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Sustainable agribusiness challenges: resolving the issues through conservation and Islamic farming

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Abstract: *Environmental pollution, land degradation, biodiversity constraints, extensive chemical fertilizer application, use of pesticides, insecticides and herbicides, production and consumption of alcohol and tobacco products, food waste due to poor food intake, chimerical contaminated food, lack of community development and policy formation issues pose direct and indirect challenges to agribusiness sustainability. Conventional farming hardly belongs to the solutions to the challenges, but conservative farming limitedly does. Islamic farming, on the other hand, outlines sustainable ways to resolve the challenges. Thus, conservation and Islamic farming jointly are able to resolve the sustainable agribusiness challenges. The present study, following a qualitative method, shows the ways how conservation and Islamic farming can take part in coping with the problems of attaining sustainability goal. Empirical studies have been cited on Islamic farming followed by Nigeria, Bangladesh and Saudi Arabia as pieces of evidences. Selected verses from the holy Quran have been applied in greening agriculture so that conservation and Islamic farming sectors are benefitted. Furthermore, the study depicts that environmentally friendly and quality agro products can be offered to the present and future generation through Islamic and conservation farming. Yet, motivation and obligation of ensuring human welfare are the prime concerns to agribusiness sustainability attainment.*

Keywords: *Islamic farming; conservation agriculture; sustainable agriculture; sustainability challenges*

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1. Introduction

Present agribusiness encounters challenges due to eroding environment (Horrigon et al., 2002), Some agribusinesses are still being promoted with unacceptably high environmental, economic and social costs, in exchange for gaining output (Shaxson, 2006) consuming fossil fuel, water and topsoil at unsustainable rates leading air and water pollution, soil depletion, diminishing biodiversity, and fish die-offs (Horrigan et al., 2002). Consequently, such reckless farming practice results in insufficiency to deliver sustainable production intensification to meet future needs (Shaxson, 2006). Meeting the human needs of the present with considering the needs of future generation holds the prime concern of sustainability (Brundtland Commission, 1987) integrating economic, environmental and social issues in business in balanced, holistic, and long-term way benefiting current and future generations (Elkington, 1994), As such, sustainable agriculture belongs to the component of a greater movement toward sustainable development, accepting scarcity of natural resources, acknowledging constraints on economic growth, and motivating equity (Horrigan et al., 2002). In agribusiness, the implication of the philosophy of satisfying present stakeholders' need with preserving the ability to serve upcoming people possesses immense importance, since without food the human being cannot survive in the universe. Yet, multiple challenges are coupled with the sustainable agribusiness consisting of environmental pollution, land degradation, biodiversity constraints, extensive chemical fertilizer application, use of pesticides, insecticides and herbicides, production and consumption of alcohol and tobacco products, food waste due to poor food intake, chimerical contaminated food, lack of community development and policy formation issues pose direct and indirect challenges to agribusiness sustainability.

In Islamic farming, for shaping sustainability bases, Islamic scholars have focused the rationality of creation and unity in the universe (Aminzadeh, 2013; Bateni, 2013), principles of qualitative and quantitative balance in the environment (Bazzi, 2013; Mozafari, 2013) and self responsibility of human beings (Arbabi and Noormohamadi, 2014; Karizi, 2013). With the motto of solving the challenges of agribusiness, Islamic farming is under the practice in South Africa while Saudi Arabia is an advanced position (Shittu, 2012). Farming on the Quranic research also has been initiated in small scale in Bangladesh (Islam, M.M, 2017a; Islam and Hossain, 2017). As such, farming as per the teaching of the Holy Quran and authentic sayings of the Muslim's Prophet Mohammad (May Allah bless him) is Islamic farming. In another word, Islamic farming means a faith-based farming incorporating the needs of the present with considering the requirements of future nations for their future consumption.

1.1 Statement of the problem

Present industrial agriculture is considered unsustainable because of its eroding natural resources faster than the environment can repair with high dependence on nonrenewable resources (Horrigan et al., 2002). Toxic agricultural chemicals like herbicides, pesticides, and insecticides stop trees to bear fruit in many places killing the pollinators, including the bees, flies and butterflies, organisms and humans (Bora et al., 2007a). The results of extensive chemicals have contaminated food risking the common people health (Bora et al., 2007b). One-third of the produced food gets lost or wasted globally per year reaching from initial agricultural production down to final household consumption. Part of this food loss takes place because of having poor food taking habits of the developed nation while under developing nations lose food for poor crop management (FAO, 2011). A rapid rise in food prices was associated with social unrest throughout the world (Bellemare, 2015; Berazneva and Lee, 2013).

Use and abuse of food can be treated as one of the challenges. According to WHO (2014), in 2012, about 3.3 million deaths were caused by alcohol consumption and this consumption is likely to rise by 2025. Rich countries consume alcohol higher than the poor ones. Consumption of harmful products to health is another challenge of agribusiness sustainability. WHO (2017) identifies the tobacco epidemic is one of the biggest public health hazards the world has ever encountered, liable for taking more than 7 million lives in a year while about 8,90, 000 are the result of non-smokers being exposed to the passive smoking.

Moreover, around 80% of the more than 1 billion smokers in the globe live in low- and middle-income countries facing the burden of tobacco-related illness and death. Even, on sustainability and its theoretical formation, arguments persist resulting in more than 70 definitions encountering questions on its correctness because of the intuitions, values, priorities, and goals of the authors (Pretty, 1995b). Formulation of agricultural policy that how sustainability goal should be achieved includes another problem of agricultural sustainability (Pretty, 1994, 1995a). Consequently, achievement of sustainability goal in agribusiness poses challenges since the ground is not made ready.

1.2 Aim, objectives and research question

The present study aims to show some challenges currently agribusinesses are facing. Also, the present work motivates to articulate few prescriptions to resolve the issues through Islamic farming which is followed the holy Quran along with the conservation farming being practiced in different parts in the world. Specifically, this paper intends to focus two objectives as:

- Toshow the participation of Islamic farming to face sustainable agribusiness challenges
- To portrait the contribution of conservation farming in achieving sustainability in agribusiness.

Keeping in mind the problems with its aim and objectives, the study precisely can refine a single question in consideration as:

- How can Islamic and conservation farming face sustainability challenges?

II. Materials and Method

The current work is guided by a qualitative method that needs not priori hypothesis, and finding data for a proof (Bogdan and Biklen, 2003). The focus of qualitative research is the empirical world aiming to seek depth of the problem (Ambert et al., 1995). The insight of the researcher to the problem receives major focus in qualitative research (Zikmund, Babin, Carr, and Griffin, 2013), where concepts are very much important (Bryman, 2008; Robson, 2011). Furthermore, some empirical evidence on conservative agriculture and Islamic farming have been adopted. Efforts have been made in defining sustainability from the Qur'anic view (Aminzadeh, 2013; Karizi, 2013; Mozafari, 2013; Arbabi and Noormohamadi, 2014). In clarifying the Qur'anic verses, firstly the chapter and the respective verses then have been mentioned like 2: 29, using indirect speech. Moreover, English translation of the Nobel Qur'an from Islamic University, Al-Madinah Al-Munawwarah, Saudi Arabia was in use.

III. Results

3.1 Participation of Islamic farming to face sustainable agribusiness challenges

3.1.1. Eradication of natural resources and environmental pollution

Islamic farming is guided by the Holy Quran that says the world has been created for the human (2:29; 55:10). Making efforts in changing the direction of the world, however, is banned (30:30). Allah has created the world for human (2:29) with the best plan (3:54). As a balance has been maintained in the universe (55:7), people have been instructed not to standing rival to change the course of the world (2:29).

When people engage themselves in changing the direction of nature, disaster comes in the world (30:41). Negative environmental consequences, the effect of global warming and other adverse ecological circumstances result from the human bad deeds (30:41; 4:69).

3.1.2 Harmful effects of chemical fertilizer and pesticides on the living creators
Present agribusiness heavily relies on synthetic fertilizer, insecticides, and herbicides that are ultimately causing the death of living creations in the world. In a sense, some agribusiness concerns are liable for this destruction, which is a great threat to sustainability. The Holy Quran prohibits such treatments saying not to through ourselves towards destruction (2:195), since the worldly havoc is created by our own bad deeds (4:70). Moreover, Allah has ordered to show justified behavior to His creation (16:90), being kind to them (28:77).

3.1.3 Contaminated and harmful food and drinks
Chemical contaminated, color and other additive mixed food items along with alcohol and tobacco products produced by some agro-business concerns become the threat to human health. The Holy Quran restricts to commit such unjustified act (2:279), encouraging business (2:275). It prohibits accepting assets of others unjustly (4:29). Also, good lawful food has been encouraged to avail (2: 168, 172; 18:19) while alcohol and other tobacco products are completely prohibited (5:90). Assisting business activities relating to harmful goods are sinful acts (5:2). Such prohibition of the Qur'anic teaching can offer a sustainable agribusiness system.

3.1.4 Food waste and food loss
The Nobel Quran urges strictly not to waste food anyway (7:31), not to misuse or abuse food (17:26). Moreover, food misuse or abuse is compared with the act of devil (17:27). It is also noted that keeping seed in ears (12:47), food waste can be minimized and transplantation of single seedling method (2:261) can check abuse in food production.

3.1.5 Higher food price
Food price has been increased by many folds. Input price hike, higher interest rate and deceptive practices by the agro-business men are some of the causes of price increase of the agro- based products. Higher price limits the purchasing power of the present buyers, and will restrict the potential buyers' buying capability which is one of the challenges to sustainability.
The holy Quran strongly prohibits charging interest or usury (2:275; 3:130) telling not to take money unjustly (4:29). Moreover, the beneficial inputs of agriculture in the world are for human development (2:29). Use of natural inputs can be used in place of purchased agricultural inputs to lower down the price of agro-products.

3.1.6 Policy issue and community involvement
As acceptance of sustainability notion is voluntary having no obligation, respective stakeholders seem to be reluctant towards sustainable agriculture. Farmers in Islamic farming, whereas, will have to accept the Holy Qur'an as a guideline (2:2) for agricultural policy development. Holding the guidance of Allah together avoiding division is a must (3:103). Since Allah is the best planner (3:54), according to the plan, seed can easily be kept in ears (12:47) by the farmers. If all the farmers take the responsibility of storing their own seed, the world is likely to get a sustainable agribusiness system.

3.2 Contribution of conservation farming in achieving sustainability in agribusiness
Conservation agriculture keeps soil moisture in proper condition (Thierfelder and Wall, 2010a), combining living and non-living fractions together forming a key part of the dynamics of self-sustainability (Doran and Zeiss, 2000; Lavelle and Spain, 2001; Coleman et al., 2004). This farming requires less fertilizer to feed the crops (Kassam et al., 2009) ensuring water productivity (Thierfelder and Wall, 2009; Thierfelder and Wall, 2010b). Conservative farming ensures savings in machinery and energy use, and in carbon emissions, an increase in soil organic matter content and biotic activity, less erosion, increased crop-water availability and thus resilience to drought, improved recharge of aquifers. It also reduces the impact of the apparently increased volatility in weather associated with climate change cutting production costs, leading to more reliable harvests and risks reduction (FAO, 2008). Therefore, agribusiness firms following conservative agricultural policy apply the notion of sustainability of making nature happy putting no negative trace in the environment meeting the needs of the present needs of the nations with compromising the needs of the future generations.

IV. Analysis and Discussion

4.1 Role of Islamic farming and conservation agriculture and sustainability
Islamic farming and conservative agriculture can jointly solve the sustainability challenges of agribusiness consisting of environmental pollution, land degradation, top soil loss, poor quality food, and consumption of detrimental food, food waste and loss, the reluctance of community in sustainability involvement and greater development of the human, nature along with intrinsic motivation of policy adaptability. Islamic farming follows the Quranic teaching consisting of moral obligation, which is absent in conservative farming.

4.1.1 Working hard and application of the Qur'anic verses

Islamic farming is faith base guided by the Noble Qur'an. Nevertheless, without hard work but belief is vain. Allah tells us to disperse through the land after prayer and seek His bounty by working and remember Him much for success (62:10). Allah will not change the condition of the people unless they do not try to do so (13:11). Moreover, the holy Qur'an puts pressure on the worldly habitants in achieving success in the world and hereafter (2:201).

Current industrial agriculture is not sustainable due to its environmental harm on the living creatures (Horrigan et al., 2002). Islamic farming is compelled to abide by the Quranic teaching, having the compulsion to save the environment. Such moral obligation in mind and practice in the field can cope with the environmental problem of the world (55: 8, 10). Moreover, application of the Quranic verses will lead to success and their violation will result in torments here and hereafter. In agribusiness, such intrinsic motivation and compulsion with hard labor in the farming land are supposed to ensure sustainability goal.

Sustainability and food waste are coinciding. It is noted that roughly one-third of the edible parts of food is wasted from initial agricultural production down to final household consumption (FAO, 2011). Rising food price with food crisis are the great threats for agribusiness sustainability (Bellemare, 2015; Bush 2010; Berazneva and Lee, 2013). Rational consumption by the consumers can check food waste and motivation through communication of Islamic message about food waste is forbidden, can control food loss during the consumption stage (Islam, 2017b) according to the message of the holy Quran (7: 31; 17: 26; 17: 27).

The system loses of food also can be controlled by lifting grain as seed in ears from the harm of pests (Eskandari and Jalali, 2013). Seed germination loss also can be checked keeping seed in ears (Islam, 2017a) followed by the Qur'an (12:47). Yet, an embryonic test of seed can unveil the cause of higher germination rate of seed kept in ears.

Additionally, food waste can be minimized applying through single seedling approach as per the 261st verse of the 2nd chapter of the Holy Qur'an (Islam, 2017a; Islam and Hossain, 2017). As such, Islamic farming can significantly contribute to attaining the sustainable agricultural goal coping with the agri-business challenges regarding food waste, food loss and ecological imbalance.

Abuse of valuable agro products is another challenge since a significant amount of death takes place due to alcohol consumption (WHO, 2014). Again, Tobacco kills more than 7 million lives in a year with other health problems (WHO, 2017). The lands used for alcohol and tobacco production are threats for food security. Islamic farming can solve the problems of marketing harmful products (2:195,279) applying Islamic marketing (Islam, M. M., 2016). Planned obsolescing of the old version (Kotler et al., 2013) of seed and introducing a new one to the farmers is a questionable practice in marketing. The holy Qur'an also has sign to breed naturally co-joining roots of two plants with the help of water to produce good quality crops together with following crop technology to cultivate multi crops without putting negative trace on soil (13:4) as one of the principles of conservative agriculture.

The components used by the farmers in conservative farming are consisting of resources-conservative technologies, like integrated pest management, soil and water conservation, integrated plant nutrition and recycling, multiple cropping, water harvesting and waste management (Pretty, 1995b). All inputs are derived from nature. The holy Quran claims all the objects in the world are dedicated for human utilities (2:29), putting the world for the creatures (55:10). Using the natural inputs rationally to feed plants and animals with a view to supplying bread and butter is worship to Allah, resulting in Islamic farming.

Proper communication of the message of the Quran relating to agriculture can make sense on every Friday in the mosques among the Muslim farmers who compulsorily gather over there. The leaders (Imams) of the respective mosques in the Muslim countries can put forth strategic role in the communities to spread the Islamic farming concept. Additionally, combination of a theory and practice among the Islamic scholars and farmers are inevitable in addressing the sustainable agri-business challenges.

V. Conclusion

Conservative agriculture has the potential to significantly increase yields and agricultural productivity in a sustainable manner even for poor resources farmers, improving their food security and often enabling them to sell surplus (L. S. Marongwe et al., 2011) along with making environment happy. The principles of the Islamic farming and application of the Qur'anic verses related to agriculture can be a denominator of conservation agriculture. Environmental pollution, land degradation, biodiversity constraints, extensive chemical fertilizer application, use of pesticides, insecticides and herbicides, production and consumption of alcohol and tobacco products pose challenges to agribusiness. Also, food waste due to poor food intake,

chimerical mixing, and lack of community development with policy formation issues posse direct and indirect challenges to agribusiness sustainability. Conventional farming hardly belongs to the solutions to the sustainable agribusiness challenges but conservative farming does partly. Islamic farming, on the other hand, outlines sustainable ways to resolve the challenges through creating a moral obligation. Thus, conservative and Islamic farming jointly can resolve the sustainable agribusiness challenges. Conservation farming highly can contribute to solving sustainability challenges of agricultural business but may not last for longer period of time due to the lack of spiritual motivation. The motivation is the main factor since Islamic farming is faith-based followed by scriptural guidance. The Muslims; the second largest community can be motivated through the teaching of the Holy Qur'an to involve them in Islamic farming. The results of Islamic farming and conservative agriculture will keep satisfied the present nations proving their meals together with preserving the needs of our upcoming generations at end.

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