

Climate change threats to agriculture: raising awareness among stakeholders for sustainable solutions

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Abstract

This study has been carried out to investigate the adverse effects of climate change on agriculture and its awareness among various stakeholders. This study aims to determine adverse effects and how the agriculture department of Naushahro Feroze District contributes to creating awareness among the stakeholders about the adverse effects of climate change on agriculture. This study uses a purposeful sample of 4 to 5 High-Rank officers and specialists of the Agriculture department were selected to collect the data. The qualitative Method was adopted using Interviews via Semi-structured open-ended questionnaires. The results show that bodies, Organizations, and Institutions working to mitigate losses are not properly aware of the recommendations by International Bodies. Moreover, there is no proper system for creating awareness.

Keywords

Climate Change, Agriculture, Stakeholders

Introduction

The world is confronting exceptional changes in the atmosphere and is experiencing the difficulties of rainstorms, surges, the disintegration of grounds, serious warmth, water shortage, and desolate land. It significantly impacts Pakistan's agrarian economy. According to the United Nations climate change report (2020-2021), harvest profitability has also decreased due to rising temperatures, which poses a significant threat to Pakistan's agricultural sector. The report also states that the temperature has increased by 2 degrees Celsius, which has reduced harvest profitability by affecting global monetary yield by up to 2% annually. Because of the temperature rise, Pakistan confronts genuine dangers for supportable nourishment creation. During the most recent 50 years, the day and night temperature has expanded essentially, which has decreased yield ef-

iciency (Ali, 2022). It is going to be an obstacle to the monetary development of Pakistan. The world is confronting environmental change because of the discharge of greenhouse gases (GHG) (Iqbal, 2020), e.g., fuel ignition, urbanization, and deforestation. Nawaz (2020) stated that now and again, it has caused changes in sun-powered vitality, temperature, and, for example, precipitation. Pakistan has incorporated into the twentieth atmosphere helpless nation all around. The agrarian part of Pakistan is considered the foundation of the economy of Pakistan. Relatively 70% of its populace relies on its horticultural profitability. (Waqas, 2020). Because of the development of environmental change, Pakistan is confronting serious issues in the horticultural segment. Horticulture contributes about 21% of the Total national output Gross domestic product and 45% of the work power

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of Pakistan. (Shoqeir, 2022). It is exceptionally influenced by here-and-now atmosphere inconstancy and could affect long-haul environmental change. The logical analysts demonstrated that the world will observe high temperatures and differing precipitation powers one decade from now, leading to low rural yield. (Ahmad & Rehman, 2022). It is proven beforehand that the ebb and flow of an unnatural weather change has reduced the farming generation, which prompts a decline in sustenance creation (Koech, 2021 & Mendelsohn, 2008). There are, for the most part, two agrarian seasons: "Kharif" and "Rabi." Kharif crops begin from May to November with rice, cotton, and corn harvests. Rabi crops begin from November or December till April with their real harvests of grain, millet, and wheat (Bowman, 2016). The world is experiencing the difficulties of environmental change. It is a developing issue and is creating dangers to the biological community. It has an exceptional effect on the total populace. The world is confronting unpleasant results as the temperature expands in many parts. Pakistan is a standout amongst the most atmospheres defenseless nations of South Asia. It is causing severe dangers to Pakistan's horticulture, and Pakistan's economy is influenced seriously. The U.S. official said, "Our push to enhance rural efficiency has gone up against another need. Changing atmospheres in the USA and Pakistan threaten the creation of staple harvests... Rain is influencing Pakistan prior, and climate conditions in the USA are considerably sterner than before" (Henson, 2016). "Change in Atmosphere is unalterable hurting Pakistan with its incredible ecological, social and monetary effects. The major factors that go up against are the decrease of farming profitability, human horribleness, and stressed instances of characteristic assets" (Public statement, Arranging commission, Legislature of Pakistan, 2021). Pakistan is a signatory to major natural meetings and methods, which fits the bill for money-related and mechanical help (Climate Summit Pakistan, COMSATS Auditorium, Islamabad, 2020). The current global climate change scenario states that "we can keep up economic growth by addressing challenges of climate change in a befitting manner in the country" (Climate Change Policy, 2012-2020 and International Food Policy Research Institute, 2020). States that agribusiness is extremely helpless against environmental change. Ascending temperatures diminish the yield of alluring harvests while the generation of weeds and nuisance increases.

Cline (2007) clarifies in his book about the worldwide effect of environmental change on farming in a befitting way. He shares his view that an Earth-wide temperature boost does not expand the yield of the product as proposed by others. He demonstrated his view by taking national current and sections anticipated normal temperature and precipitation esteem. He presumed that an unnatural weather change may be productive for a portion of the nation, yet it is not valid for creating nations. By the adjustment in climate design, the generation of harvest is influenced; the effect of environmental change is the extra risk to sustenance security (Davenport, 2018; Miragila et al., 2009). The impacts of climate change are more devastating in South Asia and may result in a 50 percent reduction in wheat productivity by 2050 (Moè, 2009). Some examinations demonstrated that less precipitation may diminish wheat yield in Turkey. In Pakistan, the temperature and precipitation changes would influence the profitability of agrarian harvests (Dhakar, 2019; Murtaza, 2015). Innovative improvement cannot be overlooked, particularly in the development administration of any cataclysmic events. Anticipated Environmental change and its inconstancy data is required for conceivable effects of environmental change on surge creation or water saves, agrarian part, vitality and condition, monetary exercises, wellbeing arranging, mechanical and other imperative segments. Expanding the size of a worldwide temperature alteration is making unfavorable changes in physical procedures at risk for atmosphere structure elements. Such changes result in extraordinary occasions eccentric in nature, like surges and warmth occasions, which cause losses to normal assets. Pakistan is a profoundly defenseless nation confronting the results of environmental change, given its unique topographical and climatic highlights (Rasul, 2010). The present examination is directed at the unfavorable impacts of environmental change on agribusiness and the deliverance of its mindfulness on the gross root level. The partners like the horticulture office and the ranchers are the real wellspring of gathering information concerning such a vital issue today. The rustic regions of Sindh, where most of the general population is partnered with agribusiness cultivating, were evaluated to know the real position of their mindfulness about this critical issue. The agribusiness branch of Naushahro Feroze region was drawn closer to know the elements and attraction created there for such mindfulness at the gross root.

through an examiner. An organized examiner was utilized for a meeting with high authorities of the farming office to know the elements of the deliverance of data to primary partners. The examination will help additional research to expand and break down the effect of environmental change on the profitability of yield of products per hectare and its impact on the economy of Pakistan. The examination will likewise propose different strategies for creating mindfulness among agribusiness partners to convey data concerning such issues. Concerning future advantages, this investigation will pioneer as it will be an essential examination of climatologically mindfulness in this unique situation. The examination will think of the contentions between the segments and will suggest applicable arrangements that can move toward becoming the spine in advancing such mindfulness in Pakistan. Additionally, this examination will feature the significance of familiarity with the unfriendly impacts of environmental change and will worry about data of related specialists sure to convey such mindfulness. Generation per hectare must be advanced; if both mindfulness among partners and the horticulture division have developed a level of information sharing, the main reason will be to advance mindfulness in Pakistan.

To find out the impact of climate change on the productivity of yield of crops per hectare and its effect on the economy of Pakistan

To find various techniques for generating awareness among agriculture stakeholders to deliver information regarding such issues.

To know about conflicts between the sectors and recommend relevant policies that can become a backbone in promoting such awareness in Pakistan.

To know about the importance of awareness of the adverse effects of climate change.

Literature review

Climate Change. The chronicled climate change has been partitioned into two stages regarding geographical time degree and dearly departed changes. Ashouri (2018) also talked about "*the worldwide recorded climatology categorize hotness database*" bearing in mind that to month comes out in the open perceptions around the globe. Fick (2017) dissected "*the 5000 living fastest of environmental swap in varved deposit from the oxygen slightest zone of Pakistan*" bearing in mind Holocene Sea segments. Has delivered a dissertation titled, "Hunting impervious down environmental

convert in Sunny of examination of hydro-meteorological time agreement in the greater Indus Bowl". (Kukurba, 2019), highlighted that "*the histories for the most part exceedingly dreadful dry up lead to precondition beat Pakistan and its property what time contrasted with discrete debacles like surges, hurricanes and as a result forth*" Cole et al. (2002) give displayed a blend with acknowledge to, "*the swift changes in the Asian summer storm since the previous deglaciations. They get approved 36 in advance strewn Palaeo-atmosphere account to settle the forecast and spatial model of century-scale unexpected changes in Asian storm rain since the endure deglaciation*". Overpeck et al. (2003) produce assessed, "*the adjustments in the Asian southwest heavy shower along with the Holocene and them connects toward the North Atlantic Sea*". They control optional that the connection, between North Atlantic environment and the Asian storm is a strong-minded share out of worldwide atmosphere. Ren (2019) displayed "*the all-purpose attributes of fever diversity in China in the middle of the main modern two centuries. Get penniless down, the birthday size range in monsoonal rain indications of sun-oriented changeability in India and Bangladesh. The toil has clarified the faithlessness of the Indian cloudburst rain and its result over horticultural yield in the full investigation territory*". Hou (2021) examined "*the hotness child departure from the Tibetan steamroll in the flow of the largely hot two centuries in China allowing for the palaeo-atmosphere in order recuperated from frost centers, hierarchy rings, and lake rest along with a large amount current 2000 years*". Kapellos (2019) carry out featured, "*the monsoonal rain diversity in East Asia since A.D. 1840*." They encompass considered, "*the three tree-rings rain recreations from China and Korea*.. They opined, "*The East Asian summer downpour rain rapidly misrepresented from other into minus around mid-1920*". Encluse (2004) has examined the "*late quaternary impression over Asia*". As indicated by him, "*Through the later than usual Quaternary, the worldwide surroundings framework ran from rotund formal to mild interglacial conditions*". Randolph (2018), comprising talked about "*the progressing tree line and withdrawing distant heaps in Yunnan China. They receive exposure that they have in mind yearly beat over a large amount of current two a lot of living of the twentieth century has been stretched at the grade of 0.060C*". Lezine and Ivory (2009) investigated "*The air and ecological revolution toward the texture of the Holocene sticky dot making an allowance for a dust top score of the Makran drift in Pakistan* (He, 2017).

Causes of climate change. TheKato (1998) has examined "*the ambiance changes in Asia as of an Earth-wide fever boost by flouting down upper-level breeze and run clouds brook in intact Asia*". Groen (2012) has considered "They

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explained abridgment of environmental amend connected assets in the Assembled States for the wits to offer the par user an instrument for recognizing the scope of easy-to-use assets involving to environmental change. Vorosmarty et al. (2000) take investigated, "the worldwide fill with tears assets incapacity from environmental modify and populace development. They give compressed that a broad magnitude of the calculate populace is utterly nowadays encountering run stress and rising hose requests". Crowley (2000) has exhibited "the reasons for environmental amendment in the curriculum of hot days in Northern parts of the globe."

Impacts of climate change. Steimle (2018) engages in assessing "the impacts of set climatic hesitancy on the ephemeral and spatial category in smart yields in tied States". The state examined "the assortment in corn and soybean yields approach about communal alteration in climate environment between being in a five states county in the mid-west". Dregne (1986) contemplated "the desertification of desiccated terrains in the USA." He has expressed, "the overgrazing and woodcutting control in arraign of the larger cut of the desertification of rangelands, progress plant on instigating quickened hose down and wind speed disintegration, ill-advised hose down government prompting Stalinization has the motive for the decay of flooded grounds". Lindenmayer (2018). encompass exhibited, "the force of location arrangement on the immediate area and regional atmosphere. ADB in 2020 has penniless down, the comprehension and reacting to environmental convert in creating Asia as far-off as arranging equally adjustment dealings to reply to the anticipated belongings of environmental conversion and easing actions to be absent from quick on the uptake increments in worldwide outflows." ADB in 2020 has considered, "the environmental revolutionize and relocation in Asia and Pacific. This investigation has incidental that it is conceivable to adapt to these progressions as all right as to group populace portability to lessening poverty and upgraded economic and collective development in the district.". Omar (2020) has displayed "the altruistic ramifications of environmental revolution mapping rising patterns and hazard hotspots in Vietnam. They opined that by unification and emanate and provable informational indexes with climate change models, it is conceivable to turn into sagaciously evident projections about the opinion of surges, dry-up spells, and tornados in the course of the next 20 to 30 years." Quoted by Cairl (2020) has dissected, "the impacts of environmental revolution on Florida's sea and shore meet assets. The commentary has indicated that the fever increments since the mid-twentieth century are apt caused by stretched convergences of plant sales outlet gasses from creature exercises. These gasses, which are built-in carbon dioxide, are formed on the whole and are also created by individual exercises, for example, consuming non-renewable energy sources and unlimited deforestation. (2014)

assessed" the produce of ecological changes and a dodgy atmospheric deviation on high temperature in Pakistan. The hotness changes in Pakistan have been separated from reenactments influenced utilizing EdGCM to give a demonstration fashioned at Columbia College." Saab and Tolba in 2009 be inflicted with considered, "the appearance of the environmental amendment on mid-Easterner nations. They opined that the Bedouin nations are, from several points of view, surrounded by nearly all helpless on the earth to the likely sound effects of environmental change, the generally important of which are prolonged natural temperatures, fewer and extra erratic precipitation, and ocean amount ascent". (Sadegh, 2020) tolerate agreed a transfer an explanation of, "the artless special effects of environmental adjust in the USA. They have spoken that the rising temperatures, new rain designs, and singular changes suffer influenced plentiful parts of person society and the home-grown habitat." UNFCCC in Copenhagen harmony (Oberthür, 2012).) has concurred on "the distinctive advances as well as ecological fiascos, reasons for climate amendment and adjustment and therefore forth, to row environmental change." HEWITT in 2009 has talked about, "the frost sheets and environmental amendment in the Karakoram Himalaya with extraordinary site of improvements influencing hose assets and environmental risks. He has opined that there has been no drop off in the frost shield over the largest part of contemporary three decades. Copious frost sheets grasp withdrawn or diminished in stages be that as it may, since 1995, he has open further than 35 polar lots progressing, mid-icy mountain thickening in twelve others, and a hasty increment in cool bulk surges". Pakistan is an agricultural people, and the bigger role of its populace and nation depends on the agribusiness segment. Straight to non-accessibility of a stream for hose system and insufficient precipitation, a remarkable case of the arid area is ineffective or rained. In this manner, it is likely to assess the make-happen of environmental convert on undeveloped and additionally biological cooperation of the bone-dry district. (Niaz, 2016).

They are measuring climate change awareness.

Studies identifying Climate change mindfulness and assurance and connection factors that impact it do not generally give reliable outcomes. One of the principal issues that analysts confront is the issue of whether they (scientists) and their respondents comprehend the idea of Climate Change mindfulness similarly. Clashing

exploration results and an outstanding number of impacting factors have prompted the suspicion that specialists do not generally have a similar idea of natural mindfulness (McEwen, 2022). When looking at estimating conduct, one of the fundamental issues is the way that most ecologically pertinent conduct (power protection, water preservation, reusing, arranged buy, .) happens inside the family unit (out of scientists' sight), and estimation regularly depends on conduct depicted by the shoppers themselves. However, individuals are not mindful of the effect that their conduct has on the earth. They may unknowingly make a move that increments or decreases their effect on nature without monitoring it (regardless of whether by accomplishing something that positively affects the earth, (e.g., utilization of exhaust system in their auto) or something that has a negative effect (e.g., utilization of cleanser destructive for the earth), prompting contrasts among real and estimated natural obligation (Han, 2020).

We are measuring components of climate change awareness. With the end goal of portraying inalienable elements of climate change mindfulness, one can utilize the three-segment disposition display. Natural mindfulness is a multidimensional idea comprising of a subjective, full of feelings and intellectual part (Yousufi, 2020)

A few creators examined the singular effects of every one of those segments. In contrast, others trusted that their common effect was excessively solid, so they created estimating instruments that utilize each of the three segments without an unmistakable refinement between them. This three-part model of natural mindfulness as a demeanor has regularly been connected in numerous examinations by countless creators, and it goes back to the beginning of exploration (Labrague, 2021). Four known subscales have been created as a piece of those examinations, three of which are utilized to gauge demeanor parts, while the fourth quantifies the genuine genius ecological moves that were made.

Cognitive component. Intellectual factors contain information, memory forms, knowledge, basic leadership, and conduct regarding critical thinking. Learning (perception) relates to seeing how importance is shaped, connected, and put away inside a person's psyche (Trisos, 2021). We can state that the customer's capacity to separate between choices, methods, and decisions, given their real effect on the earth, is, in

certainty, the fundamental prerequisite for his/her professional natural conduct from any viewpoint (Getchell, 2021). feature that instruction prompts an abnormal state of natural qualities; however, it does not cause the client to wind up a specialist in ecological issues.

Affective component. Influence is a general term meaning sentiments or feelings. The passionate or full-of-feeling segment of the state of mind relates to a man's emotions about the mentality protest. The full-of-the-feeling segment is regularly communicated verbally as great – terrible, positive, negative, to adore – not cherished, and so forth. (Grutta, 2018). The full-of-feeling part of natural mindfulness incorporates all tensions, desires, sentiments, and passionate responses identifying with ecological issues (Cruz and Manata, 2020). It additionally incorporates a person's passionate judgment about the outcomes of his/her effect on his/her biophysical environment. Different investigations (Zhu, 2018) affirmed that full-of-feeling factors are a generally steady indicator of master ecological conduct, including customer conduct and purchasing (of green items. In their meta-examination (Patel, 2016). They affirmed the mean connection of 0.37 between those two factors. If an individual truly feels the depicted feelings related to nature and condition but is un-ready to fulfill the need emerging from those feelings (to invest some energy in nature), it tends to be expected that he/she accomplishes the specified solidarity with nature (to some degree) by obtaining and devouring green items which he/she sees as being a piece of that nature because of solid and persistent promoting techniques in that sense. These feelings regularly appear subliminal, and buyers express them as "I feel great when I buy and utilize a green item," even though they do not generally know the response to the inquiry. One can make a comparable determination regarding participating in other ace ecological activities or conduct. The reference to circuitous passionate associations and the intervening factors should be remembered while making estimation instruments and amid the elucidation of results.

Co-native component. The co-native part of ecological mindfulness incorporates social aims that result in close-to-home commitment to comprehending natural issues (Horvat, 2016). Some authors, e.g., Stone (Xu, 2020), allude to this variable as "readiness to act," while Maloney and Ward (1973) call it "verbal duty" and

characterize it as a proportion of the likelihood of a person's future activities. Also, regulating esteem (creator's remark: what an individual supposes others expect of him/her), credit of obligation (creator's remark: for curing of natural issues), and locus of control (creator's remark: sentiment concerning the degree to which people trust they can control occasions and results in their lives) are imperative factors that can influence the association between goal, i.e., communicated readiness to specific conduct and genuine conduct (Mondal & Samaddar, 2022). As to this, ongoing examinations have incorporated the supposed "PCE variable" ("saw buyer viability") and, in addition, other psychographic factors. A concentrate co-native factor (expectation or ability to certain conduct) frequently prompts discovering inconsistencies among mentalities and conduct.

Hypothesis of the Study

H1: There is an accurate system of awareness in the agriculture department about climate change in Naushahro Feroze Pakistan.

H2: There is no accurate system of awareness in the agriculture department about climate change in Naushahro Feroze Pakistan.

Research Methodology

Research Design

The current investigation is based on primary data. In this way, to examine the proposed targets, concentrate on gathering the information from the Agribusiness Division of Naushahro Feroze Area. A subjective technique is taken on, involving inside and out interviews through a semi-organized, unassuming survey. A deliberate example of 5 more elevated-level officials of the farming division was chosen. Since the study was qualitative, we decided to conduct an interview-based survey. Information assortment was taken from all important officials of the particular division. The farming area plays a critical work in the general financial execution of Pakistan. This industry provides businesses with valuable access to 45% of Pakistan's workforce. This industry supports 60% of people living in rural areas. Pakistan's agriculture accounts for 21% of the country's gross domestic product (GDP). Naushahro Feroze significantly contributes to the agriculture sector in Sindh because its climate is ideal

for the production of a variety of food items, such as the Kharif yields of maize, rice, sugarcane, cotton, and Rabi harvests of wheat. Organic product orchards abound in this region in addition to these. According to Mouza statistics, natural product orchards are prevalent in 57% of the Mouzas. The absolute uncovered region of the district is 303,000 hectares, out of which 161,000 hectares (53%) are developed. One hundred sixty-nine thousand hectares of the cultivable area are not planted. Even though 30,000 hectares are currently uncultivated, most businesses in Naushahro Feroze are involved in agriculture. Because sugarcane is grown on a large scale in this region, the most well-known are the sugar factories. Fourteen businesses with a total asset value of 794 billion rupees were identified in this region during the evaluation of manufacturing businesses in 2000-2001. In 2000-2001, these businesses reported 1,217 employees working daily. In total, the people of the Naushahro Feroze area remember all of the relevant agricultural staff. A deliberate sample of four to five specialists and high-ranking offices in the agriculture department were selected for data collection. A qualitative method was used, with inside-and-out interviews conducted using a semi-structured, open-ended questionnaire.

Technique for analyzing the data

Data analysis will take on a changed grounded theory methodology; the literature proposes that contention would be the most suitable logical structure. Fundamental data analysis will rely upon this reason. In any case, further reflection and analysis will show that the severe adherence to a contention worldview cannot completely make sense of the scope of connections portrayed by respondents or the elements behind these connections. Thus, the contention will be dismissed as a system. They have expanded the recurrence and force of outrageous climate occasions, like dry seasons, floods, and intense waves. Rising ocean levels can immerse horticultural land and sully water supplies. Changes in precipitation designs can prompt changes in crop yields. The spread of vermin and sicknesses can harm yields and animals—the downfall of pollinators, which are fundamental for crop fertilization.

Awareness

Awareness and its level of climate change among agriculture department employees is low. Employees are

not properly aware of the recommendations by international bodies on climate change. These are not any particular suggestions released in governmental or regional spoken languages, and no information on warming temperatures and their adverse impacts on farming are provided to worldwide bodies.

Throughout the interviews with specialists and office workers, the research team failed to observe any spreadsheets or stocks of information in organizations. The specialists lagged; they are unsure what "climate change" means since they generally talk about seasonal shifts and a diversity of plants. Such a gap has created a conflict between the stakeholders of both gross root farmers and experts. The authorities did not include lessons or chapters of this sector in the textbooks. Different kinds of media add to bringing issues to light. (T.V., radio, films, narratives, Web, and particular distributions) not working for climate change issues because Pakistan's economy hugely depends upon agriculture (Ali et al., 2023).

Agriculture department

The agriculture department is not adequately equipped to address the challenges posed by climate change. It is evident from the fact that:

- There are no proper policies and guidelines on climate change;
- there is no proper allocation of resources to address climate change;
- There is no proper coordination between different government departments on climate change;
- There is no proper awareness of climate change among agriculture department employees.

To address these challenges, the agriculture department needs to:

- develop a comprehensive climate change policy;
- allocate adequate resources to address climate change;
- improve coordination between different government departments on climate change;
- raise awareness of climate change among agriculture department employees.

Discussion

Departmental role in creating awareness about climate change

Institutions like the agriculture department are of the view that climate change is a long-term phenomenon. Numerous categories of coercion are instigated in agriculture through climate change. Agriculture has

dependably been reliant on the atmosphere and soil. For edit generation and adjustment, the consistency of environmental change is of the most extreme significance. What is required is knowledge of the impact of the changing climate on farming conditions. If, from one viewpoint, the ascent of temperature is gainful to the yields, then again, the sun-based radiation additionally influences the weeds and irritations, showing signs of improvement in living conditions under higher temperatures. The yields are planted in April and harvested in October and December during the summer. Kharif crops need a lot of warmth and water. Cotton, rice, sugarcane, tobacco, maize, and millet are the primary kharif crops. Rabi crops are established in the colder season from October to December and assembled in April and May. These harvests, including wheat, grain, oil seeds, and gram, require less extent of water because of the direction of light. Further, it was added by the specialists the genuinely necessary mindfulness about environmental change verbalizes partners to arrive at ideal conclusions about assorted kinds of harvests that ought to be supported because the environment of the area fluctuates in various districts of the town. Farmers can greatly reduce production and financial losses with adequate knowledge and delivery. They also argued that many factors, including fuel combustion, urbanization, and deforestation, are negatively impacted by greenhouse gases (GHGs). It has frequently caused changes in solar energy, temperature, and precipitation patterns. They have expressed that the individual agriculture segment is responsible for human-incited ozone-harming substance GHG emanations, more noteworthy than the offer contributed by the transportation segment.

Media and other bodies' role in raising awareness

Television, radio, films, documentaries, the Internet, specialized publications, and other forms of media all play a role in raising public awareness. Why not work in agriculture if you want to work on various aspects? Media has become so business. The media is focusing on what you are doing. If you are not doing any movement, then, at that point, how will they center? Dramas, documentaries. On the other hand, it can be made. Allow the HEC and universities to develop actions and tools to assist the State Parties in raising awareness of climate change. Local policies implemented by HEC can be generalized, which is lacking. Points to the understudies might be given so

they can, without much stretch, total their certifications and make documentation. We discussed the role that community centers, records, and other organizations of a similar nature play in bringing people's awareness of climate change up to the gross root level. Nevertheless, it is more likely to be supported by the media.

Challenges and achievement

According to Agricultural experts, normally, we meet two kinds of stakeholders during our training and visits: educated and uneducated. Educated people easily understand these issues related to climate and weather and their adverse effects on agriculture and follow guidelines taught by experts in crop cultivation. Such literate people also demand further remedies that should be taken to achieve high production targets. Moreover, they also find such material relating to the effects of climate change themselves to get information. On the other hand, illiterate people find it difficult to understand such complications relating to climate change. Pakistan is a farming nation, and the greater part of its populace and economy depends on the agribusiness segment. Due to the non-accessibility of water for the water system and inadequate precipitation, a noteworthy piece of the parched district is ineffective or rained. In this manner, it is expected to assess the effect of environmental change on farming and, additionally, the biological community of the bone-dry district.

Conclusions

Results reveal that the bodies, organizations, and institutions working to mitigate losses arising from the adverse effects of climate change on agriculture are not properly aware of the recommendations by international bodies. It was also observed that no proper specific recommendations are published in official and provincial languages, and no proper reports are being forwarded to international organizations regarding climate change and its adverse effects on agriculture. The team did not even observe the lists and inventories of any records in institutions during the interviews of experts and clerical staff. The experts were lagging; they were not even aware of the term climate change properly because they usually talked about changing seasons and various seeds. Such a gap has created a conflict between the stakeholders of both gross root farmers and experts. The authorities did not include lessons or chapters of this sector in the textbooks. Different kinds of media

add to bringing issues to light. (Websites, blogs, televisions, speeches, and particular distributions) not working to address climate change because agriculture is so important to Pakistan's economy. Media has become so business. The HEC and universities are expected to develop actions and tools to help the State Parties raise awareness of climate change and its effects on agriculture. Even at the local level, HEC policies are not uniform. No proper and appropriate data collection for both the agricultural production and losses caused by climate change is available. Evaluate the institutions looking after climate change vulnerabilities in terms of the Organization, under-budgeted, No Proper Technical Staff and agricultural expert work, propagate and transform, but mostly found handed over to non-concerned people. No proper allocation of resources, identification, assessment, and protection of the agriculture sector. No climate awareness-sensitive budget. No frameworks, guidelines, policies, roles, or responsibilities need well-defined climate change policy on the national level.

Recommendations

Agricultural and environmental experts must bring agriculture into routine life. It means these things are not being internalized. There are two types of awareness campaigns: formal and informal. Formal awareness can be initiated by schools, universities, Madrasas, and even our own homes. One must initiate conventional methods for this type of awareness that must include this climate awareness in the curriculum, which is so controversial. Formal convey of policies and recommendations are not properly conveyed. The measures are needed to elaborate a new policy or prepare a new one concerning the national and regional level in coordination with international and specialized NGOs.

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