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**Avocados in local market
in eastern Bhutan
increasing every year**

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Climate Resilience through Climate Smart Village establishment

ARDC Wengkhaz



Climate change is inevitable and cannot be prevented and thus addressing the impacts of climate change through mitigation measures has become important for sustainable natural resource management, livelihoods enhancement and climate resilience.

The impacts of climate change in farming are unavoidable and more so small-scale farming communities are worst effected and face the impacts manifested through droughts, water scarcity, wind storms, floods, Human Wild Life Conflict, pest and disease outbreak and so on making them more vulnerable to food insufficiency and poverty.

Understanding the impacts of climate change and developing solutions to enable farmers adapt to the changing climate is better through an inclusive approach of participatory vulnerability assessments to identify the most appropriate the solutions and implementation through a communal approach.

A package of climate resilient farming practices – Climate Smart Agriculture (CSA) technologies and solutions to fit within the local conditions implemented in Ngarpongtang

Climate Smart Village in Mongar, Bhutan over a period of some five years with support of Commercial Agriculture and Resilient

Livelihoods Enhancement Program (CARLEP-IFAD /MoAF) have resulted in enhancing community resilience to climate change impacts resulting though enhanced livelihoods from increased crop yields, income and enhanced food security.

More land is put under cultivation to diversify their crops. Greenhouse gas emission from farms have been channeled into proper utilization through adoption of Bio Gas technology. Water, a scare resource for the community is now sufficiently made available through construction of dryland irrigation scheme. Crops have been protected from wild animal with the establishment of a community electric fence. Community social capital has also improved bringing farmers closer to each other.

CSV Ngarpongtang intervention in which a package of CSA technologies with validations through PVS prior to interventions implemented through a holistic community approach has brought about lasting impacts contributing to enhancing community resilience to climate change impacts. The success of this can be replicated in others.

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Some of the key results of CSV intervention are as follows:

- Water shortage, the biggest problem in the village is now solved through the establishment of 10 Km dryland irrigation with a command area of 147 acres benefitting 50 households in the community
- The availability of water has enabled crop intensification – composed of cereals, fruits and vegetables which resulted in expansion of farming by some 8 % for every household. Fruit orchard development has increased by about a langdo (0.33 acres) for every household. Crop diversity has been enhanced
- Crop loss to human wild life conflict has been prevented through the establishment of 6 Km electric fence covering some 138 acres
- Livestock farming has been integrated with crop cultivation. Improved pastures have been adopted.

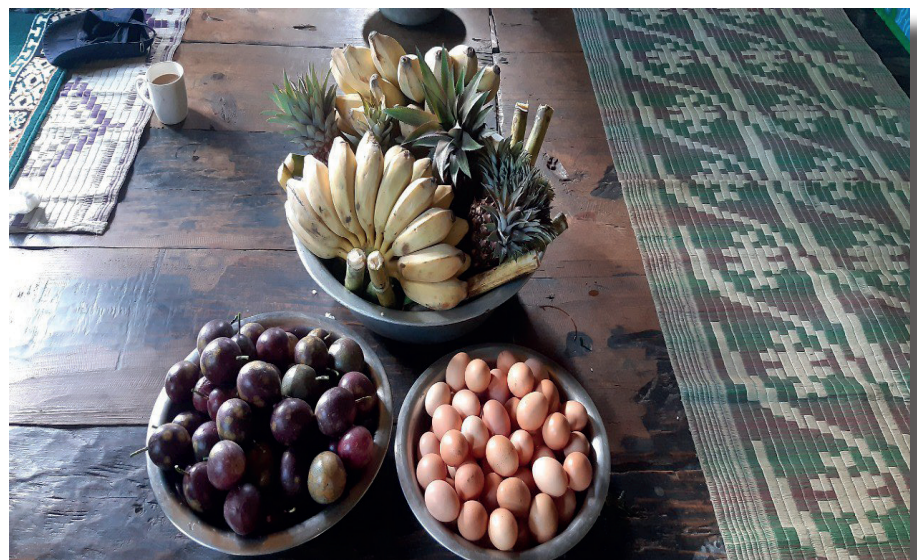
\$ % of the households have started to keep improved cattle that enhanced milk production by 11 %, Poultry number per household on average increased by 54 % with a 130 % increase in egg production.

- Food sufficiency has increased to 79% from 28% in the past. Greenhouse gas emission is reduced by adopting bio gas technology. 16 households have taken up biogas which has contributed to reduction in firewood usage and increased time

for off farm works by men and homestead kitchen garden by women which led to increased income from both off farm and homestead nutrition garden.

The community of Ngarpontang is now market liked with the Bhutan Agro Industries through adoption of contractual farming of pineapples. A total of 10 acres of pineapple cultivation has been initiated and more farmers are coming forward.

Climate Smart Village intervention is coordinated through the Agriculture Research and Development Centre at Wengkhari in partnership with the Dzongkhag Agriculture and Livestock Sectors, Mongar, the Regional Livestock Development Centre at Khangma, Trashigang, the Thangrong geog Administration, Office of Program Management, CARLEP – IFAD/MoAF and 47 farming household of the village of Ngarpontang. A total of Nu. 4.967 Million has been spent over a five year period (2017-2021) including beneficiary contributions through labour and some local materials for dryland irrigation and electric fencing.



Avocados in local markets in eastern Bhutan increasing every year

ARDC Wengkhari



Kalapang in Mongar are slowly becoming popular with avocado fruit (indicating the realisation of One Village One Product concept).

Fruits today in the local market fetch Nu. 200 to 300 per Kg and is much looked upon by consumers who are getting the taste of this highly nutritious fruit with good fatty acids.

Seeds have become precious that some farmers also sell fruits with seeds taken out esp towards the later part of the season. Private nurseries are developing the seedlings and are sold at about Nu 150 to 200 now. Seedlings in the past even fetched 400 to 500 per seedling but not it has stabilised to price ranging from Nu. 150 to 250 per seedlings.

Pinkerton, Haas, Fuerte, Bacon are common varieties in the market. Warm tropical and temperate villages in eastern Bhutan could one day become a major source of avocados.



Years ago, avocados were rare and most farmers did not even know the fruit. The MoAF in 1999 introduced avocados from Australia in 1999 in ARDC Bajo. In 2006 -2007, some additional lines were introduced from California, USA and an introductory trials began at Lingmethang for eastern Bhutan.

ARDSC Lingmethang also initiated a germplasm collection from within the country and some 12 types by fruit types were also collected and added to our collections from where planting materials were developed. The National Seed Centre and now private nurseries have taken up seedling production.

ARDC Wengkhari began promoting avocado and mango fruit villages since 2010 with the start of Horticulture Research and Development Project (HRDP) with support of JICA TCP. Starting from Dawathang, Suskar in Far East in

Jomotsangkha to Nangkhori, PG, Yangbari, Masabgdaza, Jangdung, Kalapang, Saleng, Tsakaling, Chali, Jamcholing, in Mongar; Autsho, Tongphugang in Lhuentse were covered.

Currently, the centre in partnership with CARLEP - IFAD and the Bhutan Ecological Society is implementing a fruit intensification program in eastern region which includes avocados as main component in warm tropics and warm temperate villages.

Fruits from Plants distributed earlier since 2010 from supports such as HRDP-JICA /MoAF; MAGIP - IFAD / MoAF and also additional planted by farmers on their own to add onto what they received are now entering the markets.

Villages such as Dawathang and Suskar in Jomotsangkha; Nangkhori in Pemagatshel, Yangbari, Masabgdaza, Jangdung,



Inauguration of Dryland irrigation scheme at Thridangbi Chiwog

Ugyen Wangdi, CM agriculture, OPM



Mongar Dzongkhag agriculture sector has implemented a dryland irrigation scheme (Multi Use Scheme) in Thridangbi Chiwog in Saling gewog for the fiscal year 2021-2022. Although the village has great potential for growing various horticultural and cereal crops, it relied solely on rainfed agriculture due to water scarcity.

To address this issue, the 7.6 km dry-land irrigation scheme was planned and implemented to initiate commercialization of vegetables and other crops. CARLEP supported the total expenditure of Nu. 6.3 million, while the beneficiaries contributed Nu. 1.488 million in the form of labour. A total of 48 households from Sershingthang, Ngangtangla, Yongkala, Dingdor and Khashtong are benefiting from this scheme.

The Gewog and Dzongkhag Administration organized an inaugural ceremony on 12th September 2022 to commemorate the completion of the work and handover the scheme to the community. The event was graced by Programme Director of CARLEP, Thridangbe gomday lam, local leaders, officials from the Dzongkhag administration and Thridangbi community.



Leisure

Introductipon to Passion fruit

- Passion fruit, native to South America belongs to family Passifloraceae and it is one of the high export value crops.
- There are two distinct forms of *Passiflora edulis* Sims, the standard yellow (*Passiflora edulis* f. *flavicarpa* Deg.) and the purple (*Passiflora edulis* f. *edulis*), differing in acidity and starch content.
- The annual production is about 120 MT in 2016.
- In Bhutan, there are two types of passion fruit, Purple type and Yellow type. However, purple type is the most common types grown in Bhutan.
- Purple type can be usually grown from 900 to 2000 m above mean sea level and Yellow type below 1000 m. Temperature of 18-23oC is favourable for flower initiation and fruit set in purple passion type while relatively high temperature is necessary for promoting juice production and improvement in quality.
- Passion fruit is grown on many soil types but light to heavy sandy loams, of medium texture are suitable. Soil with a pH of 6.5 to 7.5 is the most suitable

JOKES



How do You? A student named Sonam was sitting in class one day and the teacher walked by and he asked her "How do you put an elephant in the fridge?" The teacher said "I don't know, how?" Jacob then said "You open the door and put it in there!" Then Jacob asked the teacher another question "How do you put a polar bear in the fridge?"

The teacher then replied "Ohh I know this one, you open the door and put it in there?" Jacob said "No, you open the door, take the elephant out, and then you put it in there." Then he asked another question..."All the animals went to the lions birthday party, except one animal, which one was it?" The teacher a bit confused and said "The lion?"

Then the student said "No,the polar bear because he's still in the fridge." then he asked her just one more question..."If there is a river full of crocodiles and you wanted to get across it,how would you" The teacher then says "You would walk over the bridge." Then Jacob says "No, you would swim across because all the crocodiles are at the lions birthday party!" She laughs and walks away.

Did you know?

Our body doesnt usually absorb iron from plants very well. However, the iron in passion fruit comes with a lot of vitamin C, which is known to enhance iron absorption.

Please submit your articles for the RNR-Newsletter at
communication@moaf.gov.bt



The Ministry's week

Bhutan-ICIMOD Country Consultation: Deepening engagement towards a greener and more resilient future for the Hindu Kush-Himalayan Region



The Ministry of Agriculture and Forests and the International Centre for Integrated Mountain Development (ICIMOD) co-organised the 'Bhutan-ICIMOD Country Consultation on Co-designing ICIMOD's Medium-Term Action Plan V (2023-2026)'. Over 55 participants from 33 organisations – government agencies, non-governmental organisations, academic

and research organisations, development organisations, community-based organisations, civil society, and private sector entities – participated in the Consultation.

Speaking at the event, Dr Pema Gyamtsho, Director General, ICIMOD noted, "Bhutan has been a founding member of ICIMOD since 1983.

6th AFACI General Assembly was held in Bhutan

The 6th Asian Food and Agriculture Cooperation Initiative (AFACI) General Assembly was held on 29 August with a conference on 'Food Security'. The AFACI is an inter-governmental and multilateral cooperation body that aims to improve food production and promote sustainable agriculture in Asian countries through knowledge and technology

transfer and sharing.

In order to realize AFACI's goals, it conducts, manages, funds, and coordinates multilateral projects, international trainings, program workshops, and symposia. The AFACI Secretariat is based at the International Technology Cooperation Center, Rural Development Administration in Jeonju, Korea.



The EU-RGoB launches Sustainable Agriculture Food Systems Budget Support Programme in Bhutan



Hon'ble Finance Minister, Lyonpo Namgay Tshering, Royal Government of Bhutan and the EU Ambassador to Bhutan and India, H.E. Mr. Ugo Astuto launched the 'Promoting Inclusive, Sustainable, and Resilient Agri-Food Systems in Bhutan' programme in the presence of the H.E. Lyonpo Yeshey Penjor, Minister for Agriculture & Forests and EU

Members of Parliament. The EU has earmarked EUR 15 million for this five-year EU-funded budget support programme.

The EU budget support programme will assist Bhutan in promoting sustainable agriculture-food systems in Bhutan which are inclusive and resilient to the impact of climate change.

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