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for Concepts,
Doctrine and
Experimentation**

Collateral Damage Estimation

**Joint Publication
(FRA) JP-3.9.9_CDE(2014)**

No. 157/DEF/CICDE/NP as of 02 July 2014



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Please note: the only official reference of this document is the electronic French version released on the Internet and/or Intradef pages of the CICDE (<http://www.cicde.defense.gouv.fr>).

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PIA-3.9.9 *Estimation des dommages collatéraux*

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(FRA) JP-3.9.9

COLLATERAL DAMAGE ESTIMATION

No. 157/DEF/CICDE/NP as of 02 July 2014

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Letter of Promulgation

Paris, 02 July 2014

No. 157/DEF/CICDE/NP

Object: Promulgation of the French joint publication PIA-3.9.9 *Estimation des dommages collatéraux*.

The joint publication relative to Collateral Damage Estimation (CDE) was produced by the national targeting centre (*Centre National de Ciblage 34.664*) and validated by the legal affairs directorate (*DAJ, Direction des affaires juridiques*) and the legal department of the Air Defence and Air Operations Command (*CDAOA, Commandement de la défense aérienne et des opérations aériennes*). It was published by the joint centre for concepts, doctrine and experimentation (*CICDE, Centre interarmées de concepts, de doctrine et d'expérimentation*).

In today's complex environment, the army profession is governed by a range of human, cultural and technical parameters that are regulated by the international Law of armed Conflict and form one of the most important frameworks.

This joint publication reminds the fundamentals of the Law of Armed Conflict, and provides the necessary base to a measured, proportionate and legitimate use of the military force. Then it presents the main principles of a validated methodology for collateral damage estimation as a decision-support tool rather than a restrictive framework.

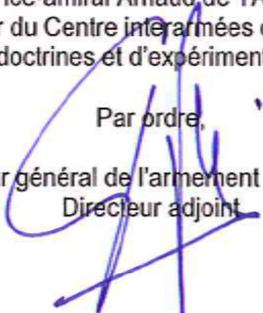
I'm asking you to ensure the large dissemination of this joint publication and to size every opportunity to enrich this document, especially with lessons learned.

The joint publication PIA-3.9.9 *Estimation des dommages collatéraux* is hereby promulgated as of 02 July 2014.

Vice-amiral Arnaud de TARLÉ
Directeur du Centre interarmées de concepts,
de doctrines et d'expérimentations,

Par ordre,

l'Ingénieur général de l'armement Patrick NIEC
Directeur adjoint



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Table of Amendments

1. This table lists the collection of all the amendments proposed by readers, regardless of their origin or rank, as submitted to the *CICDE* and detailed in Annex A (see p. 25).
2. The amendments validated by the director of the *CICDE* are written in **red** in the table below in chronological order.
3. The amendments are shown in **purple** in the body of the text of the new version.
4. The administrative number indicated at the bottom of the front cover and third page is corrected (**in bold, red, Roman characters**) with the mention: "***amended on day/month/year***".
5. The amended version of the text to be used as a joint reference replaces the previous version in all electronic databases.

No.	Amendments	Source	Effective Date
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References

- a. DIA-3.9 *Ciblage interarmées*;
- b. Geneva Conventions and Additional Protocols;
- c. The Hague Conventions and Additional Protocols;
- d. MC362/1 *NATO Rules of Engagement*, June 2003.

Foreword

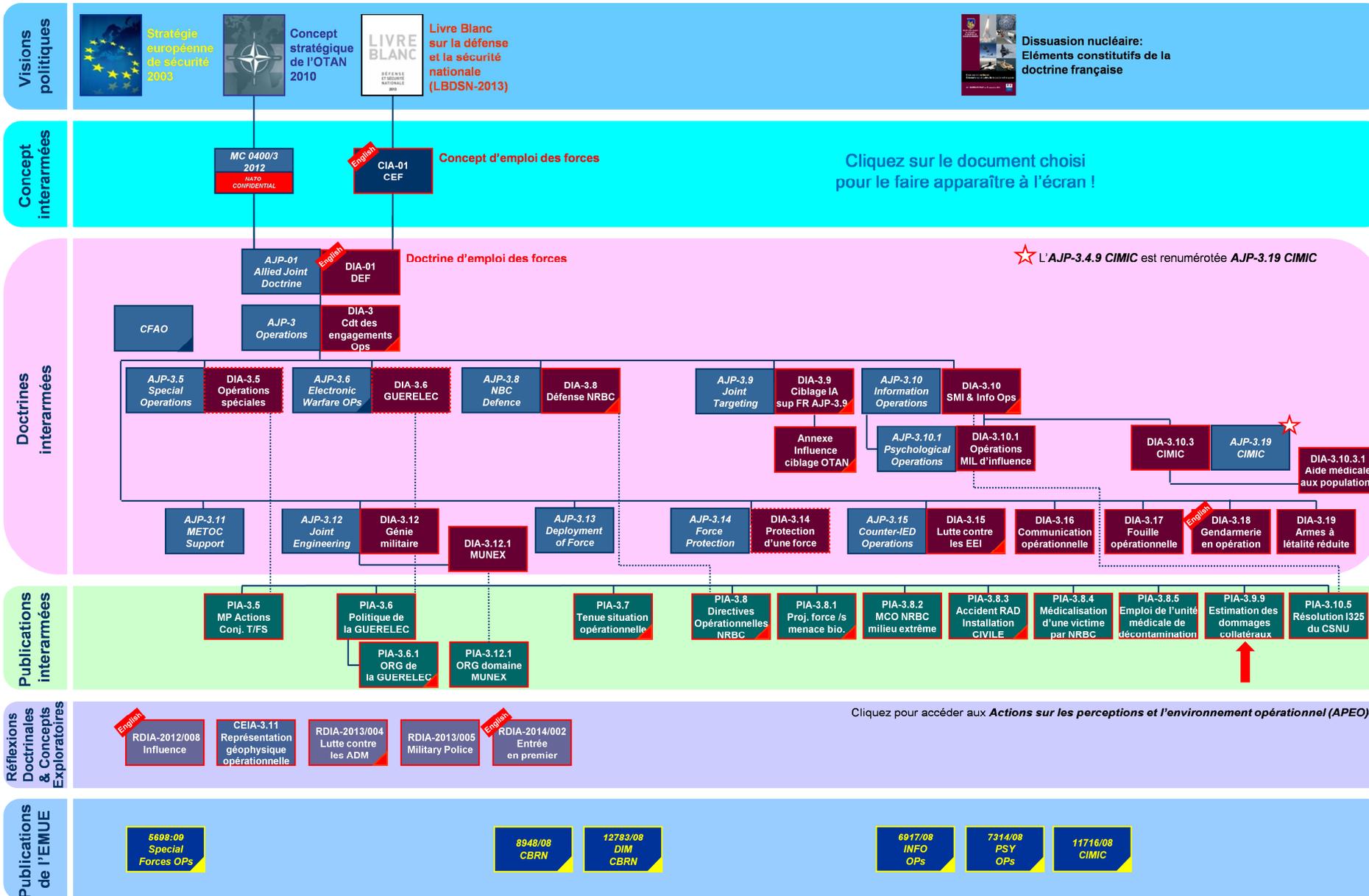
1. Military action is part of a complex geopolitical context and has to take into account the media and economical, legal, even psychological dimensions of crises. The legitimacy of military actions has become a key parameter. Consequently, it is of paramount importance to respect the International Law, as well as international treaties and agreements, in operations.
2. In this context, the use of the military force, in an offensive or defensive manner, must be subject to a study relative to the risks of undesired effects and damages it could engender, especially on non-combatants. The latter, referred as "collateral damage", are the attendant consequences of the effects of the use of weapons on civilian populations or structures. This possible damage is not explicitly prohibited and is not a violation of international laws as long as it is not excessive in relation to the expected military advantage.
3. Therefore, it is essential, before any use of weapons, to measure the risk to which the civilian population could be exposed to, and estimate possible damage. This approach is based on a rigorous method, the result of which will help the decision-maker in weighing the risk with the expected military advantage, thus facilitating decision-taking.
4. The current evolution of conflicts, characterized by an increase in actions in urban areas and by a stronger intermixing of forces and targets with civilian infrastructures and individuals, reinforces the necessity of such estimation.
5. In addition to a reminder on the basic principles of the Law of Armed Conflict, this document defines the range of notions on collateral damage and presents the main principles of the estimation method. This method should be considered as a decision-support tool, rather than a restrictive framework.
6. This joint publication, as the presented method, only applies to actions conducted in the physical field.

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Domaine 3.5 à 3.19 *Actions interarmées*

Cliquez sur l'enveloppe pour contacter l'officier chargé du (sous)-domaine au CICDE



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Chapter 1

Basic Principles of the Law of Armed Conflict

Section I – Definition of the Basic Principles

101. Military involvement, regardless of its nature, should be in strict compliance with the International Law, and international treaties and agreements. The Law Of Armed Conflict (LOAC) is a specific branch of Public International Law which includes the Geneva Law¹, Hague Law, and Arms Control. Violations of the LOAC may be considered as war crimes and be subject to prosecution in national or international courts. Likewise, violations would have adverse consequences for a military action and its legitimacy.
102. The applicable law in armed conflicts requires that specific principles be observed in order to protect both combatants and non-combatants.

Principle of Military Necessity

103. Article 57 of the Protocol Additional to the Geneva Conventions of 12 August 1949 (Protocol I) prohibits in general the intentional destruction of civilian objects or injury of people who are not involved: *"In the conduct of military operations, constant care shall be taken to spare the civilian population, civilians and civilian objects."*
104. Article 52 of the Protocol Additional to the Geneva Conventions of 12 August 1949 (Protocol I) states that *"Attacks shall be limited strictly to military objectives."* Military objectives refer to the range of structures, installations, vehicles and military objects belonging to the enemy force². However, the extension of this definition enables to target civilian structures: *"military objectives are limited to those objects which by their nature, location, purpose or use make an effective contribution to military action"*.

Principle of Proportionality

105. The military decision-maker shall *"refrain from deciding to launch any attack which may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated."*³ The application of this principle highlights the issue on the adequacy between the implemented assets and the desired military effect.
106. This notion is directly related to possible collateral damage; it guides the choice of a military action based on its consequences. If the military objective is undeniable, a higher level of risk to the population may be considered. On the other hand, a weak military advantage causing a significant loss among the population does not respect the principle of proportionality.

Principle of Unnecessary Suffering

107. The principle of unnecessary suffering—also named principle of humanity—lies in the desire to avoid, as much as possible, superfluous injury or unnecessary suffering resulting from the use of force. The choice of the means and methods of warfare must comply with the LOAC, which limits the indiscriminate effects of the use of violence.
108. Under this principle, France has signed and ratified several international agreements to limit or prohibit some kind of weapons. The French Armed Forces are therefore expected not to use these weapons outside the framework of the treaties regulating their use or prohibition⁴.

¹ Also called International Humanitarian Law (IHL).

² e.g. airbases, naval bases, barracks, ammunition storage, tank column.

³ Cf. article 57, § 2, Protocol Additional to the Geneva Conventions of 12 August 1949 (Protocol I).

⁴ e.g. are prohibited cluster weapons, landmines, chemical and bacteriological weapons.

109. Whenever the lawfulness of a weapon or use of a weapon is unclear, the case must be submitted to the French Defence Staff (*EMA, État-major des armées*) and the legal affairs directorate (*DAJ, Direction des affaires juridiques*).

Principle of Distinction

110. Distinction means discriminating between combatants and military targets, and between civilians and civilian objects. The latter shall not be the object of a voluntary attack. One of the main difficulties in the application of this principle lies in the practical modalities of distinction between military objectives and civilian objects. Article 52 of the Protocol Additional to the Geneva Conventions of 12 August 1949 (Protocol I) specifies: "*In so far as objects are concerned, military objectives are limited to those objects which by their nature, location, purpose or use make an effective contribution to military action and whose total or partial destruction, capture or neutralization, in the circumstances ruling at the time, offers a definite military advantage.*"
111. The planning of an attack shall be conducted only directly against combatants or properties they use for military purposes. This means that a target shall be positively identified as a lawful target accordingly with an established information and intelligence protocol.

Section II – Restrictions Imposed by the Law of Armed Conflict

Treatment of Civilians and Persons Hors de Combat

112. Persons not, or no longer, taking part in military operations, including civilians, members of armed forces who have laid down their weapons and persons placed *hors de combat* by reason of sickness, wound or detention, shall not be subject to an attack.
113. Intentional attacks on the wounded, sick and shipwrecked not, or no longer, taking part in the enemy military action, are prohibited by Article 3, common to the four Geneva Conventions. The proximity of the wounded, sick and shipwrecked to a lawful target shall be considered and taken into account as for the civilian population in general.
114. The deliberate use of force to intimidate, terrify, weaken or starve civilian populations is also prohibited.
115. The civilian population loses the protection of the Geneva Conventions in the following cases:
- a. *"Inhabitants of a non-occupied territory who, on the approach of the enemy, spontaneously take up arms to resist the invading forces [...]."*⁵
 - b. More generally, in case of direct participation in hostilities, civilians belonging to guerrilla movements, terrorist groups and directly taking part in hostilities. The notion of direct participation is complex and will require a sharp situation analysis.
116. Prior to any attack, the decision-maker will have to ensure, during the planning process, that the persons targeted can be considered as directly participating in hostilities.

Special Case of Human Shields

117. *"The presence or movements of the civilian population or individual civilians shall not be used to render certain points or areas immune from military operations, in particular in attempts to shield military objectives from attacks or to shield, favour or impede military operations."*⁶ Such act, conducted in an international armed conflict, constitutes a war crime.
118. The use of the civilian population as a human shield, against its will, must be the object of collateral damage estimation during the planning of attacks against the targets the population protects. The basic principle of proportionality shall therefore be carefully applied.

⁵ Cf. Article 13, §6, Convention (II) for the Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea, Geneva, 12 August 1949.

⁶ Cf. article 51, § 7, Protocol Additional to the Geneva Conventions of 12 August 1949 (Protocol I).

119. The notion of voluntary human shield is more ambiguous as mentioned by the LOAC, with the two following definitions:
- a. Voluntary human shields lose de facto their status as civilians since they take direct part in hostilities. Therefore, they are not to be taken into account in collateral damage estimation, even though reasons of opportuneness could lead to the command deciding not to attack this objective.
 - b. The voluntary gathering of civilians in a given place, without blocking the enemy forces, so as to discourage any attack, does not withdraw the protection to which they are entitled. Collateral damage estimation shall be done, even in that case.
120. Also, any planning of an attack in this context will have to be subject to a command decision first, and take into account the circumstances.

Treatment of Civilian Structures

121. Civilian structures, as civilian populations, shall not be deliberately targeted and their attack is prohibited. Their proximity to a lawful military target will also call for an estimation of the possible damage that would result from the use of weapons. However, the use of such structures for military purposes by the enemy forces lead to the loss of their status and protection, and could possibly become lawful military targets.
122. Are part of this category:
- a. civilian objects used for military purposes (house used as a shelter, ammunition depot or firing post), but also fuel depots, refineries, power plants, if they are used to support the action of enemy forces. These structures are often characterized as dual-use items, i.e. used both to the benefit of the civilian population and of the enemy forces;
 - b. structures or lines of communication of military interest due to their situation: bridges, airport runways, port facilities, train tracks or roads, the destruction or neutralization of which will hinder the movement of the enemy.
123. *"Works or installations containing dangerous forces, namely dams, dykes and nuclear electrical generating stations, shall not be made the object of attack, even where these objects are military objectives, if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population."*⁷ An attack is theoretically allowed when these works provide regular, significant and direct support to military operations, if the attack is the only practical way to stop this support.
124. Also, the economic structures directly contributing to the war effort, such as arms industries, are considered as military targets. The planning of attacks against these structures must strictly apply the principle of proportionality.
125. The neutralization of some targets may have indirect consequences on the civilian populations, such as a strike on a power plant supplying a hospital. For this type of targets, beyond the principle of proportionality and military necessity, a particular effort shall be made on the estimation of these possible consequences on civilian populations.
126. Article 27 of the Hague Convention regarding the laws and customs of war on land specifies that: *"In sieges and bombardments all necessary steps must be taken to spare, as far as possible, buildings dedicated to religion, art, science, or charitable purposes, historic monuments, hospitals, and places where the sick and wounded are collected, provided they are not being used at the time for military purposes."* These principles are incorporated in the Geneva conventions and their additional protocols. These structures shall not be attacked or targeted, as for the sites displaying an international distinctive emblem (e.g. red crystal, red cross or red crescent).

⁷ Cf. article 15 of Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of Non-International Armed Conflicts (Protocol II), 8 June 1977.

127. These sites are to be incorporated in a No Strike List so as to avoid striking them by mistake (cf. DIA-3.9 *Ciblage interarmées*).
128. However, the use of such structures for military purposes by enemy forces, providing shelter, defence or storage capabilities, make them lose their status and protection, and may become lawful military targets.

Chapter 2

Collateral Damage: Notions and Definitions

201. The use of munitions against a target is chosen in accordance with the desired military effect. It may result in an unwanted side effect referred as "*collateral damage*" (the LOAC also uses the term "*incidental damage*").

Section I – Definition of Collateral Damage

202. Collateral damage results from unintentional or accidental damage to:
- a. persons not, or no longer, taking part in hostilities (civilians, medical units, wounded, sick, shipwrecked and prisoners of war);
 - b. and/or civilian installations or equipment whose destruction or neutralization does not provide a military advantage due to their nature, use or location.
203. Damages should not be excessive with regard to the expected military advantage and therefore, should be minimized. Their estimation results from a rigorous and validated method and is a key step prior to any use of weapons. Failure (intentional or not) to follow this procedure could expose the responsible authority to severe military and/or criminal penalties. Moreover, any failure to meet this requirement would discredit the ongoing operation.
204. By extension, the term "*collateral damage*" is used to define physical damage to friendly combatants resulting from a strike of the allied component. The LOAC does not take this issue into account. Distinction between civilian populations and military forces calls for two different approaches to collateral damage estimation.

Section II – Approaches Based on Distinction

Civilian Populations

205. For the civilian population, collateral damage estimation consists in evaluating the probability of injuring or killing individuals: directly, from the effect of the use of weapons or indirectly, from the damage of a structure. The estimation of damage to structures should also include the cultural, traditional, economical or environmental dimension of potential damages.
206. The levels of exposition of the civilian populations (probability of injury or kill, in percentage) are subject to the decision of the Defence Staff (*EMA*). Such values (e.g. probability of kill of 0.1%, 1% or 10%) are necessary to perform collateral damage estimation. They are not correlated with Risk Estimate Distances (RED).
207. The results of the estimation provide the authority responsible for the delivery of fire with key elements to facilitate the decision-making. They also enable him to evaluate whether or not the considered use of force is in compliance with the LOAC, and especially with the principle of proportionality.

Friendly Forces

208. With regard to the friendly troops located in the vicinity of a target, collateral damage estimation consists in evaluating the risk to which the friendly forces are exposed in case of a strike (common situation during fire-support missions⁸). This aspect is strictly military; such estimation is a decision-support tool to the competent authorities. The estimation consists in the evaluation of a distance (RED) separating the desired target from friendly troops, in addition to the probability of exposition (probability of incapacitation) to severe or mortal wounds, which could reduce the friendly military capabilities.
209. These data are subject to the decision of the *EMA*. They can be different based on the circumstances and theatre of operations. The criteria of engagement may justify more or less important risk-taking.
210. In general, collateral damage, even though it is not prohibited by the LOAC, shall not be excessive with regard to the expected military advantage. So, whenever a military strike is considered, collateral damage estimation is of paramount importance.

⁸ In this type of situation, during which the land forces are in direct contact with their opponents, the decision-maker needs to know the probability of loss within his troops in the event of a delivery of fire.

301. The consequences of the use of weapons in terms of collateral damage are estimated via the application of a rigorous method in order to provide a tool for decision support. This estimation does not authorize or prohibit the delivery of fire, but rather provides elements necessary to the decision-makers to weigh up the expected military advantage against the risk of potential collateral damage.

Section I – Estimation Method

302. The method for collateral damage estimation is based on a body of knowledge, specific tools and lessons learned in terms of weaponeering. This first step is essential to justify the control of these effects and meet the different principles of the LOAC. The second step is based on the study of occurrence and probability, but also on a range of statistical data.
303. To quantify potential collateral damages, it is essential to calculate the risk of exposure of the civilian populations and structures that could result from the blast and fragmentation effects generated by the explosion of munitions. These effects vary based on the type and mass of the munitions, their parameters of arrival on the target and their settings. Each effect has thresholds; once reached, they cause injuries or death to the exposed individual, or the damage or destruction of the structure.
304. In order to calculate this potential risk and estimate collateral damage, it has been decided to follow a methodical process including five levels, combining the nature of the target, its location and environment on the one hand, and the effects of the weapons used on the other.
305. In spite of their reliability, these estimates are subject to the laws of probabilities and cannot accurately quantify real damages. Likewise, phenomena that are unpredictable or whose occurrence cannot be estimated, such as the sudden and unexpected appearance of non-combatants in the area of the objective, cannot be taken into account.
306. The methodology described in the following section is totally interoperable with the Collateral Damage Estimation (CDE) methodology used by the US forces and NATO. It adopts the same decision-making process and uses the same vocabulary.

Section II – Methodology

307. Prior to any estimation, it is imperative to make sure that the basic principles of the LOAC are strictly observed: the target shall be a lawful military objective, its Positive Identification (PID) shall be established, and its engagement shall comply with the Rules Of Engagement (ROE) and intents of the command.
308. The methodology is built around five CDE levels from 1 to 5. The lowest level, Level 1, corresponds to a low risk of exposure for the civilian populations and structures. The highest level, Level 5, indicates a significant potential risk of collateral damage.
309. The specificity of this methodology is that each level is associated to a certain level of decision for any use of weapons. The higher the level is—hence the risk, the higher the hierarchical decision-making echelon is and the more important the restrictions are in the choice of munitions.

310. It should be noted that damage estimation for specific targets will always be made with the highest level, such as:
- some dual-use targets (civil and military);
 - targets with risks of releasing chemical, biological, radiological and nuclear substances⁹;
 - targets whose destruction would cause high, lasting or irreversible environmental damage¹⁰.
311. Each level corresponds to a set of criteria to meet. Once all the criteria of a given level are met, the process may stop. The decision-making echelon designated for this level may then authorize the delivery of fire. However, whenever at least one of the criteria is not met, it is imperative to move to the next level and further study the given case. Except for Level 5, no use of munitions should be considered if a criterion has not been met for a level since the decision level would be insufficient.
312. **The level of risk to which civilian populations are exposed to with a CDE from 1 to 4 is constant and invariable.** It is defined at the strategic level and may evolve depending on the theatre of operations, e.g. 0.1, 1 or 10% of risk.
313. This steady exposure results from the use of risk reduction methods based on the knowledge and control of the effects of munitions. This progressive reduction from level to level is based on restrictions of the use of munitions, special setting restrictions, or special tactical delivery restrictions which shall be complied with.
314. The five levels of study are summarized as follow:
- Level 1: Target validation / Initial assessment;
 - Level 2: Weapon precision and target size assessment;
 - Level 3: First Weaponneering assessment;
 - Level 4: All mitigation techniques assessment;
 - Level 5: Casualty estimate.

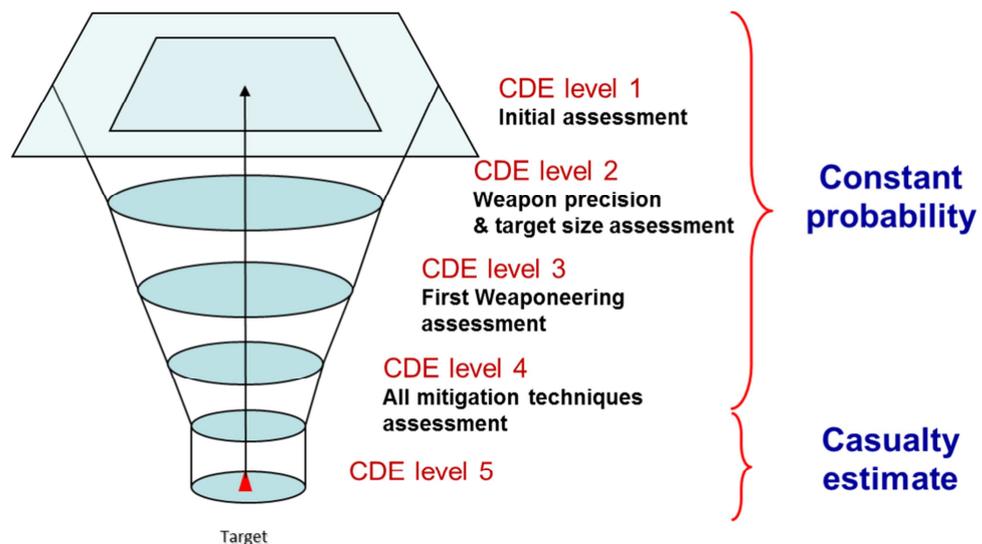


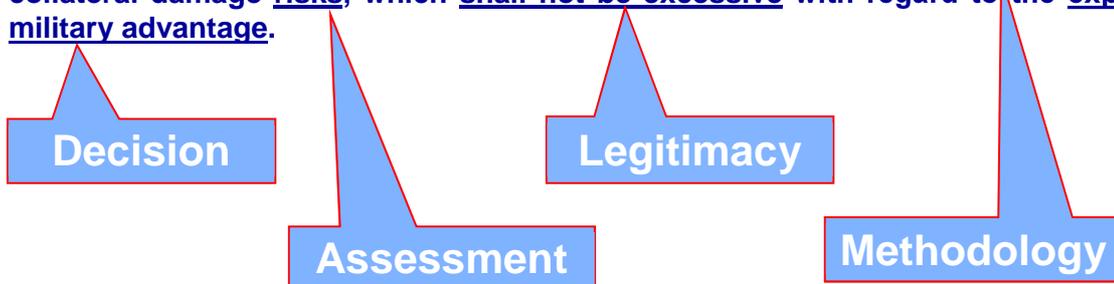
FIG 1 – Methodology.

⁹ e.g. strikes on sites assumed to produce CBRN weapons.

¹⁰ e.g. important or repeated strikes on oil installations causing sustained and large-scale oil slicks, or on Seveso-type facilities.

315. Once the lawfulness of the target has been verified, CDE Level 1 enables the use of all the munitions of the conventional range of weapons, without any particular constraints. In that case, the nearest civilian populations or constructions are at a sufficient distance¹¹ from the limits of the targeted site to guarantee the risk of exposure level decided by the strategic level. If these criteria are not met, the estimation process shall proceed with the study of the target to CDE Level 2.
316. The main criterion of CDE Level 2 is the precision of the weapon to be used accordingly with the dimension of the target. The use of munitions with a guidance kit will be systematic for structures of small or medium dimensions so as to avoid an off-target impact and minimize the risk of exposure to damage. In that case, the nearest civilian populations or constructions shall be at a sufficient distance¹² from the targeted point so as to guarantee the level of risk of exposure, without any other constraint. If this criterion is not met, the study shall proceed to CDE Level 3. For munitions without a guidance kit, and provided that the dimensions of the target are compatible, CDE Level 2 may be an intermediary step. However, the complete estimation process calls for the study of the case at CDE Level 3.
317. CDE Level 3 is the first multi-criteria level that sorts munitions by their masses and precision. The study of the case is no longer generic in terms of weapons and takes into account the selected munitions only. To each range of mass and precision of the munitions is associated a distance¹³ outside of which the civilian populations or constructions must be. If this criterion is not met, but the weapon detonates either in the target structure or below ground, with a time delay for explosion, the fragmentation effect is mitigated and allows the reduction of the distances of risk of exposure. A second set of data¹⁴ is used so as to verify the absence of population and structure nearby the targeted point. If not, or if the criterion of the level cannot be met, the study shall be taken to the next level.
318. At CDE Level 4, maintaining a constant risk level requires a detailed analysis of the case so to study all the possibilities to the mitigation of the effects of munitions on the surrounding of the target. This approach requires perfect knowledge and control over weaponeering. Only trained personnel up to date with their skills can achieve this process.
319. When CDE Level 5 is reached by the end of a linear process, the decision-making level that can authorize the delivery of fire must be highly aware that the level of risk is no longer constant, and that the use of weapons will generate collateral damages. The protocol of this level enables to present the quantified result of these damages.
320. The CDE Level 5 hierarchical decision-making authority for specific targets must be important enough considering the risk incurred by the civilian population.
321. This methodology enables to meet the LOAC principles. Its process innovates through the detailed study of the target and its environment for the use of munitions. It is absolutely not a restriction or a prohibition to a delivery of fire; it is rather a way to identify the decision-making level that can authorize this action by providing the necessary decision-support tools.

The Public International Law, which includes the LOAC, states that any use of the military force, in an offensive or defence way, is subject to the prior study of collateral damage risks, which shall not be excessive with regard to the expected military advantage.



¹¹ The exact distance will be defined accordingly with the strategic choices.

¹² Idem previous footnote.

¹³ Distances are evaluated for all munitions accordingly with the strategic choices.

¹⁴ Idem previous footnote.

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Annex A Request for Amendments

1. Readers of this joint reference document are invited to report any errors, misprints or mistakes, as well as any remark or suggestion for improvement to:

CICDE
École Militaire
21, place Joffre
75700 PARIS SP 07

or directly on the *CICDE*'s Intradef and/or Internet website: <http://www.cicde.defense.gouv.fr>

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2. Amendments validated by the director of the *CICDE* will be highlighted in **red** in the "*Table of Amendments*" featured on **page 7 of the electronic version of this document.**

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Part I – Initialisms and Acronyms

Initialisms

B01. Each letter of an initialism is pronounced separately as though separated by periods.

Acronyms

B02. Acronyms are made up of several syllables which can be pronounced as a single word.

Graphic Charter of the Lexicon

B03. In this lexicon, the characters which constitute an initialism or acronym are written in capitals so that the reader can memorize their meaning.

B04. French initialisms and acronyms are written in **bold, italic, Arial font, size 9, in red Roman characters**. Anglo-Saxon initialisms and acronyms are written in **bold Arial font, size 9, in blue Roman characters**.

List of initialisms and acronyms used within this document

AJP	Allied Joint Publication
CDE	Collateral Damage Estimation
CEMA	<i>Chef d'État-Major des Armées</i> chief of Defence Staff (FRA)
CICDE	<i>Centre Interarmées de Concepts, de Doctrines et d'Expérimentation</i> joint centre for concepts, doctrine and experimentation
DAJ	<i>Direction des Affaires Juridiques</i> legal affairs directorate
DMPI	Desired Mean Point of Impact
EMA	<i>État-Major des Armées</i> French Defence Staff
LOAC	Law Of Armed Conflict
NATO	North Atlantic Treaty Organization
PID	Positive IDentification
RED	Risk Estimate Distances
ROE	Rules of Engagement

Part II – Terms and Definitions

Non applicable.

Summary

(FRA) JP-3.9.9

Translation of PIA-3.9.9 *Estimation des dommages collatéraux*

1. Since collateral damages are a major concern, they have an important dimension in the planning and conduct of operations.
2. Therefore, the estimation of collateral damages, which are inherent to any armed action, is a prior and necessary assessment element to any decision to open fire.
3. Military action, regardless of its nature, shall be considered in strict compliance with the International Law, and international treaties and agreements. The Law Of Armed Conflict (LOAC) is a specific branch of the Public International Law and imposes rules relating to the use of military force. Severe violations of the LOAC may be considered as war crimes.
4. The present document exposes the basic principles of the LOAC, as well as the restrictions it imposes. Then, it specifies the notions and definitions relating to collateral damages, and finally, it describes the collateral damage estimation process.
5. This document is mainly addressed to the different decision-making levels confronted with the difficulty of decision making, but is also of interest to all personnel of the fire components who shall be fully aware of this issue.
6. This joint publication will be used as a reference and base for the national collateral damage estimation methodology.



This document has been developed by the (FRA) Joint Centre for Concepts, Doctrine and Experimentation (CICDE), a joint agency working on behalf of the French Defence Staff (EMA). For any information, please contact the CICDE at:

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