

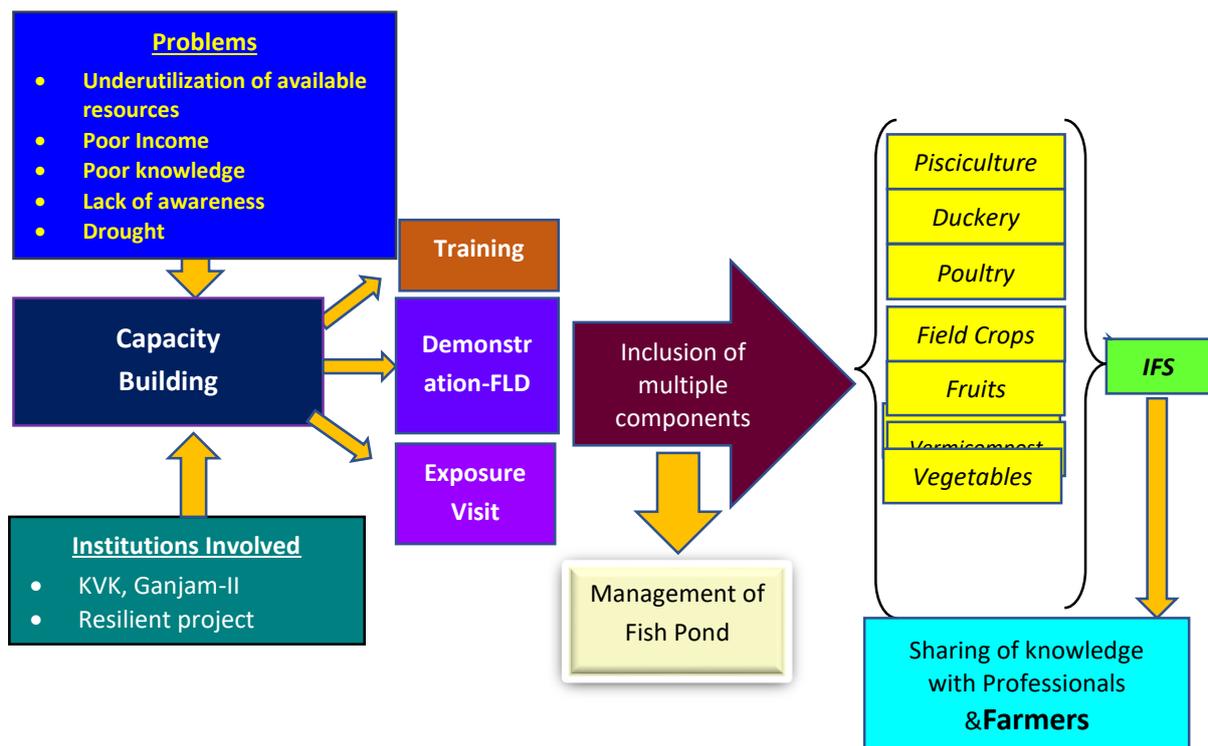
A Resilience Project Initiative: Pond based Integrated Farming System towards drought mitigation, effective utilization of farm resources and sustainable livelihoods

Prologue:

Ganjam economy is mainly agrarian and more than 75 percent of people directly or indirectly depend on agriculture and allied activities for their livelihoods. Ganjam district is more prone to cyclones and drought-like climatic aberrations. The erratic uneven rainfall, flash flood and poor drainage facilities adversely shattered the economic condition of the farmers in many ways. An integrated Farming System keeps the farmer free from distress syndrome, ensures livelihood security and helps them to become agripreneur. No single farm enterprise is likely to support the small and marginal farmers for the generation of adequate income and gainful employment round the year. With this background, the Climate-resilient project supported Krishi Vigyan Kendra to establish a model on Pond based integrated farming system as a showcase in the district for the farming community.

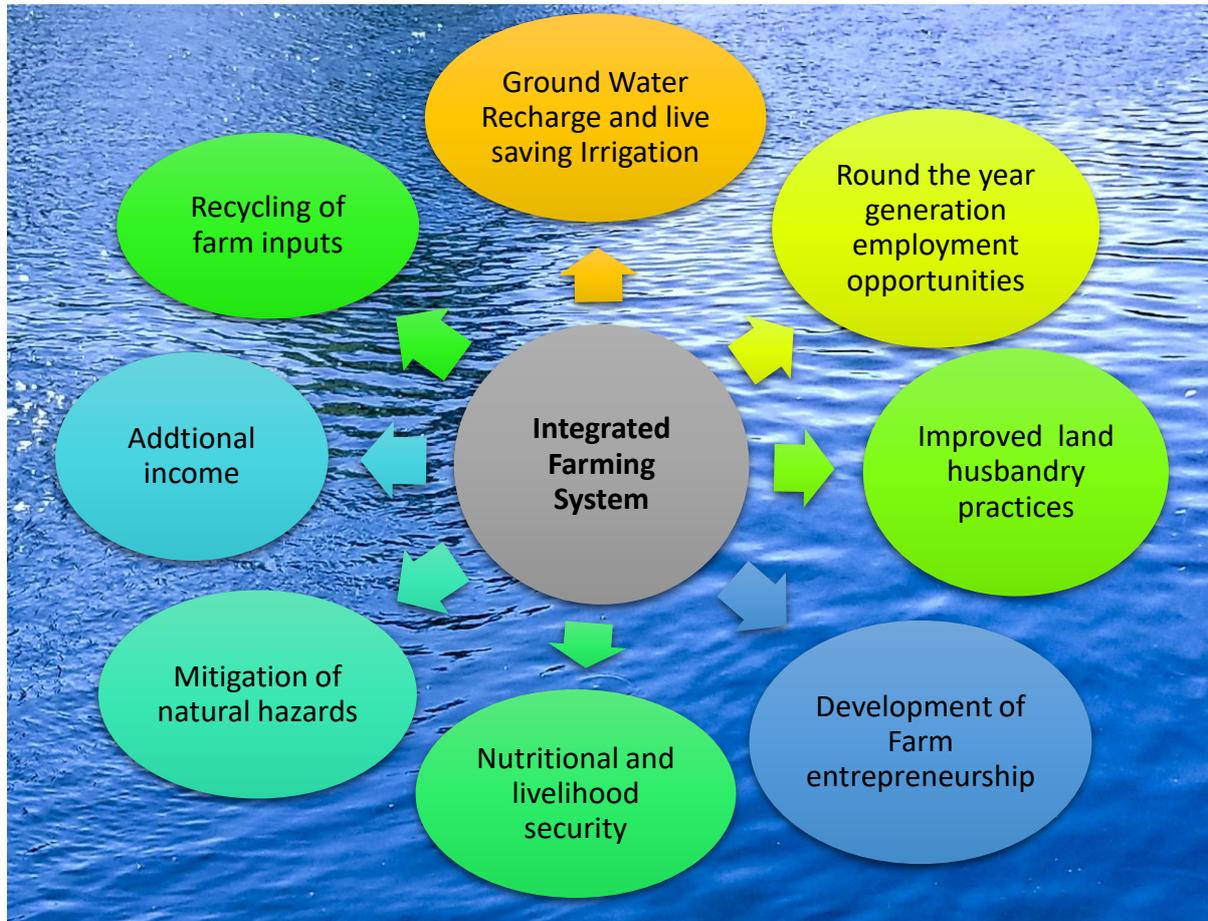
Farmers depending on crop production are subjected to a high degree of uncertainty in income and employment. It is required to develop a suitable strategy for augmenting the income and employment of small and marginal farmers. IFS has very clear-cut objectives like sustainable development through the integration of enterprises, judicious and effective utilization of farm resources and substantial improvement of income and livelihood over some time.

Description of the Technology:



The integrated farming system seemed to be the right solution to address the problems for increasing (i) food production, (ii) net farm income, (iii) improving nutritional status, (iv) promoting natural resource management, (v) encourage better land husbandry practices and (vi) water management through an appropriate combination of farm enterprises. The adopted integrated farming system model consists of field crops (Arhar, Greengram and Blackgram), horticultural crops (Banana, Papaya, Drumstick, marigold and vegetables), vermicomposting,

Azolla Unit, Pisciculture (IMC+ Ornaments),Poultry (Chabro/Kadaknath/Kalingabrown breed),Duckery (Khaki Campbell), etc.KVK mainly emphasizes the following key points are stated under;



Dissemination Process:

Realizing the needs of the farmers, KVK has planned systematically to improve the livelihood of the farming communities. The first step initiated was conducting a training programme on the integrated farming system for farmers, having farm ponds and cropland for their effective use for profit maximization. KVK also introduced pond-based enterprises, technical know-how on IFS and also emphasized judicious use of farm resources for increasing productivity and income over some time. As the district has a high potential for an integrated farming system. During the last four years, the information on IFS has spread to almost all blocks of the district. Farmers and rural youth are coming forward to adopt the new elements in their respective farm enterprises.



Resilience Project supported IFS Unit, KVK, Ganjam-II

Institute Involved:

Mainly Resilience project and Krishi Vigyan Kendra (KVK) developed a model IFS unit in the KVK premises as a showcase for farmers, rural youth and agripreneurs. Over three years, he enhanced productivity as well as profitability as compared to the conventional farming system across the district.

Success Points:

KVK is a district-level knowledge hub and extended its all-possible support as well technical know-how to the farming community across the district. The support included the pond-based integrated farming system with pisciculture which is 0.08 ha., duckery, poultry, horticultural crops and field crops based on his suitability.

Pisciculture:

With the support of the Resilience Project, KVK is now able to manage his pond and getting a good return from pisciculture.



Poultry and Duckery Unit:

KVK started the poultry and duckery units on his farm. The unit consists of 150 numbers of poultry birds of Kadaknath, Kalinga brown and Chhabro breed and 20 ducks of Khaki Campbell.



Duckery and poultry Unit

Fruits and Vegetables:

Vegetables, Papaya and Drumsticks are planted in the pond embankment for additional income. Vegetables fetch higher income and profit. The site selection was based on the field situation suitability of crops. The crop was selected based on the water requirement. In this context, KVK provided the inputs support to farmers like planting materials, fertilizer and micronutrients to the farmer as part of the front-line demonstration. Regular visits of KVK-Scientists keep the farmers encouraged on the fruits and vegetable cultivation.



For effective land utilization and assured return, KVK has introduced vegetables like Brinjal, Cow Pea, Tomato, Cucumber, Chilli and Pumpkin as intercrop in the pond embankment. As such the crops acted as a cover crop. It improved the soil health and checked erosion of the soil from pond site.

Ornamental Fishery Unit:

The demand for ornamental fish is gradually increasing across Odisha. The major fish exported from India are oaches, Eels, Barbs, Catfish, and Goby. Indian ornamental fish trade mostly deals with freshwater fish (90%) of which 98% are cultured and 2% are captured from the wild.

Azolla Unit:

KVK developed an azolla unit near the IFS unit. Azolla is one of the best plant resources as a supplementary feed with high biomass and protein content. KVK demonstrated Azolla cultivation in the farmer's field to minimize the nutritional cost and gaps for poultry bird rearing farmers.



Ornamental Fish Unit



Outcome:

The indicators of IFS have composite functions. Indicators are also used by people to get aware of the pros and cons of their development pathways. The details of expenditure and income status are stated below:

Summary of IFS Unit					
Integrated farming system	Area (ha.)	Total Expenditure (Recurring Rs.)	Gross Income (Rs.)	Net Profit (Rs.)	B.C Ratio
Pisciculture	0.08	18500	40000	21500	2.16
Duckery Unit	20 birds	2500	7000	60000	2.8
Ornamental Unit	350sqft	4500	8700	4200	1.93
Poultry	150 birds	16200	30000	13800	1.85
Vegetables	0.08 ha	13000	34000	21000	2.6
Papaya	20 nos	1250	4100	2850	3.28
Peri-urban garden	0.04 ha	14300	36400	22100	2.54
Azolla unit	3 tanks	1500	3200	1700	2.13
Aquarium glass unit	For Training and breeding of fishes and Live feed for Ornamental fish				
Peri Urban Garden	For Training and On-field demonstration Purpose				
Total		71750	163400	91650	

Conclusion:

It can be summarized that IFS fetches good income. A net return of Rs. 91650/- has been realized from all the components under the system.

Besides tangible benefits of reduction in resource degradation, increase crop yields, increase in fodder and fuel availability and improvement in soil health. The intangible benefits of employment almost round the year in the IFS. Improved employment opportunity in the integrated farming system provides a better livelihood option for small and marginal farmers of the state.