Annadata to Urjadata

This article is based on **"From Plate to Plough: In the shade of solar trees"** which appeared in The Indian Express on 5th August 2019. It talks about the use of Solar Trees for addressing the energy crisis and moving towards the goal of doubling the farmer's income.

Recently, the minister of the state of agriculture admitted that current policies will fall short of the goal of **doubling farmer's income by 2022**. In this context, the narrative of turning **Annadata (farmer) into Urjadata (producer of solar power)** as highlighted by Finance Minister in Budget 2019, can provide multidimensional benefits.

Doubling the Farmer's Income.

- Indian PM in 2016 set the goal of double farmers' income by 2022, in pursuance of which Ashok Dalwai committee was set up.
- The committee held that for doubling real incomes, it would require a growth rate of 10.4% per year over seven years (over a base income of 2015-16).
- Given that India's agricultural income growth has been hovering around 3-4% over several decades, doubling of farmer's income by 2022, may seem a distant dream.
- However, harnessing solar energy can help double farmer's income within a year or two.

Harnessing Solar Energy With Agriculture

- India faces the challenge of overcoming its energy crisis and increasing its economic growth while being environmentally responsible.
- In pursuit of renewable energy generation, India has launched the **International Solar Alliance** and set a target of producing **100 GW of solar power** by 2022.
- Government has launched **Kisan Urja Suraksha evam Utthaan Mahabhiyan** (KUSUM) scheme to harness the solar energy.
    - KUSUM scheme seeks to replace all diesel pump-sets with solar pumps and the excess power generated through solar panels will be purchased by state governments at a price that gives the farmer a good profit.
    - Also, to develop solar power, bids are invited from large business players to develop solar parks.
- However, one of the issues regarding KUSUM scheme and solar parks is that decreasing solar costs forces state governments to revise the costs of pre-purchased agreements (PPA) downwards, thereby making investment unviable.

KUSUM Scheme

It seeks to provide:

- Installation of grid-connected solar power plants each of capacity up to **2 MW** in the rural areas.
- Installation of standalone off-grid solar water pumps to fulfil irrigation needs of farmers not connected to the grid.

- Solarization of existing grid-connected agriculture pumps to make farmers independent of grid supply and **also enable them to sell surplus solar power generated to DISCOMs and get an extra income.**
- Solarization of tube-wells and lift irrigation projects of the Government sector.

Way Forward

- Encouraging farmers to grow **“Solar Trees”** on their lands, can provide with the twin benefits:
    - Solar Trees at a height of about 10-12 feet will provide enough sunlight to plants below. It does not impact their productivity as there is ample sunlight coming from the sides for photosynthesis.
    - **Thereby the farmer can keep growing two irrigated crops.**
    - And the solar tree generates a lot of excess power that can be purchased by the state government.
    - Therefore there can be increased income augmentation. In one acre land, 500 Solar Trees can be planted.
    - Solar Trees are being deployed in many countries from Japan to China to Germany.

Solar Tree

- Solar energy is renewable and clean in nature and presents a better alternative over other methods of electricity production.

- However, the availability of land of installing solar panels on a large scale is often a hurdle in the progress of renewable energy.

- **This problem is resolved by Solar Tree.**
    - The Solar Tree is much like that of a real tree, where solar panels(act like leaves) connected through metal branches using sunlight to make energy.
    - Solar trees need nearly 100 times less space to produce the same amount of electricity as a horizontal solar plant. For eg:
        - Central Mechanical Engineering Research Institute (CMERI), in West Bengal's Durgapur, has designed and developed, a solar tree that takes up only four square feet of space and produces about three kilowatts of power.
    - The Solar Trees are also suitable for use in off-the-grid remote areas.

- **Mobilising enough capital** to instal these Solar Trees remains one of the problems.
    - For the investment in Solar Trees, bids from big corporates can be invited.
    - Farmers can be given Rs one lakh/acre per annum as net income, with a fair rate of increment every year.
    - This can easily double their income and farmers will not have to mobilise capital for solar pumps. That is done by other investors, who also make a profit in the process.
- It is difficult for any government to implement 619 recommendations given by the Ashok Dalwai Committee even in five years.
    - For effective implementation recommendations of Ashok dalwai committee must be summarised and prioritised to just 5-10 recommendations for one year.

Saffron revolution (by Solar Trees), will transform Annadata to Urjadata, which also resolve the arduous challenge of supplying accessible and affordable energy to help alleviate poverty and meet energy demands that are necessary for economic growth.

Drishti Input

Discuss the role of solar energy in resolving the arduous challenge of supplying accessible and affordable energy to help alleviate poverty and meet energy demands that are necessary for economic growth. Also, highlight the benefits of Solar Tree in this regard?