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CONTENT WRITING ON AGRICULTURE AND INDUSTRIALIZATION: ANALYSIS OF FACEBOOK POSTS

Ayesha Akhtar[¯]
Research Fellow, Regional Development Network, Islamabad
shah.attr007@gmail.com

ABSTRACT
Industrialization has been incorporated in the domain of agriculture since a very long time, which had revolutionized the process of food production and consumption. The study aimed to present an existing link from the lens of the platform of social media; Facebook, in order to view the various perspectives of people and the organizations. The sample was drawn by using the purposive sampling, which resulted in selection of 207 posts, from the 30 chosen pages. It highlighted the usage of Facebook, where the qualitative findings revealed that such platforms can be used to equip people with knowledge as well as guide them towards the applications of modern technology in agriculture.
Keywords: Agriculture, Industrialization, social media, Facebook posts, Content analysis.

INTRODUCTION
The world agriculture was derived from Latin word *Ager* which meant field and *Colo* which meant cultivate. When combined it meant the use of land for cultivation purpose. It was defined as a 'science or art of cultivating land, for cropping, and rearing livestock' (Oxford English Dictionary, 1971) . Agriculture has a crucial influence on the economic life of state. It is directly related to the people as a source of food. Not only humans but animals are attaining benefit from it. When humans gained food and wages on the same time, animals are benefited by hay gained from crops.

By the passing time, the era had changed. The population increased to its peak levels; this increase of individuals also increased the needs of the people. To fulfill these needs there was a competition between them. It was not an easy task to manage such a huge population and to create a balance between its needs and number. For maintaining balance new inventions happened in the field of agriculture. So that more resources were utilized and provided basic needs to living. For such purpose two major agricultural revolutions took place in history. One agricultural revolution appeared about 10,000 B.C when hunters and gathers transited to the farming-based society. And the other revolution took place during the 18th century when European left the old practices of agriculture and adopted new techniques.

It was this second revolution in field of agriculture and first industrial revolution when relationship between agriculture and industrialization was strengthened. By the view of Foster & Rosenzweig (2010) and Carletto, et al. (2007), there were the two major drives of successful agricultural technology in the developing countries. First was availability and affordability of technologies. And second was the farmer's expectation that adoption of certain would be beneficial for them. It was the necessity of time to increase the production rate. The balance between production and population rate had to be achieved.

Necessity is the mother of invention, as need to survive on world showed hunters and gathers to leave that barbaric life and to cultivate. This food is gift to us, and the mean of survival, which must be passed to the next generation in more productive way. Agriculture sector had developed, and policies had been made since the last few decades. They emphasized on the 'external inputs for more production of food. The use of external outputs decreased the quality of food. Natural sources were substituted by the chemicals, fertilizers, machines etc. Organics was replaced by inorganic, which may not be reusable. Minimizing the external inputs, and provision of internal outputs can bring quality and the quantity to agriculture' (Rehman, et al. 2016).

[¯] Corresponding Author

METHODOLOGY

Data was collected by following the methodological procedure of content analysis of Facebook posts from the different international, regional, and national verified pages, made on the theme of Agriculture and Industrialization, resulting to the selection of 30 pages, with 6 to 7 posts from each page with the sample size of 207 posts in total. Data was later analyzed qualitatively to obtain results. These results distilled towards discussion by the interpretation of data. The collected data was divided into codes following coding method of content analysis to form coding sheet. This coding sheet later helped to make categories by putting same code in each category. Relevant categories assisted to formalize themes which were in form of statements. While interpreting data, subheadings were made under themes for better division of data. The following of this deign favored in the representation of data.

RESULTS AND DISCUSSIONS

Agriculture and Industrialization were interdependent. These two variables were taken as interdependent, because one could not be entirely dependent or independent on each other. The characteristics of one variable or a concept, as it was comprised of further variables of each of the concept, were defined under both dimensions of dependent and independent. As industrialization enhanced agriculture by use of machine in order to increase its production with increased consumption rate and also industries were established which were dependent upon agriculture from which some were working for the processing of agriculture.

To obtain results upon finding relationship between industrialization and agriculture of the content available on Facebook pages, its posts were explored. Data collected from Facebook posts of the Facebook pages, resulted to form around 110 codes. Similar codes were combined to form 14 categorizes. These categorizes were made in such a way that it assisted to show relationship in thematic statements. Categorizes formed up included as agricultural practices, agricultural economy, biodiversity, agricultural improvements, farming mechanism, farmer issues, industrial revolution, climate change, food production, environment care, industries, technological variation, equipment, and policies.

Agricultural and Industrialization Fight with Climate Change

Climate change was a global issue of discussion on Facebook pages affecting all most all creatures in many diverse ways. On the contrary it also had influence on agriculture and somehow caused by industrialization. There were number of posts regarding this issue which needed to be covered in order to analyze many of the post data. Two to three categories formed from similar codes assisted to produce this theme. Data of the posts from which codes and categories were made covered the effects of climate change on agriculture and thus life of people. And, it had content on how industrialization was affecting climate in any way.

The climate of this world was changing at a higher rate on every moment. Its rate was so immense that its imprints were very clear. Not only a single individual or specie but the whole globe was under its shadow of devastation. Hence life on earth was in danger. It was predicted that in 2030, it could make life more miserable in extreme poverty for 122 million people if temperature kept changing and reach to 1.5 Celsius. Climate action had to be worked on in order to avoid from such situation to happen. There was a fight towards zero hunger, to free people from the dark clouds of poverty but the climate change was adding it.

Climate action was the 13th goal of sustainable development. Climate action was not the action of climate but to take action in response to the changes taking place in the climate whose results were overwhelming for the life. There was no country in the world which was not under attack of climate change. It was the requirement of time to act altogether to compete with these changes on each level. Climate action involved making policies and strategies in order to follow planning to improve climate. With these assistances the factors affecting climate change were limited or accomplished to be ended.

Global issues were all such issues which target not only any specific locale or region but showed effects on the whole globe. Under these effected the life span of globe was declining. These global issues included poverty, destruction of nature, religious conflict, rights violation, corruption, inequality, water scarcity etc. From these, climate change had become a burning global issue of the age. The balance structure of the globe was changing with the contribution human activities which

were contaminating nature. Land was facing erosion, desertification, water scarcity and many more issues resulted from climate change were making life difficult to spend.

Industrialization influence

It was a matter of past, when industrialization was disturbing climate, and no measures were taken. But now industrialists were focusing on climate smart techniques ensuring the security of climate. As it was the deciding time of now or never. The consequences of climate change such as global warming, desertification, water scarcity, land erosion and many others were introduced after the industrial revolution. Indicating that, climate change was pushed by industrialization.

At the beginning of industrial revolution, its effects on climate were apparently not visible but later emerged as major contributor of climate change. In order to abstain from air pollution, which was caused by combustion of fuel, such cars were replaced by electric cars. Such technology was discussed which should had zero or least effect on environment. It aimed to shift the production and consumption of energy to environment friendly mechanism. Renewable energy was a focused initiative towards contribution on save environment and thus abstain from climate change.

Clean technology involved the use of climate resilient technology and those which had least emission of gases. Programs were launched for ensuring of such initiatives. Carbon emission or other gas emission had devastated influence on climate, while these programs were launched to counter it. This was made possible by replacing technology through technology destruction and market development to follow domesticated pattern of production and innovation of energy.

Consequences of climate change

Global warming was caused by the climate change through which the average temperature of earth was increasing. Nature contributed to global warming but to a minor extent by means of little Ice Age, volcanic eruption, earth orbital changes, solar activity. But the major contributor to climate change leading to severe increased temperature and global warming was human. By the advent of industrial revolution and then 'burning of fossil fuel since 1950s, amount of carbon dioxide increased in the atmosphere' (Julie, 2010).

Excess of anything proves toxic. Increased carbon dioxide level enhanced greenhouse effect and thus increased temperature of the globe. Food production was accompanied with water, land, air and heat. But climate change had affected these elements and had lost their capabilities. Agriculture was not possible anymore because of these effects of climate change. Land was no longer fertile, severe heat burn the plants. Not only this but high temperature disrupted the precipitation pattern and reduction of water supply result to reduced agricultural productivity. People had to suffer with hunger because of reduced food production.

In Mongolian, agriculture and their livestock were at stake of danger. *Dzud* or *zud* was a Mongolian term for severe winter season which caused death of large number of livestock. Livestock did not found place to graze as the land was covered with heavy snow. By this starvation they lose their life, or they could even not bear the extreme low temperature of coldness. According to a report 'climate change had the power to push more than 100 million people into poverty by 2030' (The World Bank, 2019).

Climate change leaded to poverty through natural disaster, agriculture and health. Its effects were vital on the poorest countries where agriculture was the main source of economy to the country, income, food, employment, nutrition, exporting item, for the poor. Other than this, health was also at risk because of malaria. Natural disasters like hurricane, storm, flood and others were more likely to occur under the effects of changing climate. Losing the resource of life people were pushed towards poverty spending a miserable life, with no health, no education, no labour, no shelter, no food, no life. Infrastructure was also disrupted due to climate change.

The epoch we lived in labelled as 'Anthropocene where the atmosphere was contaminated and the pattern of nature had been disturbed because of the human activities' (AAA, 2017) . The factors changing the structure of nature were very complex. While Anthropologist were taking holistic steps in order to face the climatic change and saved the world from treacherous effects. Anthropologist were providing in their contributions at the two levels. One at local level as place-based community research and secondly at global negotiations and discourses. Their purpose was to engage context on from local to global. The world had witnessed anthropogenic climate change and was still, while its extent of change had increased.

Counteraction

Production of food and producers of food both were in danger because of climate change. However, various organization were launching different projects which included five projects to help farmers in order to adapt climate change. These were climate smart projects. Great Green Wall was an initiative to increase the arable land by planting draught-resistant trees. This project was launched in the Sahel, a region bordering Africa's Sahara Desert. Its purpose was to fight with desertification. As, more plantation of plants can transform the condition of desert into arable land.

Using Climate-smart agriculture techniques, as Bangladesh was using in the watered fields, the impacts of climate change as of flood water could be utilized in a smarter way, may be for production of vegetables. These flooding gardens were not only environment friendly but also provided food nutrition and security. Areas selected to breed animals should suit them as for the indigenous pigs in the Western Balkans. They must have the ability to adapt the local climate conditions. To emit Greenhouse gas cause of green-house effect Mussels were used. As mussels produced no or very little an ignorable amount of greenhouse gas. As in certain countries mussels were source of food and livelihood which could be produce with least damage to environment but with planning.

An initiative to address water scarcity was taken. As far as the quality and quantity of water was deteriorating water must be used more sustainably. This regional initiative worked with the assistance of planned strategies, economic, institutional, and technical options, streamlining policies, governance reforms, and innovations. For competing with severe climate, project launched in 2018 implemented four emergency programs, and before winter feed and nutrients for animals were given to herders. Thus, most of livestock was saved from *dzud*. These livestock were mean of life and livelihood for the people of Mongols, climate attack on the herders also cause difficult time for people leading them to poverty.

Variation in Agricultural Practices

Agricultural practices meant the course of implying principles and processes for sake of better agricultural production. There was variation in the agricultural practices such that following the tradition and modern techniques which had facilitated farming in their corresponding time periods. The advent of industrialization in the late 18th century changed the strategies of farming from traditional to modern. It was aimed to increase the production rate and thus consumption of agriculture as number of populations was increased.

Collected data had the traces of both techniques. In the time of excessive use of industrialization, it had affected climate in a harmful way which resulted to lead back to use traditional techniques. Even though the climate friendly methods were launched such that leaded to climate friendly industrial steps. Industries were established with reference to take the measures needed to keep environment secured. Both techniques were used which were not linked with time frame but also with the requirement of time and place.

Traditional techniques of agriculture

Traditional techniques of agriculture or simply traditional agriculture was the 'primitive style of farming. It depended upon the indigenous knowledge, their traditional tools, cultural belief of farmers, natural resources, organic fertilizers. This strategy was still in use by almost 50% of the world' (Anwar, 2018) . These techniques of agriculture were those of the techniques used at time of green revolution and those used by the indigenous people. The living standard of indigenous people were simple. Their living relied on the natural resources other than relying on the complexities of the world. Indigenous people living in this modern time of period were still living the same simple way.

They were full of innovative ideas which could help the world on the destination towards zero hunger. Among many other strategies, there were ways of indigenous people to achieve this goal. These traditional agricultural practices provided adaptability for the extreme weathers and temperature because of changing climate. As they relied on natural resources so they knew better ways of storing resources for a longer time without artificial means of preserving which may prove toxic. Their cultural traditions taught them to eat different food not like people from modern age who were just relying on certain specified crops.

They had diverse varieties of food, which we can adapt. Their time of cultivating crops were selected to be suitable with the climate, so that it was not affected by climate change. As they use to migrate, and food was to diffuse so the world's diverse food was enjoyed by them. In the present

times movement towards the traditional techniques of agriculture was empowered by the issues of climate change caused by anthropogenic activities such that of excessive use of industrialization in a devastating way. This was the reason that to fight the global issue of climate change, world had to be relying on natural means and put effort on not disturbing natural cycles. Because disturbance of natural cycles is directly related to life on earth.

Modern techniques of agriculture

The advent of modern agricultural practices originated after industrial revolution because of the innovation of engines and machines. Modern techniques of agriculture were the techniques employed using advanced or developed technology. Use of engines and machines in the field had assisted agriculturist for enhancing production rate and thus consumption. Machines facilitated man to work by use of tractors, threshers, cutting machine and many others. These machines brought mobility in work. It had changed the methods of ploughing, cropping, cultivation, cutting.

The collected content had number of machines which eased farming techniques. These involved the use of most advanced techniques in the field of agriculture. Its development was dealing with 'two of the main purposes, one was to increase the level of production and the other one was to lead the economy to its highest level by the assistance of agriculture. To achieve these purposes number of practices were included such that of biotechnology, GPS system, advance irrigation system, inorganic fertilizers rather than organic, tractors, threshers, chemicals and many more' (Rehman, Jingdong , Khatoon , & Hussain, 2016).

Advent of 4th Industrial Revolution

The present theme was established under the influence of new advent of revolution. The content dealing with the collected data upon fourth industrial revolution supported to opposing the direction of objective, or it may be said as that it linked to null hypothesis, that agricultural and industrialization content on Facebook was not linked through creative writing. As far as, content falling in this theme had data about advanced innovations of 4th industrial revolution but there was no reflection of agricultural involvement in it.

The debate on fourth industrial revolution started in the year of 2016. After that, steps were taken for the entry into this revolution. This term was coined by 'Klaus Schwab, who introduced it as an advent of a new revolution which was basically different from other revolutions and had also different effects on the lives. It shaped the future of human in a unique way. It was blurring the existing boundaries which lied between physical, biological, and digital spheres by the fusion of technologies. It included the breakthroughs of technology resulting to 3D image making, artificial intelligence, automatic vehicles, storing energy or memory as well as many other innovations' (Schwab, 2016).

Digitalization in 4th industrial revolution

Digitalization or digital transformation was at the heart core of fourth industrial revolution. This was a major contributor originated from late third industrial revolution and leaded towards fourth one. It leaded to the digital transformation of life. As well as techniques of digital fabrication were linking to other fields. Global partnership was established by assistance of digitalization, as far as it made it easier to made longer distance connections. Digital sharing of information through digital technologies, as well as making up of digital identities such that of social site's identities shifted the dynamics of interaction.

Innovations

The innovations which were involved under the content upon fourth industrial revolution were different. These included formations of cities 4, these 4-cities were deigned following the basis of 4th IR. The quality of infrastructure was improved through advancement as well as industrial parks were established. It was made necessary to ensure the clean environment. UNIDOBRIDGE played an influential part in the global partnership and establishing strong ties between people of different regions for strengthening and empowering economy. The development was supported through value development chain, which leaded to socioeconomic transformation.

Farming Practices; Solving Problems of Farmers

Farming practices were the agricultural practices performed by farmers on the field. These had evolved as compared to primitive ones, but still were purposed to produce food and satisfy appetite. This farming not only included crop cultivation but also involved fish farming to achieve freshwater fishes as for food. It was also a mean of economy for those who sold fishes in the markets for

aesthetic use or academic purpose. The art of gardening and its management that was horticulture, was also an interest of farmers.

Data upon industrialization was moving towards 4th industrial revolution. While addressing agriculture by industrial perspective content had focused upon climate smart agriculture practices. Now, world could not afford any further damage to their environment or climate. So, by this reason they look upon using such technology and do not have any harmful effects on environment and was helpful in agricultural production. Climate-smart agriculture had been working in different regions of the world with such aim.

Issues of farmers

Farmers not only gain food from farming practices, but these were their mean of earning and survival. They needed to play a major role for the mankind but least encouraged for their contribution and suffer the most at time of farming concerned problem. Because of the growing population and majorly climate change, famers were facing issues regarding their farming and were not able to live satisfactorily. Many of the issues which famers were facing, were narrated on Facebook posts among collected data. These Issues included;

- Adopting new technologies; most of the farmers were illiterate and were not aware of how to use new technologies.
- Attitude of others in markets; attitude of people in markets who receive food and other services of farmers were not pleasing for famers economically plus morally, because of which they felt often humiliated.
- Gender-gap for women; women provided their services in the field of their own but not as professional because of gender norms. As they were not allowed to adopt the profession, their contribution for agriculture remained confined on field just to assist family but did not gain any return of their services.
- Insecurity because of climate change; a global issue of climate change affecting farmer. As it caused food production to low down, insecure food production insecure farmers.
- Lack of access for sharing information; farmers had very little connections and did not use certain tools to access information regarding improvements in farming and competing problems.

Solutions to problems

The problems of farmers and those linked with their farming practices were difficult to be addressed. There were a wide range of variation in those problems. And more importantly, the farming practices were used to be kept on changing, because of which, it was not an easy task to target those problems. Every problem was dealt in different way. Progressive farming was ensured by providing support economically or in the field by leading farmers to progress. Grazing management was followed for sake of grazeable land management so that it could be used for greater period by grazers to graze on.

Other than this, a huge number of farms were manufactured, where farmers were welcomed. These farm centers had seed banks, where varieties of seeds were available. Farmers were encouraged to use new technologies. And they began to adapt new technologies to improve productivity. Farmers capacity building to formalize chain of networking so that farmers could share information. Farmer fulfilled their participation in the progress of their village availing financial aiding by international organizations.

Means to Support Agriculture

This theme was made to discuss ways or means by which agriculture was supported as far as it was indicated by collected data. Support to agriculture meant such support which enhanced agriculture production, provided security to agriculture and enabled sources of agriculture. This support was required to be attained from not only people but from different process and by utilization of machines or technology. The following discussion only included such support which was mentioned in content. As security of agriculture was included which was elaborated by food respect and diversity.

Agricultural biodiversity

The use of agricultural biodiversity supported diversity in the agricultural utilization. It was the diversity of agricultural life including, crops, plants, trees, microorganisms, animals, decomposers, and all other species who were contributing directly or indirectly to produce agriculture. It was defined as diversity of agriculture at the ‘three main levels of ecological diversity, organismal

diversity, and of the genetic diversity' (Heywood, 1999) . It encouraged the variation in the living organisms such that of plants, animals and microorganisms which were directly or indirectly related to food or agriculture.

Agricultural biodiversity had the potential to cope up with the changing climate. It maintained the productivity, adaptability, and resilience of agriculture. Varieties result not only naturally but by the influence of man using the technologies like biotechnology, genetic engineering, grafting and many other means. Diversity in food by agricultural diversity not only encouraged flavors of food to be consumed but it also ensured more probability of survival. It provided enough food to feed the world and to let them live a life.

Respect food

Respect means to give value, treat in a better way. As far as it is a two-way action. When food full fills our appetite, as for meal or as income generator for its producer. It also acquires to be respected. To respect food means not to waste it. Some fruit is the result of hard work a plant did for its germination. Plant put a part of his life into it. And to waste a fruit of hardship is not a moral thing. A plant spends its whole life in the production, not only for itself but for the humans and animals. These fruits, flowers, food are the life achievements of plants, by disrespecting food, a life achievement is disrespected.

Food is not worthy towards plant but also to the soil in which it grows and to the water which nourishes it and for the producers (farmers) who secure, care, harvest, deliver food to people. Food is everything for them, as it is source of food and income for farmers. Soil maintains it quality, and water is recycled to be clean. For this ever-growing population, wastage of food is intolerable. Its wastage would be a causing factor of the destruction of life on earth, because of conflict upon accessing food or dying because of hunger.

Pest management

Pest management was the method of management, controlling, eliminating, and reducing unwanted pests. Pests were those unwanted animals or plants which had harmful effects on human or human concerns. To avoid from these pest, anti-pest sprays were used. For this purpose, pesticides were those anti-pest or pest killers. Pesticides were any substance or mixture of substances that could kill, control, or repel pest. But these pests were 'by nature also toxic to other organisms' and could harm in case of exposure to them (WHO, n.d.).

There was a method of making spray for pests killing by using a pesticide which was made by neem, citronella, and galangal (*galanga* in post) among the content data. This and many other techniques falling under agricultural practices were taught to farmers and agriculturalist. Through these techniques, it was made sure that the agriculture progress and so the agriculturalist supporting food production and life. Those things which were a danger to agriculture were considered under target to get deal with them as pesticides to kill pest and supporting agriculture.

CONCLUSION

In conclusion, this study delves into the intricate relationship between agriculture and industrialization, shedding light on their interdependence and the evolving dynamics in the face of contemporary challenges. The exploration of Facebook posts revealed a spectrum of issues, from the impact of climate change on agriculture to the transformative effects of the Fourth Industrial Revolution. The urgency for climate action emerged as a central theme, emphasizing the need for responsible industrial practices and sustainable farming methods. The challenges faced by farmers underscored the importance of comprehensive support systems. The study advocates for a harmonious balance, calling for a shift towards responsible industrialization, adoption of climate-smart agriculture, and the preservation of agricultural biodiversity. Ultimately, the findings highlight the imperative for a holistic approach to ensure the resilience and sustainability of global agriculture during a changing world.

REFERENCES

AAA. (2017). *Changing the Atmosphere: Anthropology and Climate Change* . Arlington : American Anthropology Association.

Anwar, S. (2018, February 8). *Traditional Agriculture and its impact on the environment*. Retrieved from Jagran Josh: https://www.jagranjosh.com/general-knowledge/traditional-agriculture-and-its-impact-on-the-environment-1518096259-1

Carletto, C., Kirk, A., Winters, P., & Davis, B. (2007). Non-traditional exports, traditional constraints: The adoption and diffusion of cash crops among smallholders in Guatemala.

Foster, A. D., & Rosenzweig, M. R. (2010). Microeconomics of technology adoption. *Annu. Rev. Econ.*, *2*(1), 395-424.

Heywood, V. (1999). Trends in agricultural biodiversity. In J. Janick (Ed.), *Perspectives on New Crops and New Uses* (pp. 2-14). Alexandria, VA: ASHS Press.

Julie, L. (2010). *Global Climate Change: The Science Needed to Undertand the Issues* . Florida : Florida Atlantic University.

Oxford English Dictionary. (1971). *The Oxford English dictionary.* Oxford: Oxford University Press.

Rehman, A., Jingdong , L., Khatoon , R., & Hussain, I. (2016). Modern Agricultural Technology Adoption its Importance, Role and Usage for the Improvement of Agriculture. *American-Eurasian Journal of Agricultural & Environmental Sciences (JAES), 16*(2), 284-288.

Rehman, A., Jingdong , L., Khatoon , R., & Hussain, I. (2016). Modern Agricultural Technology Adoption its Importance, Role and Usage for the Improvement of Agriculture. *American-Eurasian Journal of Agricultural & Environmental Sciences (JAES), 16*(2), 284-288.

Schwab, K. (2016). The Fourth Inustrial Revolution: What it Means and How to Respond. In G. Rose (Ed.), *The Fourth Industrial Revolution: A Davos Reader.* Foreign Affairs.

The World Bank. (2019). *Climate Change.* World Bank.

WHO. (n.d.). *Pesticide* . Retrieved December 1, 2019, from World Health Organization: https://www.who.int/topics/pesticides/en/