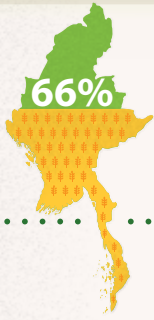


A win-win approach: Integrating fish into rice systems in Myanmar



In Myanmar, **rice** provides **66%** of the daily **energy intake**¹

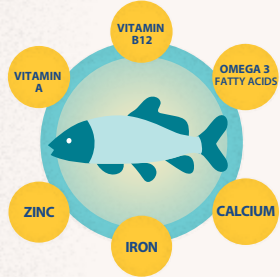
A **low diet diversity** contributes to widespread **malnutrition**

29% of children aged under 5 years are **stunted**²



The Myanmar Government is working to tackle malnutrition

By 2030, Myanmar aims to **double the agricultural productivity and incomes** of small-scale food producers



The government's strategy is to:

- **Expand irrigated agriculture** to make 5% more farming land available
- Promote the production of **high market value foods** like fish

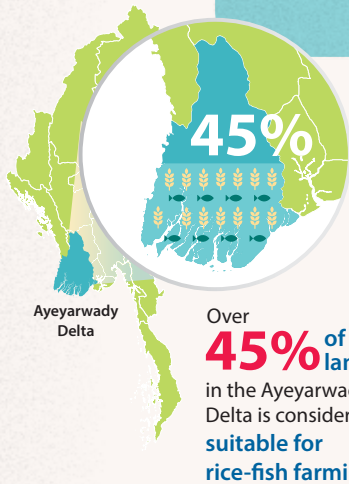
Challenges exist:

- **Irrigation systems** focused on crop production often **harm capture fisheries**³ by disrupting habitats and fish movements
- **Current land use policy restricts farmers** from converting rice paddy for other uses
- **Competition** for land and water resources is already **high**

Fisheries provide **15 million people** with an income⁴
Fish contributes **60%** of animal protein to diets⁵

A huge opportunity: Growing rice and fish together

Experimental trials in the Ayeyarwady Delta show that growing fish in rice fields and using best management practices can **maintain rice productivity** and almost **double profitability** due to the fish production⁶

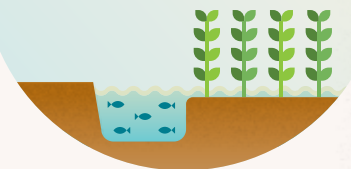


Over **45%** of land in the Ayeyarwady Delta is considered **suitable for rice-fish farming**⁶

Converting just **10%** of this land area to rice-fish farming would produce:

- **100,000 tons** of edible fish and associated micronutrients^{*6}
- **USD 100 million more income** per dry season^{*6}
* Compared to traditional rice farming in neighboring areas

Designing irrigation systems for multiple uses—such as integrated rice-fish systems—can **reduce negative impacts on fisheries** by increasing water productivity⁴



Adopting rice-fish farming at scale would have diverse benefits:



Less pesticides used in farming



Increased incomes



Sustained or enhanced rice yields



Increased production of fish



Greater availability of nutritious food

In Myanmar, integrating fish into irrigation systems and land use reforms are needed to achieve sustainable, nutritious food production that benefits rural livelihoods and the environment

SOURCES

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² (MOHS) Ministry of Health and Sports Myanmar and ICF. (2017). Myanmar Demographic and Health Survey 2015-16. Nay Pyi Taw, Myanmar: MoHS and ICF.
³ Conallin, J., Baumgartner, L.J., Lunn, Z., Akester, M., Cowx, I., Tun, N., Win, M., Soe, K.M., Swe, A., and Chan, N. (2019). Migratory fishes in Myanmar rivers and wetlands: challenges for sustainable development between irrigation water control infrastructure and sustainable inland capture fisheries. *Marine and Freshwater Research*. <https://doi.org/10.1071/MF19180>.

⁴ McCartney, M. and Khaing, O. (2015). A country in rapid transition: Can Myanmar achieve food security? In Nagothu, U. S. (Ed.). *Food security and development: Country case studies*. Oxon, UK: Routledge—Earthscan, pp. 79–103.
⁵ Wilson, S., and Wai, N.E.M.A. (2013). Food and nutrition security in Myanmar. Myanmar Agricultural Sector and Food Security Diagnostic Background Paper No. 4. East Lansing and Yangon: Michigan State University and the Myanmar Resource Development Institute.
⁶ Dubois, M.J., Akester, M., Leemans, Kimio, Teoh, S.J., Stuart, A., Thant, A.M., San, S.S., Shein, N., Leh, M., Moet Moet, P., and Radanielson, A.M. (2019). Integrating fish into irrigation infrastructure projects in Myanmar: rice-fish what if...? *Marine and Freshwater Research*. <https://doi.org/10.1071/MF19182>.