



CLIMATE SMART AGRICULTURE DEVELOPMENT AND FOOD SECURITY

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Abstract: *CSA acknowledges mutual energies and compromises between food security, transition and relief as a justification for advising and redirecting the climate change strategy. CSA needs a set of activities by leaders from the ranch to the world level to boost the flexibility of agricultural frameworks as well as it helps to overcome the risk of food insecurity in current as well as future perspective. In this paper, the study area was chosen to be based on one of the areas commonly vulnerable to climate change in India. Assam has been found to be the most vulnerable to climate change in India. This paper discussed the effects of the adoption of CSA practices on the food safety family unit of beachfront farmers in Assam. Farmers had varying degrees of acceptance of distinctive CSA procedures, which were influenced by their apparent difficulty in rehearsing them.*

Keywords: *climate, smart, agriculture, food, security, etc.*

1. INTRODUCTION: The Climate-smart agriculture (CSA) is considering an approach for changing agricultural frameworks which is helpful to encourage food security.

In addition to promoting access to better information, harmonized policies as well as coordinated institutional frameworks and flexible incentives and financial mechanisms, the CSA agrees that the implementation of options will be affected by country contexts and capability. The CSA concept is evolving and the solution to be taken is not one-size-all.

CSA advances activities made up of farmers, scientists, the private sector, the common society and policy makers towards climate-tough pathways across four key activity regions: 1) building evidence; 2) expanding neighborhood institutional adequacy; 3) cultivating climate and agricultural policy intelligence; and 4) linking climate and agricultural financing. CSA contrasts with "Nothing new" methods by underlining the need to update adaptable, setting out explicit arrangements, and encouraging imaginative policy and funding activities. Agriculture is a main economic sector and a big source of industry in these countries, but now more than 20% of the population is in regular food supply.





In provincial territories, nearly 75% of the world's poor live and farming is their main source of salary. In order to alleviate the need and guarantee food security, it is important to increase agricultural productivity and income in smallholders.

1.1 Important elements of the CSA approach

CSA acknowledges mutual energies and compromises between food security, transition and relief as a justification for advising and redirecting the climate change strategy. The IPCC estimate suggests that agriculture and food systems are less stable without such interventions and that food protection is more vulnerable to them. In order to improve flexibility in agricultural frameworks and employment and reduce food insecurity, both today and in the future, CSA needs a variety of activities of leaders from the world ranches. The definition can be seen with the IPCC Climate Change Map, adapted for the particular agricultural situation. There are many biophysical and socioeconomic factors faced by agriculture, including climate change.

CSA's general goal is to aid efforts, from close to global level, to make economic use of agricultural structures to ensure food and nutrition protection for all individuals on a consistent basis, to coordinate fundamental variations and to catch the anticipated relief.

Three destinations are characterized for achieving this: 1) economically expanding agricultural productivity to help ensure a fair expansion of livelihoods, food security and development; 2) adapting and manufacturing climate change versatility from home to public; and 3) creating opportunities to minimize GHG emissions from contrasting agriculture and past trends. Even though CSA plans to achieve each of the three goals, it does not conclude that "triple successes" should be accomplished with each training applied in each region.

2. LITERATURE REVIEW

Caron, Patrick and Treyer, Sébastien (2016) We give a certain point of view on the climate-smart growth of agriculture, which originated from the proposal put forward by the world's agricultural partners in the global climate measure as early as 1992, the agricultural creation was viewed as a focal point in the scheme, but one that was overly politically charged for global cooperation in order to gain ground here. More recently, the concept of climate-smart agriculture has been based on the bet of 'triple win' arrangements in terms of agricultural productivity, climate change transformation and ozone-depleting product emission reductions. Each of these three measurements applies to an issue within the framework of dealings (a war against neediness, food security and climate change alleviation) with its own battlefield and participants, both narrowly and uniformly.

Djojodihardjo, Harijono and Ahmad, Desa (2015) food security, destitution and climate change are firmly connected. Climate-Smart Agriculture is an extremely huge piece of the answer for both Climate Change alleviation and Sustainable Agriculture. Agriculture has a lot to add to a low emanations development procedure. Since in numerous nations agriculture gives a high relief potential, Green House Gases (GHG) discharges decrease endeavors should incorporate agriculture. Climate-smart agriculture is essential for building limit, insight and directing future decisions, just as smart administration of regular assets. Two parts of Climate-Smart Agriculture will be talked about, large scale and miniature.



Arslan, Aslihan and Ju, Jian and Lipper, Leslie and Tran, Tuong (2014) Agricultural creation in northern precipitous area (NMR) of Vietnam faces numerous weights from soil debasement, neediness, food security, and climate change. A nearby gander at agricultural practices that might catch the cooperative energies between food security and climate transformation and alleviation may help layout a feasible answer for the multifaceted issues of this district. This paper reviews the site-explicit examination in the distributed literature on the economic and climate impacts just as the obstructions to the selection of agro-forestry and practical land the board in the NMR, and means to distinguish information holes that should be tended to for a proof based agricultural development strategy in the district.

Neufeldt, Henry and Jahn, Molly and Campbell, Bruce Morgan et. al (2013) Agriculture is seen as "climate-smart" when it contributes to the expansion of food sustainability, transformation and moderation in a responsible manner. This new idea currently regulates existing discussions on agricultural production in view of its potential to access the single-branded agriculture, development and climate change networks. In this evaluation, developed by researchers from a variety of global agricultural and climate research networks, we argue that the concept should be fundamentally assessed in the light of the ineffectiveness of the relation between the three measurements, with the ultimate goal that any improved agricultural activity can be viewed as climate-smart.

3. OBJECTIVES

- To study the Essential elements of the CSA approach.
- To analyze the Adoption of individual climate-smart agricultural and adoption of CSA and farmers' attributes with food security.

4. RESEARCH METHODOLOGY

4.1 Study area

The chosen study area is one of the zones which is vulnerable to climate change in India. So we have chosen Assam, where climate change occurs frequently.

4.2 Adoption of individual climate-smart agricultural (CSA) practices

Adoption of individual climate-smart agricultural (CSA) practices Number of adopters before 2013
Total number of adopters in 2016.

5. RESULT AND DISCUSSION

5.1 Adoption of CSA practices

The examined farmers were informed of 14 normal practices and followed a pattern of seven out of 17 CSA practices. The number of CSA practices earned by farmers has changed from one to 16. Farmers had a regular uptake of 48.4 per cent (SD = 13.7), while the overall uptake remained from 11 to 75 per cent. Among the activities of the CSA, the deep-seated urea followed by the Sorjan approach, pheromone trap and seed storage strategies had the most notable adoption residues (Table 1). Plum



production followed by sunflower development, drifting vegetation development, water melon development, and mulching and lakeside vegetable development were the activities of the CSA with the most reduced adoption residues. All out of the number of adopters among the 117 family units following the establishment of CFS in 2013 was applied to all CSA activities. The issue weight of CSA activities did not indicate a vital relationship with typical adoption residues ($r = -0.11$, $p = 0.67$). In any case, when we dropped two CSA practices (deep positioning of urea and Sorjan technique for vegetable development), the ratio coefficient was enormous ($r = -0.59$, $p = 0.02$).

Table1 Adoption of individual climate-smart agricultural (CSA) practices in Assam

Climate-smart agricultural practices	Total number of adopters in 2016	Number of adopters before 2013	Difficulty weight out of 2	Average adoption (%)	Observed range of adoption	Maximum years of adoption
Storage of Seeds	112	107	0.11	21.6	0–92	30
Deep placement of Urea	80	48	1.04	42.1	0–100	4
Sorjan method	63	48	0.91	26.4	0–100	10
Relay cropping	63	54	0.4	15.7	0–100	31
vegetable cultivation in Pond side	54	38	0.35	9.5	0–67	30
Organic fertilizer	54	45	0.65	14.3	0–100	26
crop varieties with Drought resistant capacities	51	41	0.57	13.2	0–100	31
crop varieties with Saline tolerant capacities	45	31	0.89	18.6	0–100	8
Make use of pheromone trap	44	38	0.4	24.0	0–100	8
Mulching	43	33	0.58	8.21	0–60	26
Rain water harvesting	38	36	0.63	11.1	0–100	31
crop varieties with Flood tolerant capacities	38	25	0.69	19.3	0–100	7
Early variety of rice	30	19	0.89	12.5	0–100	8
Cultivation of Water Melon	21	17	1.05	6.54	0–100	20
Vegetables on floating bed	20	11	0.98	4.57	0–71	10
Cultivation of Plum	10	5	0.55	1.7	0–40	25
Cultivation of Sunflowers	8	5	1.38	2.52	0–100	10



6. CONCLUSION

Climate change adjusts agricultural creation and food frameworks, and hence the approach to changing agricultural frameworks to help worldwide food security and neediness decrease. Climate change presents more prominent vulnerability and danger among farmers and strategy producers however need not prompt investigation loss of motion. The suggested way for climate-smart (CSA) agriculture to boost food security in the changing climate. Climate-smart agriculture the impact of CSA practices on food safety of beach front farmers' family units in Assam was examined in this paper. The farmers had different levels of adoption of distinctive CSA practices influenced by their obvious difficulties in proving them. Using CSA practices can enhance food security by improving food creation.

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