were only gains, while the effects received by their civilians were losses. The injustice is already clear here. This condition or state is only allowed by International Humanitarian Law with restrictions namely; that the civilian losses do not exceed the military advantage posed.

1. Forms of Effects.

As previously explained in the rules of International Humanitarian Law, there is no mention of the term civilian losses as a counterpart to the term military advantage. Direct civilian losses are specified into several items namely; loss of life or injury to civilians or damage to civilian objects, environment and cultural property. By directly stating the items of said losses, the civilian losses intended here are only those that are concrete and other losses such as mental losses in the form of grief and trauma as well as other derivetive losses such as expenditure of time energy an d thought for wound healing and loss of

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10 Ibid.
11 Ibid. 1132b
12 Ibid. 1133b
13 Ibid. 1133a
14 Ibid. 1131a-1133a. Returning evil with evil and good with good is known as the principle of retribution.
15 Ibid.
functions important to family and society are not considered a part of civilian losses. Aside from that, by stating the items included in said losses the losses meant here are those that arose immediately after the attacks as seen in figure 5 above. As such, the direct bad effects are civilian losses.

Conversely for the military, military advantages are not specified into several items such as death of combatants and damage to the opponent’s military objects. By not directly mentioning the items that make up said military advantage, the scope of the definition of military advantage includes not only concrete military advantages but also the ones that are not. Though there are restrictions regarding the nature of military advantages namely concrete military advantages, but the reality is that there are certain parties that accept the concept of overall military advantage because of its relation with non-concrete military advantages which such as military advantages related to feints. Aside from not that in terms of not mentioning the items of said military advantage, it also opens up the possibility to widen the interpretation of military advantages in relation to indirect military advantages even though international humanitarian law states that it is restricted only to direct military advantages. Though the boundaries between direct and indirect advantages are unclear. Based on figure 5 above, military advantages are not effects arising immediately after the attack but in the phase after the disabling of Iraq’s electrical power system.

In order to actualize justice between military interests and the humanitarian interests of civilians there needs to be specifications; loss of life or injury to civilians or damage to civilian objects, environment and cultural properties replaced with civilian loss, so it has a counterpart in the term military advantage. Conversely military advantages are specified like civilian losses. Where between the two choices will be done depends on which one is the hardest to specify.

2. Nature of Effect

In civilian losses, the nature of the effects can be found in the widespread, long-term and severe environmental. The three natures of this effect can be found in article 8 para 2 (b) (IV) Rome Statute of the International Criminal Court without any further explanations. The term widespread are illustrated by the International Law Commission being the geographical size of the area suffering from that damage. However there is no clear explanation regarding the size of the impacted area so the damage may be called widespread.

The term of Long Term is meant for environmental damage that arises immediately and is at heart long lasting, not damage that may happen a long time after the attack is done. The ICRC interprets the term long term by referring to decades instead of months. The term severe is illustrated by the International Law Commission as the level or intensity of said environmental damage. However, to what level or intensity must that damage be to qualify as being severe, is also unclear.

By combining the three terms; widespread, long-term and severe damage to the natural environment, the German military manual refers to it as a major interference to the mankind’s lives and natural resources which is beyond the usual battlefield damage estimated in a war. Here there is also no clear explanation regarding the size of ‘beyond the usual battlefield damage estimated in a war’. Thus the restriction of civilian losses here includes; first by providing direct specifications in the form of loss and second, specifically for the environment namely by citing the three natures of environmental damage which causes said environmental damage and then compare it with the military advantage. For military advantages, the nature that sticks to these effects are concrete, direct, and overall like with military advantages. Thus the restrictions for military advantages only includes the nature of that military advantage and dies bit restructure its form through a certain specification.

Keeping in mind the lack of clarity regarding the boundaries between concrete or non-concrete, direct and indirect military advantages and there being recognition of an overall advantage thus to realize justice between military advantage and humanitarian interests of civilians there needs to be restrictions on nature which applies to civilian losses. For example if military advantages being compared are concrete, direct and overall military advantages within the same boundaries as the one used for military advantages. In the case of the coalition forces’ attack on Iraq’s power plants for example if the concrete, direct and overall

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17 See again Solf, Supra note.109.
18 GAOR, 46th Session, Supplement no. 10 (A/46/10), Loc cit
20 UN Doc. A/48/269, p. 9. See also A/47/328, 31 July 1992, para 20, 63, quoted in ibid.
23 In other literature it is said that “it must also be emphasized that the same scale has to be applied with regard to both the military advantage and the corresponding civilian casualties”, See Knut Dormann, Op cit, p. 173 and M. Sassoli, Bedeutung einer Kodifikation für das allgemeine Völkergesetz mit besonderer Beachtung der Regeln zum Schutz der Zivilbevölkerung vor den Auswirkungen von Feindseligkeiten, Helbing & Lichtenhahn, Basle and Frankfurt am Main, 1990, p. 415.
military includes indirect effects such as disabling the Iraqi leadership’s C2 systems and the Iraqi armed forces’ C3 systems as well as four other advantages and continuing on to other derivative advantages as seen in figures 3 and 5, then civilian losses also need to be calculated using the same method so that the losses calculated include the disabling of water purification and distribution as well three other losses which continue to include losses in the form of diseases and malnutrition and the death of civilians on a large scale as seen in figures 4 and 5. Use of the overall trait in military advantage and civilian losses which at the end of the day is heavily tied to the calculation of on what level are those civilian losses and military advantages are being calculated.

3. Level of Effects

Effects in the form of civilian losses can be counted on the tactical and operational level. The same thing applies to the effect in the form of military advantages. Effects on a tactical level mean that civilian losses as well as military advantages are calculated based on target by target results. While effects on an operational level civilian losses and military advantages are calculated based on an accumulation of the result of attacks on all targets. So that it is fair, the losses on a tactical level must be paired with the military advantage on a tactical level and civilian losses on an operational level must be paired with military advantages on the same level.

2.4.3 Calculating the Proportionality of Attacks based on International Humanitarian Law and Principles of Justice

In article 51 Paragraph 5 b, article 57 Paragraph 2 (a) (iii), article 57 Paragraph 2 (b) of Additional Protocol to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflict (Protocol I of 1977) and other rules of international law, the proportionality of attacks is stipulated generally namely the prohibition of any attacks which cause “incidental loss of civilian life, injury to civilians, damage to civilian objects, environment and cultural property, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated”. There two things contained in the previous formulation namely; first, use of the word “excessive” in this formulation shows there to be a comparison between two conflicting elements and second, the elements being compared are military advantage and civilian loss which has been specified namely; incidental loss of civilian life, injury to civilians, damage to civilian objects, environment and cultural property. This comparison as has been previously explained is the gain and loss experiences. As such calculating the proportionality of attacks under International Humanitarian Law is the comparing of these two things which conflict or are in opposition to each other which then causes injustice where the military experience gain while the civilians experience loss though with the restriction that that loss may not exceed the gain. Aside from injustice this comparison is very difficult and invites subjective interpretation from the attacker so that the calculation of proportionality becomes imbalanced.

So justice is achieved between military interests and the humanitarian interests of civilians, the calculation of proportionality needs to calculate the probability of a third element namely advantages or gains for civilians as a result of that attack. In certain wars there is the possibility of gain for the civilians as seen in the following table;

<table>
<thead>
<tr>
<th>Table 3; Strategic purpose of war and profit for civilians</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategic Purpose of War</strong></td>
</tr>
<tr>
<td>To defend self or allies from armed attacks</td>
</tr>
<tr>
<td>Humanitarian Intervention to stop massive violation of human rights against foreign nationals in country</td>
</tr>
<tr>
<td>Intervention for protection of national abroad</td>
</tr>
<tr>
<td>To topple racist foreign colonizing, invading, occupying regime.</td>
</tr>
</tbody>
</table>

By calculating this civilian advantage, the rule of the proportionality of an attack only allows those attacks to be done if civilians do not only experience losses but also gains and those losses do not exceed the military advantage and the civilian advantages they experience. In its relation with the attack on Iraq’s power plants, the proportionality of those attacks are ideally defined as the attacks on those power plants provide advantages as well to the civilians of and the losses they experience do not exceed the military advantage
obtained by coalition forces and the civilian advantages that they obtain. A calculation of proportionality as such will give justice to the civilians.

Aside from including civilian advantages, the comparison between the conflicting elements also needs to be balanced. If the military and civilian advantages which will be compared do not include indirect, non-concrete and overall advantages or military and civilian advantages on an operational level, then the civilian loss calculated have to be of the same nature and level.

3 Conclusion
Based on the elaboration above, it can be said that:

a. Attacks are ideally defined as acts of violence done against an enemy done either when attacking or when defending but it also needs to be specified on what level is it done. On a tactical level attacks are defined as single attacks or individual attackson each target such as the ones on the electrical power plants. On an operational level attacks are meant as a gathering or series of tactical attacks on each of the above targets with the operational target namely the ability produced by a series of these targets on a tactical level, such as for example, Iraq’s electrical power system which is formed by the existence of a series of electrical power plants. Secondly this definition can be chosen as long as the elements of proportionality used to calculate proportionality are on the same level.

b. In order to achieve fairness between military necessity and and the humanitarian interests of civilians, civilian losses which are the result of attacks are losses that do not need to be specified so that it is balanced with military interests/necessity which is also not specified by International Humanitarian Law. These civilian losses are such losses that have the traits of being concrete, direct and overall which bear the same definition as the traits concrete, direct and overall applied in military advantages or conversely, if the military advantages do not bear the traits of being concrete, direct and overall. These civilian losses are also those losses counted on the same level of war as military advantages.

c. If calculating the proportionality of attacks in International Humanitarian Law requires a comparison between the two conflicting elements which are incidental loss of civilian life, injury to civilians, damage to civilian objects, environment and cultural property, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated, then to achieve fairness between military interests and the protection of the civilian population, calculating the proportionality of attacks must also calculate civil profits/advantages so it is proportionate thus the losses suffered by the civilian calculation does not exceed the military advantage gained and the civil profits earned. Aside from that, a comparison between conflicting elements must be balanced.

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