



An Analysis of Afghanistan's Postwar Condition and How to Use AI Technology to Address It

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ABSTRACT

In August 2021, President Biden announced the withdrawal of the US army from Afghanistan. As the final armed force withdrew on August 30th, 2021, the long-term direct interference of the US army in Afghanistan ended. Since the Afghanistan War in 2001, US-led forces have sought to eliminate insurgencies and reestablish social and political orders. In the past 20 years, the US has spent considerable effort and funds to assist in the recovery and development of Afghanistan. The reappearance of the Taliban in power in Afghanistan and the retreat of US forces from the nation revealed that all the efforts the US had previously made did not meet the expectation they should have. Thus, the inefficiency of counterinsurgency in Afghanistan could be a sign that the currently existing methods might not be able to provide an effective solution for the situation in Afghanistan. Inspired by the development of novel technologies such as Artificial Intelligence, this article argues that the current usage and development of such technologies can foreshadow possible solutions to Afghanistan's various problems.

Keywords: Afghanistan, Counterinsurgency, Reconstruction, Artificial Intelligence, Algorithms, Administration, Economy, Agriculture

INTRODUCTION

A. Taliban and Afghanistan

Since the Taliban retook control of Afghanistan in August 2021, the nation has been enduring several issues. Without foreign assistance, the government cannot maintain its order effectively and fail to remedy the loss of the country's profits and resources during previous conflicts. A report by The UN claimed that the GDP of Afghanistan underwent a 30% loss, and the nation's economy is currently spiraling down.¹ The harsh condition of the economy directly contributes to the collapse of local infrastructures and institutions, such as offices, schools, and policing. The report by the UN urged that a revival of the economy is needed to reconstruct the nation.² In addition, the security issue of the country is still not entirely resolved, as the report from the UN pointed out that the current government fails to protect citizens from

other local warlords and rebellions and is also unable to provide humanitarian support for citizens³. The report shows that life in Afghanistan is both insecure and unstable, and the government still needs to find pathways and methods to handle the existing problems. Since 2001, the US has been attempting to help the Afghanistan government to enhance its economy and rebuild social order. Still, the internal conflicts and the nation's condition made western interference less effective than many expected. Afghanistan is already undergoing severe economic issues due to the disarray of domestic institutions, disruption of government revenue, and dissolution of security forces⁴. Therefore, the nation's problems cannot be resolved if the Taliban insists on the traditional system and does not reform. The government needs to develop new methods to break the dilemma. This article proposes one possible solution, the deployment of

¹ With Afghanistan 'Hanging by a Thread,' Security Council Delegates Call on Taliban to Tackle Massive Security, Economic Concerns, Respect Women's Equal Rights | UN Press, <https://press.un.org/en/2022/sc14776.doc.htm> (last visited July 30th, 2022).

² *Id.*

³ *Id.*

⁴ After Taliban Takeover, Can Afghanistan's Economy Survive? UNITED STATES INSTITUTE OF PEACE, <https://www.usip.org/publications/2021/09/after-taliban-takeover-can-afghanistans-economy-survive> (last visited November 20th, 2021).



AI technologies, for the current government to address these issues.

In September 1994, the Taliban emerged from an Islamic school called a madrassa in Pakistan as a movement of students. The organization's original goal was establishing a government to establish Islamic law and order. In the 1990s, when Afghanistan was struggling in a civil war, the Taliban smelled an opportunity and moved to Afghanistan. It remains active in Afghanistan, acting as opposed to western countries. It has been waging wars within Afghanistan for decades, and the government did not have the power to repress the battles, so Afghanistan had long relied on foreign assistance to help with counterinsurgency.⁵ Afghanistan lacks talented people because many citizens of the professional and educated classes fled during the previous civil war. The large-scale escape of this portion of the population left the country without educated people to reconstruct Afghanistan after the chaos. Professionals in different fields and skilled labor are urgently needed in Afghanistan today.⁶ Another struggle the current Afghanistan government faces is to take over territorial control over every region of the nation. If the state's power becomes too weak, for instance, the Afghanistan government, the government will fail to maintain the post-conflict peace, and conflicts will reemerge. The retreat of the US in August 2021 means that there is no external assistance to preserve the order of the nation anymore.

B. Current Condition of Afghanistan

Afghanistan encountered an economic problem. According to UNDP, Afghanistan is considered one of the poorest countries, and the government cannot support its expenditure. After the western countries retreated from Afghanistan, the country experienced severe economic issues. A direct result of these financial problems was the lack of food since the government lost access to international aid. The government's low productivity also limited the domestic production of food sources. This fact has meant that millions of citizens suffer from hunger and malnutrition. The country lacks talented people because many citizens of the professional and educated classes fled during the previous civil war. The large-scale escape of this portion of the population left the country without educated people to reconstruct Afghanistan after the chaos. Professionals in different fields and skilled labor are urgently needed in Afghanistan today.⁷ Another struggle the current Afghanistan government faces is to take over

territorial control over every region of the nation. If the state's power becomes too weak (like the Afghanistan government), the government will fail to maintain post-conflict peace, and conflicts will reemerge. Although the previous Afghanistan government attempted to begin reconstruction and reform, many supporters of the Taliban in the Afghanistan government still made the reconstruction process difficult. The influence of the Afghanistan government diminished. On August 15th 2021, a Taliban representative claimed that they had already occupied Kabul, the capital of Afghanistan, which indicated the failure to extend western ideology in this state.⁸

The inability of the Afghanistan government to reestablish social order can be attributed to the inefficient legislation of the country. Under the reign of the Taliban from 1995 to 2001, Afghanistan still needed to develop a complete judicial system. The biggest reason is that the judicial system conflicts between traditional Islamic values and secular law. Instead of emphasizing humanity and individuality, Islamic values focused more on obeying everything God said. There is no independent judiciary in Afghanistan; rather, the judicial system of the Taliban was based on Islamic Sharia law. This law mainly originated from Islamic tradition and excerpts from the Koran, the most influential Islamic classic religious text. The government does not follow a specific secular system; instead, there is only "...sharia law, and that is it."⁹ The constitution of Afghanistan was issued in 2004, but it did not substantially influence the country because the weak central government needed to make the ideas in the form prevail. Due to the retreat of the US from Afghanistan, there will be less external support that can assist the government in overcoming the chaos in the country. Government expenditure, military aid, and domestic assistance will all become limited. Therefore, it is imminent for Afghanistan people to generate methods to adjust to the problems in the nation.

C. Artificial Intelligence

Artificial Intelligence (AI) is a term people associate with science fiction or sci-fi movies. However, in today's world, AI is ubiquitous in people's lives, including agriculture, industry, communications, education, etc.¹⁰ For Afghanistan, artificial intelligence could address several issues. The first one is external development. Afghanistan must develop its production and manufacturing industries to survive among world powers. However, since

⁵ Julia Hollingsworth CNN, *Who are the Taliban and how did they take control of Afghanistan so swiftly?*, CNN, <https://www.cnn.com/2021/08/16/middleeast/taliban-control-afghanistan-explained-intl-hnk/index.html> (last visited August 19th, 2021).

⁶ How business leaders can help meet the needs of Afghan refugees, <https://www.timesrecordnews.com/story/opinion/2021/12/11/how-business-leaders-can-help-meet-needs-afghan-refugees/6452117001/> (last visited December 11th, 2021).

⁷ *Id.*

⁸ CNN, *supra* note 5.

⁹ Marina Pitofsky, *What is sharia law? And how is the Taliban using it in Afghanistan?* USA TODAY, <https://www.usatoday.com/story/news/world/2021/08/19/sharia-law-definition-heres-what-know-religious-system/8196614002/> (last visited December 30th, 2021).

¹⁰ Christopher Rigano, *Using Artificial Intelligence to Address Criminal Justice Needs*, 2019.

Afghanistan is one of the poorest and least developed countries in the world, it is hard for the Taliban to establish a diverse and complex industry within a territory in the short term, and the government's lack of control over local resources makes the productivity of the country deficient. Artificial Intelligence would require less internal production from Afghans, which means the nation could adopt AI even with relatively low productivity. Moreover, because AI mimics human cognition and predicts behaviors like a human, it is easier for people who do not have the prerequisite knowledge to learn and master.¹¹ When Afghanistan enters the international stage, the expertise of IT workers will be needed by other countries and enterprises that operate AI technology investigations. Afghans could export and provide labor for those organizations, indirectly alleviating the country's unemployment problem.

In addition to the ease of digital learning, AI can help with a nation's internal affairs. For example, public safety is an essential feature in maintaining social order. AI's complex recognition skill is a master of data collection, imaging, and analysis.¹² According to Rigano, A.I. provides "a second pair of eyes," allowing the government to supervise and detect violence and conflicts within the country and use the system to locate the people they want. Artificial Intelligence can also predict the behavior of humans. For instance, the gunshot detection of AI uses analysis of signature data to develop models and find possible locations of gunshots; also, AI's crime forecasting system uses data to find potential criminals and criminal enterprises within the territory.¹³ The operation of AI in Afghanistan could also act as an addition to human policing since AI can both operate supervision and prevent possible crimes¹⁴. Thus, the less the government relies on physical police, the more the population could attend other jobs.

Many people believe that AI algorithms can only deal with a few tasks humans can do, so they think AI cannot replace complex human tasks such as writing articles and analyzing studies with available answers. However, recent updates of AI showed that this novel technology has the potential to do other complicated tasks as well as a human can. One of the examples is Generative Pre-trained Transformer 3 (GPT -3), a language model developed by OpenAI in 2020. At first, GPT -3 was commonly used in translations since it can learn to process specific tasks after viewing a few prompts and examples. The program showed 86.4% accuracy, a significant development compared with previous machine translations.¹⁵ Later,

G.P.T. -3 showed strong language skills: it can specialize a random task to a specific job and process it¹⁶. This way, users of this program can ask it to process many complicated language-related assignments, such as writing poems, essays, fiction, and even humor¹⁷. Experimenting with GPT -3 also revealed that it has the potential to understand the reasoning, in which understanding and reason are considered abilities that have been unique for humans for a long time. The example of GPT -3 showed the potential of AI simulating writing and thinking human behaviors.

D. Sharia and Artificial Intelligence

After the Taliban regained power, many people were cautious about whether or not it would create order in Afghanistan and how international assistance would help Afghanistan with its reconstruction. Above, artificial intelligence is proposed as a strategy for reconstruction. However, many people were concerned that AI technology might contradict the doctrines of Islamic conventions. Understanding the Quran, the Islamic classic is a significant new challenge for computer science and Artificial Intelligence. The principles of Islam are compatible with AI knowledge that many Muslims and people want to learn and spread Islamic classics via the internet. For example, The Quran is a website formed by two Computer Science Students at Copenhagen University that recorded the original texts of the Quran and allowed Islamic scholars to contribute their interpretation of the Quran online and spread them into the community. Therefore, many Muslims rely on AI and modern technology a lot, and the attitude of Islamic countries toward artificial intelligence is also positive.

Before discussing how the Taliban might operate AI technology in lawmaking, Islamic law (Sharia) must be introduced. Sharia is an ideal of God's law without a complete catalog and is still practiced by many Muslims in the modern world according to the five pillars: the profession of faith, ritual prayer, fasting, almsgiving, and pilgrimage to Mecca.¹⁸ However, unlike other systems of law, Sharia is not a codified law but relies more on the ritual and tradition of Islam and provides a social standard for prayers¹⁹. The laws of Sharia are already instilled in the daily life of Muslims. Sharia originated from three sources: the Koran, Islamic tradition, and interpretation of theology²⁰. The Koran includes many regulations and laws established by God. The Islamic tradition is centered around his followers' stories about Muhammad's family. Some of the things recorded and practiced by

¹¹ *Id.* at 5.

¹² *Id.*

¹³ *Id.* at 7-8.

¹⁴ *Id.* at 8.

¹⁵ *Id.*

¹⁶ Alberto Romero, *Understanding GPT -3 In 5 Minutes*, MEDIUM (2021), <https://towardsdatascience.com/understanding-gpt-3-in-5-minutes-7fe35c3a1e52> (last visited July 16th, 2022).

¹⁷ Gwern Branwen, *Gwern* (2010), <https://www.gwern.net/About> (last visited Jul 16, 2022).

¹⁸ CHRISTINE SCHIRRMACHER, RICHARD MCCLARY & THOMAS K. JOHNSON, *THE SHARIA: LAW AND ORDER IN ISLAM* (2013).

¹⁹ *Id.*

²⁰ *Id.*

Muhammad's family became the original form of Islamic law²¹. However, since many Islamic texts aren't available today, predecessor theologians tended to add their interpretations. These interpretations influence how other followers interpret Islamic traditions and put such revised ones into practice²². Sharia is the law Muslims created to attain obedience to God and demonstrate the divinity of God in their religion²³. More importantly, because part of the Sharia was based on the interpretation of different theologians after Muhammad, there are separate sects of understandings and practices based on various accounts.

There is no unified text about Sharia, a broad concept Muslims have accepted for many years²⁴. A difference between Sharia and other law systems is that it is believed that God gave Sharia. Because of the absolute divinity of God in Islam, it is hard to mix parts of Sharia with other kinds of laws, making secularism in Islamic states challenging²⁵. The system of Sharia can be traced back to the tenth century AD, but Sharia can also be interpreted in modern ways²⁶. Some modern theologians propose a liberal interpretation and call for a mixture of Sharia tradition and modernity that the present-day demands²⁷. For example, women's rights and equality are always debatable in modern Islamic societies. Different ways of interpreting Sharia can influence this system and make it more suitable for the contemporary world. Nowadays, many theologians are adding European legal elements to the understanding of Sharia²⁸.

After the 1970s, the Islamic world sought to reform Sharia as some Muslims attempted to make changes and return to the 'golden age of Islam.' Still, many scholars have found it hard to combine Sharia with secular principles²⁹. Thus, the long-lasting problem of how extensively Sharia should be applied in modern society cannot be resolved³⁰. Therefore, balancing Islamic tradition and secular ideas will be the main problem for reforming Islamic states such as Afghanistan. In the past decade, Islam has shown significant influence in Europe as the population of Muslims grew from 3.8% of Europe's overall population to 4.9%³¹. After a group of Islamic immigrants arrived in Germany, Germans sought to convert those people to Christianity, which was more prominent in Europe, but the opposite appeared initially³². About 10,000 to 12,000

Germans converted to Islam³³. The spread of Islam in Germany led to more discussions about Sharia's role.

Many European Muslims seemed to integrate into the native culture after some time. The next generation of Muslims presented less strongly toward Islamic tradition and rejected the discrimination present in Sharia³⁴. The establishment of the Sharia Court, which attempted to introduce Sharia jurisdiction into the British legal system, showed signs of this integration³⁵. Thus, as Muslims contacted Western European culture, the possibility of combining secularism and Sharia appeared. In Afghanistan, the Taliban claimed that they would rule according to Islamic traditions such as Sharia, and according to other reports, the Taliban's Sharia is the most brutal³⁶. Many believe that the Taliban's rule will restrict the country to Islamic traditions.

For Afghanistan, artificial intelligence could address several issues. The first one is to assist the Afghanistan government in reconstructing social order. The retreat of western countries means no external assistance to maintain the order of the nation anymore. Afghanistan currently needs to resolve economic, social, and educational problems, and this article proposes one possible solution for the current government to address these issues. It is hard for Afghanistan government officials to maintain order using the current system because the nation still needs to develop a complete judicial system. The constitution of Afghanistan was issued in 2004. Still, it did not substantially influence the country because the weak central government needed to make the ideas in the constitution prevail in the nation. Moreover, the disturbing development of the law and judicial system caused the people "have little or no access to judicial institutions."³⁷ Because of Afghanistan's relatively outdated legal system, it is difficult for the government to establish the nation's legal system and maintain social order. However, Artificial Intelligence can implement the incapability of the current Afghanistan government.

AI's database allowed it to absorb more information than current Afghanistan officials, and by machine learning, AI can study judicial institutions through its algorithm. AI algorithms have three characteristics: Intentionality,

²¹ *Id.*

²² *Id.*

²³ *Id.*

²⁴ *Id.*

²⁵ *Id.*

²⁶ *Id.*

²⁷ *Id.*

²⁸ *Id.*

²⁹ *Id.*

³⁰ *Id.*

³¹ 1615 L. St NW, Suite 800 Washington & DC 20036 USA 202-419-4300 | Main 202-857-8562 | Fax 202-419-4372 | Media Inquiries, *Europe's Growing Muslim Population*, PEW RESEARCH CENTER'S RELIGION & PUBLIC LIFE PROJECT (2017),

<https://www.pewresearch.org/religion/2017/11/29/europe-growing-muslim-population/> (last visited April 14th, 2022).

³² SCHIRRMACHER, MCCLARY, AND JOHNSON, *supra* note 10.

³³ *Id.*

³⁴ *Id.*

³⁵ *Id.*

³⁶ Pitofsky, *supra* note 9; Anchal Vohra, *The Taliban's Sharia Is the Most Brutal of All*, FOREIGN POLICY, <https://foreignpolicy.com/2021/10/13/the-talibans-sharia-is-the-most-brutal-of-all/> (last visited December 30th, 2021).

³⁷ Rule of Law and the Justice System in Afghanistan, CRISIS GROUP (2011), <https://www.crisisgroup.org/asia/south-asia/afghanistan/rule-law-and-justice-system-afghanistan> (last visited June 5th, 2022).

Intelligence, and Adaptability.³⁸ Intentionality means that AI can use its algorithms to combine and analyze different sources to act on the conclusion it draws. Like humans, the thinking of AI algorithms can cooperate with a series of factors, such as justice and effectiveness, in their decision-making progress. Adaptability is when AI can learn from new information and use it as a source to adjust its decision.³⁹ These characteristics illustrate that AI algorithms are more advanced than regular computers and machines, as they share many complicated ways of thinking as humans do. In the case of Afghanistan, AI's algorithms can simulate human decision-making and judgment and use them more effectively. Therefore, AI can serve as a more effective method to reestablish the judicial system of Afghanistan.

AI AND GOVERNMENT ADMINISTRATION

Sunstein's article (2022) showed that human administrations, compared with Algorithms, are both noisy and biased.⁴⁰ Noisy means that people's decisions could be influenced by external factors, which become noise that interferes with people's judgment. The terms "occasion noise," "level noise," and "pattern noise" were used by Sunstein to illustrate how noise became a disadvantage for humans in decision-making. Occasion noise showed that people's decisions could be influenced by their emotions, which the events can quickly impact happened around them.⁴¹ Level noise and pattern noise showed that people's judgment could be affected by other people, which would cause people similarly situated people to be treated differently due to random factors⁴². The noises can sometimes make people biased and have an overly optimistic or pessimistic mindset in decision-making⁴³, which causes them to underestimate or overestimate the consequence of a decision. For example, after the Taliban took control of Afghanistan, people were concerned about the right of women. A mayor of Afghanistan was optimistic in the interview that this problem could be solved as the Taliban government said they would create regulation about it that fulfilled the understanding of Sharia.⁴⁴ From the mayor's point of view, the absence of law is because the government needs preparations to make better norms.⁴⁵ In this example, the mayor's judgment is influenced by the words said by the Taliban government, which gave him unconfirmed optimism about the administration of the government.

Unlike humans, who can easily be affected by noise, algorithms always make the same decision that only relies on its simulation of thinking. Compared with humans, the algorithms cancel out noise so that they can make more rational and practical decisions.

Even after the Taliban unified Afghanistan in August 2021, the new government faced another problem: internal conflict. Former ethical leaders and exiled warlords who fled Afghanistan are now threatening the Taliban ruler with war, and in northern Afghanistan, armed groups are ready to fight against the Taliban.⁴⁶ The government cannot support its military expenditure. The formation of its military needed assistance from a foreign power. In 2019 the army population reached about 200,000, much more than the military force of the Taliban. In addition to the national army, Afghanistan has local troops to maintain regional security. The soldiers are usually between the ages of 20 and 40, and commanders of the provincial armies are retired soldiers or trained militants. Western countries supplied other military resources to Afghanistan, such as advanced weapons and equipment. Therefore, after the foreign troops left Afghanistan, many people questioned whether western countries would still adequately assist the Afghani national military. Without western help and notification of when or where conflicts settled, Afghanistan's internal conflicts and national defense would lose a large amount of military efficiency. Thus, the efficiency of the Afghanistan army could be improved during the reconstruction period. However, the appearance of AI algorithms can assist the Afghanistan government in resolving inefficiency.

The UCDP/PRIO Armed Conflict Dataset, is one technique that uses algorithms to collect and analyze conflicts worldwide. This program can distinguish between other rows and explore possible reasons that led to disputes. UCDP data can dissect conflicts and categorize them into state-based armed conflict, one-sided violence, or non-state conflict⁴⁷. State-based conflict is violence between the national army and rebellion forces that cause battle-related death; One-sided violence represents violence that targets civilians; non-state conflict includes armed conflicts between different rebellion groups. Algorithms can learn about the patterns of conflicts not found by people's eyes. By distinguishing and reporting various conflicts in a specific country, the dataset can predict whether there will be further conflict in a particular territory.⁴⁸ Currently, the

³⁸ Darrell M. West, *What is artificial intelligence?*, BROOKINGS (2018), <https://www.brookings.edu/research/what-is-artificial-intelligence/> (last visited May 16th, 2022).

³⁹ *Id.*

⁴⁰ Cass R Sunstein, *Governing by Algorithm? No Noise and (Potentially) Less Bias*, 71 DUKE LAW JOURNAL 31 (2022).

⁴¹ *Id.*

⁴² *Id.*

⁴³ *Id.*

⁴⁴ Monica Haider, *Afghanistan Mayor Optimistic About An Equitable Future For Working Women Despite Restrictions*, FORBES, <https://www.forbes.com/sites/monicahaider/2021/09/30/afghani>

[stan-mayor-optimistic-about-an-equitable-future-for-working-women-despite-restrictions/](https://www.forbes.com/sites/monicahaider/2021/09/30/afghani-stan-mayor-optimistic-about-an-equitable-future-for-working-women-despite-restrictions/) (last visited June 22nd, 2022).

⁴⁵ *Id.*

⁴⁶ Lynne O'Donnell, *Afghanistan's Warlords Prepare Their Comeback*, FOREIGN POLICY, <https://foreignpolicy.com/2022/06/14/afghanistan-warlords-taliban-authority-comeback/> (last visited July 2nd, 2022).

⁴⁷ Hakim Chekirou, *Predicting Future Wars*, MEDIUM (2020), <https://towardsdatascience.com/predicting-future-wars-7764639f1d8d> (last visited July 2nd, 2022).

⁴⁸ *Id.*

UCDP dataset includes much information on past and current conflicts in Afghanistan. It also categorized the conflicts in Afghanistan into three categories of conflict. In this way, algorithms can help the government to decrease the randomness of violence and conflict. By analyzing and predicting the dataset, people can be notified about possible conflicts between the government and rebellions. The government can prevent the conflict or ask civilians to flee to minimize causality unrelated to war.

AI, INCOME, AND ECONOMY

Economic development is an essential factor when considering reconstruction. Even though the Taliban unified Afghanistan, the country still struggles with many issues, such as poverty. The country is poor, with a \$508.81 GDP per capita. A better way Afghanistan today can attain the goal of reconstruction is to rely on international assistance, which requires them to build relationships with their neighbors. However, the country cannot accomplish reconstruction only by relying on the financial aid of other developed countries. The government needs to enhance productivity so the country's economy can grow and help bring citizens out of poverty and unemployment. However, because of the wars and chaos within Afghanistan's territory, the country's education system was relatively low (with only a 47 percent literacy rate between the ages of 15 to 24). Many industries require a profound knowledge of chemistry, physics, or engineering. Thus, such circumstances make the country less likely to develop sectors that need specific expertise, such as heavy industry or science laboratories. So, if the country cannot develop complicated industries, can the Afghanistan government build factories and let citizens work and produce cheap commodities? This inexpensive commodity method could have been more helpful for two reasons. Firstly, the payment of such labor was meager, and thus the benefits are low compared to the cost of establishing those factories. Second, because many refugees have already escaped to other nations due to wars, the territory has an insufficient labor force. Another factor that prevents the development of factories in Afghanistan today is the serious environmental issue within the nation. Afghanistan is undergoing deforestation and land degradation due to the excessive use of polluting fuels. Also, behaviors such as overgrazing and desertification cause air and water pollution. Most land in Afghanistan is not used for industrial use. Only 5 to 16 percent of land in Afghanistan is serviceable, and land is needed to build factories. Therefore, the scarcity of land in the country limited the upper limit of the nation's industry.

AI AND INDUSTRY

Even though the conditions in Afghanistan make it hard to reconstruct its economy, there is one industry that might avoid the problems addressed in the previous paragraph. Afghanistan can develop its economy by educating workers in computer science and creating I.T.-related opportunities for citizens. It costs less for the government: the only equipment the government needs to purchase is a computer, which is cheaper than the other manufacturing industries. Because programming is an occupation needed worldwide, Afghanistan citizens can work for those big companies and organizations. AI provided 1.7 million new jobs. The average salary of a computer science major today is \$34 per hour, which means that if a citizen works for 8 hours per day. This data showed that they could earn more money than the current GDP per capita of the country, so the mass production of computer science learners in the country could significantly enhance the GDP of Afghanistan. The popularization of computer science and technology in Afghanistan also allows the government to use artificial intelligence to reconstruct and establish order. The more people who gain such knowledge, the easier it should be for the government to utilize Artificial Intelligence within the country.

The previous paragraphs discussed Afghanistan's scarce labor and education level caused by the weak economy. Heavy industries, such as biochemistry, steel, and mechanical engineering, are too expensive for the nation. So what are some advantages of AI and its algorithms compared with other industries? Besides the fact that IT technologies are easy to learn for people with a lower level of education, another benefit is that AI is cheaper and more convenient to deploy than in other industries. Traditional factories required a large amount of labor and funds to operate them. Still, for Afghanistan, even if the government received enough funds and work for those traditional industries, another obstacle is the destruction of war. During the civil war, which ended with the Taliban taking over Kabul, many factories became destroyed, unused, or poorly maintained, producing waste of more than \$2.4 billion on those assets.⁴⁹ It is easy for the conflicts between armies to extend to surrounding environments. Due to the harsh tactics and punishment the Taliban exerted on the members of the rebellion; the anti-Taliban sentiment reignited among many people⁵⁰, so the civil conflicts will not likely come to an end immediately. Thus, deploying these traditional heavy industries in Afghanistan will be a problem and may cost many economic losses during its deployment.

Conversely, the deployment of Artificial Intelligence does not have such concern. An example of technology that the Afghanistan government can sustain is Starlink. Starlink is a technology based on AI algorithms that can connect people and the internet. It provides people capable of using

⁴⁹ *Id.*

⁵⁰ Afghanistan's Security Challenges under the Taliban, CRISIS GROUP (2022), <https://www.crisisgroup.org/asia/south->

[asia/afghanistan/326-afghanistans-security-challenges-under-taliban](https://www.crisisgroup.org/asia/afghanistan/326-afghanistans-security-challenges-under-taliban) (last visited August 12th, 2022).

high-speed data and conveniently accessing information. This is because mobile stations and satellites connect to the service of Starlink, and citizens can build and use receivers easily to connect to the service. For example, in Irpin, Ukraine, even though most of the city's infrastructure was destroyed during the war, Starlink's service is still available in this area. In addition, it provides high-speed internet service for citizens.⁵¹ The example of Ukraine showed this high-tech product's endurance in a country that suffered from war. Another advantage Starlink has compared with the traditional industry is that it costs less, only about \$110 per month for residential usage and about \$500 per month for business usage.⁵² Therefore, considering Afghanistan's current economic condition, deploying technologies such as Starlink can decrease the limited government expenditure. Another advantage Starlink has is attracting investors to Afghanistan to excite the local market. Starlink is a developed and up-and-coming technology that attracts the interest of many people globally. Many people are eager to conduct and invest in the experiment to update the technology. Afghanistan provided an excellent platform for Starlink to test and develop its use so that investigators can upgrade the technology based on the results in Afghanistan. Since investors of Starlink can be attracted to Afghanistan, the government will no longer need to worry about the cost of the technology. It can save budgets by assisting reconstruction in other areas.

AI can reduce costs and improve service in traditional healthcare, shoe, and automobile manufacturing. For example, AI can utilize 3D printing or a robotic arm to increase efficiency in a traditional factory. Thus, the development of AI can also lead to the development of other parts of the economy. For Afghanistan, the effect of AI and people with knowledge about AI could benefit the country by creating other manufacturing plants. The operation of AI could be a helpful start for future economic benefits. AI would also lead to many new jobs because as this new technology becomes popularized, more demands based on this newly developed technology will appear. For example, AI requires the operation of an extensive database. AI calculates and thinks using the data in it; therefore, more data scientists would be needed to upload the database and analyze outputs.

Moreover, AI is still technology and may encounter technical issues that require specialists to solve those problems. These demands would create more possible job

opportunities for citizens. As the importance of AI technology grows, and as many people emphasize the function of this technology, the salaries for A.I.-related careers will also increase. From the examples above, A.I.-related occupations have significant potential to become critical and high-paid careers. If Afghanistan chooses to develop such a possibility, the country's economic condition may be significantly improved. Many Afghans who have already learned technological skills leave their hometowns to find employment and work. In addition, Afghanistan's development of AI technologies will provide job opportunities for skilled citizens who would be more willing to return to Afghanistan. With the help of those skilled workers who already have a great understanding of the area, the technology in the nation can be developed more rapidly.

AI AND AGRICULTURE

Agriculture has long been an important sector of the economy of Afghanistan, in which about 70 percent of Afghans live in rural areas, and 61 percent of citizens' incomes rely on farming.⁵³ Currently, Afghanistan is suffering from economic problems and a lack of food supply and arable lands; the civil wars and collapse of the previous government interfered with the consistency of many Afghans' agricultural practices. Therefore, the current Afghanistan agriculture needs to provide more crops to sustain the need of people. The study showed that more skilled human resources, agriculture education, and extension services are required to provide enough crops.⁵⁴ Adequate agriculture education can provide more qualified human resources to gain knowledge about farming different crops and use the ability to develop strategies that can be more economically beneficial.⁵⁵ However, the current collapse of the economy and social structures caused more than 6 million citizens to flee from the nation, which means that the government just lost many human resources.

Moreover, even with enough human resources, promoting agricultural education throughout the government is problematic because the program requires skilled people and expertise. Afghanistan needs more education to produce enough expertise for agriculture. On the contrary, unlike people who need much time and effort to become skilled human resources, the digitalization of AI created

⁵¹ Tom Simonite, *How Starlink Scrambled to Keep Ukraine Online*, WIRED, <https://www.wired.com/story/starlink-ukraine-internet/> (last visited August 12th, 2022).

⁵² SpaceX's Starlink Internet: How Much Is It and Should You Get It?, GOBANKINGRATES (2022), <https://www.gobankingrates.com/saving-money/entertainment/starlink-internet/> (last visited July 30th, 2022).

⁵³ Unlocking the Potential of Agriculture for Afghanistan's Growth, WORLD BANK, <https://www.worldbank.org/en/country/afghanistan/publication>

[/unlocking-potential-of-agriculture-for-afghanistan-growth](#) (last visited August 13th, 2022).

⁵⁴ Sakhidad Saleem & Edris Raouf Mohammad, *Sustainable Agricultural Development and the Challenges Facing Agricultural Education in Afghanistan*, https://www.jstage.jst.go.jp/article/jdsa/6/1/6_1_45/_article/-char/en (last visited August 13th, 2022).

⁵⁵ *Id.*

tremendous benefits. AI's algorithms can learn quickly from its databases about different agriculture knowledge.

Reports show that AI could improve agriculture and increase food production.⁵⁶ For example, a report showed that AI could monitor the conditions of crops better than people. Based on observations, AI can optimize irrigation and evaluate the situation of the crops.⁵⁷ Thus, crops nurtured by AI can have larger yields and significantly improve the agricultural supply chain. More importantly, AI can also enhance the quality of food. There was a report about Hydra, a food quality analyzer that uses AI to inspect products that boost farmed food's safety and transparency⁵⁸. More reports showed that AI systems could be involved in almost every agriculture process, including food security and quality management⁵⁹. For example, the system can use mathematical models to manage food quality and calculate the best pesticide management for crops, making the food healthier and the food processing more transparent to people so that the overall quality and efficiency of the food industry can be improved. For example, Smart Argo 4.0 is a technology based on AI Algorithms that can promote sustainable agricultural practices through digitalization.⁶⁰ Smart Argo 4.0 can use Algorithms to analyze data and determine agricultural sectors, such as priority crops and suitable geographic zones.⁶¹ Farmers can use this technology to monitor and operate agronomic variables through an Algorithms-based mathematic model⁶². In 2020, Smart Ago 4.0 has already assisted some areas in Peru to increase productivity, as cotton yield became 77 and 72 percent more in Pisco and Muy Finca than in areas without technical help⁶³. The experimental result showed that deploying such technologies can substitute the need for agriculture expertise and can increase farming productivity on a large scale. Thus, AI technology can be a possible solution for Afghanistan's agricultural condition.

CONCLUSION

Afghanistan needs more resources to process the nation's reconstruction. Previous foreign assistance and government regulations showed that it is hard for the Afghanistan government to use traditional ways and

methods to recover from the earlier conflicts. The US has made various attempts to reconstruct Afghanistan since 2001. According to the report by Watson Institute for International and Public Affairs at Brown University, the US spent in Afghanistan from 2001 to 2022 reached more than 2.313 trillion US dollars⁶⁴, and such cost includes both military and humanitarian aid. However, with the Taliban retaking control of Afghanistan and the US military retreating from the nation in 2021, the country fell into chaos and disorder again, so efforts of the US in Afghanistan did not reach a highly demandable result. Therefore, new methods must be considered because the current way of assistance and aid cannot ultimately bring Afghanistan out of disorder. The development of technologies provides frameworks for the new plan.

The rise of newly developed AI technologies showed that the government could use AI algorithms to assist with legal and economic problems, thus making the country resolve the issues. This article investigated several fields of Artificial Intelligence that can be addressed in Afghanistan, including government administration, income, local industry, and agriculture. The analysis of these fields showed that the development of Artificial Intelligence could assist the Afghanistan government in addressing the social and economic problems of the nation.

However, since some of the conclusions of AI technologies mentioned in the article are still based on experimental results, more real-life use of some AI technologies is needed. Therefore, future experiments and investigations of the AI technologies, such as the ones used in government administration and agriculture, can justify and explain more about the deployment of AI technologies in these realms in Afghanistan. In addition, another derived problem is whether or not Afghanistan will accept the fact of being governed and guided by non-human beings. Will A.I. become trustworthy in the mind of Afghanistan people so that they will be persuaded and more willing to accept the large-scale deployment of AI in the nation? A future study of Artificial Intelligence's ethics will help analyze this issue.

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⁵⁶ IEDC AgTech Plus Contributor, *IEDC AgTech Plus BrandVoice: AI's "Noble" Role In Agriculture: Powering Transparency In Our Food Supply Chain*, FORBES, <https://www.forbes.com/sites/iedcagtechplus/2021/04/27/ais-noble-role-in-agriculture-powering-transparency-in-our-food-supply-chain/> (last visited December 26th, 2021).

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ Opportunities of Artificial Intelligence and Machine Learning in the Food Industry, <https://www.hindawi.com/journals/jfq/2021/4535567/> (last visited December 26th, 2021).

⁶⁰ FAO - story: SMART AGRO 4.0, <https://www.fao.org/partnerships/private-sector/stories/story/en/c/1236975/> (last visited August 13th, 2022).

⁶¹ *Id.*

⁶² *Id.*

⁶³ *Id.*

⁶⁴ Human and Budgetary Costs to Date of the US War in Afghanistan, 2001-2022 | Figures | Costs of War, THE COSTS OF WAR, <https://watson.brown.edu/costsofwar/figures/2021/human-and-budgetary-costs-date-us-war-afghanistan-2001-2022> (last visited August 20th, 2022).