Safe & Sustainable

CLEAN FOOD NET ZERO (CFNZ) PROGRAM

The best Model to attend ESG Goal to Net Zero Commitment with Social & Environmental Footprints

Presented by

Inhana Organic Research Foundation (IORF)


Our planet is burning,
and there is no
Planet B
We have to take a call today
on Global Warming

The 2023 UN Climate Change summit (COP 28) in Dubai faced a harsh reality :

Global temperature have increased over the past years, with the monthly Global average surpassing 1.5^0C above pre-industrial level during the last summer

- **There was warming that the world was actually on track around 2.70C of worming by 2100**

The Present Reality

UN environment programme | 50 1972-2022

- Latest UNEP Emissions Gap Report finds new and updated Nationally Determined Contributions only take 7.5% off predicted 2030 emissions, while 55% is needed to meet the 1.5°C Paris goal

- Climate commitments fall far short of what is needed to meet the goals of the Paris Agreement, leaving the world on track for a global temperature rise of at least 2.7°C this century, -*UNEP Emissions Gap Report 2021.*

The Additional Burden

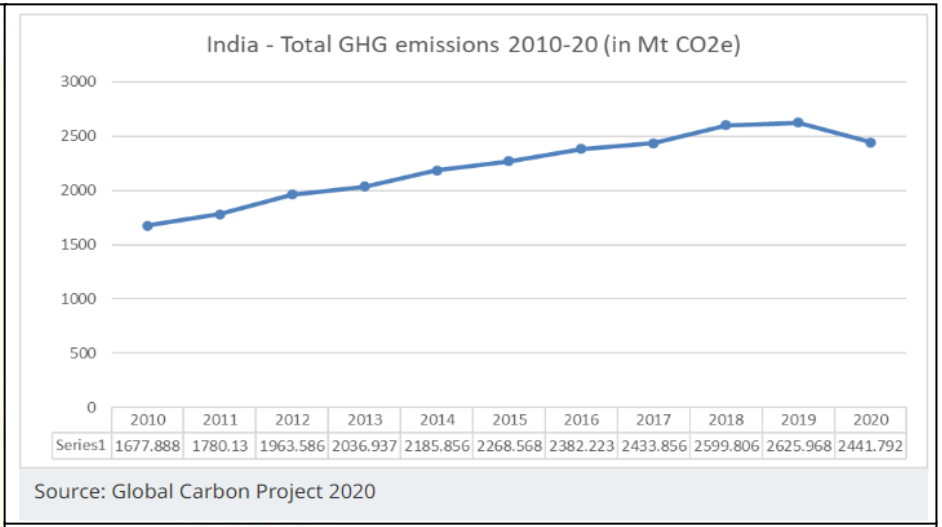
To have any chance of limiting global warming to 1.5°C, the world has eight years to take an additional 28 gigatonnes of CO_2 equivalent ($GtCO_2e$) off annual emissions, over and above what is promised in the updated NDCs and other 2030 commitments.

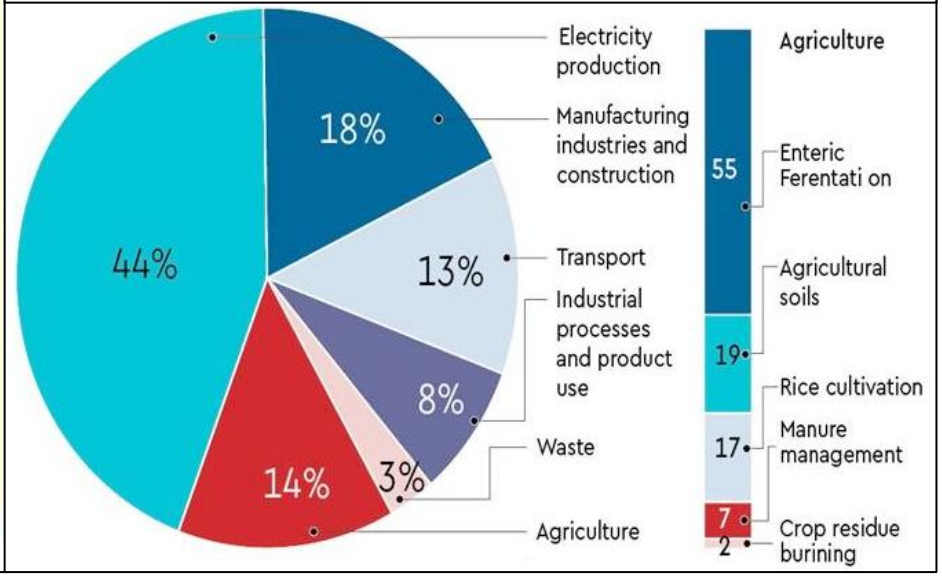
UNEP Press Release 2021

India's Commitment to Net Zero objectives

PM MAKES FIVE PLEDGES

1. India will increase its non-fossil energy capacity to 500GW by 2030
2. India will meet 50%of its energy requirements from renewable energy by 2030
3. India will reduce the total projected carbon emissions by one billion tonnes from now to 2030
4. By 2030, India will reduce the carbon intensity of its economy by 45% (from a previous target of 35%)
5. By 2070, India will achieve the target of net zero





Food Production Needs to Rise by 50% in 2050 to feed 10 Billion People.

The Present Reality

By 2030, at least Nine out of Ten of the Major Crops will experience REDUCED GROWTH RATES due to Climate Change

the 'UN' Warns . . .

"Climate Change Threatens the World's Food Supply"

Agriculture is the 2nd Most highest contributor to GHG emission after Energy Sector. But this is the only sector which is both the cause and the victim of Climate Change

Climate Change Impact on Agriculture : A prediction from India

According to a press release by Ministry of Agriculture & Farmers Welfare, India (2023), climate change impact assessment using crop simulation models (incorporating the projected climates of 2050 & 2080) showed that, **in absence of adoption of adaptation measures, rainfed rice yields in India are projected to reduce by 20% in 2050 and 47% in 2080 scenarios.**

Clean Food Net Zero (CFNZ) Program

Unique offerings for IBM to move towards Net-Zero GHG Emissions

- not merely for compliance, but for attending the noblest human cause!

From

Inhana Organic Research Foundation (IORF), Kolkata

Clean Food Net Zero (CFNZ) Program

Attains 3 most critical Criteria of today

- **Global Warming**
- **Climate Change**
- **Degraded Agricultural Soil**

‘Clean Food’ Net Zero Model –

the **NUMERO UNO Model** that can meet **NET ZERO Goal**

along with **Social & Environmental Impacts**

How Clean Food Net Zero Program can at a time attend the Net Zero Commitment & Sustainable Development Goals (SDGs) ?

Clean Food Net Zero Program

Addition of Carbon to Soil

Towards Increasing Carbon Sink

Leading to Effective GHG MITIGATION

Sustained/ ENHANCED Crop Production + **SAFE FOOD for Human Health, Soil & Environment**

Saving GHG through ADAPTATION

Low/ No N-Fertilizer & Chemical pesticides

OFFSETS BOTH DIRECT & INDIRECT GHG Emission

Net Zero Commitment

Sustainable Development Goals (SDGs)

Organizations can Achieve the NET ZERO GOAL with Additional Safety Imprints w.r.t Human Health, Soil & the Environment

'CLEAN FOOD' NET ZERO MODEL - 3 Way CLIMATE ACTION

GHG OMISSION, GHG MITIGATION & GHG ADAPTATION

- **Stops GHG Emission from SOURCE**

GHG Omission → Use of Novcom Composting Technology for Effective Bio-conversion of **WASTE**– **Very High GHG Emitter Especially Land Fill Material**

- **Enable GHG Mitigation by Soil- C Sequestration**

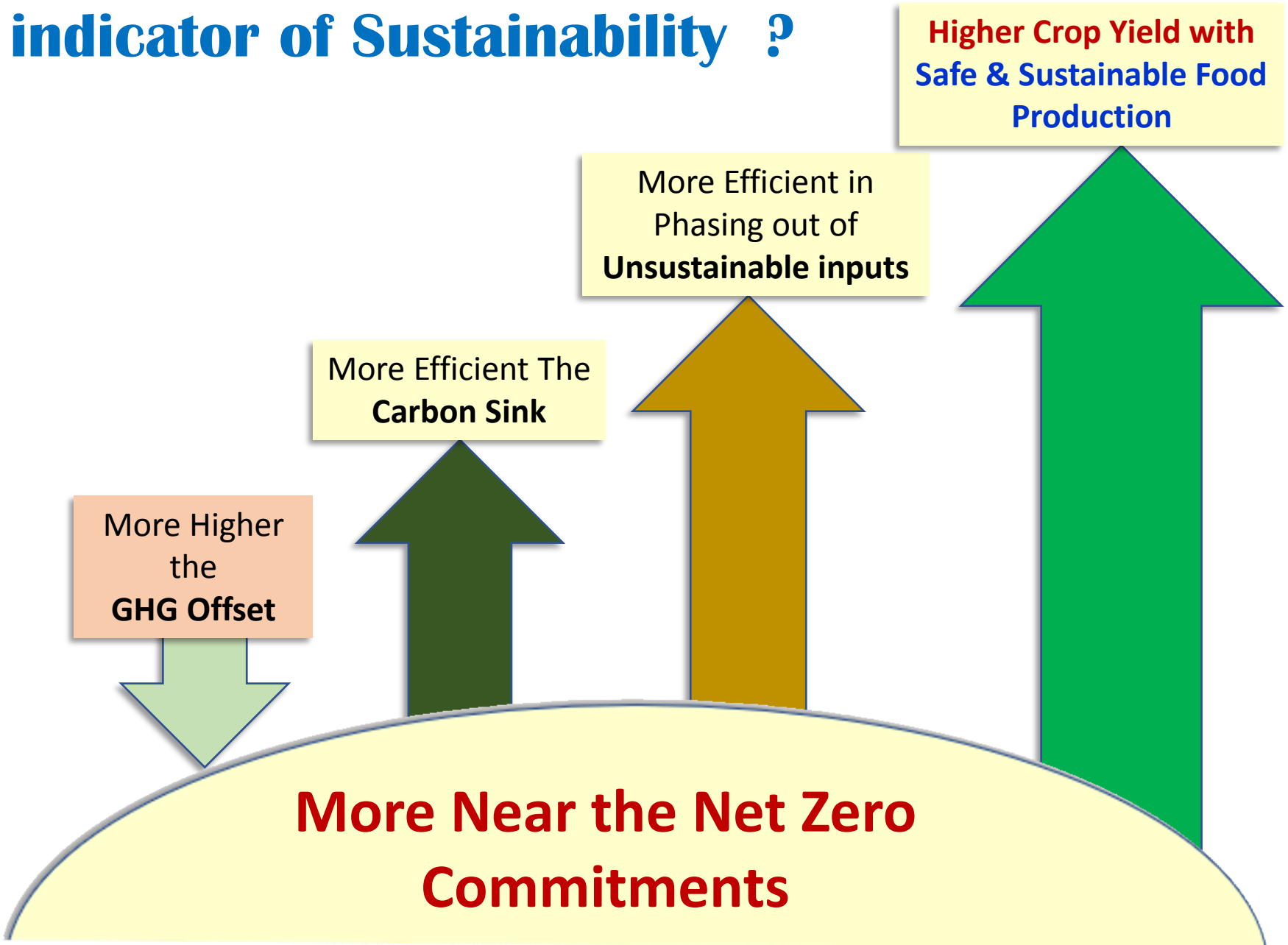
GHG Mitigation → **Waste Bio converted Novcom Compost** application in **AGRICULTURALLY DEGRADED SOIL**

- **Captures Atmospheric- C through Improved Plant Photosynthesis leading to Higher Crop Yields (*excess biomass generation*)**

GHG Adaptation → Inhana Plant Health Mgt. to ensure **HIGHER CROP YIELDS with Elimination of Chemical Pesticides & Nitrate Fertilizers**

GHG Mitigation from Source through Elimination of GHG Emitting Inputs ↔ **Production of SAFE & SUSTAINABLE FOOD** ↔ **Sustainable Agriculture** that can be **CONTINUED, INTENSIFIED & MAGNIFIED**

Achieving Net Zero Commitment is the indicator of Sustainability ?



IBM-IORF Clean Food 'NET ZERO' Program recognized as the

Best Climate Action Model

Bio-conversion of Land Fill Material

- **Removal of CH_4 from source point** – 75 times Higher GWP_{24} than CO_2 **Atmospheric Life Time of CH_4 is 12 Years** and CH_4 is Precursor to Ozone, which itself is a GHG
- Reduce risk of Soil & Water Pollution

NO Nitrate Fertilizers & Chemical Pesticides

- Ensure up to **ZERO N_2O Emission** as N-fertilizers release N_2O with GWP of 3200 kg CO_2 Eqv. per ha (considering 250 Kg N/ha)

Reclamation of Degraded Barren Land

- Upto **4000 kg Org. C** or 7000 kg Organic Matter Addition per ha resulting **GHG Mitigation of 700 – 750 MT CO_2 Eqv. / 100 ha**
- Addition of **Trillion Billion Self- generated (hence better acclimatized) Microflora** in Soil per ton application of Novcom Compost- - **Regeneration of the Largest Sink for GHG's**

Improvement of Crop Yields in Degraded Agricultural Land

- up to 25000 kg **NET ZERO FOOD** (cereals/vegetables), per ha with GHG saving up to **25000 MT CO_2 Eqv. / 100 ha – with Adoption of Inhana Rational Farming (IRF) Technology.**

SUMMARY of IMPACTS

Only Model that can attend the objectives of

'Clean Food' (NET ZERO) Model

SAFEST Food	Development of Pesticide Residue Free (as per FAO-WHO-Codex Alimentarius Std.) '**Clean Food**'
Human Health, Soil, Environment	**Soil & Environment Friendly Agriculture** that can provide SAFEST food for >20,000 consumers from a mere 100 ha .
Crop Sustainability	About 15–25% **Increase Crop Productivity** as compared to conventional farmers' practice.
Land Fill Material Bioconversion	**Bioconversion of any type of waste material** (within 21 days) towards soil productivity regeneration and GHG offsetting upto 36 – 40 ton / ha
MAJOR GHG Mitigation	Potential for **GHG mitigation upto 10,000 ton CO_2 equivalent**- ready to serve the NET ZERO OBJECTIVE -A model that can equally benefit the Farmers, Consumers & Corporates as per their specific objectives
Carbon Sink	**Initiative towards regeneration of Soil Carbon Sink,** through enhanced Soil-C sequestration (upto 300 kg/ha/year)
Soil Reclamation	**Low Cost, Time Bound** reclamation program for degraded agricultural soil
Seed Development	Initiative towards development of climate resilient organic paddy & vegetable seeds for self sustenance of the farmers
Ecological Sustenance	Significant Impact on Ecological Sustenance with **increased Soil microflora & earthworm activity**
Energy Saving	Upto **32% lesser Energy Input** with **>60% Higher Energy Productivity** & upto **183 % higher Nutrient Energy Efficiency**
Livelihood Support	Livelihood support to Farmers through **Transfer of Sustainable Crop Technology** & knowledge support.

Driven By

IRF Technology

Ecologically Sustainable, Economically Viable and designed for Convenient Adoption especially by the marginal and small farmers

HOW

Objectivity accomplishment under Clean Food Net Zero was ensured ?

Technological intervention from SEED SOWING to CROP HARVEST

360 Degree care for Safe and Sustainable Crop Production with increasing productivity and reducing cist of cultivation

'Inhana Rational Farming (IRF) Technology' developed by

Dr. P. Das Biswas

(Founder Director, Inhana Organic Research Foundation)

has been the **'SUSTAINABILITY ENABLER'** for more than Two Decades providing **Science Based Adoptable Agriculture Models** especially for the Marginal & Small Farmers **towards Ensuring Higher Crop Yields, Without Raising the CoP**

Most comprehensive and tangible approach of IORF that enables a sustainable transition from a GHG-emitting Agricultural system to a GHG-omitted one!

Inhana Rational Farming (IRF) Technology*

Through the dual approach of Plant Health and Soil Health Management, the Technology works towards reactivation of the inherent Physiological, Metabolic & Biochemical Functions of the Plant System for aiding Better Nutrient Utilization as well as Enhanced Immunity against pest and disease.

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Soil Health Management

+

Plant Health Management

*Inhana Rational Farming Technology was developed by Dr. P. Das Biswas, an Indian scientist pioneering sustainable organic tea cultivation in India . The technology is based on the Element Energy Activation (EEA) Principle; which is a perfect blend of Ancient Wisdom and Modern Science.

Soil Health Management under IRF Technology

- An Effective and Economic solution which can be easily adoptable by farmers community irrespective of socio-economic consideration and Agro-ecological Diversity.

Soil Health Management is Primarily done using Novcom compost, a Technological innovation for better and speedy effectiveness, and economic viability

Novcom Composting Method

- **Enables Quality Compost within 21 days**
  When most of the composting method take 60 to 120 days, Novcom composting method takes only 21 days

- **Ensured Post Soil Application Effectiveness through 10,000 times Higher Self-generated Microbial Population**
  When most of the composts have microbial population in the order of 10^{10} to 10^{12} c.f.u /gm moist compost, compost prepared under Novcom composting Technology have a microbial population in the order of 10^{16} c.f.u / gm moist compost – which ensures speedy microbial rejuvenation in soil and enhances soil-plant nutrient dynamics towards higher crop production without any time loss.

- **Wider Applicability with Less Application Requirement**
  Novcom Composting Method can use any type of biodegradable waste including complex materials like press mud, poultry litter, coir pith, paper mill waste, Municipality Solid waste; as raw material Qualitative superiority of Novcom Compost ensures lesser application dosage for similar crop target w.r.t. other conventional compost.

- **1/10th GHG emission w.r.t. windrows composting method**
  Higher biodegradability potentials enable less GHG emission under Novcom composting process – makes it suitable for any GHG Mitigation Program

- **1/3rd cost of vermi compost**
  With no infrastructure requirement, lesser sensitivity, lesser monitoring time and better recovery percent, the cost of Novcom compost is less than 1/3rd of vermi compost making cost.

Plant Health Management with IRF Technology

- 1st Ever approach for attending the Plant Health through Energy Infusion that activates plant physiological functioning.

Restoration of the Deficient Energies in Plant System lead to Activated Plant Physiological functioning leading to Plant Health Development.

This is primarily done through application of a Package of 'ENERGIZED & POTENTIZED' Botanical Solutions, which are developed on the 'Element Energy Activation' (E.E.A.) principle. The Solutions contain Isolated Energy Forms extracted from Energy Specific Plant Sources which store the Radiant Energy or the Basic Life Force in differential forms. The Isolated Energy Forms are easily Absorbed by the Plant System and Deliver the deficient energies to the specific sites within the Plants that control the different Metabolic & Bio-chemical functions.

Activate Plant's Immunity System

Activated Plants with higher Photosynthetic Efficiency produce Complex carbohydrates like Pectin, which reduces Susceptibility to soil borne pathogens. Activated Plants also store the surplus energy in the form of lipids which aids in formation of the phospho-lipid cell membrane, the plant's mechanical barrier especially towards air borne pathogens. Activated Plants means desirable secretion of phenolic compounds which invoke the Bio-chemical Defenses against Disease Infections.

The Area of GHG Offsetting Potential under Clean Food Program with Adoption of Inhana Rational Farming (IRF) Technology

GHG Offsetting Potential

- Utilization of waste / landfill material to compost through **Novcom Composting Technology**
- Addition of compost in Soil
- Enhancement of **soil carbon sequestration potential** under IRF Soil Management
- Enhancement of Plant Biomass with **IRF Plant Management Practice**.

Measurement Tool

An Innovative **GHG Footprint Assessment Tool** is being developed by i-NoCarbon, London, a UK based organization with scientific assistance from IORF

SINGLE INTERVENTION
(Addition of the Component of Soil Input)

ENERGY DEFICIENCY TO ENERGY SUFFICIENCY

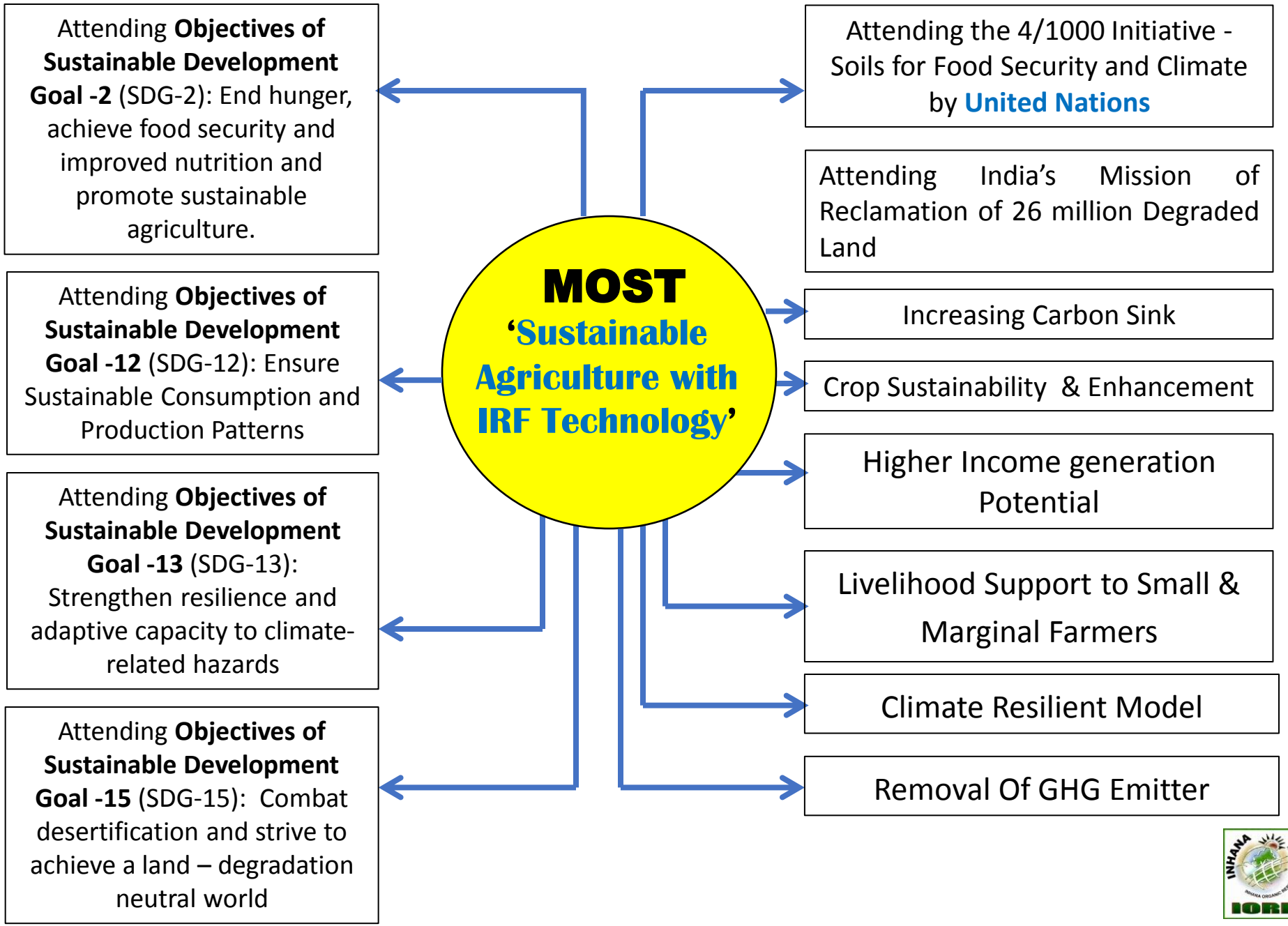
Input Dependent Agriculture to SELF RELIANT Agriculture

Qualitative Agriculture to Quantitative Agriculture

- MULTIPLE IMPACTS

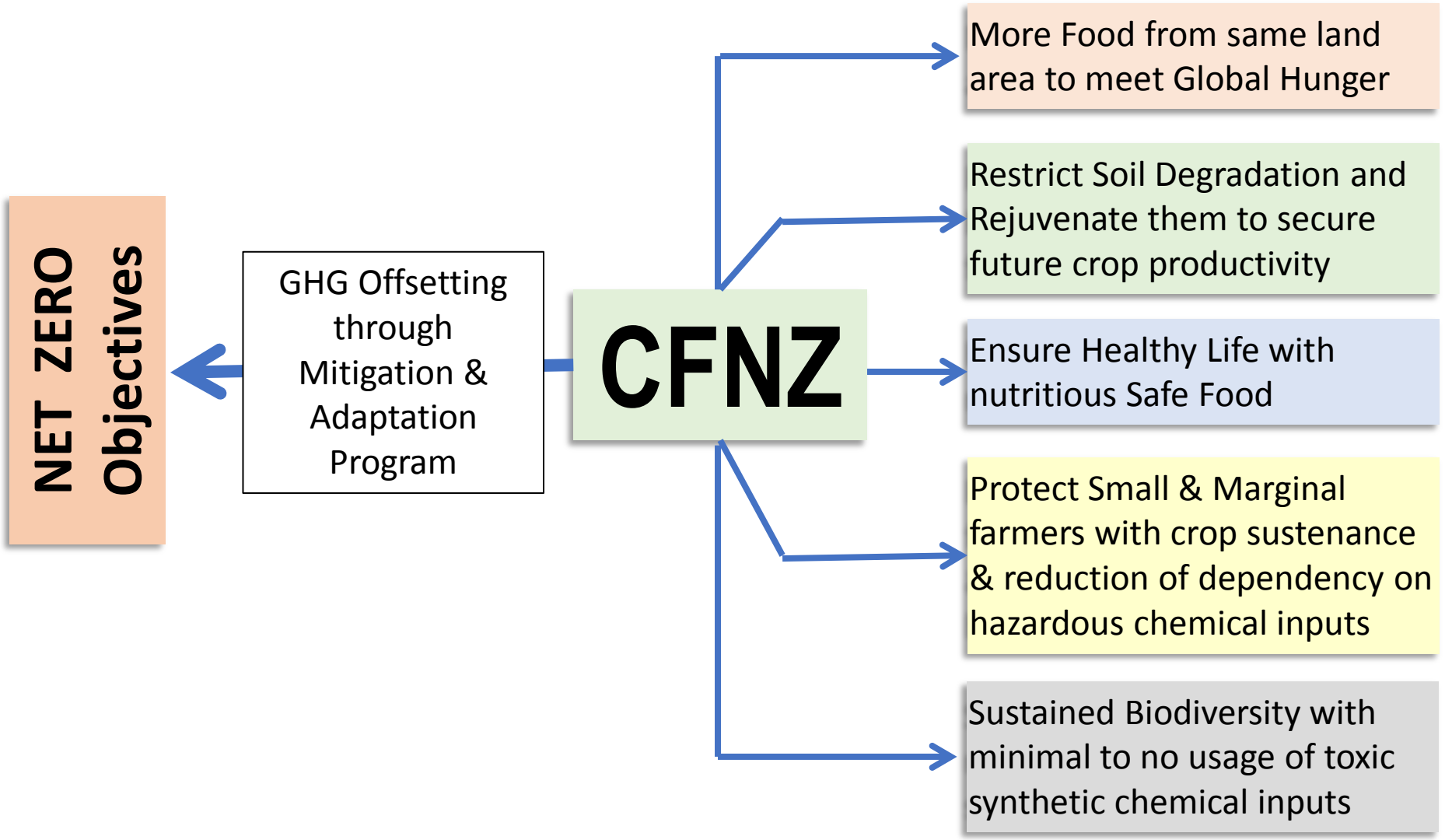
- Arresting GHG Emission by 6 ton / ton of Novcom Coir Pith Compost
- Incorporation of 1600 MT Organic Matter and 5 MT Organic carbon in 100 ha. soil
- Reclamation of Agricultural Degraded land
- Enhancement of Crop Productivity
- Development of ZERO CO_2 Foot Print Agriculture
- More Crop Production with lesser Nutrients
- Enhancement – Restoration ⟶ Maintenance ⟶ Enhancement of Soil Organic Matter (SOM) & Soil Organic Carbon (SOC)
- Reinstation of - Soil Biology – Seed of Soil Health

Single Program Attending Multiple Objectivities



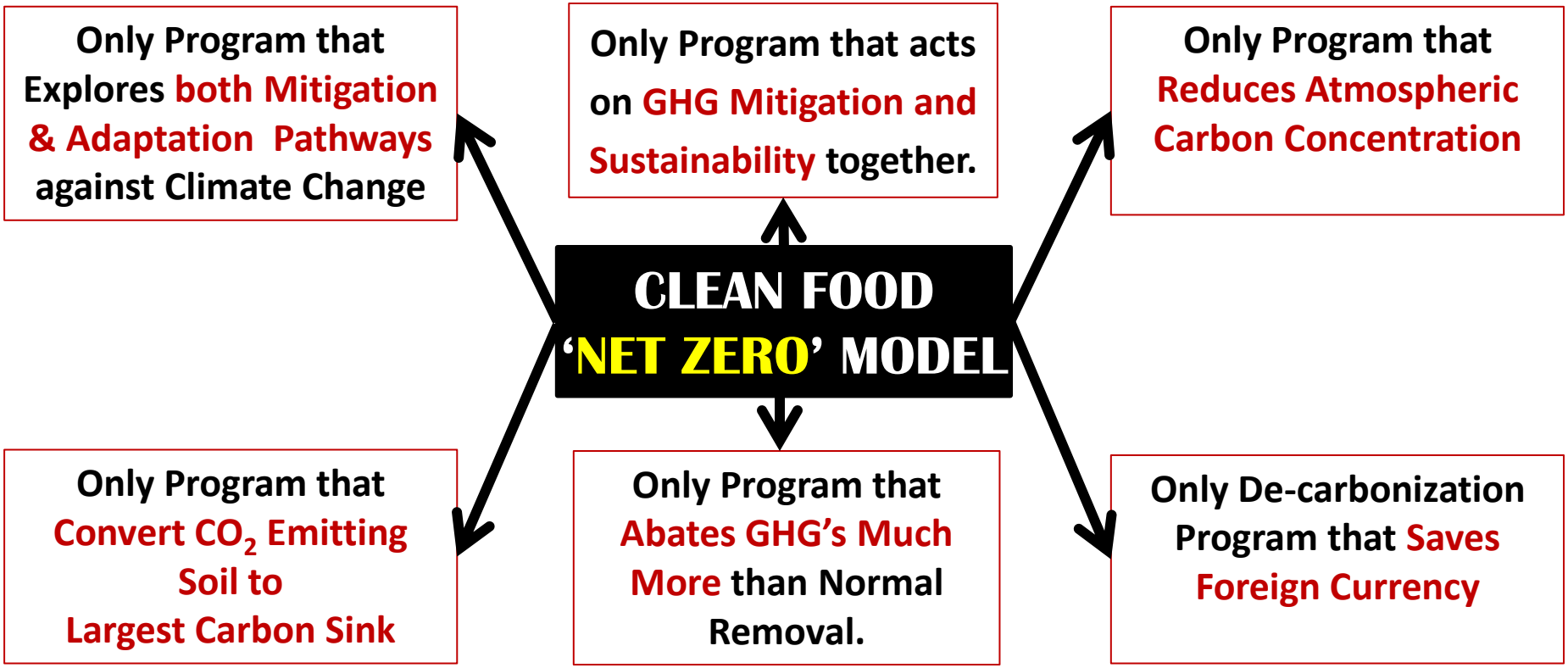
Clean Food Net Zero (CFNZ)

The vital link in between Net Zero Objectives and Environmental & Social Goals



CLEAN FOOD 'NET ZERO' MODEL

A MODEL, that perfectly aligns with the Corporate Net Zero Standard



CLEAN FOOD 'NET ZERO' MODEL

Numero- Uno Climate Action Model in the Food & Agriculture Sector

- **GHG OMISSION from Source** → Omitting emission through bioconversion of land fill material
- **GHG MITIGATION** → Incorporation of Org. Matter & Org.-C in Soil through Bio-converted Waste material
  - **GHG MITIGATION** → Regeneration of the Largest-C Sink
- **GHG ADAPTATION** → High Biomass/ Crop Production with Lesser C-Input
- **Reclamation of DEGRADED SOIL** → Inoculation of 40 Trillian billion self-generated microbial population.
- **Model for SAFE & SUSTAINABLE Agriculture** → Intervention of Safe & Sustainable IRF Technology
  - **Model for SAFE & SUSTAINABLE Agriculture** → NO HIKE **in the Cost of Production**
- **Transformation of GHG Emitting Agriculture to GHG OMITTED AGRICULTURE** → Elimination of Nitrate fertilizers & Synthetic Pesticides **through Inhana Soil & Plant Health Management**
- **CLIMATE NEUTRAL FOOD** → Safe for Human Health
  - **CLIMATE NEUTRAL FOOD** → Safe for Soil
  - **CLIMATE NEUTRAL FOOD** → Safe for Environment

SUMMARY

Clean Food Net Zero (CFNZ) program is the best Demonstrative Model for Corporates' Net Zero Compliance and Commitment

1st Ever sustainability program that helps 10 most unique achievement in a single initiative

1. Sustainability in Agricultural System
2. Contribution to Climate Change
3. Soil Carbon Sequestration
4. Methane (CH4) Mitigation from source
5. N_2O Abetment
6. Agri- landfill waste Management
7. Energy Transition in Agriculture
8. Decarbonization of Agriculture
9. Livelihood support for Small and Marginal farmers
10. Reclamation of degraded Soil

Thank You

Join US for Sustainable Initiatives for better Tomorrow

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