

Floating Gardens: Flood adaptive Agriculture in Unity State

In South Sudan, where the struggle against the impact of climate change is most profound, innovative initiatives such as floating vegetable gardens have proven to be sustainable means of agriculture. Developed by DRC under the Complimentary Action for Resilience Building (CARB) project funded by USAID in response to the worst flooding in six decades that struck the region since 2020, this agricultural approach offers hope for communities grappling with the enduring effects of extreme climate events.

Unity State, one of the worst-hit regions, faces a bleak reality with almost 90% of Rubkona County still submerged under the waters. The prospect of receding waters seems remote, and waterlogging threatens to become a permanent feature in most areas. To confront this challenge head-on, DRC introduced floating vegetable gardens, drawing inspiration from the traditional practice in southern flood plains of Bangladesh and other parts of India, Myanmar, and Cambodia.

A floating garden, in essence, is a platform created by weaving together aquatic plants, often utilizing the invasive water hyacinth, forming floating beds that rise and fall with water levels. This method provides a lifeline for crops, avoiding waterlogging and benefiting from nutrient-rich decomposing matter. When water levels recede, the beds are ploughed into the soil to cultivate winter crops.

Investing Time in Sustainability:

The initiative demands a thoughtful investment of time, both during the start-up and maintenance phases. Throughout the implementation period of the CARB project, DRC has trained staff and community members, creating a pool of expertise in floating garden establishment.



Nyaruach tends to her crops in a floating garden amidst the floodwaters of Rubkona, in South Sudan.

Constructing a floating garden plot typically takes three weeks:

- Making raft using bamboo and local materials - 2 days.
- Water hyacinth collection and placement on the floating base - 1 day.
- Compaction of hyacinth on the floating bed - 1 day.
- Composting time - 2 weeks (with daily watering).
- Concurrently, developing a nursery bed on the mainland for seedling preparation, taking 3 weeks.
- Developing mud balls, inserting seedlings, and transplanting to the floating bed - 2 days.

A single floating garden plot can be utilized for 18-20 months with periodic additions of water hyacinth and minor maintenance, ensuring year-round production.

Nelson Wuor, the DRC Economic Recovery Officer, in Bentiu shares insights into the transformative impact of this initiative; **“Since the onset of the floods in 2020, displaced communities have grappled with the harsh realities of farming disruptions, exacerbating difficulties and increasing the prevalence of hunger and malnutrition. In response to this pressing issue, DRC initiated a groundbreaking program that introduced the concept of floating gardens to support displaced communities.”**

The established floating gardens have emerged as an initiative significantly reducing malnutrition rates within displaced communities. Families, previously hindered by the floods, can now cultivate green leaves and vegetables, not only ensuring a more diverse and nutritious diet but also generating income. The ripple effect extends beyond mere sustenance, empowering these displaced communities to regain control over their food sources and livelihoods.

The scalability of this initiative lies in its novelty and environmental adaptability. While it's a new concept for South Sudan, floating gardens have proven successful in countries like Bangladesh, Myanmar, Cambodia, and India. The United Nations Food and Agricultural Organization (FAO) has recognized Bangladesh's floating gardens as a Globally Important Agricultural Heritage System.

The success of the floating gardens relies not only on the immediate impact observed but also on the community's ability to embrace and replicate the model independently. The transition from knowledge dissemination to practical application may require time and resource investments.



On going construction of floating gardens amidst the floodwaters of Rubkona, in South Sudan.

However, evidence from other countries suggests that floating gardens can be a climate-adaptive, durable solution for food security.

On the community front in Rubkona, the feedback has been overwhelmingly positive where a scale of substantial change is evident, community members engaged in the floating garden initiative continue to praise the innovation. **"We found a new way to farm in midst of the challenges of flooding. Now, we are working together to farm our vegetables and beans, we don't have to wait and depend on aid. We are able to provide nutritious foods for our children."** - Nyaruach Mabor,

At 44 years old, Nyaruach Mabor embarked on her farming journey last year. Little did she know that the decision to delve into agriculture would transform into a lifeline for herself in the face of relentless floods. The advantages of establishing a floating garden became glaringly apparent this year, marking a pivotal shift from traditional farming. When the floods disrupted their lives, the community, including Nyaruach, found solace and sustenance in this innovative farming method.

Expressing her gratitude to DRC, Nyaruach shared, **"Recognizing the diversity among people—some capable of independently striving for survival from a distance while others face challenges—DRC is currently providing inclusive support to all of us. It's not just about growing crops; it's about fostering a sense of unity and self-sufficiency."** Nyaruach concludes, embodying the resilience and empowerment that the floating garden initiative has brought to her community.

As with any pioneering endeavor, challenges are expected, but the promising feedback and initial success suggest that floating gardens could indeed be a sustainable farming method for South Sudan's vulnerable communities facing the harsh impacts of climate change. The journey has just begun, and as the floating gardens continue to flourish, so too does the resilience of the communities DRC serve.