"MYCulture"

PROJECT OVERALL REVIEW

11 Dec 2019

Presentation Outline

- Project brief
- Beneficiaries targeted & achieved
- Key Activities (capacity building , learning sharing & input supply, cultured species, IEC materials developed and shared and nutrition)
- Key results
- Key findings, lesson learned, Recommendation
- Key Challenges

MYCulture project brief

Project name: Promoting sustainable growth of aquaculture in Myanmar to improve food security and income for communities in the Ayeyarwady Delta and Central Dry Zone

Donor : Livelihood and Food Security Fund

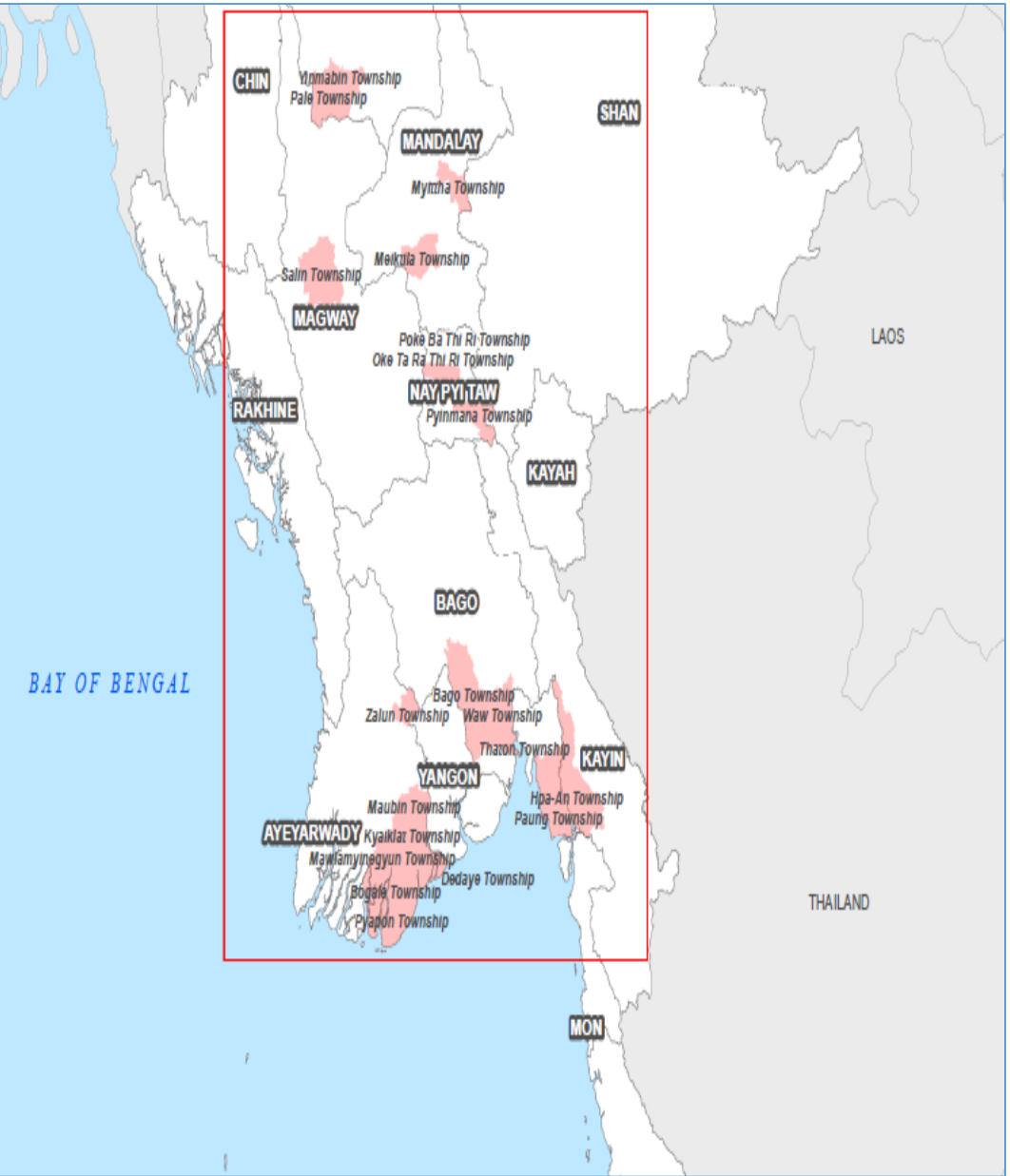
Fund : 4.3 million USD

Duration: September 2015 to December 2019

Objectives;

- Identify promising aquaculture innovations from existing, as well as new, practices and technologies together with generating knowledge on actions and investments necessary to scale-up.
- Build capacity of the core partners, FRDN and members to enable them to design and implement the identified aquaculture innovations with a focus on scalable aquaculture investments that contribute to improved food, nutrition security and incomes of poor and vulnerable rural households and communities.
- Share knowledge and lessons learned in scalable aquaculture investments across government, NGOs, core partners, FRDN members and key stakeholders.

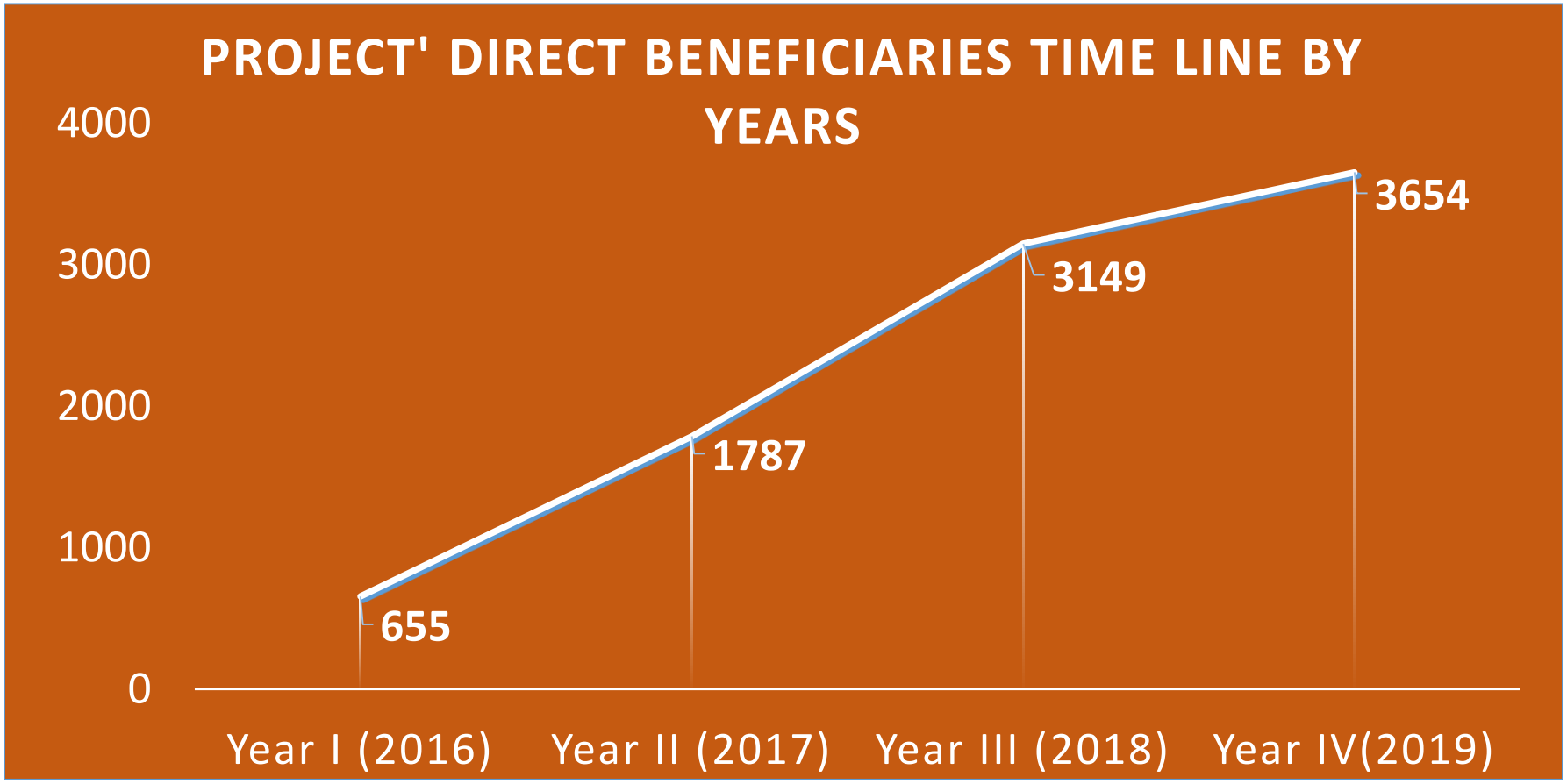
Project sites:18 townships



- Delta: Pyapon, Dedaye, Kyaiklat, Mawgyum, Bogalay, Zalun, Pantanaw and Maubin
- CDZ: Meiktila, Yinmarbin, Salin and Pale
- Kayin: Hpa-An
- Mon: Thaton and Paung
- Bago: Waw
- NayPyiDaw: Ottayathiri and Poppathiri

Beneficiaries target & achievement by partners

- Target-2016 to 2019-**4,540** hhs
- Achievement-2016 to 2019-**3,654 hhs** (NAG: 1,306, Pact: 1,293, Gret: 681, DoF: 286, HKI: 48 and PTS: 40).



Key Activities: capacity building & learning sharing

- Trainings (a total of 26) for IP staffs and farmers related with aquaculture technology, leadership, nutrition and gender
- Trainings in Module-1,2,3 and 4 to farmers by IPs (field level implementation)
- Coordination meetings (a total of 12) with exchange field visits
- Aqua fair in delta and CDZ (2017)
- Feed miller workshop in delta (2017)
- Meeting with CF in delta & CDZ (2017)
- SSA Stakeholder workshops (9 events) Sept-Nov 2017
- Farm made feed assessment (feed miller survey) Nov and Dec (2017)
- Endline surveys(January 2019 & Nov 2019), Second Endline survey-(Nov & Jan 2020)
- Printing and Distribution of ToT manual, farmers guide book 1,2 and 3, Quarterly Newsletters (issue 1-7)
- Distribution of IEC materials (sign boards) on nutrition & Aquaculture knowledge
- Preliminary consultative meeting with DoF in Nov 2017 for scaling up in 2018

Availability and access to inputs

a) Seed, b) feed, c) extension and training services

- Genetically improved farm tilapia GIFT (*Oreochromis niloticas*)
- Improved quality carp and barb species (rohu and silver barb)
- Small indigenous fish species (SIS) seed stocking
- Nursery development (rohu, common carp, silver barb, pangasius)

GIFT

- 3,200 genetically improved farmed Tilapia(GIFT) imported in August 2016 and held at Daedaye and Hlaw Kar Hatcheries
- Training at FIQC-DOF Lab for 10 DOF staffs (9 women) on PCR testing for TiLV and *streptococcus agalactiae and S. iniae* in 2018
- Transfer to DoF Nad Yay Kan Hatchery, at Mandalay and MFF Hatchery at Shwe Bo as satellite hatcheries for breeding and sex- reverse GIFT seed in 2018
- 365,840 GIFT seed sold to 147 farmers by 31st Oct 2019

Rohu, and silver barb

- AQ specialist from Bangladesh delivered hands on training of induced breeding for rohu, silver barb , native climbing perch in July 2018 in Daedayae hatchery, delta to 6 DoF staffs, 4 NGO staffs and 18 farmers
- 150,000 silver barb seed was distributed to SSA framers and 100,000 silver seed to rice-fish farms in delta in Jul-Aug-Sept 2017
- 6,675 rohu seed was distributed to SSA farmers.

Activities: Input supply

- Small feed mill set up (32 units)
- Nursery/rearing farms establishment (56 ponds)
- Demo pond establishment (33 ponds) (2019)
- Seed supply for learning & scaling farmers
- Breeding program (GIFT, Rohu & Silver barb, climbing perch) Pantanaw, Hlaw Kar and Daedayae hatcheries in delta; Shwe Bo MFF and Mandalay DoF hatcheries in CDZ
- Community aquaculture establishment in CDZ (Meiktla)
- SIS (mola & barb) stocking in delta and establishment of mola brood ponds in delta

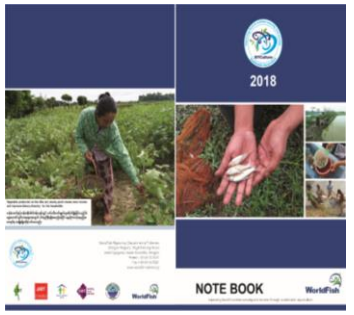
Cultured species

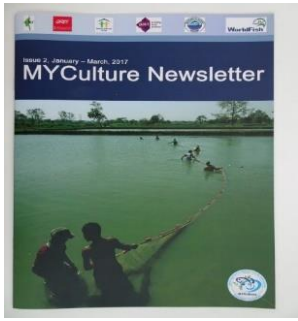
1	Rohu
2	Catla
3	Mrigal
4	Grass carp
5	Common_Carp
6	Silver_Barb
7	Tilapia
8	Mola
9	Pangasius
10	Climbing perch
11	Snakehead
12	Stingy catfish
13	Wheel feal

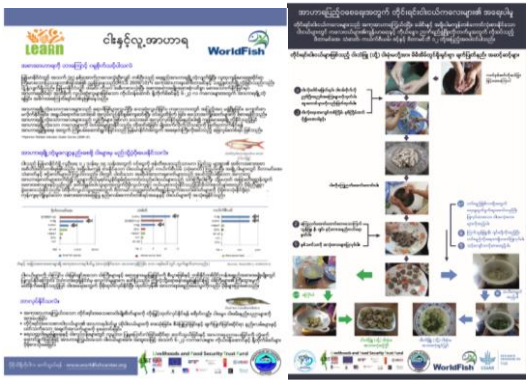
IEC materials developed and shared

Sl#	Types of IEC materials developed	# of quantities distributed	# of people reached
1	Poster on the first 1,000 days of life	310	310
2	FAQs on farming small indigenous fish	500	500
3	Posters on cooking demonstration	15	>15
4	7 newsletters include success stories	210	>210
5	Two nutrition education sign boards	500	>3,000
6	Two SSA knowledge sign boards	500	>3,000
7	Small fish nutrition posters	1,000	>2,000







Nutrition intervention

Mola cooking demonstration and Mola distribution

- 182 participants (mostly women) attended training & FGD in delta (GRET & NAG) areas.
- NAG: Mola has distributed to 329 hhs, 11,350 fish, total (Mola & other SIS) have harvested-583.84 kg in 2017,2018,2019.
- Gret: Mola & SIS has distributed to 106 hhs, 17050 fish, total (Mola & other SIS) have harvested- 64.48 kg in 2017,2018,2019.

Vegetables grown, consumed and sold in Delta and CDZ

Sr. No	IP	# of villages	# of farmers	# average (kg/hh) (kg)	Total (kg)
1	GRET	35	163	8	420
2	PACT	23	250	10	385
3	NAG	31	221	9	2897
Total		89	634	7	3,703

Practice, knowledge and sharing about aquaculture methods to indirect farmers

Aquaculture practice	% with knowledge	% who practice	# indirect farmers who learned technology from sample farmers*
Testing natural food in water	62.1%	52.1%	4,651
Maintaining stocking density	69.1%	52.6%	5,175
Species selection	77.4%	44.9%	5,796
Liming	82.6%	57.7%	6,180
Providing supplementary feed	92.0%	89.4%	6,886
Post-harvest handling	86.9%	56.3%	6,501
Use quality seeds	77.7%	56.1%	5,817

Nutrition

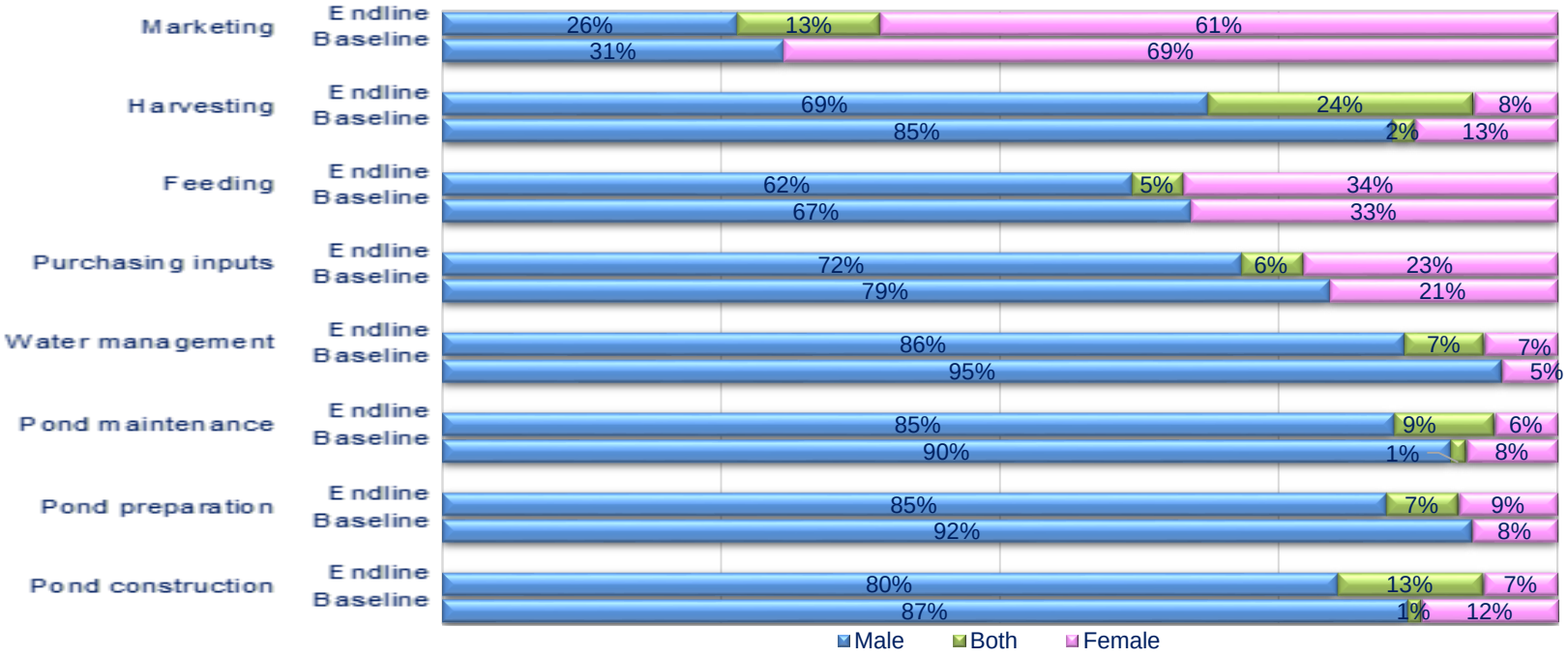
Food Types	% HH consuming (Baseline)	% HH consuming (Endline)
Fish	87.8%	91.0%
Meat	72.5%	82.3%
Egg	83.8%	80.3%
Milk	9.8%	24.7%
Fish paste	71.8%	70.0%

Gender

Women Contribution per location

	Dry Zone	Delta
Pond construction	7%	7%
Pond preparation	9%	9%
Pond maintenance	6%	6%
Water management	7%	6%
Purchasing inputs	23%	22%
Feeding	33%	34%
Harvesting	8%	8%
Marketing	60%	61%

Gender, Contribution percentage for aquaculture

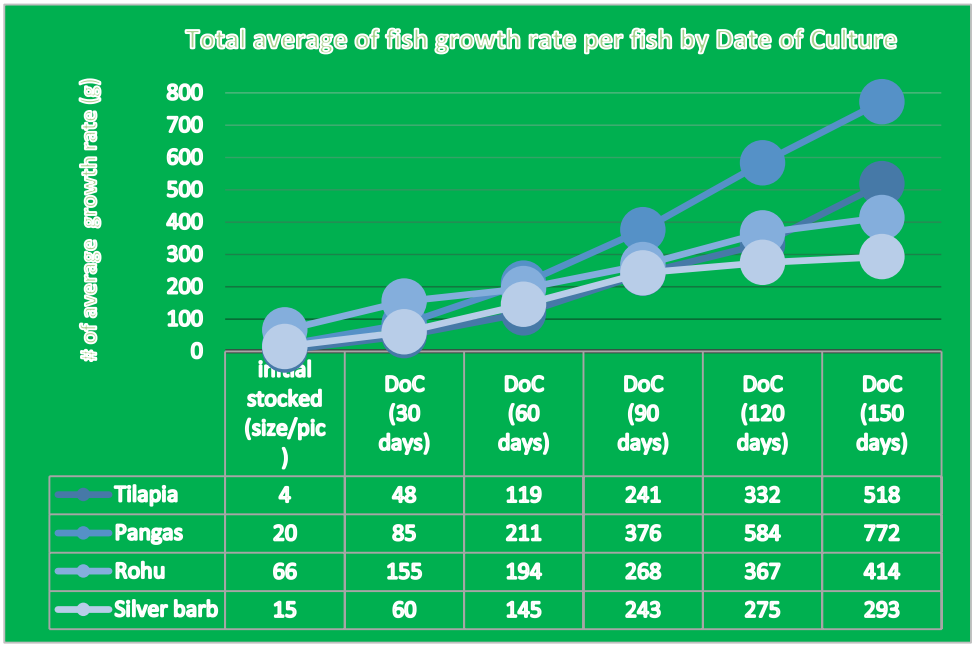


Key results

Type *	Output/Outcome	Indicator	2016		2017		2018		2019		Data source
			T	A	T	A	T	A	T	A	
PLO	Increased income of rural households, for SSA HHs (LIFT PO 1).	# Producer HHs that report at least a 10% increase in aquaculture production and incomes (60% of the total HHs)- (Target indicator- Cumulative)	324	N/A	1,824	N/A	2,724	54% (1,700)	2,979		**A total of 54% of Households that harvested ponds, report an increase in the value of the harvest at least 10% higher than the value reported during the baseline survey.**
PLO	Improved nutrition for SSA HHs and some other HHs (from improved access to fish for eating). (part of LIFT Pr 5)	Nutrition indicators; # Producer HH that report increased consumption of nutrient rich food (i.e. home gardens) -Intake of target micronutrient-rich foods: fish species and vegetables -Knowledge and perceptions of the importance of target foods; (60% of the total HHs) - (Target indicator- Cumulative)	324	N/A	1,824	N/A	2,724	54% (1,700)	2,979		**a.Increased** **b.Increased** **c.Increased**
PLO	Increased sustainable agricultural and farm-based production for SSA HHs (from LIFT Pr 1).	# Producer HHs that report at least a 10% increase in aquaculture production and incomes (60% of the total HHs) - (Target indicator- Cumulative)	324	N/A	1,824	N/A	2,724	63% (1,984)	2,979		**A total of 63% of Households that harvested ponds, report an increase in production at least 10% higher than the average production reported during the baseline survey.**

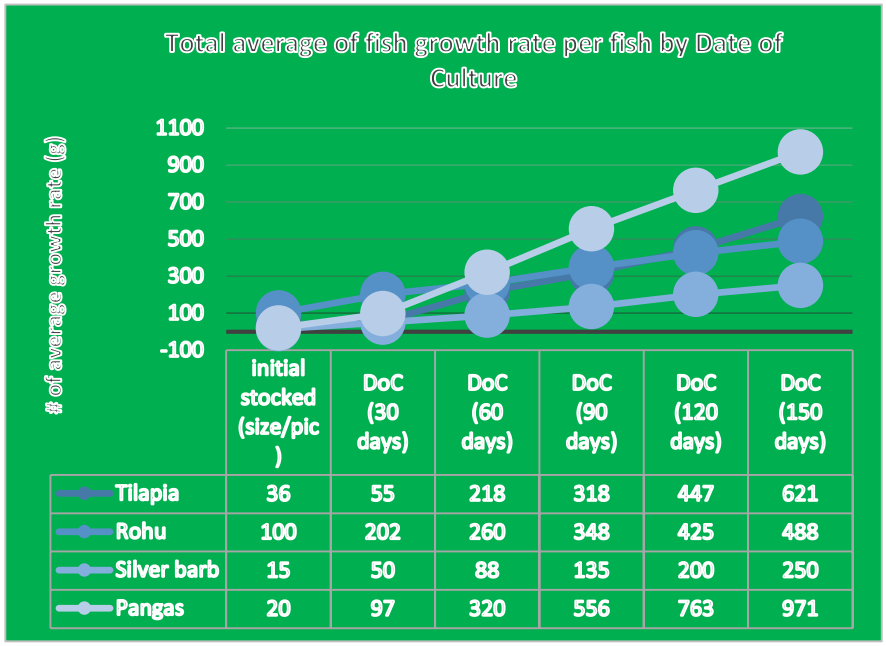
Performance of Demonstration ponds

10 ponds in Pyapon, Dedaye and KyaikLat Townships in "NAG" areas.



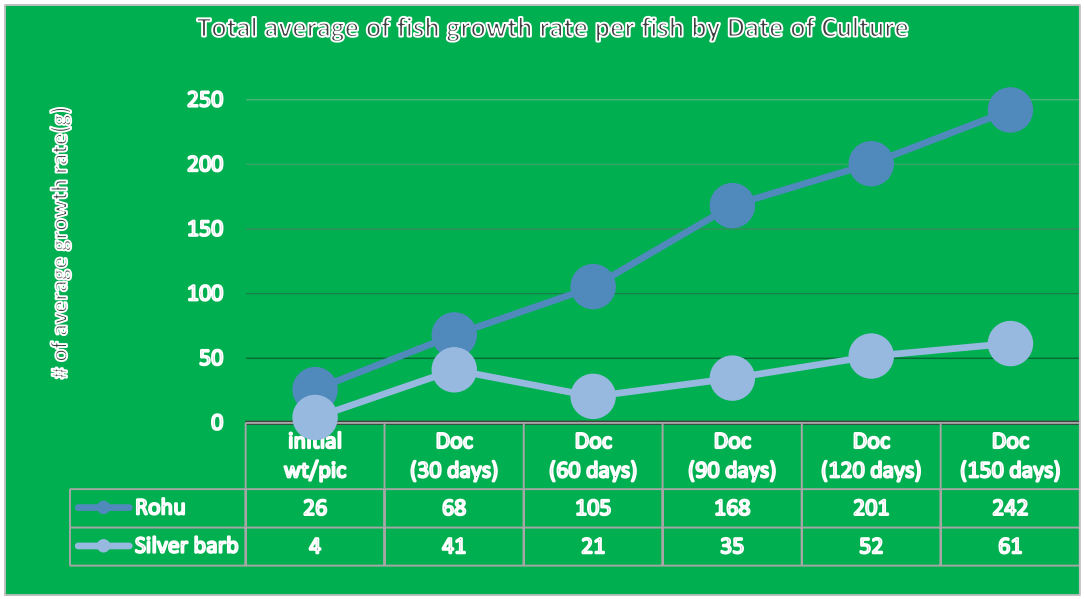
	initial stocked (size/pic)	DoC (30 days)	DoC (60 days)	DoC (90 days)	DoC (120 days)	DoC (150 days)
Tilapia	4	48	119	241	332	518
Pangas	20	85	211	376	584	772
Rohu	66	155	194	268	367	414
Silver barb	15	60	145	243	275	293

7 ponds in Bogalay and Mawgyum Townships in "Gret" areas.



	initial stocked (size/pic)	DoC (30 days)	DoC (60 days)	DoC (90 days)	DoC (120 days)	DoC (150 days)
Tilapia	36	55	218	318	447	621
Rohu	100	202	260	348	425	488
Silver barb	15	50	88	135	200	250
Pangas	20	97	320	556	763	971

16 ponds in Yinmarbin and Meiktila Townships in "Pact" areas.

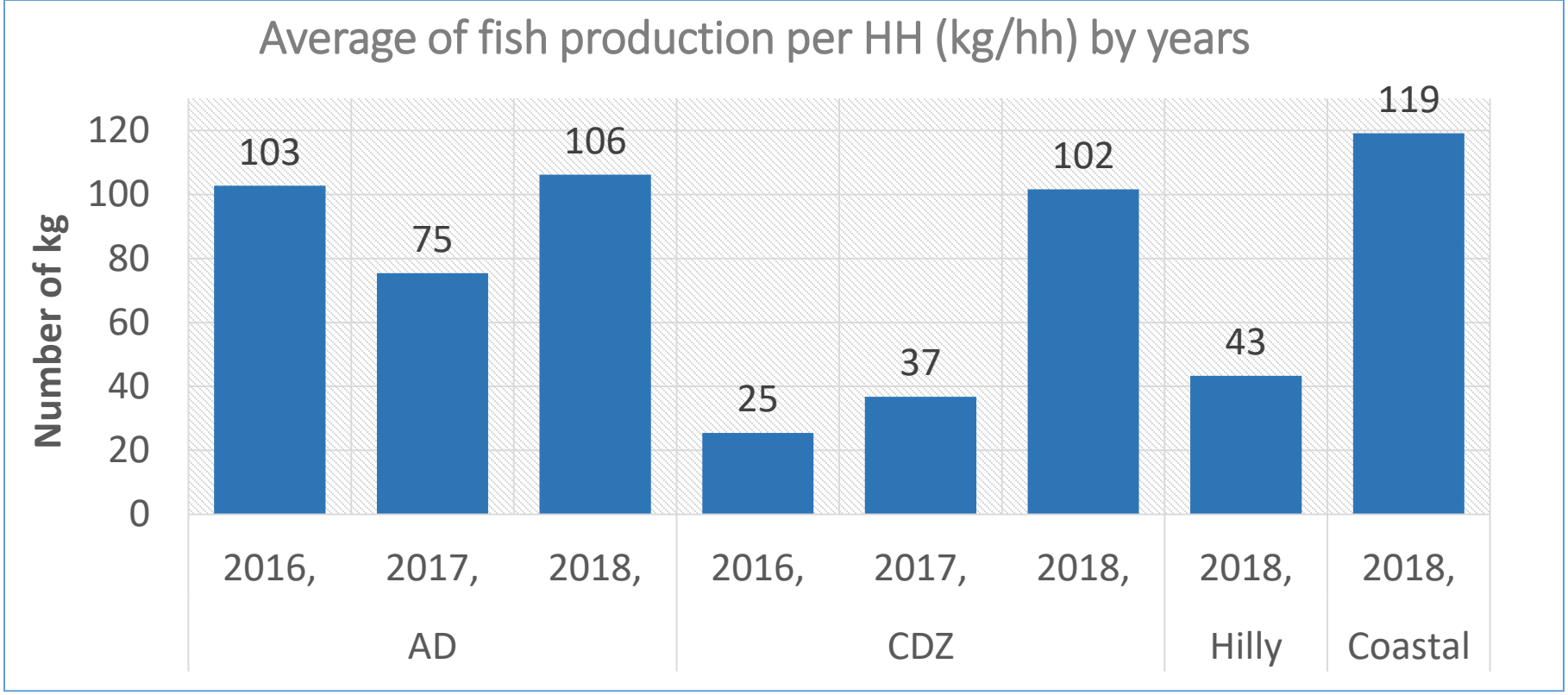


	initial wt/pic	Doc (30 days)	Doc (60 days)	Doc (90 days)	Doc (120 days)	Doc (150 days)
Rohu	26	68	105	168	201	242
Silver barb	4	41	21	35	52	61

Demo pond partial harvested in Kyaiklat Ts, Tilapia

Fish production of grow-out farmer by year

Year	Zone	No.of HH	Average of Total consumption (kg/hh)	Average of Total gifted fish (kg/hh)	Average of Total sold (kg/hh)	Average of Income_USD_HH	Average of Income_USD_ha	Average of income_USD_acre	Average of GrossMargin_USD_hh	Average of GrossMargin_USD_ha
2016	**Total average**	**487**	**4**	**2**	**71**	**88**	**7,067**	**2,860**	**12**	**833**
	AD	325	6	3	95	111	7,354	2,976	15	347
	CDZ	162	2	1	22	44	6,493	2,628	7	1,808
2017	**Total average**	**336**	**4**	**1**	**65**	**85**	**6,228**	**2,521**	**41**	**3,844**
	AD	284	4	1	70	88	5,028	2,036	40	2,948
	CDZ	52	3	1	33	68	12,781	5,172	44	8,737
2018	**Total average**	**196**	**9**	**6**	**88**	**159**	**3,754**	**1,519**	**99**	**1,940**
	AD	92	5	3	98	136	4,108	1,662	44	1,103
	CDZ	24	13	5	83	373	8,210	3,322	259	5,680
	Hilly	22	7	3	33	62	1,389	562	59	1,287
	Coastal	58	12	11	96	144	2,246	909	136	1,968
Total		**1,019**	**6**	**3**	**74**	**111**	**5,683**	**2,300**	**51**	**2,206**


Average of fish production per HH (kg/hh) by years
Number of kg
120
100
80
60
40
20
0
103
75
106
25
37
102
43
119
2016,
2017,
2018,
2016,
2017,
2018,
2018,
2018,
AD
CDZ
Hilly
Coastal

Income by Small Scale Aquaculture production from 2016 to 2019

Years	Batch	No. of HH by different ponds				Average income (USD) per HH by different type of Ponds				Total income(USD) by different type of Ponds			
		Total no. of HH	Pond	Chan Myaung	WISH	Pond	Chan Myaung	WISH	Total	Pond	Chan Myaung	WISH	Total
2016	1	494	305	113	76	**124**	**73**	**13**	**70**	116,628	17,443	2,161	136,233
2016	2	161	48	48	65	**112**	**49**	**10**	**57**	15,719	6,032	1,184	22,935
2017	3	1,073	820	229	24	**123**	**126**	**18**	**89**	156,194	33,121	540	189,856
2018	4	1,362	1,144	218	-	**144**	**163**	**-**	**154**	323,254	71,147	-	394,401
2019	5	505	437	68	-	**150**	**165**	**-**	**158**	65,550	11,220	-	76,770
Total		**3,595**	**2,754**	**676**	**165**	**131**	**115**	**14**	**105**	**677,346**	**138,964**	**3,885**	**820,195**

Accessibility to fish seeds

Years	Batch	Total number of fish seed distribution
2016	1	497,458
2016	2	80,137
2017	3	941,594
2018	4	906,460
2019	5	124,510
Total		**2,550,159**

Fish seed supply source and income

Years	Batches involved	Total income (MMK)	Total income (USD)
2016	1,2	4,905,766	3,227
2017	1,2,3	13,969,009	9,190
2018	1,2,3,4	16,139,169	10,618
2019	1,2,3,4,5	10,699,586	7,039
Total		**45,713,531**	**30,075**

Fish feed production and income

Years	Total feed production (kg)by feed millers	Total income (USD)
2016	15,798	7,795
2017	90,105	44,460
2018	13,549	6,685
Total	**119,452**	**58,940**

Total income from SSA, feed mills and nurseries by production

Years	Total income			
	SSA production (USD)	Feed production by feed mills (USD)	Fish seed produced (USD)	Total value (USD)
2016	159,168	7,795	3,227	170,191
2017	189,856	44,460	9,190	243,505
2018	394,401	6,685	10,618	411,704
2019	76,770	-	7,039	83,809
Total	**820,195**	**58,940**	**30,075**	**909,210**

Lesson Learned 1. Small scale aquaculture is feasible in a variety of contexts and fits well into existing livelihood systems of smallholders and landless households.

There is a high interest of turning water reservoirs into fish ponds, with side benefits linked to the extension of water reserves.

Lesson learned 2. Productivity varies widely and reflects the level of investment in management; there are opportunities for intensification and farmers actively seek cost effective alternatives.

All types of management system are shown across the participants. While some are quite intensive and achieve significant returns from small ponds, it is also possible to find cases, as in Salin where there are large ponds available and some extensive aquaculture tradition, that aqua farmers are reticent to intensify existing systems.

Lesson learned 3. Local markets provide an adequate scope for mixed commercial/self-consumption strategy. Upscaling to more commercial level has not yet been demonstrated.

So far, the small-scale operations do not meet market constraints, because there is a niche for selling through retail at village level and with peddlers from neighbouring villages. All participants in focus groups stress the fact that local market pays better their effort than town markets.

Lesson learned 4. Strengthening small-scale input suppliers from the start of the project has been essential to sustainability and should be applied to interventions in other value chains

The set-up of experiments with small-scale nurseries and feed production, with networking among participants and close monitoring of results, is a good practice that merits to be replicated in different value chains. This has been a true learning approach which of course is not 100% successful, but contributes very significantly to sustainability prospects. The way forward for expanding SSA goes without any doubt, through strengthening and diversifying supply chains.

Recommendation 1. During the remaining months the project should analyze systematically data on cost effectiveness and adapt the recommended packages accordinglyB12

The project has made a great effort in collecting systematic data on production and economic results, something that is worthy of notice. This wealth of information is now being compiled and analysed. The data on cost effectiveness are currently being collected by IPs in different ways seem not always consistent for analysis. Given the fact that the cost structure is simple and relatively standardized, it should be feasible to extract many information from existing databases and fill any gap of information in order to document systematically:

- The productivity under the different set ups and stocking systems currently adopted by farmers in the different contexts;
- The costs associated with different set-ups and feed management systems;
- The exact nature of local markets and their potential;
- The net benefits under different strategies of marketing and self-consumption.

These data would be very useful in order to adapt the recommendations for optimization of the different systems in the context of the smallholder's livelihood systems. Some parameters should be adapted to this context (for instance, using productivity by smaller area units than hectare, integrating the value of self-consumption etc).

Recommendation 2. LIFT and WorldFish should work on a second phase project proposal, focused on developing sustainable supply chains.

There is ample room for increasing the outreach, productivity and returns of SSA systems as they have been introduced. While the majority of smallholders would maintain SSA as a complementary livelihood activity, some others might go to scale.

The motor for expanding and improving the aquaculture networks are the providers. Local markets are far from being saturated. In this case, the project has shown that small scale nurseries (and hatcheries) are likely to improve the effectiveness of the whole chain and that they are attractive options for interested farmers. The question of feed supply remains open. A new project should concentrate on those actors as well as on the aqua farmers choosing to optimize their production, as another portion of aquafarmers would remain satisfied with less intensive systems.

Linkages of those actors with larger scale private scale providers should also be a part of the approach.

SUSTAINABILITY:					
Overall Sustainability grade (achieved or likely to be achieved):	**B**	• The project has encouraged development of private initiative to support aquaculture inputs supply; local market conditions are good and a core of aquafarmers will continue the activities and intensify whenever possible			
Stage 1.	**What Sustainability means: i.e. main Real World Entities / Systems / Behaviour changes / Outcomes that should be Self-Sustaining by EoP.**	**What is still needed for this to continue after EoP**: Consider how easy and how likely it will be for this to happen and assess this in next column. Include financial, social & environmental aspects	**How likely to happen (H/M/L)**	**Weight in the project (H/M/L)**	**Remarks and Recommendations:** • Achievement so far, main Risks (financial / social / environmental). • Improvements needed.
1.1	Supply chains	• A new project should be focused on aquaculture supply chains	H	H	• See recommendations
1.2	SSA groups	• Networking between actors of the incipient chain are well underway and should develop after project end	H	H	• See recommendations
1.3	Cost effectiveness of SSA	• Management systems for each particular context and size of activity should be studied further	M	M	• See recommendations

Key Challenges

- Floods in both delta and CDZ, Mon and Kayin, and water shortage in CDZ
- Weakness in practice and awareness for stocking larger fingerlings in growt-out ponds
- Limited number of hatcheries
- Unstable feed price and raw ingredients
- Weakness in awareness of the importance of FCR

Thank you for your attention

WorldFish