

French Nuclear Tests during the Algerian Revolution, 1960-1966: Infringement of International laws

التجارب النووية الفرنسية خلال الثورة الجزائرية، 1960-1966: انتهاك للقوانين الدولية

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Abstract :

The paper examines the issue of the French nuclear tests during the Algerian revolution from 1960 to 1966 through highlighting the fact that France's bombing program is considered as a clear violation of human rights and international law. It also analyses the Algerian resistance to such a crime along the geopolitical context, including the Cold War dynamics. Then it explores the devastating consequences of these nuclear bomb tests and France's acknowledgment along the moral and global implications of their illegal use. At last, the study endeavors to demonstrate the dark history of the imperial powers and exploitation of the colonized territories which reflect life-threatening impacts of nuclear weapons on civilians all over the world and the need for a more just and equitable world.

Keywords : Algeria; France; Nuclear; violation; law.

ملخص:

يتناول هذا البحث قضية التجارب النووية الفرنسية خلال الثورة الجزائرية بين عامي 1960 و 1966، مسلطاً الضوء على البرنامج النووي الفرنسي بالجزائر والذي يعد انتهاكاً صارخاً لحقوق الإنسان والقانون الدولي. كما يُحلل مقاومة الجزائر ضد هذه الجريمة في سياقها الجيوسياسي، بما في ذلك ديناميكيات الحرب الباردة. كما يكشف الآثار السلبية والعواقب الوخيمة لهذه التجارب النووية واعتراف فرنسا بها، بالإضافة إلى التداعيات الأخلاقية والعالمية لاستخدامها غير المشروع. وأخيراً، يسعى البحث إلى إبراز التاريخ المظلم للقوى الإمبريالية واستغلالها للبلدان المستعمرة، والذي يعكس نتائجها على حياة المدنيين في جميع أنحاء العالم مما يدعي التوجه إلى عالم أكثر عدلاً وإنصافاً.

الكلمات المفتاحية: الجزائر؛ فرنسا؛ نووي؛ خرق؛ قانون؛

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Introduction:

The Algerian revolution, which lasted from 1954 to 1962, serves as a great reminder of the efforts human beings had to put in order to decolonize their own lands. French colonialism in Africa is marked as a dark chapter in history because of the inhuman tactics they used against the indigenous people of many countries. Their strategies were mainly marked as being violent and irresistible; this abuse included mass arrests, torture, and destruction of villages.

The establishment of the formation of the National Liberation Front (FLN) represents a massive turning point in the power dynamics of the colonial abuse in Algeria. This FLN adopted many military tactics in order to challenge the French military and take the country's independence. Unfortunately, France reacted to these attempts of resistance by establishing an overwhelming military force, doubling its military troops, and killing any Algerian that was suspected of being part of the FLN movement. All of this serves as evidence of how France went over the limits in order to keep its dominance in Algeria regardless of the human rights considerations that were lost, especially after the nuclear bomb testing in Algeria.

France's quest for power after the conclusion of the second world war was definitely one of the main reasons behind its ambition to have strong nuclear abilities and to establish itself as one of the global powers in the world. France was left in a miserable situation after the Second World War because of the loss the country faced, more than 600,000 deaths of French citizens, and the destruction of major cities and industries. The shame brought to France's name after actively collaborating with Nazi Germany and their loss of personal identity. With the rise of the United States and the Soviet Union as global powers after the Second World War, France sought to redeem itself and regain its faded pride. (Baker, 2007).

The Cold War was a period that lasted from the end of the Second World War to the 1990s; it marked a change in power dynamics across the globe as the United States and the Soviet Union rose as the most powerful sides. In the middle of this period, there was a major development that introduced a new dilemma to national security, which was nuclear weapons. Many countries felt threatened by such a horrific development that could be used unwillingly to cause a lot of suffering worldwide. France at that time was determined that it should also gain nuclear capabilities and defend itself from such a threat and mostly become independent from both the US and Soviet rivalry.

"Force de Dissuasion" was the name of the French program created by the French president Charles de Gaulle. De Gaulle was convinced that such a program was crucial for France in order to make its first step in asserting its own geopolitical influence and ensuring the country's national security.

France launched its first successful attempt at nuclear testing that was codenamed "the Gerboise Bleue" in the late 1950, located exactly in the region of Raggane inside of the Algerian Sahara. The Algerian desert was chosen as a testing ground for these dangerous atomic bombs because of its remoteness and lack of population, but it wasn't totally uninhabited since many Algerians faced long-term effects of these dangerous nuclear testings as France continued its atmospheric and underground testing to include a total of 17 successful tests (Samia Henni , 2022).

The massive nuclear bomb testing violated Algerians human rights and created an unbalanced ecosystem, making some parts of the Algerian Sahara inhabitable. France also violated

Algerians right to self-determination because it used them as test subjects without their consent. France never fully acknowledged the amount of destruction it had created in Algeria even after establishing the Morin law, which was insufficient because it excluded Algerian victims.

The importance of this research lies in highlighting the atrocities behind the French nuclear bomb tests in Algeria during the Algerian Revolution through shedding light on the intersection of colonialism, militarism, and environmental destruction. It also probes to understand the extent to which nuclear test are clear violation of international law, that are specifically timely in context to the contemporary political and social controversies stemming from mass killing and displacement hurdles facing Palestinians in their lands.

The study raises the following questions:

1. To what extent can the nuclear tests perpetrated by French forces during the Algerian War of Independence be considered a violation of international law?
2. What were the underlying motivating factors behind the French nuclear tests in Algeria?
3. What are the main devastating environmental consequences as well as the ethical and moral implications of the tests?

As a methodology, the analytical, descriptive, argumentative and narratives tools were used to highlight the issue of nuclear test, the aim behind them and their long-lasting effects along the need for a more just and equitable world.

I-Historical Context:

In order to understand France's position and ambition of becoming a global power and interfering in world affairs, then understanding the mid-20th-century context is necessary. After the First World War, France was considered to be one of the victorious countries, even though such a war led to many financial problems, but France's prestige was lost after the Second World War.

The French establishment of the Vichy regime marked the first signs of its fall in 1940. Its collaboration with Nazi Germany brought so much destruction to the public picture of France within Europe and worldwide. There was a heightened sense of nationalism, which led to the eruption of many revolutions targeting colonial empires such as France.

This strong resistance of the colonized against the colonizers led France to lose many territories and to the collapse of its colonial empire in southern Asia. The wave of decolonization promoted fear in the heart of France, the fear of becoming even less stronger. The cold war illustrated the power dynamics of the new world with a rivalry between the United States and Nato against the soviet union and the eastern bloc. This rapid changes in the political and geopolitical landscape pushed France to establish the program of "Force de Dissuasion".

The president Charles de Gaulle didn't want just to guarantee the recovery of France after the unfortunate consequences of the second world war and siding with Germany, he sought to rebuild the whole nation again. Giving France its lost pride and prestige and for it to enter the arena of the strongest powes in the world could be done only if France was considered to be a threat too. For that, Charles de Gaulle along with othe french figures establish the program of " Force de

Dissuasion" to make sure that their country will secure its position and national security through having nuclear capabilities (Dupont, 2023).

The French army secretly built the Centre Saharien d'Expérimentations Militaires (CSEM) in Reggane on the Tanezrouft plain of the Algerian Sahara, approximately 1,150km south of Algiers and France was ready to retrieve its lost pride on the cost of environment and humanity (Samia Henni, 2022).

The Suez Crisis confirmed France's hypothesis about losing its influence in the world. The Suez Canal was a vital waterway for both France and Britain and was long controlled by both of them. This was until the Egyptian president Gamal Abdel Nasser announced the nationalization of the Suez Canal Company in 1956 as a way to fund the construction of the Aswan High Dam.

This triggered both France and Britain, since it was a clear threat towards their oil shipping and European trade, but most importantly their dominance in the Middle East. Both of the countries conspired and decided to launch an attack in the region, but they were stopped by the United States and the Soviet Union, who wished to keep the region stable and tranquil. France and Britain didn't have any choice but to withdraw their military troops from the area.

The tension between Algeria and France's roots goes deep in the struggle of Algeria and representing its legacy. Algeria was integrated into France in 1830 and became a crucial part of the French empire in Africa. For over a decade, Algerians suffered and faced all types of torture by France. It involved inhuman tactics that used violence and attempts to diminish the Algerian identity by introducing French settlers in the region best known as "pieds-noirs." Algeria was chosen as the optimal testing land for nuclear weapons due to an important reason, which was its vast interior.

The Sahara gave a chance for the French to use it as a launching and testing ground for all types of nuclear bombings. France thought that it was okay to test its weapons in such a region due to its remoteness and sparsely populated nature. Adding to that the French belief that because of the long imperial struggle between the two countries that led to a brutal war of independence, the Algerians won't hold any protests as an opposition to these tests as well as their inability to stand against the French.

It's important to denote that Algerians faced the consequences of this tragic testing. The nuclear testing affects their land and water resources as well as their own health. The strong radiations of the nuclear bombing and its effects added more pain to the Algerian victims, who struggled enough already from the colonization. France's first nuclear bomb testing was named "Gerboise Bleue," and the 17 tests that followed it stand as great evidence and a symbol of the colonizer mindset and the exploitation of innocents (Samia Henni , 2022).

II-The French Nuclear Testing Program in Algeria:

France carried out 13 underground tests in the period 7 November 1961 to 16 February 1966 while also having control over the Reggane and Ekker region. France tried to find out which locations were suitable for this kind of nuclear weapons testing, but all regions in France were either unsuitable or politically risky, like in Corsica.

It wasn't long before the Commissariat à l'Énergie Atomique in France identified Reggane as the perfect place to carry out such dangerous tests exactly at the Hammoudia site, almost 700km south of the city of Bechar. Each one of the French tests was named after a color representing the

colors of the French flag, and these tests contained between 20 g and 200 g of plutonium (Arjun Makhijani, 2023) .

Plutonium is created from uranium in nuclear reactors, and if it's inhaled, then it can kill lung cells, leading to cancer and lung diseases. The French nuclear program was initiated during the mid-20th century by the French president Charles de Gaulle. This program represented a huge step in the significant chapter of the nuclear arms development and geopolitical strategies.

France chose Reggane, a region in southern Algeria, as a testing site with the aim of establishing its independent nuclear deterrent and joining great powers like the United States and Soviet Union. De Gaulle knew that Reggane would be the perfect location for such a test because of its remoteness, which served his aim of conducting dangerous tests without facing any immediate problems while also minimizing the destruction and the risk to civilians.

France built military infrastructures to test the operations around the area of Reggane, and these infrastructures included observation points, access roads, and support facilities. With the success of the first operation codenamed Greboise on February 13, 1960, France officially entered the club of nuclear-armed nations. All of the following nuclear tests were characterized by elaborate ceremonies to showcase France's technological destructive capabilities, especially after launching the Greboise bomb Bleue, which was four times stronger than the Hiroshima bomb.

The consequences of the nuclear bomb test radiation did not include Algeria only, but the destruction went beyond its borders. Neighboring countries like Mali and Niger were largely affected by these tests; the tests contaminated soil and water resources. The areas in which the radiations spread were inhabited with a population that depends on agriculture for living. The three countries were either newly independent or still in the process of decolonization, which limited their influence in regional nuclear policies.

According to the French Office Parlementaire d'Évaluation des Choix Scientifiques et Technologiques (Parliamentary Office for the Evaluation of Scientific and Technological Choices), the safety measures taken by France to ensure the protection of civilians in the Hoggar Mountains were inspired by the United States nuclear testing in the Nevada desert. Regardless of these safety measures, the entrance of the tunnel was closed in the galerie de tir (firing tunnel) created by France in the Hoggar Mountains (Samia Henni , 2022).

III-Infringement of International laws:

During the time of the testing of these nuclear weapons, there wasn't any clear law against nuclear weapons, but the French violated the national law of protecting civilians even at the time of conflict. The principles of international humanitarian law, along with customary international law, highlighted the importance of protecting people from any fallout.

The Geneva Convention established its principle of distinction, which dictated that the use of weapons could be only in armed conflicts. Both parties in a conflict should distinguish between combatants and non-combatants, but France clearly used nuclear weapons not as a means of defending itself. France conducted these tests for merely military objectives, disregarding international laws and putting Algerian people to face long-term socio-eco consequences.

The Partial Nuclear Test Ban Treaty (PTBT) was signed on August 5, 1963, aiming to limit the threatening consequences of using nuclear weapons. It prohibited nuclear tests in the

atmosphere, underwater, and outer space. The treaty was created because of the accumulated fear of the devastating effects of nuclear weapons, especially after the Cuban Missile Crisis of 1962.

Unfortunately, France took advantage of a small gap that was in the treaty even though France signed the treaty along with other countries, yet it continued its nuclear tests discreetly. The partial nuclear test ban treaty specified the type of nuclear tests that were banned, creating an unnoticed loophole under the fact that it didn't ban underground nuclear tests. France took full advantage of this opportunity and conducted 13 underground nuclear tests in Algeria.

The Morin law was enacted in the early 1960s by France, aimed to regulate the use of nuclear weapons, but unfortunately it was insufficient, especially in the Algerian context. As the Morin law was created in a time when treaties like the PTBT were still emerging, it didn't support the same goals. The Morin law had little control over the tests conducted in Algeria because the French government used the excuse of conducting these tests as part of ensuring the nation's security even though these tests were used to gain France's pride.

Britain found itself in a tight position because of the French nuclear testing in Algeria as the anti-nuclear sentiment grew among Africans in 1959. Britain wanted to keep both its relations with France and post-independence Nigeria. Britain claimed that the French nuclear testing was totally safe, especially because it was conducted in the Sahara. But unfortunately, the effects of the first French nuclear testing reached Nigeria in February 1960, which put the British-Nigerian relationship at risk (Chloë Mayoux, 2024).

The choice of Reggane as a testing site, as published in the *Journal Officiel de l'Algérie* on 24 May 1957, was a painful decision for the Algerian population, who were fighting colonization at that time. This gave Africans important evidence, both politically and scientifically, against French colonization in Africa, especially after the nuclear fallout.

This highlighted the hidden truth of the French colonization and how it marginalized individuals without taking any consideration of human rights or the possible consequences of the radioactive exposure in these chosen areas as Britain facilitated the start of French atomic tests in Africa (Chloë Mayoux, 2024).

IV -The Algerian Resistance to Nuclear Testing:

The Algerian resistance to the French nuclear testing shaped a vital part of its nationalist movement, FLN. The National Liberation Front fiercely opposed these tests and viewed them as a direct attack on the Algerian population. The devastating implications of these nuclear tests in the Algerian Sahara pushed FLN to face the French imperial rule and use these intolerable nuclear tests as evidence to collect support globally for their cause against the French authorities.

The FLN documented the life-threatening consequences of the nuclear weapons on the indigenous people as a way to communicate the injustice happening in Algeria at that time and their struggle against the colonial oppression by exposing the brutal reality of France's colonization.

Algerian resistance to the nuclear testing happening on their land wasn't only a complex chapter in their struggle with the French colonization that lasted 132 years but also a fight against France to retrieve their dignity and sovereignty taken from them by France, but most importantly, to get recognition for the newly independent country. As years passed, France's violence against Algerians was becoming harsher as Algeria kept opposing the colonizer's torture and oppression.

The French began a brutal war against the National Liberation Front (FLN) and the indigenous people of Algeria. When Algerians took their independence, they felt the deep scar left because of the French colonization. Their country was destroyed and exploited by France for its own interest only, and this was seen clearly when France conducted nuclear weapons testing in their Sahara without taking their consent or taking responsibility for their actions by providing compensation and health care for the people affected by the radiation of the nuclear exposure and polluting their soil and water resources¹⁹⁶⁰ (Dupont, 2023).

The National Liberation Front (FLN) was convinced that France's colonial mindset was dangerous because it treated Algeria as a key strategic site for conducting dangerous experiments and not only as a colonized territory. Any protests held against the French nuclear testing were easily swept away by the French authorities. France tried by all means to demonstrate and assert its dominance and strength in the French-colonized Algeria to make sure that France still had its benefits generated from the nuclear testing, as it was its first priority.

The nuclear tests in Algeria remain a painful chapter in the history of the French-Algerian relationship. It is a reminder for the Algerians of the enduring consequences of colonialism and the fight for justice. These tests were not just a technical military operation but an extension of French colonial power in Algeria, as they were a continuation of the exploitation and disregard for the well-being of the Algerian people even after they took their independence in 1962 (Baker, 2007).

The French government downplayed the harmful effects of radiation and attempted to conceal the environmental and health consequences for local populations without providing any compensation or making efforts to correct what has been done in the Algerian Sahara of Reggane (Baker, 2007).

The tests were part of France's broader strategy to assert itself as a nuclear power independent from the superpowers of the United States and the Soviet Union. The long-lasting effects of these tests on the Algerian population were insufferable. It included radiation-related illnesses, environmental damage, and psychological trauma that was considered a long-term consequence of the horrible acts of France in Algeria, as these effects are still present and felt even nowadays.

The French nuclear testing in Algeria is an example of how colonialism extended into the atomic age without any consideration of minor human rights at that time, which shapes the relationship between France and Algeria now (Baker, 2007).

V -The Scientific and Technical Aspects of Nuclear Tests:

The whole notion of nuclear development operated based on two principles, which are nuclear fission and fusion. The principle of nuclear fission relies on the splitting of atomic nuclei; heavy atomics are the base of such operations, such as Uranium-235. The other principle of nuclear fusion is based on the combination of several light atomic nuclei, such as isotopes, in order to release a light energy similar to the one produced by the sun.

The methods and techniques of testing these nuclear weapons can be divided into many types. The atmospheric tests were conducted above the ground; they were very crucial because they provided valuable data on the power of the nuclear weapon (Hamel, 2023).

Atmospheric tests were prohibited by international laws because of their life-threatening effects on both the environment and human well-being. On the other hand, underground testing was

conducted beneath the surface as a way of minimizing the effects of the nuclear radiation on the people and the ecosystem, but they resulted in a significant destruction by also contaminating other resources.

The nuclear tests have profound and far-reaching consequences on both the environment and the population. Both atmospheric and underground testing results in the creation of radioactive materials. These materials release radioactive isotopes such as cesium-137 and iodine-131. These isotopes pollute the soil and water resources, and they are not the only problems.

Rainfall will cause the spread of these radioactive materials even miles away from the site of the test. This will enable people and animals to use the water resources, especially in agriculture, because the crops could absorb these radioactive materials, proposing a threat to the food chain and marking the decline of the flora and fauna in the region. For example, the nuclear test conducted in the Pacific by the United States in the 1950s resulted in a fallout that contaminated water bodies in large areas, making the water unsafe for consumption (Hamel, 2023).

VI -Geopolitical Context : the Cold war Dynamics:

The Cold War was a period of a clash between two global powers, the United States and the Soviet Union. This period was characterized by intense ideological differences and economic competition. This strong change in the power dynamics led to the transformation of many military strategies. Countries in Asia and Africa became battlegrounds for these ideological conflicts.

France's main concern was the protection of its territories in Africa and for that it secured a clause in the North Atlantic Treaty that included the "Algerian Departments of France" – a provision that no longer held once Algeria gained independence in 1962 (Nato).

The turning point of the intense struggle between communism and capitalism was the development of nuclear weapons. Both capitalism and communism sought to spread their ideologies worldwide, and this could be done through having strong military capabilities. The United States succeeded in creating its first atomic bomb in 1945 and was then followed by the Soviet Union after developing its first bomb in 1949.

This led to a new armed fight between the two parties that was nuclear-based, even though both sides tried to limit the use of these nuclear weapons because they knew that using them would lead to the destruction of both parties. These whole changes in the power dynamics in the world led France to invest in nuclear testing with the hope of becoming a strong power too.

During the Cold War, France highlighted its foreign policy first, which placed an emphasis on geopolitical interests. In the aftermath of the war era, the French found themselves struggling with a lot of economic problems while also having to secure military defense against the USSR and colonial struggles in Indochina and Algeria (Irwin Wall, 2008).

VII -Ethical and Moral Implications:

The testing of nuclear weapons raises a lot of ethical and moral questions about their legality. The implications of this nuclear-armed race threatened the global peace. All of the nuclear testing conducted by France violated the most important human right, which is self-determination.

France treated the Algerian population as a test subject to measure the potential of its nuclear weapons. France's nuclear tests didn't affect only Algeria, Mali, and Niger individuals but also the

French soldiers who were in the area of Reggane. France put its own soldiers under the dangers of the strong deadly radiation only to fill its own military objectives. Even some French scientists and engineers felt the regret of participating in the development of these nuclear weapons that resulted in the suffering of many colonizers and colonized from long-term consequences.

France is legally required to take responsibility for the consequences of the nuclear weapon testing in Algeria. The International Atomic Energy Agency (IAEA) has stated in its general conference that all states are responsible for ensuring that the sites in which the nuclear testing was carried out should be safe to avoid any impacts on health and the environment. Bruno Barrillot talked in his essay *Essais Nucléaires Français: À Quand une Véritable Transparence?* (French Nuclear Tests: When Will There Be Real Transparency?) about the consequences of the nuclear testing in Algeria, and it's time that the French government take action to fix the French-Algerian relationship due to this dark chapter of the French colonization in Algeria, but unfortunately the Algerian government hasn't pressured France to perform its duties (Samia Henni, 2022).

VIII -Long-term Consequences and Ongoing Struggles:

The French government kept denying for years any allegations related to the testings until it passed its compensation law in 2010, promising the affected population to be taken care of. The estimated population of military and civilians affected by these nuclear tests was about 150,000 , having participated in these tests from 1960 to 1996.

Even though the law passage included people from France, Algeria, and French Polynesia , only one percent of the infected applied for the compensation, with 49 being Algerians. The official French Senate report on the impact of testing showed that 12 people received about 200 and 600 mSv in the Beryl tests, even though the report didn't include inhaled or consumed radiation but only external radiation exposure (Arjun Makhijani , 2023).

The testing of the nuclear weapons causes long-term effects for the environment. Areas where these tests were conducted are contaminated with the radioactive materials, and authorities failed to clean these sites. Researchers proved that areas affected by the nuclear power will stay inhabitable for hundreds of years before they get clean, if ever. This has affected the biodiversity of many plants and denoted the decline of many species in these regions.

The victims of the nuclear testing in Algeria never received good medical care or protection from the French authorities. The victims stayed untreated without any rights. Algerian victims attempts to get their rights back from France have all failed, and this is because of the absence of a strong international legal framework. The people residing near these contaminated areas have suffered from illnesses like cancer and a birth defect; to this day, they are still struggling from the effects of the radiation as a result of the inhuman testings conducted by France.

Abderahmane Toumi, head of the Algerian victims' support group El Gheith El Kadem, claimed that diseases related to radioactivity are passed on as an inheritance, generation after generation. This shows that France didn't harm only Algerians living in the Reggane area at that time, but the consequences of the nuclear testing continue to affect also their descendants.

Radioactive materials do not cause only health problems like cancer and birth defects, but they also mess with the DNA of the affected people. Exposure to nuclear radiation after contaminating soil and water resources can affect the genetics of the person consuming these dangerous radiators through the concept of genetic mutation. The changes that occur to the DNA

can be passed from one generation to another, meaning that the health issues caused by the French nuclear testing will be inherited, causing long-term health problems for the inhabitants of the areas .

As long as the region is polluted, the dangers of the radiation will persist. Severe health impacts, from birth defects and cancers to miscarriages and sterility, can be examined in these areas where the nuclear testings were carried out. This means that the sites used as a testing ground will always remain dangerous, and their effects will haunt their inhabitants.

France's policy in the 1960 required burying all radioactive waste from the Algerian bomb tests in the desert sands, but unfortunately, France for decades has been declining to reveal their locations. This has put Algerians at risk because of the hidden locations of the radioactive waste. The buried radioactive waste will affect the inhabitants of the areas without their knowledge or consent (Rachid Aouine, 2025).

The fallout from these experiments is catastrophic. Many Algerians suffered and are still suffering from severe health issues like cancers, congenital disabilities, and respiratory diseases. Many individuals who were exposed to radioactive fallout from the tests have died because of these radiation-induced illnesses. The survivors are still struggling to get good health care or even get recognition of their own suffering (Rachid Aouine, 2025).

It is clear that both of the nations governments , France and Algeria , have failed the innocent inhabitants of the radioactive areas. Both governments did not provide any clear information about the extent of contamination or even the locations of buried radioactive materials. So the full scope of health risks faced by affected populations is still unknown even nowadays, putting many at risk of life-threatening disease (Rachid Aouine, 2025).

IX-Global Implications and Lessons Learned:

The tension created by the nuclear testing in many countries led to the prohibition of using nuclear weapons in the future to protect individuals liberties and rights . The global arm race in nuclear capabilities threatened the whole global peace and the ecosystem in many areas. It also exposed the gaps in international laws related to nuclear testing and how imperial countries like France took full advantage of small loopholes to destroy and disregard human rights to achieve its military goals. The historical injustices that happened to algerian victims is unbearable and stands as a great reminder of the colonialism legacy.

“Within a distance of 4.7 km in every direction, all living things would die almost immediately-vapourised, crushed, charred, irradiated. 7.5 km in every direction, essentially everyone would be killed or seriously injured. Stretching to out 22.6 km in every direction, everything flammable would ignite, and thousands upon thousands of fires would coalesce into a giant firestorm. Wherever they were, most living thing would die from burns and asphyxiation. Still further out, hundreds of thousands of people would be seriously injured. And everywhere the invisible, silent, lingering danger of radiation would persist” (ICAN, 2020)

X-France's Acknowledgement and Compensation Efforts:

The lagecy of France nuclear tests in Algeria cause a strong tension in the socio-political landscape between the two countries. The nuclear testing aimed to establish France as global nuclear powers like the United States and the soviet union but it left long term effects on the algerian victims. France acknowledgement of these terrible consequences on the indeginious people started in 2010 with Morin law which prohibits Algeria from possessing nuclear weapons.

France established the Morin law as a way to address the grievances of the Algerian innocent victims but it was superficial. The law required Algerians to prove the fact that they were affected by the nuclear radiation but unfortunately the old population that lives in remoteness regions don't have easy access to the documents required by the French authorities and therefore their rights were lost. Also the Morin law disregarded the environmental distinction that contaminated Algerians soil and water resources making large regions inhabitable. Demands for justice until this day are not met by France (Hamel, 2023).

The documentaries *Vent de Sable* and *L'Algérie, De Gaulle et La Bombe*, directed by Larbi Benchiha in 2008 and 2010, respectively, and *AT(H)OME*, directed by Elisabeth Leuvrey in 2013, depict the horrific reality behind these tests in Algeria. The consequences of the nuclear testing were portrayed by these filmmakers to show how it affected the landscape of Algeria by the dismorphism of materials and the changes that occurred to the sand and stones of the Algerian Sahara.

They presented the effects of nuclear testing on social, environmental, and human well-being in Algeria to uncover the reality of the French colonization in Algeria, especially that France didn't take any accountability for its actions in Algeria concerning nuclear waste in the areas (Samia Henni, 2022).

XI-The Role of the Test in France's Nuclear Program:

The nuclear tests in Algeria fulfilled its role in guaranteeing the nation's place as one of the nuclear global powers. France was able to join the nuclear-armed race with countries like the United States. The colonial-era crimes performed by France in its territories all contributed to the success of France's political and military capabilities and achieving their objectives. The success of these tests allowed France to join the ranks of the United States, the Soviet Union, and the United Kingdom as a nuclear-armed state (ICAN, 2020).

Since the start, France viewed having nuclear capabilities as a symbol of modernity and a tool of defense. France's main aim behind these tests emerged in the Cold War context when France wanted to become an international superpower alongside the United States and the Soviet Union, showing its dominance to the global security agenda.

The nuclear tests demonstrated France's technical capabilities along with its complex relationship with the colonial possession and oppression, especially after choosing the Algerian Sahara as a suitable location for trying the dangerous nuclear weapons.

De Gaulle was a strong believer that investing in nuclear weapons would grant France freedom from both the United States and the Soviet Union. In 1958, his nuclear testing program in Algeria got serious attention as it aligned with the interest of building a stronger nation and ensuring the nation's nuclear deterrence, promoting a strategic place for France in the ideological war happening at that time.

France benefited the most from these nuclear weapons tests in the Algerian Sahara of Reggane, both in terms of military and technological advancements. France kept its policy of secrecy regarding the damages that happened to Algerians on the level of the environment and well-being of humans in the area due to the radioactive fallout. This is seen by many as a colonial oppression where the Algerian population's well-being was placed second to the French interest in becoming stronger and restoring its lost pride, putting thousands at risk of long-term consequences (Mebtoul, 2022).

XII-The Stalemate and Future Intentions:

A long-standing conflict between Algeria's aspirations for justice and France's unwillingness to face its colonial past is reflected in the current standoff between the two countries over the legacy of nuclear testing. France has mostly limited its response to symbolic gestures and limited transparency, despite Algeria's repeated demands for recognition, restitution, and environmental restoration (Laroussi, 2021). Because of this, there is a diplomatic deadlock and neither side is prepared to make any concessions.

Without addressing the fundamental problems of reparations and accountability, France's policy of making small concessions, such as partially declassifying archives or slightly extending the criteria for compensation, seems to be intended to appease Algeria (Boukella, 2022). In the meantime, Algeria keeps using global forums, such as the African Union and the United Nations, to strengthen its demands and put pressure on France to take more significant action (African Union, 2023).

A number of variables, such as changing geopolitical dynamics and the increasing amount of independent evidence demonstrating the tests' long-term effects, will determine how this argument develops in the future. In order to get beyond France's control over historical data and create indisputable cases for injury, grassroots organizations and scholars in Algeria are increasingly turning to cutting-edge methods like satellite imaging and radiation mapping (Amrani & Khalfallah, 2023).

Eventually, this bottom-up strategy might compel France to act, especially if combined with increased international attention. A possible turning point is indicated by the African Union's 2023 resolution calling for collective action on nuclear test reparations, which presents the problem as a continental challenge to post-colonial injustice rather than merely a bilateral grievance .

Pressures from the diplomatic and economic spheres might also be crucial. Algeria has the leverage to pressure France into talks because of its strategic position as a major energy provider to Europe, especially in light of the global energy crisis (Benchetrit, 2023). But in order to preserve its diplomatic credibility, Algeria has so far refrained from directly connecting problems like gas exports to nuclear reparations (Mebtoul, 2022).

In the end, time is both a friend and a foe in this conflict. The need for justice becomes more pressing as nuclear test survivors age and die . However, unless Algeria can maintain momentum through legal, scientific, and diplomatic channels, their diminishing voices also run the risk of being muffled by geopolitical noise (Khelifi, 2023). The disagreement could become a permanent scar on bilateral ties if France keeps refusing to participate in serious dialogue.

A breakthrough, on the other hand, would establish a standard for other post-colonial reckoning initiatives around the world, like France's pledge to undertake a thorough cleanup or establish a victim reparations fund .The upcoming years will determine whether Algeria's requests are honored and the radioactive legacy of the Sahara tests remains unsolved, or whether France's slow and hesitant recognition turns into true accountability (Stora, 2021).

Conclusion:

France nuclear weapons testing in Algeria was a period that started from 1960 to 1966 , it symbolises the disregard of human rights in the persue of military powers. It's regarded as a dark chapter in history of Algeria and France that was based on violence and explotation of innocents. The devastating consequences of the nuclear radiations violated international laws and destroyed large landscapes making them inhabitable in Algeria. The lagecy of these tests are still present even nowadays because of the long term effects on the flora , fuana and population. All of this stands as a reminder of the dangers of using nuclear weapons and there ever lasting consequences, to prevent using them in the future.

The Algerian resistance to nuclear testing was an ongoing struggle that shifted from opposition to colonial exploitation done by France to a brutal fight for justice and recognition in the post-independence era, especially after nuclear testing in the Algerian Sahara.

The French nuclear tests in Algeria were primarily motivated by geopolitical and military considerations. France's hunger for power led to the destruction of a whole nation without taking any consideration for international laws or human rights. The nuclear testing in Reggane had devastating environmental and health consequences for the local inhabitants, affecting them for years and even leading to their death due to radioactive-related diseases like cancer.

The resistance to these tests, both during and after the colonial period, reflected the broader struggle of the Algerian people for sovereignty, justice, and recognition. The legacy of this resistance is still felt today, as the demand for full accountability and compensation continues to emerge without any response from the French government.

Nuclear colonialism conducted by France provides a crucial perspective on the intersection of nuclear weapons development and colonialism. It emphasizes the ongoing oppression of Algeria and its people without any consideration for their rights since they were seen as inferior to the colonizer powers during the French colonization that lasted 132 years in Algeria.

The intergenerational trauma caused by nuclear testing stands as a great reminder of the broader human and environmental consequences of nuclear weapons development and why we should avoid using them by all means. It is a call to action for governments around the world, especially international organizations, to address the horrible legacy of nuclear colonialism. Organizations should work toward justice and healing for those whose lives have been destroyed by the aftermath of nuclear testing in Algeria or any areas affected by nuclear radiation in the world.

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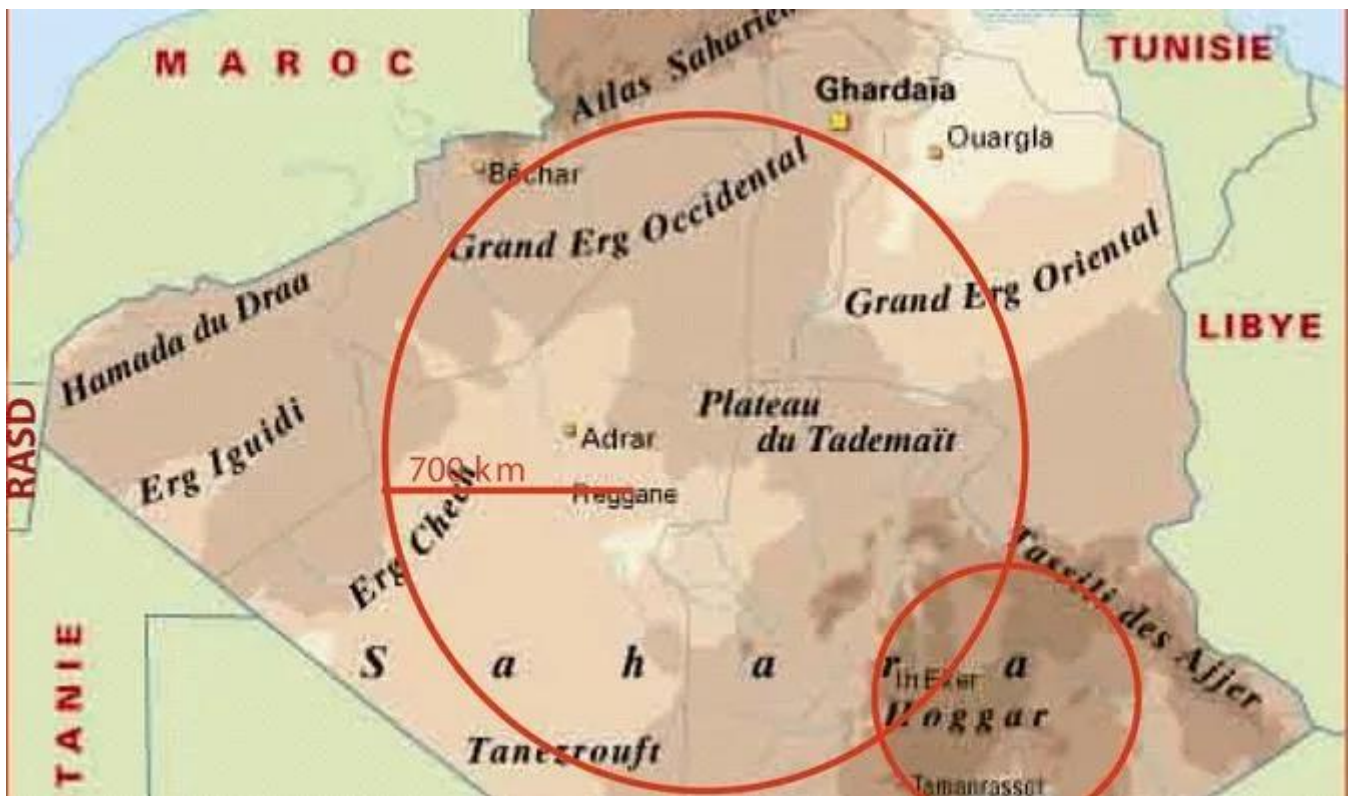
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- ## Appendix 2: Nuclear Tests in Algerian Sahara



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