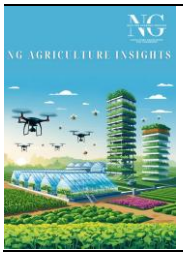

NG Agriculture Insights

A Popular Magazine (ISSN: 3107-5703)
Volume 2, Issue 5, September-October, 2026, 30-32

Floating Farming: A Climate-Smart Solution for Flooded Fields

Mofizuddin Ahmed[1], Asim Chandra Dash[1], Suchismita Tripathy[1]*, Ipsita Kar[1], A. K. Sethy[2], Jyoti Rekha Patnaik[1], Dharani Dhar Pradhan[1]

[1]Department of Agronomy, College of Agriculture, OUAT, Bhubaneswar, Odisha
[2]Senior Scientist, AICRP on Groundnut, OUAT, Bhubaneswar, Odisha

*Corresponding author email ID: suchismita.agro@ouat.ac.in

A B S T R A C T

Floods are among the most destructive natural hazards in India, affecting millions of hectares of agricultural land every year. Due to climate change, the intensity and frequency of floods have increased, as a result, practising conventional farming in those areas is not feasible, which creates an urgent need for suitable agricultural solution. Floating farming is a traditional, soil less farming practised for thousands of years in South-east Asia and Meso-America can be a low cost, climate resilient alternative method of crop production. This system involves cultivating crops on floating beds made from water hyacinth, bamboo and organic composts, thus giving an option to farmers to grow wide variety of vegetables and seedlings during the flood condition. Also this system uses locally available materials which minimizes the input cost while simultaneously managing the invasive water hyacinth. Floating farming presents a practical strategy to solve farming issues in flood-prone and wetland areas of India to sustain livelihoods, enhance food security and promote climate-resilient agriculture. Adoption of this system can transform vulnerable flood-affected and wetland areas, into agriculturally productive area.

Keywords: Waterlogging, Climate-resilient farming, Flood-prone regions, Sustainable livelihood, Food security

Submitted: 24-08-2026 Accepted: 30-08-2026 Online: 01-09-2026

1. INTRODUCTION

In India, especially places like Assam, Bihar, West Bengal and other low land zones are mostly affected by floods and long periods of waterlogging, making lands not suitable for crop production. According to Flood Management in India: A Statistical Report (2023), from 1953-2021 on an average, annually 7.38 million hectares of land are affected by flood every year out of which around 4.1 million hectares consists of cropped land. Due to climate change the frequency of floods are increasing and also expanding to traditionally unaffected regions and as a result the need for a water-adaptive farming method has become more important than ever (FAO, 2014). In such conditions, practising traditional farming is not possible, however a simple farming practise known as Floating Farming System, can be a game changer for Indian farmers. Fig. 1 illustrates the interconnections between climate-induced disasters, increased flooding, and agricultural practices (Ghosh et al., 2024).

2. WHAT IS FLOATING FARMING?

Floating farming involves cultivating of crops on buoyant beds or raft-like beds called floating beds, which is made from water hyacinth, bamboo, and other organic materials which are readily available as river waste (Ghosh et al., 2024).

https://doi.org/10.5281/zenodo.22242459

© 2026 The Author(s). This is an open access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY 4.0).

Figure 1. Need for adopting alternative farming techniques (Ghosh et al., 2024)

3. STEPS FOR CONSTRUCTION OF BEDS FOR FLOATING FARMING

1. First step is gathering of large quantities of water hyacinth. The collected plants are arranged over bamboo poles that act as temporary frame, and give shape to the raft. This bundle is then pulled toward the bank where the actual preparation takes place.

Figure 2. Collection of water hyacinth (FAO, 2014)

2. Then more water hyacinth is added using stick hooks, gradually increasing the thickness of the raft, and once the structure becomes compact and buoyant, the bamboo poles are removed

Figure 3. Floating beds preparation (FAO,2014)

3. After about a week or 10 days, an additional layer of fresh hyacinth is placed on top, then mulch is added on the water hyacinth base.
4. Soil mixed with compost and cow dung is then spread over the surface to a height of roughly 25 cm. The compost is usually made up from azolla (a natural nitrogen fixer) along with other locally available organic materials. Now the bed is ready for seed sowing
5. Seeds are first grown in small compost balls made from decomposed water hyacinth or peat soil. Each ball holds a few seeds and is kept in shade until germination. Once the seedlings develop, they are transplanted on to the floating bed.

Figure 4. Floating bed with earth layer (FAO, 2014)

Although these rafts gradually decompose, they remain usable for several growing cycles and can be moved to areas with better sunlight or protection depending on the crop's needs (FAO, 2014).

4. BENEFITS OF FLOATING FARMING

Floating farming can help famers continue crop production under waterlogged or flood conditions. It helps in reducing the problem of invasive water hyacinth and cost cultivation is very low as compared to traditional farming methods. It provides income to farmers during flood condition when they usually have no crop. Farmers can raise seedlings for

winter crops and also, they can sell in the market. This farming system can be integrated with fish farming providing dual benefit for farmers (Ghosh et al., 2024). The consumption of water, energy and land is less in floating farming than conventional farming, which makes it more efficient and environment friendly. This system promotes efficient use of water resources and also reduces the irrigation need while conserving water.

Table 1. Common crops grown on floating beds and their scientific names (Source: Irfanullah *et al.*, 2008)

Common Name	Scientific Name
Ginger	*Zingiber officinale*
Cowpea	*Vigna sinensis*
Eggplant	*Solanun melogena*
Snake Gourd	*Trichosanthes anguina*
Amaranth	*Amaranthus tricolor*
Lady's Finger	*Abelmoschus esculentus*
Turmeric	*Curcuma longa*
Water Spinach	*Ipomoea aquatica*
Taro	*Colocasia esculenta*
Mustard	*Brassica campestris*
Hyacinth Bean	*Lablab purpureus*
Coriander	*Coriandrum sativum*
Bottle gourd	*Lagenaria siceraria*
Pumpkin	*Cucurbita maxima*
Jute	*Corchorus capsularis*
Onion	*Allium cepa*
Ceylon spinach	*Basella alba*

5. LIMITATIONS OF FLOATING FARMING

Floating farming is not suitable for all types of water bodies, especially areas which are frequently affected by high tides or strong waves. Scarcity of raw materials may be seen in some areas and also the transportation of water hyacinths to the optimal site for construction of bed can be difficult and costly. Due to presence of moisture in and around the bed creates vulnerability of seeds and seedlings towards fungal attacks. Pests like rats, aphids, ants, cutworms, fruit-borers and also other animals like monitor lizards, ducks, etc, can cause damage to growing plants (Ghosh et al., 2024).

6. FLOATING FARMING IN INDIA

In Assam, India, history of floating farming practise can be be traced to mid-1900s. The main objective was to counter the damage caused by the annual floods of the river Brahmaputra in Assam (Ghosh et al. 2024). Currently this system is adopted in 5 out 28 Indian states and 8 union territories, viz. Dal Lake,Srinagar (Jammu & Kashmir), Loktak Lake (Manipur), Puri (Odisha), Kottayam, Alappuzhal, Pathanamthitta (Kerala), Majuli (Assam). These are the identified hot spot of floating farming practice in India (Ghosh et al., 2024).

7. CONCLUSION

Floating farming has immense potential as an alternative method of farming in waterlogged and flood-prone areas. In India, implementation of this system will benefit as a sustainable community development practice and help mitigating climate-induced disasters. With proper training, innovations and government support, this system can improve the food security for many vulnerable families.

REFERENCES

FAO. (2014). Floating Gardens of Bangladesh.

Irfanullah, H. M., Adrika, A., Ghani, A., Khan, Z. A., & Rashid, M. A. (2008). Introduction of floating gardening in the north-eastern wetlands of Bangladesh for nutritional security and sustainable livelihood. *Renewable Agriculture and Food Systems*, *23*(2), 89-96.

Ghosh, T. K., Singh, A. K., Mitra, S., & Karmakar, S. (2024). Gathering insights of the global scenario of floating-bed agriculture through systematic literature review for its promotion in Indian context. *Progress in Disaster Science*, *24*, 100367.