SHORT FEATURE

**Poplar Tree**

Although in India, there are six indigenous Poplars viz. *P. ciliata, P. euphratica, P. gamblei, P. alba, P. glauca* and *P. salicifolia* mainly distributed in the Himalayan regions, none have performed well. WIMCO, a matchstick manufacturing company, was facing difficulty in procuring raw materials, hence it introduced *P. deltoides* clones in the 1980s. Of these, exotic clones G-3 and G-48 outperformed all other clones and laid the foundation for the success story of commercial agroforestry plantations in India.

Later, NABARD (National Bank For Agriculture & Rural Development), partnering with WIMCO, farmers and 13 commercial banks promoted and funded a huge Poplar plantation project from 1984 to 1995 in the states of Punjab, Haryana, Uttar Pradesh (UP) and Uttarakhand. This was the first forestry project in India under PPP (Public-Private-Partnership) model. The umbrella project was a huge success, and today Poplar is a household name in this region.
Poplar wood is used for match splints, plywood, packing cases, sports goods, pulpwood, furniture, toy manufacture, etc. Today, most of the plywood in the market is from Poplar.

However, due to overproduction, the price of Poplar wood started falling in the year 2002 and reached the lowest price of Rs. 800 per MT in 2004. The farmers were highly disappointed and stopped growing Poplar. Then in the year 2006, the Hon’ble Supreme Court of India banned the cutting of trees above 1000 M and lo and behold Poplar resurfaced again.

Marketing was not a problem since there were around 1000 plywood industries located in Yamunanagar, Haryana, Sarasawa and Saharanpur in UP. However, Poplar needs a cool climate for healthy growth and that is the reason it cannot be grown elsewhere or everywhere unlike Eucalyptus sp. which can be grown almost everywhere.

The world’s largest poplar plantation is in the north Indian states which changed the landscape of many districts also. It was estimated in 2006 that in Punjab alone there were 12.90 million trees. UP is the leading state for growing 38.61% of total Poplar in the country, followed by Punjab (18.01%), Uttarakhand (16.95%), Haryana (16.33%), Jammu and Kashmir (3.85%), Himachal Pradesh (2.49%) and other states with a collective share less than 5%.

An earlier study in 2002 in UP concluded that the success of P. deltoides and Eucalyptus sp. based Agroforestry could be termed as the second green revolution in India.

A visit to Kashmir in 2016 indicated that the entire valley was full of Poplars. It was roughly estimated that there were millions of Poplar trees in the valley either as avenue plantations or as shelterbelt around the farmlands or orchards, besides a few block plantations. Travelling from Srinagar to Anantnag by road, one finds a mesmerising natural green tunnel just before Bijbihara. It is about 2 km long and is made of tall Poplar trees standing erect on both sides of the road.

Early studies by researchers indicated that some Punjab farmers with intensive management earned Rs. 75,000 to 87,000/ha/year income from Poplar-based agroforestry against Rs. 30,000 to 37,000/ha/year from rice-wheat rotation. Recently, some progressive farmers have been known to have earned Rs. 10 lakh income per acre/annum when timber price touched a high of Rs. 11,000 per MT.

The cultivation of Poplar in the rural sector has generated huge employment and helped in improving the overall rural economy. Rapid growth and extensive site adaptability have made the tree a suitable species to grow for various purposes. Farmers adopted Poplars due to their short rotation of 6-8 years, easy regeneration, easy availability of genetically improved clones, good market demand, attractive economic returns, restricted cultivation advantage and their compatibility with crops, especially wheat and sugarcane.

Poplar is now totally integrated into the social, agricultural, silvicultural, ecological, industrial, economical and financial scenario of the North Indian states transforming the poor rural economy into a prosperous green economy.

Carbon sequestration implies the intake and storage of the carbon element. The most common example is photosynthesis in plants during which carbon is stored as plants absorb carbon dioxide during growth. They soak up the carbon that would otherwise rise and trap heat in the atmosphere. Trees and plants are important players in efforts to stave off global warming. A study on carbon sequestration potential of forestry projects reported a sequestration potential of 1.42 to 2.54tC/ha/year.

On the contrary, Poplar plantations with a yield of 180 MT wood under six-year rotation can roughly sequester 15tC/ha/year and can be an effective tool for climate change mitigation.

Debates arose regarding environmental effects of such large-scale man-made, irrigated, exotic Poplar clonal plantations on agricultural lands in a particular region. However, studies by several authors and organisations indicated positive effects viz. improving soil health, creating highly productive, remunerative and renewable green economy, and serving as an effective tool for climate change mitigation. Moreover, Poplar cultivation also changes the landscape of the area, thus improving the local environment.

According to the Haryana Plywood Industries Association, the price of Poplar wood reached a high of Rs. 14,000 per MT by end 2015 forcing many big units to close for three days in a week, so that demand and prices come down. Besides, no new plywood units were allowed to set up by Government after 2011.

There were also reports that big players are importing cheap plywood from China. Thus, poplar wood prices came down, which is now hovering around Rs. 8,000 but wood experts believe it will pick up soon. Even with this market price, Poplar cultivation is viable and profitable.

Dr. M.S. Haque, Formerly Research Officer, Forest Research Institute, Dehradun and Ex-Head, Forestry, National Bank for Agriculture and Rural Development, Mumbai is currently a Forestry Consultant.
Address: 304 Dhruv Apartment, Asha Nagar, Kandivali East, Mumbai-400101;
Email: ms.haque65@gmail.com