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RURAL SOCIOLOGY

Attitude and components of capacity building of rural youth for sustainable agricultural practices: case study of Punjab province Pakistan

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ABSTRACT: Inclusion of rural youth is of great importance to facilitate nutritional security and make the food chain more sustainable. A positive attitude is necessary for active participation in agricultural activities. This case study was an attempt to check the attitude of rural youth regarding sustainable farming and its contributing factors. The study was carried out in the Punjab province of Pakistan and a transverse research design was used for this quantitative study. An interview schedule was used for getting the face-to-face response of rural youth. To make the unknown population of rural youth in Punjab, the Fisher formula was used and a sample of 413 was selected from purposely selected three districts of Punjab. After recording data, Statistical Package for Social Sciences (SPSS) was used to analyze the data. Descriptive Statistics was used to explain the response of rural youth for the decision on the base of data. Only 53 young farmers said that they have never been part of the formal education system and maximum number of farmers was close to 24 years of age or more than that. Rural youth of Punjab is lacking in non-formal education for acquiring or maintaining their skills & interests. Unemployment and having limited farm income are the biggest challenges that rural youth is facing. Rural youth show a strong inclination towards opting for sustainable farming alongside the availability of a supportive network. Regarding to learning capacities rural youth is lacking related to knowledge, communication means, novel approaches and in promoting sustainable farming initiatives. To achieve the goal of sustainability in changing environment, rural youth must have access to continuous training, communication sources, membership, or association with organizations with novel ideas covering all the changes happening in the farming business.
Key words: rural youth, sustainability, attitude, determinants, trainings.

Atitude e componentes de capacitação de jovens rurais para práticas agrícolas sustentáveis: estudo de caso da província de Punjab, Paquistão

RESUMO: Para facilitar a segurança nutricional e tornar a cadeia alimentar mais sustentável, a inclusão da juventude rural é de grande importância. Uma atitude positiva é necessária para a participação ativa nas atividades agrícolas. Este estudo de caso foi uma tentativa de verificar a atitude da juventude rural em relação à agricultura sustentável e seus fatores contribuintes. O trabalho foi realizado na província de Punjab, no Paquistão, e um projeto de pesquisa transversal foi usado para este estudo quantitativo. Um roteiro de entrevista foi usado para obter a resposta face a face da juventude rural. Para determinar a população desconhecida de jovens rurais em Punjab, a fórmula de Fisher foi usada e uma amostra de 413 foi selecionada de três distritos selecionados de Punjab. Após o registro dos dados, foi utilizado o Statistical Package for the Social Sciences (SPSS) para análise dos dados. A Estatística Descritiva foi utilizada para explicar a resposta dos jovens rurais para a decisão sobre a base de dados. Apenas 53 jovens agricultores disseram que nunca fizeram parte do sistema de educação formal e o número máximo de agricultores foi próximo aos 24 anos de idade ou mais. A juventude rural de Punjab carece de educação não formal para adquirir ou manter suas habilidades e interesses. Atualmente, o desemprego e a renda agrícola limitada são os maiores desafios que a juventude rural enfrenta. A juventude rural mostra uma forte inclinação para optar pela agricultura sustentável, juntamente com a disponibilidade de uma rede de apoio. No que diz respeito às capacidades de aprendizagem, a juventude rural carece de conhecimentos relacionados, meios de comunicação, novas abordagens e, até certo ponto, participação em organizações que promovem iniciativas de agricultura sustentável. Para alcançar a meta de sustentabilidade no ambiente em mudança, a juventude rural deve ter acesso a treinamento contínuo, fontes de comunicação, associação ou associação com organizações com ideias inovadoras que cubram todas as mudanças que ocorrem no negócio agrícola.
Palavras-chave: juventude rural, sustentabilidade, atitude, determinantes, capacitações.

INTRODUCTION

Over the last few years, the relationship of humanity with the environment around has changed due to technological evolution. Nowadays agriculture is more like food security and food provision (HALBERG et al., 2006). As a matter of fact, human capital has a direct influence on productivity in the agriculture sector. Research has conclusively reached a decision that rural youth has the potential to transform traditional agriculture in the developing world by acting as a driving force for the initiatives of sustainable agriculture. South Asia has the biggest youth population in comparison to the remaining world and beholds the highest unemployment rate (SOMA, 2018). Sustainability in any system has its long-lasting benefits but it has challenges as well in the process. Where there are so many natural and unnatural challenges colliding, youth can excel by pushing themselves with the capability of decision

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making, access to information and their desire for change and long-term profit could prove exceptional support (HAVEMANN et al., 2020). Constraints to rural youth need real-time identification for preparing youth to show deterrence against them. ADEKUNLE et al. (2009) proved that there are multiple constraints to youth participation in sustainable agriculture like; lack of insurance availability, improper credit facilities, fewer returns in agricultural investments, lack of access to inputs and innovation and most importantly lack of basic farming knowledge. But during these times situation especially in the developing world has changed the course of action of rural youth regarding their income generation source. Maximum profit generation and employment with time incentives and undoubted security are the attraction for youth when it comes to choosing an income source (GANGWAR & KAMESWARI, 2016). To straighten the attitude of the rural youth in this regard there must be dialogue on managing the attitude of youth for keeping their interest in green employment endeavors.

There is a prerequisite for the engagement of rural youth in the agricultural profession, which is a positive attitude. Efforts to convince the rural youth and mobilize them for playing their proactive role in taking up this profession for their good and as collective responsibility too. In the sideline to this, creating attraction in the green economy should be necessary for maintaining the interest of the young farmer and their need relevant to the farming business (UNAY-GAILHARD & BOJNEC, 2019). This will trod the attitude of the rural youth towards their relevant economic activities or at least it can divert their interests towards this profession. Facilitating the creation of jobs at local farms, nearby markets and agricultural supply chains can drive a sense of entrepreneurship among rural youth. Sensible entrepreneurship that is in line with the demands of green business has the power to bring innovation in production and markets, creation of jobs and augmentation of job placement areas in the sector (FALLAH HAGHIGHI et al., 2018 & KARIMI & JOHARI, 2013). In building this scenario for rural youth, a factor of sustainability is of crucial importance. Except for the sustainability agenda, efforts for engaging the youth in agribusiness would not be much fruitful. Adopting sustainable farming to gain benefits for generations, financial support and much-suited technical support can enhance the interest of young entrepreneurs in rural areas (PELZOM & KATEL, 2018). Directionless use of funds and skills without adequate knowledge and awareness can reduce the bricolage of certain associates responsible for the attitude of rural youth. KWABENA et al. (2020) concluded that, unlike elder farmers, young farmers are more inclined towards innovative knowledge and novel approaches to farming. Besides that, it is evident that personal experience alongside the opinion of fellow farmers could manipulate the attitude of farmers (ZOSSOU et al., 2020). These findings clarify the essence that individuals or initiatives targeted at a segment of the rural community will not be acknowledged by the stakeholders. BALEZENTIS et al. (2020) established that a common agriculture policy focusing on sustainability with a special focus on addressing the obstructions to the inclusion of young farmers can make an impact in line with the sustainability of rural regions. For the good acceptance of such initiative, there must be social mobilization for making up the mind of a targeted section to avoid negligence of the masses at the implementation stage.

Capacity building of rural youth for sustainable agricultural practices in the Punjab (Pakistan) is of paramount importance. As a case study, this research aimed to highlight the attitude and components which contribute to the successful implementation of sustainable agricultural practices among rural youth. By understanding the challenges and opportunities faced by these young individuals, we can devise targeted interventions and policies to empower them to become catalysts of positive change in the agricultural sector. Furthermore, this study assessed training needs of rural youth which will enable them to adopt sustainable agriculture practices. Considering this following are the specific objectives.

To measure the attitude of Rural Youth towards sustainable farming.

To identify the determinants of rural youth's participation in sustainable agricultural practices.

To identify the training areas of rural youth to enhance their capacities for sustainable agricultural practices.

MATERIALS AND METHODS

For the quantitative study, a transverse research design was used. This allows the collection of data from the already defined sample of respondents. Personal face-to-face interviews were conducted using an interview schedule. Punjab province of Pakistan was taken as a universe for this study as it is considered the food basket of the country (AMJAD et al., 2008). Rural youth of Punjab province was the population for this study. Punjab is divided into three regions namely; Northern Punjab, Southern Punjab, and Central Punjab. One district from each region was selected using a purposive sampling method (Figure 1), based on having a maximum population of rural youth.

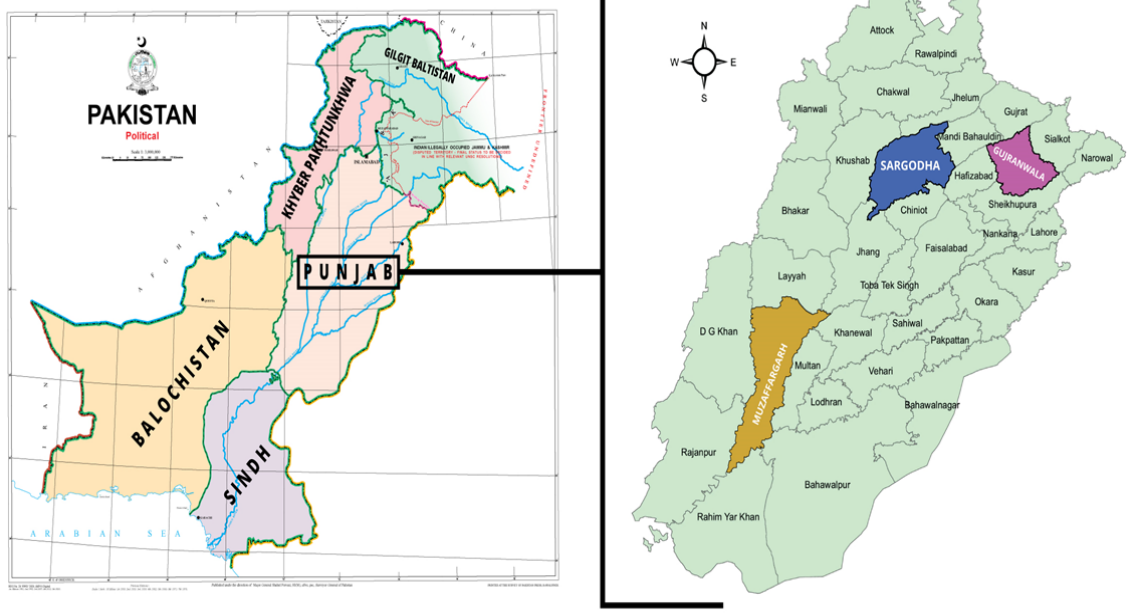

Figure 1 - Map showing selected districts of Punjab province (Developed using Adobe Illustrator 2021) [Govt. of Pakistan. 2022].

Taking sample from unknown population of rural youth in Punjab was unknown. To make the population known Fisher formula was used.

$n = pqZ^2/d^2$ & $ni = 11/n+1 \div (1/n + 1/N)$

The first fold is for calculation of sample size for an infinite population.

$n = pqZ^2/d^2$

Where;

n = sample size for infinite population.

Z = 1.96 (at 95% Confidence level).

p = estimated proportion of rural youth (0.1).

q = 1-p d = precision of the estimate at 5% (0.05).

The sample size for finite population was:

n = 138

Sample size was calculated using second fold of the formula presented in table 1.

In this way 413 respondents were interviewed having age 15-29 years of age. Data collection was carried out by adopting the snow-ball sampling technique in all three districts. Before that reliability of interview schedule was checked using SPSS. Content validity was also assessed by the panel of experts and then afterwards by pre-testing through pilot survey. After recording data, Statistical Package for Social Sciences (SPSS) was used to analyze the data. Descriptive Statistics was used to explain the response of rural youth for reaching a decision about the data.

RESULTS

Education has the role in enhancing the creativity of youth during their potential years of learning and gaining experience, that's why here they are being discussed together. Besides shaping their personality it make them strive to be better version of themselves. Education can help them in becoming a better entrepreneur, a skilled worker, better manger, more informed individual and ultimately a productive farmer. It could be seen from the table 2 that maximum participants of the study belongs to the second half of the vicenarian age (24-29) followed by first half of the vicenarian age. While only 83 young farmer participants were less than the age of 20years. This ascertains that maximum of the rural youth has meaningful experience in farming that is more than five years. Experience and education together can cause the best out of young mind. In this case around 43percent (12years of schooling & 16 and above years education) of the farmers who obtained more than 10years of formal schooling. More than 50 of the young farmers do not even meet the minimum education criteria of OECD for an individual. Only 53 young farmers said that they have never been part of the formal education system. Human interference in a major pillar of agriculture, and if that interference is not supported by the factor of education then

Table 1 - District wise sample selected of rural youth.

District	--------Population of Rural Youth-------	---Sample taken using 2nd fold of formula i.e. ni = 1 ÷ (1/n + 1/N)---
Sargodha	417,281	138
Gujranwala	329,911	138
Muzaffargarh	580,822	137
Total sample size		413

outcomes could be challenging at every stage. Anyhow there is probability of audience effect that literacy rate will go up with the passage of time and experience will be getting benefited by the literacy at vast level among rural youth. That is the reason that our next question is about going into more detail of the literacy of rural youth whom we interacted with.

Non formal education is so worth that affects the decision making and helps in improving the self-confidence. Skill development figures go up in the society and result in the socioeconomic development of the nation. Here we asked from the rural youth about if they ever been part of non-formal education relation to agriculture explained in table 3. There were 28.3percent of the young farmers (respondents) who said that they have been part of professional conference, workshop, seminars & training etc. There were 51 farmers who said that they participated in community or non-credit adult education courses. Such courses plays significant role in keeping the youth less distracted. But there is very less ratio of rural youth which is inclined towards these courses. While there were 14.5percent of the respondents who said that they prefer continuing professional development. In-formal learning of this kind can be a determinant step for up-scaling the rural youth's posture at national level. From the respondents, there were a large number i.e. 44.8percent young farmers who said that they never been part of any kind of non-formal education setting about agriculture. This percentage is really dramatic and explains the unjustified continuous loss for agriculture sector. A guided, informed, well aware, educated and skillful farmer is way productive than that of the unguided one. Non-formal education still is the event and seasoned based activity considered in Pakistan. Well at least it should not be at least on part of state. The reason behind that they are responsible for provision of this facility whenever the respondent or the target person is available. For a change it should be considered that non-formal education is as much important as the formal, at-least for the dropout rural youth or the one who never attended the school.

Farming system and farming type were the two parameters which we incorporated to assess the inclination and limitation of rural youth while being involved in the farming. Uncomplete but farming system give an idea about the inclination of the farming community and type mainly deals with limitations ad it mainly concerned with the ownership of arable land. When asked about the farming system, most of the rural youth were more inclined towards commercial and diversified farming instead of subsistence farming. It could be seen above in figure 2 that only 29.3percent of the young farmers said that they are involved in subsistence farming instead of taking risk for being commercial or diversified farmers. While coming to the farmer type on the base of arable land, 201 young farmers said that they are medium type farmers and own land between 5 to 10hectares. Majority of the young farmers owning medium size of arable land were practicing the

Table 2 - Frequency distribution of rural youth's age & level of education.

Age range (years)	----------Frequency----------	--------Level of education--------	----------Frequency----------
15-19	83	No Formal Education	53
> 19-24	137	5 to 8years of schooling	36
> 24-29	193	10years of schooling	143
Total	413	12years of schooling	107
		16 and above years of education	74
		Total	413

Table 3 - Frequency & percentage of rural youth acquired non-formal education.

Non Formal Education Types	----------Frequency----------	----------Percent----------
Community or non-credit adult education courses	51	12.3
Professional conference, workshop, seminars & training etc.	117	28.3
Continuing professional development	60	14.5
Never been part of non-formal education	185	44.8
Total	413	100

diversified farming system (Figure 3). There were 134 small land young farmers, which own the arable land under 5hectares. Lastly there were only 78young farmers who sated that they owns large piece of arable land and doing commercial farming was their top priority. Commercial farming is the dream of almost every young farmer, even if he belongs to small land ownership category. Many of the young farmers look forward to enjoy the remunerative status of being commercial farmer. Their intentions are worthy enough unless they are not compromising the environmental, social and nutritional needs.

Rural youth are the most prominent figure of the rural society and their contribution could be proved as national treasurer if they put together on a right track. It is a common phenomenon that rural residents face some sort of isolation from the facilities that remaining part of society enjoys. Purpose of knowing the current status of rural youth in table 4 was that how much geographically isolated rural youth feel by being associated with farming. On asking this question 24% of the rural youth said that they are only involved in on farm activities. Followed by this percentage, 22.1%young farmers said that they are still into studies but involved in farming as well. Either they like to do farming as their part time activity or they have to be involved to support their family. Agriculture entrepreneurship and off-farm activity alongside farming was the response of 16.7% and 11.9% of the rural youth. Firstly, most of the youth who regarded themselves as entrepreneurs, were into seed, pesticide and agricultural machinery business. Secondly, the off-farm activities of the rural youth was job other than farming and sports, business other than farming and working as the labor for the local landlords. Farming is a full day job but researcher acknowledges that activities, other than farming, with which young farmer is associated, currently not serve as support for his on-farm job. No doubt to some extent, it does support economically but the journey of young farmer towards being a progressive, more informed, skilled and enthusiastic farmer is on hold. We lack in providing our rural youth a social, economic and physical system that could support rural youth's on-farm activities and lead him to become an asset for the sector or even nation.

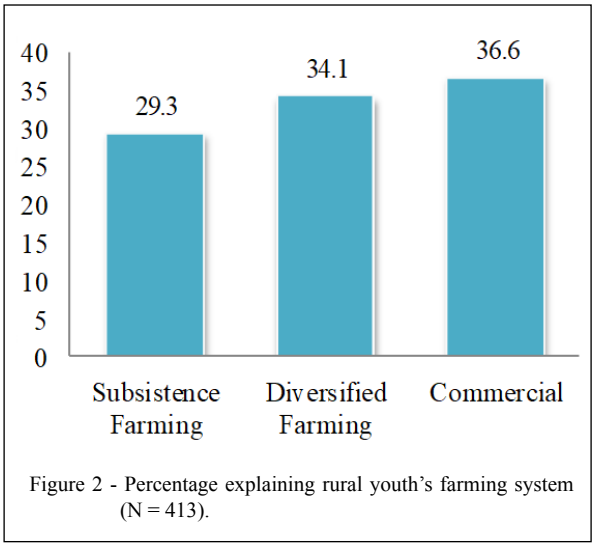

Figure 2 - Percentage explaining rural youth's farming system (N = 413).

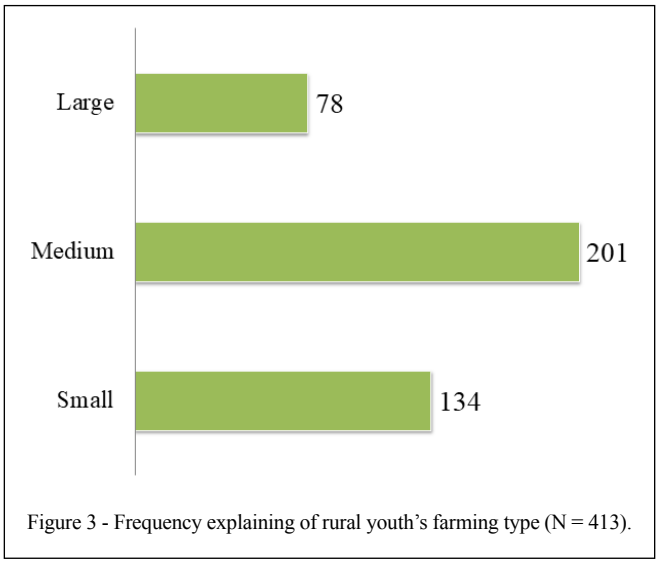

Figure 3 - Frequency explaining of rural youth's farming type (N = 413).

The above statements are all about estimating the judgements of rural youth towards sustainable farming. Through different ways they were asked about giving their opinion about the phenomenon, initiative, involvement, societal change and incentives related to sustainable farming. When asked if they think that, "better to do nothing than to do sustainable farming", most of the young farmers said that they disagree with this approach. This statement from table 5 got the mean value of 2.22% and standard deviation of 1.27%. This statement got the least mean value, it means that there is found inclination among the rural youth for sustainable farming. When asked about their willingness about attending the training related to sustainable farming, their response is more close to neutral, i.e., 3.26. Anyhow this statement obtained the second highest mean value from all. Beside that, it could be seen that either asked about employment rate, monetary benefits, labor intensiveness, knowledge, living standard and food security related to sustainable farming, all of these got mean close to 3.00 that is neutral. This situation point hints lack of awareness and decisiveness of rural youth when it comes to sustainable farming. It raised the concern for educators, change makers, policy makers and researchers. There is strong need of making a consensus on all levels that sustainable farming is a future and a combine support system with real coordination should be available to educate young farmers. As it could be seen from the last statement's mean value i.e. 3.48, that young farmers has sort of interest in being the member of groups for promotion of sustainable farming.

There are determinants of each and every happening in this world of realism. Based of those factors a cause or process of that happening could be understood and specific solution or alternative could be suggested positively. In the above table 6 responses against some determinants of non-adoption of sustainable agricultural practices by the rural youth is given. There were three categories namely; demographic, learning environment and services were

Table 4 - Percentage explaining rural youth's current status.

Current status	----------Percent----------
Only Involved in Farming activities	24
Engaged in Agriculture. Entrepreneurship & Business	16.7
Unemployed and dependent But participate in farming	25.4
Engaged in Off-farm activity alongside farming	11.9
Student and involved in farming	22.1
Total	100

Table 5 - Mean & SD of rural youth's attitude for sustainable farming.

Attitude	----------Mean----------	----------SD----------
Better to do nothing than to opt SF	2.22	1.27
Lower stratum of society will take up SF	2.55	.95
SF is not profitable	2.44	1.08
SF can reduce the unemployment rate	3.15	1.19
Food security can be ensured by attracting youth to sustainable farming	2.92	1.18
Willing to adopt sustainable farming ways	2.99	1.10
Willing to attend the training on SF if given the opportunity	3.26	1.05
It is more productive to be involved in SF	3.01	1.08
Willing to seek knowledge on SF	3.08	1.06
Irrespective of the monetary benefits I am willing to adopt SF ways	3.03	1.05
It would improve the standard of living	3.25	1.08
As an Individual farmer, my SF efforts will be productive	2.96	1.15
SF is labor intensive	3.12	1.03
SF returns take too long	3.13	1.10
Would prefer formal employment alongside SF	3.21	1.15
Willing to be part of the groups for the promotion of SF methods	3.48	1.24

SF = Sustainable Farming, Scale: Strongly disagree = 1, Disagree = 2, Neutral = 3, Agree = 4 and Strongly agree = 5.

made for distinguishing the type of determinants. Each type covers a list of determinants to enrich that type with their diversity. Firstly demographic determinants; from the total respondents, 308 respondents said that they don't think that they are too young to adopt sustainable agricultural practices. This gives us an idea that majority of the rural youth do not consider age as a determinant. They find themselves very much vulnerable towards adoption of sustainable agricultural practices. While asked about the education and farm size that either they think that they have enough knowledge or they think that their farm size is too small. From 413 young farmers, 216 said that they have enough awareness to adopt SAP and 259 young

Table 6 - Frequencies of category wise determinant to rural youth's attitude for sustainable farming.

Determinants	---------No--------	--------Yes--------
----------Demographic----------		
Are you too young to adopt SAP	308	105
You don't have enough education to adopt SAP	216	197
Your farm size is too small	259	154
Your annual income is too low	179	234
----------Learning Environment----------		
Your agricultural knowledge is not enough to adopt the SAP	159	254
Communication means available to you are not enough to adopt SAP	154	259
Training received by you are not enough to be involved in SAP	244	169
Your novelty is not enough to participate in SAP	199	214
Your level of membership with the relevant organizations is unable to make you adopt SAP	277	136
----------Services----------		
Your access to extension services is unable to make you adopt SAP	160	253
Your income diversification is not able to make you adopt SAP	294	119
Your Cosmopolitan status/access to Govt. services does not allow you adopt SAP	191	222
Your unemployment status is restricting from adopting SAP	296	117
Your access to credit from state entities makes you not adopt SAP	247	166

Scale: No = 1, Yes = 2.

farmers responded that they don't think small land size is a determinant in adoption of SAP. More than 55% of the farmers said that they consider that their less annual income is a barrier in the adoption of SAP. This lays foundation for the fact that the youth who are optimistic to overcome the barrier of age, education and land size, could not undermine the financial constraints. To overcome the financial barrier either they should be taught to become smart entrepreneur or they should have the access to less complex and easy approach to financial support.

Secondly the young farmers were asked about the availability of learning environment and how much they feel that environment beneficent for themselves. It is clearly surfaced from the data that more than half of the young farmers said that they do not have enough knowledge about agricultural base and communication means available to them are not enough to adopt the SAP. There is a big gap between the farmer in the field and researcher at higher education institutions or research stations. Moreover in this era where the information and communication technologies has occupied the world, farmers are still struggling to find the relevant and on time information due to multiple barriers. Moving next when they were inquired about the training regarding sustainable agricultural practices and membership of the relevant organization, from the respondents more than 60% said that they had no such experience so they opted to disagree with the statements. Limited membership of youth with the relevant organizations could resist in prioritizing the needs and unable them to make interventions assertively (PROCTOR & LUCCHESI, 2012; BORDA-RODRIGUEZ, 2016). It epitomize the fact that in an agricultural province like Punjab in Pakistan, farmers are still lacking the most needed training and association with the organizations which could be a great source of skill development motivation as well. Beside motivation, novelty factor also matters a lot. So the young farmers were asked about either feel themselves curious about doing new things, tasks or adventures in farming. Above 50% claimed that their novelty is not enough to adopt the SAP. Rest of the 199 young farmers showed their disagreement with the statement. They showed themselves vulnerable towards novelty, which means that above 45% young farmers still consider themselves farmers with innovative minds. This figure still left some hope for us to lead the youth towards novelty and showing them the real path of being an innovative farmer.

Third and last section from the determinant to young farmer was named as services related determinants. This section covered the responsibilities that are due on the part of state or the stakeholders other than farmers themselves. Most needed and literal support for the farming community is undoubtedly is extension services. Non formal education of farmers proves handy in daily work at their farm and helps in mitigating daily risks. From the respondents of this study, 253 young farmers said that they don't think extension services available to them could make them adopt SAP. This means that in the most needed the system is still lacking in diverting the approach of farming community from conventional to sustainable. Beside technical and hands on learning due to extension services, income diversification has found a critical support for the farming communities. Here young farmers supported that this aspect can definitely prove a real support to adopt the SAP. Around 25% of the farmers said that even income diversification cannot lead them to adopt SAP. In researcher's opinion most of the 119 young farmers did not had the opportunity to make a diversified income, that's why they were not assuming the potential lied in income diversification. Young farmers also regarded necessary state services as one of the determinant in adoption. But they bluntly regarded unemployment as an unnecessary determinant in the adoption of SAP. Lastly, from the services. rural youth said that their level of access to financial initiatives of state is a well suited determinant. Moreover accessibility to credit sources specifically is viable if factors like transaction costs, financial literacy and interest rate are remedied (ALIERO & IBRAHIM, 2013). Setting a base for this researcher does recommend the easy access to financial services beside the provision of financial literacy.

Need instigates the thirst for development towards an intended goal. Meanwhile training, skills and hard work are the power houses for sustainability of your effort towards specific target. Here letting the rural youth to highlight training needs for themselves was meant to explore their training requisites to struggle sustainable agriculture. Keeping in mind this rationale, list of areas was presented for the young farmers to rate on Likert type scale of 3. The point listed in the table 7 are either directly associated with sustainability or they have indirect association with it.

From the diverse areas of training, rural youth categorized the use of communication as a tool to be sustainable farmer as more like strongly needed area of training, as this got the highest mean value of 2.46. Communication is not just restricted to farm operations and practices, It is also about promotion of dialogue where power holders

Table 7 - Mean & SD of rural youth's attitude about training required for sustainable farming.

Areas of Training needs	----------Mean----------	----------SD----------
Building healthy soil and preventing erosion	2.14	.848
Managing water wisely	2.31	.747
Minimizing air and water pollution	2.34	.799
Storing carbon on farms	2.22	.805
Increasing resilience to extreme weather	2.09	.779
Promoting biodiversity	2.28	.735
Enabling farms of all sizes to be profitable	2.24	.799
Dealing fairly with its workers	2.29	.783
Promoting racial equity and justice	2.25	.813
Creating access to healthy food for all	2.26	.775
Prioritizing people and communities over corporate interests	2.44	.740
Crop rotation and embrace the diversity	2.37	.770
Growing perennials and cover crops	2.33	.780
Eliminating tillage or reducing the tillage	2.33	.767
Applying IPM	2.38	.784
Smart integration of crops and livestock	2.35	.721
Practicing or adoption of agroforestry	2.37	.738
Management of landscapes and whole system	2.38	.720
Communication to be sustainable farmer	2.46	.694

Scale: No Need = 1, Neutral = 2 and Strongly Needed = 3.

consider, respect, listen to and use the views of farmers knowledge. If young farmers get hands on training about using communication as a tool, they will be more confidently taking part in the initiatives as they know that those are made possible with their due contribution. In addition to this, they also showed some sort of inclination towards the need for prioritizing the stakeholders rather than their corporate interests. This obtained the mean value of 2.44 followed by application of IPM as a sustainable approach. Least mean was obtained by the training about increasing the resilience to extreme weather; i.e., 2.09, this is more inclined towards the neutral response. All of the training areas highlighted here got the mean value above 2.00, but most of them are more close to having neutral response from rural youth. KUMAR et al. (2022) reported the results of training about mushroom production to the rural youth, they were able to enhance their techniques in mushroom production from its quality to preservation and value addition as well. This justifies that lacking in information, awareness and knowledge, rural youth is unable to identify potential areas where they need training to be sustainable farmer.

Based on the above findings the figure of the funnel showing training, attitude, and determinants faced by rural youth highlights the factors that contribute to capacity building for engagement in sustainable agriculture. These factors are interconnected and need to be addressed to create a supportive environment for rural youth to engage in sustainable agriculture practices.

Above funnel (Figure 4) endorse that training is an essential factor in capacity building for sustainable agriculture. Rural youth need to access training programs that provide them with the skills and knowledge necessary to implement sustainable agriculture practices. These training programs can cover a range of topics, including agroecology, conservation agriculture, and organic farming. By offering vocational and business development training, rural youth can also gain the skills needed to start their own businesses and contribute to the local economy (AWOGBENLE & IWUAMADI, 2010). Secondly, attitude is another crucial factor in capacity building for sustainable agriculture. Rural youth need to be aware of the importance of sustainable agriculture and understand its potential benefits. Creating a supportive community that values sustainable farming practices can help to foster a positive attitude towards sustainable agriculture among rural youth. This can be achieved through education and awareness campaigns that highlight the benefits of sustainable agriculture and promote its importance (ŠŪMANE et al., 2018). Thirdly, determinants faced by rural youth are also important in capacity building for sustainable

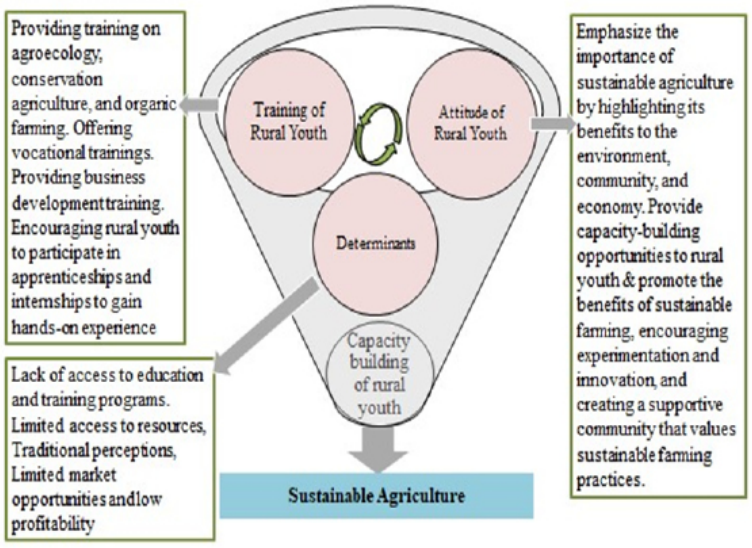

Figure 4 - Contributing factors to capacity building of rural youth.

agriculture. Factors such as limited access to resources, traditional perceptions, limited market opportunities, and low profitability can hinder rural youth from engaging in sustainable agriculture practices. VOGUS & GRAFF (2015) stressed that addressing these determinants requires a comprehensive approach that involves stakeholders from different sectors, including government, NGOs, and the private sector. To overcome these determinants, capacity building initiatives need to focus on creating an enabling environment that supports sustainable agriculture. This can involve providing access to resources such as land, water, and credit, as well as creating market opportunities for sustainable agriculture products. Encouraging rural youth to participate in apprenticeships and internships can also provide them with the hands-on experience needed to succeed in sustainable agriculture.

CONCLUSION & RECOMMENDATIONS

In the recent past Pakistan, the government needed to focus on involving youth in socioeconomic development. Assessing the attitude of rural youth from Punjab Pakistan about sustainable agriculture has given some significant findings. Maximum respondents were of age above and around 24 years. They showed the literacy level of 10th grade and more than that. Having quite enough education at the age when the majority of youth enter professional life or already have started is a good gesture for understanding the most needed diversion towards sustainable agriculture. There was found less acknowledgment for non-formal education like short courses, seminars, workshops, conferences, and field trips. More of the rural youth is unemployed and dependent but do participate in farming activities. This trend is followed by only being involved in farming and there are reasonable figures that rural youth do participate in farming alongside being in school. An interesting thing about their attitude was that they have interest in sustainable farming but with some reservations; formal employment is mandatory, labor intensive, and monetary benefits take too long. Accession to this some agreed to the following statements as well; willing to attend relevant knowledge & training sessions, step up in the standard of living and sustainable farming can reduce unemployment rate as well. From the socioeconomic barriers except for the low-income factor, rural youth rejected the factors like; being too young, education, and farm size. Regarding learning capacities rural youth is lacking related knowledge, communication means, novel approaches, and to some extent membership in organizations promoting sustainable farming initiatives. Above all training requirements, communication to be a sustainable farmer and prioritizing community interests over corporate interests are significant areas where training

is much needed. The concept of non-formal education has to be understood by rural youth significantly, as this not only helps in acquiring skills but it will help rural youth to maintain their interest and skills ultimately. To achieve the goal of sustainability in changing environment, rural youth must have access to continuous training, communication sources, membership or association with organizations with novel ideas covering all the changes happening in the farming business. This study highlighted the need for comprehensive training programs tailored to the specific needs of rural youth, addressing their attitudes, and overcoming the determinants they face in adopting sustainable agriculture. Creating a supportive environment, providing relevant knowledge and skills, and addressing barriers can empower rural youth to actively engage in sustainable farming practices and contribute to agricultural sustainability and rural development. A policy implication drawn from discussion is the need for the government and relevant stakeholders to develop and implement comprehensive agricultural training and capacity building programs specifically targeted towards rural youth. These programs should address the knowledge gaps, provide practical skills, and create awareness about the benefits and importance of sustainable agriculture.

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AUTHORS' CONTRIBUTIONS

The authors contributed equally to the manuscript.

BIOETHICS AND BIOSSECURITY COMMITTEE APPROVAL

We authors of the article entitled "Attitude and components of capacity building of rural youth for sustainable agricultural practices: case study of Punjab province Pakistan" declared, for all due purposes, the project that gave rise to the present data of the same has not been submitted for evaluation to the Ethics Committee of the University /Research Institute "University of Sargodha, Pakistan", but we are aware of the contents of Resolution No. 466, of December 12, 2012 of the Brazilian National Health Council "http://conselho.saude.gov.br/resolucoes/2012/Reso466.pdf" if it involves human.

Thus, the authors assume full responsibility for the presented data and are available for possible questions, should they be required by the competent authorities.

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