






## Carbon Offsetting: BAIF's Initiatives to accelerate Climate Action

Today, the world is being faced with one of the greatest challenges to environmental stability, economic growth and human development i.e. climate change. Globally, efforts are being accelerated to undertake climate actions through reduction and removal of Green House Gas emissions. The central goal is to keep the temperature rise below 1.5<sup>0</sup> C over pre-industrial levels. Various countries have committed to nationally determined contributions (NDCs) through the Paris Agreement of COP21. Recent studies by experts have indicated the need for more rapid and aggressive actions for mitigation. BAIF Development Research Foundation (BAIF) has pioneered and evolved several approaches that foster carbon positive development, contributing to community livelihoods as well as climate change mitigation.

Some of the major Carbon offsetting initiatives are given below:

 <p><b>Dairy husbandry-based</b> rural livelihoods and reduction of enteric methane emissions</p>	<p>The focus is on breed improvement of cattle resulting in increased milk productivity by improved conversion of feed to milk thereby reducing the emissions per litre of milk produced. Sex sorted semen further helps to reduce livestock-based emissions by improving the proportion of productive animals in a herd.</p> <p>Breed improvement helps in reducing methane emission per litre of milk produced by 15 to 25%. Cattle feed management has direct impact on methane emissions. Various approaches including ration balancing, use of feed additives and use of anti-methanogenic feed supplements like <i>Harit Dhara</i> help in reducing methane emissions by 17 to 20%. At cumulative level, 6.5 million families have benefitted contributing Rs. 20000 Crores (Rs. 200 billion) annually and milk production of 7.59 million t per annum.</p>
 <p><b>Wadi (Agri-Horti-Forestry)</b> for Carbon Sequestration and livelihoods</p>	<p>The <i>Wadi</i> programme pioneered by BAIF involves integration of trees into the farming system along with soil improvement and sustainable practices.</p> <p>The <i>Wadi</i> concept is being implemented on more than 86000 ha benefitting more than 0.2 million families. The estimated sequestration/offset is 7.2 million t CO<sub>2</sub> eq. while also contributing significantly to improved livelihoods and improved nutrition.</p>
 <p><b>Land Degradation Neutrality (LDN) through watershed-based</b> resource conservation and soil carbon enrichment</p>	<p>BAIF's initiatives on natural resources development focuses on watershed development, soil and water conservation, soil improvement, water management and silvipasture development which are contributing to land degradation neutrality, improved livelihoods and soil carbon sequestration.</p> <p>Watershed-based natural resources development has been undertaken by BAIF on 3,64,112 ha in 12 states of India. The estimated carbon sequestration / offset achieved is 1,00,000 t C per year.</p>

 <p><b>Renewable Energy</b> through IRESA (Integrated Renewable Energy and Sustainable Agriculture), Agrobiodiversity recycling and solar energy</p>	<p>Cow dung is an important source of methane emission. The Integrated Renewable Energy and Sustainable Agriculture (IRESA) initiative of BAIF aims at appropriate management of cowdung to produce biogas thereby reducing fuel wood use. So far, 2000 biogas units have been established contributing to nearly 8000 tons of CO<sub>2</sub> per year. The slurry is used to produce Phosphate Rich Organic Manure (Bio-PROM) replacing synthetic fertilizers. Various crops like Napier and spineless cactus capture atmospheric carbon on a high efficiency and are hence promoted for feeding livestock and to biogas plants for production of biogas-based energy.</p> <p>BAIF has introduced fractional solar water pumps that suit the requirements of small holder farmers. These fractional hp pumps have emission reduction potential of 11.25 Kg CO<sub>2</sub> eq. per day per hp while replacing diesel pumps.</p>
 <p><b>Other initiatives</b></p>	<p>BAIF is also involved in various other initiatives that help in sequestering carbon through grassland management, soil health improvement through organic inputs and biochar application. Emphasis is on sustainable management and utilization of resources especially Land-Water-Energy nexus. Various practices are promoted for recycling of agricultural residues and for reducing the use of synthetic chemicals in agriculture.</p>

**BAIF’s Carbon offsetting programme gives equal thrust to Mitigation, Sustainable and resilient community Livelihoods and Adaptation potential.**

**Alignment with India’s Nationally Determined Contributions**

Hence, these programmes contribute to the following Nationally Determined Contributions (source: India’s Nationally Determined Contributions, 2022):

- India has planned to achieve a target of 26-million-hectare land restoration by 2030 through measures for reducing and reversing land degradation.
- India has committed to create an additional carbon sink (2.5 to 3 billion tons of CO<sub>2</sub> eq. by 2030) through plantation of trees outside the forest. This will be achieved by adding 2.8 million hectares of tree cover outside of traditional forests. (<https://currentaffairs.adda247.com/trees-beyond-forests-initiative-launched-in-Assam/>)
- India is committed to reduce the GHG emission (Emissions Intensity of its GDP by 45% by 2030) by adopting sustainable / new farming technology and Livestock management.
- India is committed to achieve 50% of electric power installed capacity from non-fossil fuel-based energy resources by 2030.

**Contribution to Sustainable Development Goals**

