DIMENSIONS OF SUSTAINABLE DEVELOPMENT IN RATIONALIZING DECISIONS TO GRANT GREEN FINANCE IN SAUDI BANKS

ABSTRACT

Green financing represents a great untapped opportunity, especially in Saudi Arabia and the other Gulf Cooperation Council countries, which are characterized by their developed capital markets, attracting investors from all over the world to pump their capital into projects that have an environmental and social impact, in addition to activating strong governance processes.

The study aimed to examine the impact of the dimensions of sustainable development: environmental, social, and economic on green finance in Saudi national banks and fill the gap in sustainability and green finance research in Arabian countries, specifically in the Kingdom of Saudi Arabia. The study population covered the national banks in Riyadh city. The data was collected through a questionnaire and the sample size was 125 participants. The study applied linear regression models and the result revealed that the environmental dimension of sustainable development, the social dimension of sustainable development, and the economic dimension have a positive impact on green finance in Saudi banks.

Keywords: social sustainability, economic sustainability, environmental sustainability, green finance, Saudi banks

JEL Classification: Q01, F65, G21

INTRODUCTION

Throughout the 1980s, many began to question conventional assumptions about economics, society, and the environment because of the impact of international development policies. The traditional development strategy, led by organizations such as the World Bank and the International Monetary Fund, aimed to alleviate poverty through economic growth by financing improvements such as roads, power plants, and hydroelectric dams in developing nations. However, this approach led to negative social and environmental outcomes, including the Third World debt crisis and environmental degradation caused by large-scale construction projects. As a result, future economic development needs to reflect social and environmental attention (Noordin, 2022).

Accordingly, the United Nations Commission on Sustainable Development was recognized in 1992 after the United Nations Conference on Environment and Development. The Commission focused on developing and testing a set of fifty-eight indicators covering social, environmental, economic, and institutional characteristics of sustainable development, whittled down from an initial list of 134 indicators (Parris, 2003).

In 2000, United Nations (UN) members committed through the Millennium Declaration to reduce global poverty and save lives, setting goals such as reducing extreme poverty and hunger, growing access to education, encouraging gender equality, raising health outcomes, and promoting environmental sustainability and global development partnerships. This led to the creation of the United Nations Goals, running from 2016 to 2030, with the main objective of ending poverty in all forms and promoting sustainable economic growth (Nechita, 2019).
Sustainability has become a mainstream business practice, with companies striving to use existing resources efficiently while promoting social justice. Companies can achieve sustainable development through business practices that align with sustainability goals (Setyahadi, 2020).

In Japan, green finance began in 2013 through the Green Finance Organization, which supports local community development, financing clean energy projects, and enhancing the commercial situation for clean energy schemes of various sizes (Blum, 2019). Japan also has established several international programs, such as the Clean Technology Fund, the Global Environment Facility, and the Clean Development Mechanism done by the Kyoto Protocol, to support clean infrastructure investments (Blum, 2019).

In Saudi Arabia, the government has introduced major economic developments, including reforms in the financial sector, as part of the 2030 Saudi Vision to decrease the country's reliance on oil income and transform the economy. The Financial Sector Development Vision Realization Program aims to advance a diverse and efficient financial sector, stimulate investment and savings, and support the growth of the private sector, all while integrating the economy into the global economy (Alharbi, 2021).

The study aims to explore the impact of the dimensions of sustainable development on green finance in Saudi national banks and fill the gap in sustainability and green finance research in Arabian countries, specifically in the Kingdom of Saudi Arabia. The main research question is: "Is there an effect of the dimensions of sustainable development on green finance for Saudi national banks?" This question is further divided into three sub-questions: "Is there an effect of the environmental dimension on green finance in Saudi banks?" "Is there an effect of the social dimension on the green fund in Saudi banks?" and "Is there an effect of the economic dimension on the green finance in Saudi banks?"

LITERATURE REVIEW

Sustainability Development

The definition of sustainability is "the process of conveying the environmental impact of an organization's economic actions to different stakeholders in society and to society as a whole" (Gerged, 2021).

This concept encompasses the idea of various parties being affected by a company's actions and the need to balance these impacts with the organization's goals. Sustainability requires that "actions are ecologically complete, socially just, economically feasible, and humane, and that they will resume being so for expectations peers" (Clugston, 2000).

The World Commission on Environment and Development believes that sustainable development includes meeting current requirements minus negotiating the aptitude of future peers to meet their private requests, and it should be considered by equality among generations, a new natural and human strategy, and respect for the earth's natural resources limit (IGNAT).

Since the release of the Brundtland report, sustainable development has become a key objective of policymakers and scholars. Many descriptions of sustainability are established on the "triple bottom line" framework, which encompasses environmental concern, societal concern, and economic contribution (Krajnc, 2005).

The progress of sustainability is monitored through various indicators and frameworks, which are structured based on analytical and theme-based approaches. According to the Brundtland report, sustainable development involves three key components: economic growth, environmental protection, and social equity (Bebbington, 2007).

The three areas of sustainability, social, environmental, and economic, are intimately interrelated and must be directed together. The sustainable development agenda raises questions about the social and environmental influence of economic activities and considers the ecological sustainability of an organization's actions, as well as their impact on global environmental stability, resource availability and use, and population carrying capacities (Bebbington, 2005).

Stakeholder theory posits that a company is accountable to a group of people who are impacted by and impact the company's actions. Sustainability reporting is a way for companies to fulfil their obligations to stakeholders by providing information beyond mandatory disclosures. It helps to reduce information asymmetry between companies and investors, reduces conflicts with shareholders, and promotes good corporate governance (Husnaint, 2020).
ASPECTS OF SUSTAINABILITY DEVELOPMENT

Environmental Aspect

The concept of natural capital became widely known in 1990. It refers to all natural resources that can be altered or improved upon by humans but cannot be created by human beings. These assets are typically classified into two categories: non-renewable resources, like minerals, and renewable resources, like food crops and water sources. Natural capital also encompasses the ability of natural systems to absorb pollutants and emissions produced by human activities (Jabareen, 2008).

Social Aspect

The concept of social disclosure is a crucial aspect of communicating a company’s social impact to society. It helps increase transparency and serves as a means for the company to share its efforts towards being socially responsible. Companies, whether local or global, often fulfill the expectations of their stakeholders by including information about their social activities in their annual reports (Zhang, 2021).

Social responsibility refers to the company’s relationship with society. On the other hand, social sustainability encompasses a comprehensive ethical approach to human growth and survival, which must be carried out in a mutually beneficial and responsible manner. Many experts agree that social sustainability encompasses elements such as diversity, philanthropy, health and safety, equity, poverty, and human rights. To achieve social sustainability, it’s necessary to promote equal distribution of resources, provide necessary social services, including health and education, achieve gender equity, and promote political accountability and participation (Duong, 2021).

Economic Aspect

The objective of economic development policies is to raise the standard of living globally by providing an increasing amount of goods and services to a growing population. The International Monetary Fund, World Bank, and United Nations were established as international institutional structures after World War II, with an initial focus on boosting agricultural and industrial productivity. In the late 1970s, the emphasis shifted towards meeting basic needs in areas such as education, nutrition, health, sanitation, and employment for the marginalized population. The United Nations Development Program presented the Human Development Index, which uses a combination of health and education statistics, along with Gross Domestic Product (GDP), to evaluate the overall success of development.

However, during the 1980s, the focus changed to structural adjustment, which involved liberalizing trade, reducing government deficits, fixing overvalued exchange rates, and downsizing inefficient parastatal organizations. These reforms aimed to correct the mistakes of earlier development policies, which resulted in bureaucratic bloat, unbalanced budgets, and high debt. Despite its initial goals, critics argue that structural adjustment policies often resulted in increased inequality and hardship for the poor, even though economic efficiency improved.

An economically sustainable system provides goods and services continuously, maintains manageable levels of government, and avoids imbalances that negatively impact agriculture or industrial production. The economic dimension of sustainability pertains to the impact of the organization on the economic conditions of its stakeholders and the economic systems at local, national, and global levels.

This dimension is considered one of the primary aspects of equally traditional and sustainable development, focusing on the sustainability of economic construction through effective principal management and resource utilization, meeting individual needs and requirements, and enhancing the standard of life by increasing earnings (Muschett, 2017; Tawfik, 2021).

Green Finance

Organization for Economic Cooperation and Development (OECD) reported that an estimated USD 103 trillion investment will be needed between 2016 and 2030 to support worldwide growth in an environmentally sustainable approach. Meanwhile, the International Energy Agency predicts a requirement of around USD 49 trillion for infrastructural needs, without primary energy and energy efficiency, over the same time. The Intergovernmental Panel on Climate Change (IPCC) report also highlights that sustainable finance is becoming more widespread. Many countries have established environmental funds to channel capital towards preventing pollution and investing in alternative energy, water treatment, waste management, energy efficiency, carbon reduction, and forestry. In developed countries, subsidies and grants are the most common form of green financing, while preferential loans are favoured by less developed nations for environmental protection.
Green finance is a novel financial tool presented by governments and financial associations aimed at addressing environmental issues. It includes financial products such as green insurance, green credit, green resources, and other green-focused financial services, all of which must adhere to environmental, social, and governance (ESG) standards. This type of finance should be integrated into government policies, financial societies, and businesses to promote sustainable development and improve financial services, as well as develop green investment opportunities and financial strategies. Increased public awareness of environmental protection and improved environmental rules are driving growth in the sector.

Despite the optimistic effect of green projects on the economy and society, the financial sector does not always reap the benefits, resulting in a funding disruption for local green initiatives. To address this and achieve sustainable development goals, new financial instruments and policies are necessary, for instance, green relationships, green funds, and green banks.

The European Investment Bank was the first to issue a global Climate Awareness Bond in 2007, which was used to finance renewable energy and energy efficiency projects. This marked the beginning of the development of the international green bonds market. The first Asian green bond was issued by the Export-Import Bank of Korea in 2013 and raised USD 500 million. Indonesia and India followed suit, with their first green bonds being expressed in 2014 and 2015, respectively. The International Finance Corporation has supported several green bond issuances in Asia, including those by the Development Bank of Japan, the Asian Development Bank, and the Export-Import Bank of India.

Green bonds are a type of fixed-income security in which the proceeds can only be used for environmentally friendly projects, making them distinct from conventional corporate bonds where the investor has no say or knowledge of how the funds will be utilized.

Green finance, provided by governments and financial institutions, is an innovative solution to address environmental problems. It encompasses a range of financial products and services, such as green insurance, green credit, green capital, and others, which aim to enhance the ecological environment, lower pollution, and save energy. These financial tools are required to comply with environmental, social, and governance (ESG) standards, and to be integrated into sustainable development policies of governments, financial institutions, and businesses.

There is a gap in funding for local green development, as the profits of the financial industry do not always increase with the positive externalities brought by green projects. To close this gap, new financial instruments and policies are needed, for example, green bonds, green funds, and green banks.

Green bonds, unlike traditional corporate bonds, are fixed-income securities that only fund green projects, and the investor has control over the type of project the proceeds will be used for. The green bonds market has experienced rapid growth, starting with the European Investment Bank (EIB) issuing the first global Climate Awareness Bond in June 2007. In Asia, the first green bond was issued in 2013 by the Export-Import Bank of Korea, and since then, several countries have followed suit, with the IFC supporting numerous green bond issuances. The Asian Development Bank has issued over USD 2.7 billion in green bonds since 2010.

To meet global development needs sustainably, the OECD estimates that approximately USD 103 trillion in investments will be required between 2016 and 2030. Similarly, the estimates of infrastructure needs, including primary energy and energy efficiency, range from USD 75 to 86 trillion over the same period. In economically developed countries, subsidies and grants are the main instruments for green financing, while in developing countries, preferential loans are favoured. Environmental funds, which invest in clean energy, waste management, carbon emissions, and other eco-friendly companies, are also used as a means of channelling capital towards environmental protection (Gianfrate, 2019; Le, 2021; Bai, 2020; Volz, 2018; Wang, 2016; (Prakash, 2021).

**Hypotheses Development**

Ahmed (Ahmed, 2010) stated that the economic pillar of sustainable development is the one that is least developed in terms of people's general comprehension of the idea and effective educational techniques. Additionally, transforming economic systems to support sustainability necessitates education that can help people live lifestyles founded on financial and social justice, food security, ecological integrity, sustainable livelihoods, respect for all life forms, and steadfast values that promote social cohesion, democracy, and collective action. Dutordoir (Dutordoir, 2018) studied corporate social responsibility and seasoned equity offerings. He concluded that disclosure of the social dimension is one of the pillars of sustainable development that leads to increasing the competitiveness and good reputation of the facility, increasing investor confidence in the disclosures issued by these facilities, in addition to reducing corporate risk. Naughton (Naughton, 2019) Revealed that the social dimension of sustainable development leads to achieving positive extraordinary returns through investors and a valuation premium on social responsibility performance. Therefore, there is a positive, significant
relationship between disclosure of corporate social activities and investor tendencies, because companies with better performance in social responsibility activities are viewed by investors as adequately disclosing information in financial reports.

In the same line (Alotaibi, 2020) conducted a study on the environmental sustainability disclosure by companies listed on the Saudi stock market. The study analyzed the annual reports of non-financial companies between 2015 and 2017 using a content analysis approach. The results indicated that factors such as the industry, company profits, size, and age had a significant impact on the disclosure of environmental sustainability. However, elements of corporate governance, except for board independence, were found to be inconsequential.

Prakash (Prakash, 2021) found that the development of the corporate fixed-income securities market and the establishment of guidelines aligned with India’s climate action plans were crucial for green bonds to be a viable financing option (Tawfik, 2021). Showed a little positive correlation between sustainability and the banks’ financial accomplishment, and the major role of the investigation was the examination of sustainability reports using the Global Reporting Initiative (GRI-G4) framework (Zhang, 2021). Revealed that green finance could advance sustainable energy development through the promotion of social capital investment in green industries, curbing polluting investments, and improving the efficiency of financial services. Inclusive financial development was also found to benefit all regions of China and reduce waste in financial development.

Afzal (Afzal, 2022) revealed that institutions play a critical role in controlling environmental damage, and financial development, as measured through the private sector, bank credit, and foreign direct investment, has a significant effect on environmental degradation. Zhao (Zhao, 2022) found that green finance can only eradicate energy poverty in low-poverty regions and the eastern areas. However, improved green finance can alleviate energy poverty in both high and low green finance areas, and it not only immediately eliminates China’s energy poverty but also accelerates technical invention and optimizes the industrial structure. Tang (Tang, 2022) indicated that green finance had a positive impact on the ecological and environmental quality of the region, optimizing the allocation of financial resources and guiding investment towards more environmentally friendly enterprises. Green finance was also found to reduce pollutant emissions and improve the superiority of the ecological environment.

Therefore, the following hypotheses are stated:

1. H1. There is a significant association between the environmental dimension of sustainable development and green finance in Saudi banks.
2. H2. There is a significant association between the social dimension of sustainable development and green finance in Saudi banks.
3. H3. There is a significant association between the economic dimension of sustainable development and green finance in Saudi banks.
4. H4. There is a significant association among the environmental, social, and economic dimensions of sustainable development and green finance in Saudi banks.

AIMS AND OBJECTIVES

The article aims to determine the role of the environmental, social and economic dimensions of sustainable development on green financing in Saudi banks. In the context of the above, we have identified several issues related to sustainable development information and green finance for banking institutions:

1. Lack of systematic support for the application of sustainable development information in decisions to grant green financing.
2. The need for clear organizational and methodological support for implementing green finance.
3. A lack of studies that addressed this topic in the Saudi business environment.
4. This paper presents a survey of the opinions of accountants and managers regarding the role of sustainable development and green finance, which has begun to be of interest, and is clearly lacking in the literature. In addition, as a crucial element in strengthening the Saudi banking sector, it helps in developing a competitive industry, thus improving the national economy.
METHODS

Source of data
Data were obtained by distributing an electronic questionnaire, prepared for this purpose, and distributed to specialists. The data was transcribed, and the results were analyzed using the statistical program SPSS.

Study population and sample size
The research population included a group of national Saudi banks. The sample was selected from employees working in banking departments in the city of Riyadh, and the number of respondents was 125.

Statistical procedures
The study applied the simple model to the data of the study. Also, multiple regression is applied to explain the association between the response variable and predictor variables.

The linear regression model:
The linear equation in simple linear regression is (Wooldridge, 2012):

\[ Y = B_0 + B_1X_1 + E \]

Where 
- \( B_0 \) = Constant or Intercept value;
- \( B_1 \) = slope of the regression y on the independent variable;
- \( E \) = random variable;
- \( X_1 \) = slope of the regression or regression coefficient.

The X variable is sometimes called the independent variable and the Y variable is called the dependent variable. Simple linear regression plots one independent variable \( X \) against one dependent variable \( Y \). Technically, in regression analysis, the independent variable is usually called the predictor variable, and the dependent variable is called the criterion variable. However, many people just call them the independent and dependent variables. More advanced regression techniques (like multiple regression) use multiple independent variables. The multiple regression is explained below.

The linear equation in multiple linear regression is:

\[ Y = B_0 + B_1X_1 + B_2X_2 + \ldots + B_jX_j + E \]

Where
- \( Y \) = dependent variable;
- \( B_0 \) = Constant or Intercept value;
- \( B_1 \) = slope of the regression y on the first independent variable;
- \( B_2 \) = slope of the regression y on the second independent variable;
- \( X_j \) = independent variables;
- \( E \) = random variable;
- \( R^2 \) = is the ratio of the explained variation compared to the total variation; thus, it is interpreted as the fraction of the sample variation in \( y \) that is explained by \( X \); \( t \)-value = \( t \) calculated to test the significance of the parameter; \( t \)-value = the value corresponding to \( t \) calculated; \( f \)-value = \( f \) calculated to test the significance of the overall model.

RESULTS AND DISCUSSION

The study applied regression models to the collected data. First, simple linear regression was applied to test the hypothesis.

Testing the first hypothesis \( H_1 \). A significant association was found between the environmental dimension of sustainable development and green finance in Saudi banks.

To test the effect of the environmental dimension of sustainable development on green finance in Saudi banks, a simple model was applied to the data of the study. The model result showed that the environmental dimension of sustainable development (0.604) positively impacts green finance in Saudi banks. This relationship is confirmed by the determination coefficient (0.364) which indicates that 36.4% of the change in green finance in Saudi banks due to changes in the environmental dimension of sustainable development. A \( t \)-test value with a \( p \)-value of (0.0002) explains that the environmental dimension of sustainable development has a significant influence on green finance in Saudi banks. The overall model statistical significance according to the \( f \)-test with a \( p \)-value (0.001).
Table 1. Simple model for the environmental dimension.

<table>
<thead>
<tr>
<th>Variable</th>
<th>B₀</th>
<th>B₁</th>
<th>R²</th>
<th>t-value</th>
<th>sig</th>
<th>f-value</th>
<th>sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1</td>
<td>9.94</td>
<td>0.604</td>
<td>0.364</td>
<td>8.293</td>
<td>0.002</td>
<td>68.78</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Testing the second hypothesis H₂. There is a significant relationship between the social dimension of sustainable development and green finance in Saudi banks.

To test the effect of the social dimension of sustainable development on green finance in Saudi banks, a simple model was applied to the data of the study. The model result revealed that the social dimension of sustainable development (0.703) positively affects green finance in Saudi banks. The determination coefficient (0.494) indicates that 49.4% of the change in green finance in Saudi banks is due to changes in the social dimension of sustainable development. The value of t-test value with a p-value of (0.0001) revealed that the social dimension of sustainable development has a significant impact on green finance in Saudi banks. According to the f-test with a p-value (0.001), the model had a statistical significance.

Table 2. Simple model for the social dimension.

<table>
<thead>
<tr>
<th>Variable</th>
<th>B₀</th>
<th>B₁</th>
<th>R²</th>
<th>t-value</th>
<th>sig</th>
<th>f-value</th>
<th>sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>X2</td>
<td>12.38</td>
<td>0.703</td>
<td>0.494</td>
<td>6.286</td>
<td>0.001</td>
<td>117.236</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

Testing the third hypothesis H₃. There is a significant association between the economic dimension of sustainable development and green finance in Saudi banks.

The result in Table 3 showed that the economic dimension (0.698) influences green finance in Saudi banks positively. The result showed that 48.7% of the change in green finance in Saudi banks is due to changes in the economic dimension of sustainable development. The result of the t-test assures the significant effect of economic dimension, while the f-test with p-value (0.00001).

Table 3. A simple model for the economic dimension.

<table>
<thead>
<tr>
<th>Variable</th>
<th>B₀</th>
<th>B₁</th>
<th>R²</th>
<th>t-value</th>
<th>sig</th>
<th>f-value</th>
<th>sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>X3</td>
<td>8.376</td>
<td>0.698</td>
<td>0.487</td>
<td>3.587</td>
<td>0.0001</td>
<td>116.869</td>
<td>0.00004</td>
</tr>
</tbody>
</table>

Testing the fourth hypothesis H₄. There is a significant relationship between the environmental, social, and economic dimensions of sustainable development and green finance in Saudi banks.

The result of the multiple regression model of the study found a direct association between the environmental, social, and economic dimensions of sustainable development and green finance in Saudi banks. The model is statistically significant at the level of significance (5%). The clarifying strength of the model showed that 55.9% of the change in green finance in Saudi banks was produced by the change in the independent variables.

Table 4. Multiple regression for the three variables.

<table>
<thead>
<tr>
<th>Variables</th>
<th>B₀</th>
<th>B₁</th>
<th>B₂</th>
<th>B₃</th>
<th>R²</th>
<th>f-value</th>
<th>sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1, X2, X3</td>
<td>6.412</td>
<td>0.132</td>
<td>0.383</td>
<td>0.475</td>
<td>0.559</td>
<td>49.012</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

The green economy achieves well-being for the current generations and preserves the rights of future generations because it preserves natural resources and progresses the worth of life in the long term. The green economy is a means of achieving sustainable development and addresses the three dimensions of the green economy—environmental, economic, and social.

The finding of the simple regression revealed the environmental dimension of sustainable development on green finance in Saudi banks. This result agrees with the result obtained by Alotaibi (2020), Tawfik et al. (2021), Zhang and Wang (2021), Afzal et al. (2022), and Tang et al. (2022). This indicates that the environmental dimension, as one of the dimensions of sustainable development, helps in rationalizing product design decisions that are compatible with environmental protection laws, monitoring, and controlling sources of pollution.

The result of the model disclosed that the social dimension of sustainable development has a positive impact on green finance in Saudi banks. The result showed the social dimension of sustainable development has a significant impact on
green finance in Saudi banks, and the model had statistical significance. This result agrees with the result obtained by Dutordoir et al. (2018), and Naughton (2019). This indicates the interest in social disclosure as one of the dimensions of sustainable development, which encompasses elements such as diversity, philanthropy, health and safety, equity, poverty, human rights, providing necessary social services, including health and education, achieving gender equity, and promote political accountability and participation.

The result of the study showed that the economic dimension influences green finance in Saudi banks positively. This result agrees with the result of Ahmed (2010).

The result of the multiple regression model of the study revealed a direct relationship between the environmental, social, and economic dimensions of sustainable development and green finance in Saudi banks. This result indicated that the explanatory variables of the study affected the dependent variable positively.

An economically sustainable system provides goods and services for all segments of society, especially the poor. Continuously, economic efficiency improvement that supports agriculture or industrial production. Also, sustainability of economic construction through effective capital management and resource utilization, meeting individual needs and requirements and improving the standard of living by maximizing returns.

CONCLUSIONS

This research aimed to study the impact of the dimensions of sustainable development (environmental, social, and economic) on green financing in national banks in the Kingdom of Saudi Arabia. The study relied on the deductive approach after reviewing literature and previous studies. The results of the study showed that the environmental dimension of sustainable development affected green financing in Saudi banks, the social dimension of sustainable development has a positive effect on green financing in Saudi banks, and the economic dimension affects green financing in Saudi banks positively. The broad shift towards a green economy requires a continued focus on supporting and continuing the growth of the green finance market globally and continuing to develop these key financial instruments as promising alternatives to traditional sources of financing. The most important recommendation is the need to strengthen the legal and contractual aspects of green financing by regulatory authorities and increase awareness among lenders to provide financing tools that are adaptable to the requirements of environmentally friendly businesses. In addition, to increase awareness among lenders to provide financing tools that are adaptable to the requirements of environmentally friendly businesses.

ADDITIONAL INFORMATION

AUTHOR CONTRIBUTIONS

Conceptualization: Fateh Belouadah
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Writing – original draft: Fateh Belouadah

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