**ANN – 4.8**

**ANN**

**Baseline study for Fisheries Development in Telangana state**

* **FGDs - Reservoirs**

**1: FGD 1-KMR RSV 1 - PFCS Nizamsagar Dam:**

The participating fishers in the group strongly opined that **leasing of reservoirs** to FCS has distinctive advantages and the same should be promoted and nurtured for better outcome.

The **profile of members** in the group shows about 20-25% of members are engaged in agriculture, some are into business and marketing and rest depend on fishing for livelihood.

The **conflict between irrigation v/s fisheries** is an issue that came up in the discussion and members wanted DOF to take steps to protect the interest of fishers. The **other problems** they face include receding/depletion of water level, escapement of fish downstream resulting in loss of 4-5 tons annually which need to be tackled. In addition, nine sluice gates of the dam are rusted and jammed resulting in sand/mud deposit which adversely affects fishing activities. The fishers are happy about allotment of Rs. 3.5 crores for implementation of several activities under **NCDC program** in the district and they are interested for participatory sharing of cost with the Govt. for any interventions under **livelihood programs**. In respect of Benchmarking income from daily labour / wages which would normally amount to Rs.90000 to one lakh per year, the fishers were vehement on the point that measures are to be taken to ensure an annual income of Rs.1.5 to 1.8 lakh/ yr to retain them in the fishing activity.

Ineffective monitoring system due to frequent change of DOF staff and understaffing is a serious problem that needs to be addressed. Therefore, improving of DOF staff strength for proper monitoring of reservoir activities is critical. Further, there is decline in working efficiency of FCS in protecting fishers interest coupled with the emergence of many aggregators resulting in varied levels of exploitation. They emphasize the need to promote sector related activities beyond mere resource fisheries through seed rearing, cage fish culture, pen farming and high value prawn farming.

**2: FGD2- KMR RSV 2- UMD reservoir (with local fishers of FCS)**

This is a case of reservoir where the FCS is operating fishing activity on license issued to its members. It also represents existing system of internal market tie-ups and arrangement between merchants and FCS members as seen in many other cases. The reservoir is also stocked with freshwater prawn seed by the merchants on a buyback arrangement and the growth performance prawn is reported to be good. The members opine that due to recent fish seed stocking intervention of DOF, subleasing of resources is gradually coming down to <50%.

**3: FGD 3 & 4 - KRN RSV 3- LMD Reservoir**

The fishers felt that there is need for change in the norms and modalities followed by the department related to **lease / licensing of water bodies** in the context of problems and prospects. Presently license v/s lease- is solely dependent on fishing operation. To avail License the eligibility criteria are that the licensee should be residing within 10 km catchment village, qualifying in skill test, in swimming, net and craft – theppam operation, other identification proof like Adhar card /voter ID, etc. The licensee should not be below 18 years age. License is issued to only one member per family. As for the problem of poaching it was learnt that up to about 10% is happening by non licensee members during summer when agricultural activities are on a low key.

No committee is constituted to consider issue of license and DFO has the power to decide cases on individual merit. Further, there is limit on extent of water body in the allocation of tanks to PFCS. The only condition is that the licensee will operate within one Gram Panchayat irrespective of the WSA. It was also clear that no per ha **production targets** are fixed to FCS while allotting the water bodies. However, as per DOF, productivity and targets are fixed by the HO and the districts are expected to achieve the same.

The reservoir has about 14 **Landing Centers /spots** of which about 7 are major (LMD, Ustinapur, Korangla, Gannavaram, Ramnagar, Mylaram, Ramachandrapuram) and the rest are minor centers. In three main fish landing spots viz., Gannavaram, Ramnagar and LMD point about 200-400 fishers carryout fishing on a regular basis and bring their catches to the landing spots. The fish catch arrival during summer is about 300 kg/day in major landing centres and 60 to 80 kg/day in minor landing centers. There are also several small landing points (30-40) around the reservoir.

**Aggregators** collect fish caught by the members of the group, segregate them in accordance with variety and size, consolidate the produce and take it to the next marketing channel. They have direct linkage with traders operating at different levels of fish market chain who in turn receive advance amount from the bigger traders. Each aggregator collects between 60-70 kg /day on an average and links to retail market. Specific variety and bigger size is sent to urban/wholesale outside market and partly outside state, and remaining is sold in retail market for internal consumption. For example Wallago fish of 3-4 kg size fetch higher price of Rs. 150-200/kg when supplied to whole sellers who intern supply to outside state markets.

The business terms are decided / settled under a long term arrangement with market intermediaries that are flexible and loosely defined, and are mainly on word of trust. The fish price is fixed by merchants based on advance amount given and rate fixed is marginally flexible. Each aggregator/ merchant supports 10-20 members and in some cases this number may go up to 40-50 depending on their capacity to advance and invest on business apart from doing fishing. Aggregators in respect of reservoirs fisheries generally advance between Rs.10000-20,000 to individual fishers in the groups (interest free) and deduct @ Rs. 1000/year in their payment settlement.

At each marketing stage/change of hand, the intermediary’s margin is Rs. 10-20 /kg depending on demand, condition of fish, quantity arrival, season, special days etc. The marketing arrangement is a win-win- situation to all.

Reacting on the promotional schemes of DOF, the fishermen stated that the quantity of net material supplied to them on subsidy is inadequate to meet their routine needs and emphasized on meeting their requirements fully for desired outcome. The other problem they highlighted is late stocking by DOF (Oct-Dec) and also smaller size of fish seed supplied for stocking. They stated that due to non involvement of license holders / executives in the committee for procurement & stocking of fish seed, ensuring the quality of the seed and stocking density is difficult. As license holders are not members of PFCS there are problems in intended benefits reaching them. In such cases the DOF can explore other methods of reaching the target group directly under govt. supportive schemes. As for credit facility for fishery activities and fishers, local commercial banks not evincing any interest in providing loans and is a notable point that emerged from the discussions.

The following are the suggestions and action points:

* Adequate and timely supply of quality fish seed of size 80-100 mm.
* Large scale replication of cage farming activity needs to be deliberated taking due note of all the issues.
* Periodic trainings to fishers and to FCS executives on resource management, improved methods of fishing, handling and innovative marketing.
* Establishment of fish landing points in selected locations spread across the reservoir surrounding villages in accordance to fish catch and arrivals.
* Fish vending sheds or shelters should be provided near the reservoirs for operational convenience of fishermen and to develop local markets.
* Support for establishment of ice plants to facilitate production and distribution of ice that is much required for safe storage and transportation of fish.
* DOF support for motorized boats for patrolling and watch and ward for all large and medium reservoirs.
* Motivation to organize fishers under FCS frame as also for informal groups within FCS to pursue sector supportive activities can be helpful.
* Banks should be advised to provide loans to fishermen for pursuing fishing and fish marketing activities and also to take up seed rearing and fish production activities in the reservoir catchment.

**Pangasius farming in cages** : It was noted from members involved in **Pangasius farming in cages** a group of ten members was pursuing cage culture comprising 8 cages for production and 4 cages for rearing fish seed in support of cage farming. Fish seed was procured from Kaikalur and Rajamundry of AP state. They could obtain fish growth of 1 kg in 7-8 months. There is good market demand for the fish in the region and better market demand for live fish even during off season. Live fish fetches better price of Rs. 80-90/kg as against general market price of Rs. 70/kg . The specific feedback points from the FGD are as follows:

* Fishermen groups are keen to continue Pangasius rearing in cages and seek Govt support.
* There is demand for around 1000 cages in the reservoir.
* There are also serious concerns related to higher capital costs especially in the context of the DOF insisting beneficiary margin at 20% of the cost.
* The inability on the part of the beneficiaries to meet the production costs is also another important issue.

The discussions brought out that while the production and productivity are impressive, the FCR and cost of production are major issues. The productivity as reported was very encouraging at 3.5 tons/cage but the FCR at 3:1 is a major concern. It should be brought down to as low as 1.2:1 to get higher net returns. The fishermen need to be exposed to more frequent trainings in places like Jharkhand. The activity is profitable only when the demand and market price is better. In such cases, there is better scope to increase margins by the society.

During the current year five units are sanctioned to the district (50 cages, @ 10 cages/ unit). A working group committee, with 2 members as executive leaders is positioned. A joint account has been opened by depositing Rs. 10 lakh in the group account (earnings from the previous crop activity in cages) to facilitate operational expenses. Further, it is envisaged that group will meet all expenditure related to seed, stocking, feeds and feeding management, security, harvesting, marketing etc.

**4: FGD 5 - MAN RSV 5 - Mulkula Ralivagu reservoir**

The objective of the FGD was to understand functioning of FCS operating in small reservoir FCS and under various fisheries activities, production, marketing and sharing of income and other FCS activities. The reservoir is leased to FCS which has 218 members for a lease amount of Rs.5500/ yr. About 50 members are regularly into fishing activity and around 165 families are eking out their livelihood from this resource and are engaged in fishing and related activities. Productivity of this reservoir(small) appears to be very high but overstocking is seen in view of regular stocking of FCS, merchants stocking Prawn seed and stocking by Govt. all leading to overcrowding and resultant high mortality and reduced individual growth of fish.

The following was the suggestions that emerged in the FGD:

* There is urgent need for removal of tree stumps as it affects fishing activity. Further, there is need for fixing of mesh to waste weir point (overflow point) to prevent escape of fishes impinging on catch size and income for fishers.
* Facilitation and financial support of DOF in getting required permission of forest department to undertake cutting of stumps and one time scheme support for removal.
* Facilitation and financial support of DOF for getting permission of irrigation department to fix metal screen mesh to water outlet point and also one time financial support to meet expenditure.

**5: FGD 6 – MDK RSV 6 – FCS, Haldi project reservoir**

The reservoir has provided livelihood support system for many fishers of Masaipet supporting over 100 members. Fishing is being carried out by fishers of over 7 villages and DOF has issued license to about 85 fishers by collecting license fee of Rs. 205/ fisher and are fishing on a regular basis. Initially the resource was leased to Masaipet FCS that was registered in 1970’s for a lease amount of Rs. 4200. Later in 1999, based on proposal it was changed to licensing system.

The following are the notable points that emerged in the group discussions:

* Members expressed that they were not aware of stocking fish by DOF/FCS executives and they were not informed well in advance thus making this important process non participatory. Inadequate handholding due to problems of less field level staff in the Dept. is also a matter of concern.
* Fishers are not aware of use of coracles and could be deployed on trial basis to instil confidence among fishers.
* Undesirable practices like electric fishing in some patches by poachers equipped with pump sets has resulted in depletion of resource much to the disadvantage of local fishers. Pollution associated to effluents is also resulting in fish catch depletion.

**6: FGD 7 - MDK RSV 7 – FCS, Pocharam Reservoir**

The fishing rights of the reservoir have been given to individual fishermen on license system to local fishers of FCS on a fee of Rs. 205/ fisher/ year. Among the license holders about 180 fishers are active fishers and have exclusive dependence on the reservoir fishing for their livelihood. The notable points that emerged from the FGD are:

* Timely supply of quality fish seed to be ensured and stocking by Government should be advanced to August-September instead of November.
* Further there is need for Govt. support for stocking prawn seed as the growth performance of prawn is good in the reservoir and the seed cost is high for the fishers to meet.
* Main problem of siltation needs to be addressed by the concerned Department and DOF support in this facilitation.
* Fast receding of water levels in most part of reservoir due to agricultural activities resulting in reduction in the EWSA. DOF facilitation for minimizing the problem through institutional dialogues protecting the interest of fishers and livelihoods.
* Though fishing is banned during July – August, some fishers do carry out their activities clandestinely. However, about 90% fishers follow ban during close season.
* Conflicts in sharing income among the members and such disputes have started long back due to bifurcation of districts and allocation of mandals to respective districts due to which locals feel that they are not getting due share.
* The FCS has discontinued commitment through agreement with merchants which had been causing huge loss and rightly shifted to own auction system. A welcoming move with the efforts of DFO, the process and approaches adopted for the success could be replicated
* Redefining of EWSA based on water storage and water use criteria rather than using uniform and blanket rate of 75%. The demand for re-defining EWSA is justified and needs to be considered.

**7: FGD 8 - RGR RSV 8 - Indiramma Sagar reservoir**

The notable points that emerged from the FGD are: The members were of the opinion that there is difference in seed quality between govt. and FCS stocked seed and also timing of stocking has to be properly matched. The poor growth of seed stocked by DOF is attributed to poor genetic traits. The society favors DOF stocking in July to facilitate fish harvesting after six-eight months.

* There is need for training of members on seed production.
* Support required for fish feed, coracle and nets, apart from transport vehicle for retail marketing.
* Institutional linkage with DFSC and State Federation is very lacking
* House construction subsidy should be reintroduced and Pension may consider for senior fishers.
* Promotion of more participatory approaches in the activities of FCS and need for ensuring better linkages and proactive hand-holding support of District FCS and State Federation for better functioning of FCS system proactively for the growth of sector need consideration.
* Trainings on seed production, integrated tank fisheries management etc. need to be facilitated/ organised by DOF.
* Performance of FCS should be made as eligibility criteria in order to avail scheme benefits of DOF. This aspect needs policy consideration in order to motivate and to promote better efficiency.

**8: FGD 9 – WPY RSV 8 – FCS, Ukachettuvagu Ramanapad balancing reservoir**

About 6 villages in the catchment are benefited from fishing activities in this reservoir and making their livelihood. The fishing right has been leased to Atmakumar PFCS for Rs. 24000/year. The FCS has 170 registered members and 45 non-members. The notable points that emerged from the FGD are:

* Variation in the TWSA of reservoir as in records and reality - Setting right of the records related to TWSA of reservoir is necessary.
* High rate of fish escapement due to high flushing ratio - Fixing of screen at water outlet point by the Govt.
* Training of fishers on new management techniques related to resources and activities
* The FCS is managing the activities satisfactorily and employment and income are equitably shared among members including the sizeable number of non members (25-30%).

**9: FGD 10 - WPY RSV 9 - FCS of Sri Rangasamudram Reservoir**

Prior to conversion of water body into reservoir, it was a perennial tank located adjacent to temple and regarded as endowment resource of the temple. The FCS members claims that the fishing rights was awarded during king’s time to their family (Mudiraj Telugu community) who are involved in temple security and other works of temple on voluntary basis with no fixed salary. The FCS has 260 members and more than 100 non members. The initial lease amount was Rs. 750 when it was tank and has been enhanced to Rs. 84,000/year after construction of embankment. Hence, the resource is under legal dispute.

The notable points that emerged from the FGD are:

* There is problem of low productivity after the formation of reservoir due to lifting of water from other dam and continued discharge/release for irrigation activity
* Growth of fish was better when it was a tank due to nutrient runoff from catchment area contributing to the productivity.
* There is high mortality of stocked seed and also fish due to menace of predatory fish (20kg/day/person as against 50 kg earlier) constantly gaining entry
* Unauthorized fishing and claiming their rights on resource by the farmers adjacent to reservoir during inundation on the grounds that they have lost land and property due to submergence
* Poaching and illegal fishing done by other villagers and by other than community members which has reached a flash point
* Demand for preferential allotment of water bodies to only fisher community
* Early settlement of court dispute and reduction of lease amount to < 20,000/yr instead of Rs.84000/yr
* FCS wants subsidy support under the scheme for purchase of nets and boats, feed, village level marketing unit (Kiosks) etc
* The members of FCS are very supportive, inquest and participatory to pursue new activities related to sector.
* There is scope for development of this resource on command area development approaches, positioning of water users groups and establishment of institutional convergence

**10: FGD 11- WPY RSV 10 - FCS of Gopal Dinnae balancing reservoir**

The reservoir is leased to Veepanagondla Primary Fishermen Cooperative Society with 300 registered members and 50 non registered members. The initial lease amount was Rs. 40000 and is now raised to Rs.44000. All members belong to Mujaral teluga community. Earlier there were 3 separate FCS which were later amalgamated into one FCS as a result conflict within FCS is minimal. The activities of the FCS are a good case for a successful role model on better institutional management in the region and the success is credited to its dynamic Secretary.

From FGD held with FCS Gopal Dinnae balancing reservoir it was learnt that seed rearing in peripheral tank was tried in perennial tank leased to FCS with success. This Society is interested in pen culture and can contribute money and participate in the activity if required. The DOF stocked fingerlings takes 1.5 years to match the weight of FCS stocked fingerlings growth of one year.

The notable points that emerged from the FGD are:

* Water body is being developed more on the concepts of large perennial tank and FCS takes up stocking once in 2 yrs
* Watch and ward is entrusted to 10 members and on rotation basis round the year. The shift of each batch is changed once a month
* Motor boat purchased by FCS for Rs.2.5 Lakh is used for daily patrolling (watch and ward)
* FCS has maintained all records and the same was also shared to the study team
* Problems of tree stumps making fishing difficult and non-profitable
* Fast receding of water due to heavy with drawl for irrigation activities during summer (from around 35 ft to as low as 20 ft.)
* There is scope for promoting pen culture, seed rearing in peripheral regions
* Focus should be on trainings in seed rearing, fish catching, effective fishing (hanging ratio of net etc.), better resource management, grading, handling, packaging, live fish marketing, on site handling, post- harvest quality management
* Organizing exposure visits to fishers and other stakeholders of the sector on a periodic basis will help the members acquaint with new technologies
* Subsidy support of DOF for purchase of net, FRP coracle boat, TVS moped for marketing of fish, Truck for fish transportation
* Scheme support for construction of on-site sheds in support of watch and ward, storage of nets, and other accessories
* Extensive poaching by about 25 non fishers

**11: FGD 12 - WPY RSV 11 – FCS, Saralasagar balancing reservoir**

This is a medium reservoir. The fishing rights have been given to FCS on lease basis. Only one society is formed between two reservoirs ie Saralasagar and Kanapalli (480 ha balancing reservoir). FCS has 873 members and 600 non-members. Earlier FCS had only 350 members and 150 non-members (nearly 3 fold increase)

Stocking was undertaken about three years back by the FCS procuring seed from private seed grower, Kattapalli village. Fingerlings of rohu, catla, common carp and grass carp were stocked. During 2015-16, FCS had stocked 4 lakh fingerlings (catla-1.5 lakh; rohu-1 lakh; GC-1 lakh; mrigala-0.5lakh). Last year, DOF supported 4 lakh fingerlings @400/ha. (15.10.2016).

The notable points that emerged from the FGD are:

* Generally, fish growth is poor and relatively growth was high in catla followed by rohu and common carp.
* Department subsidy support for purchase of fishing nets, thermocole theppam, TVS mopeds, ice box and small trucks.
* Members not interested in coracles/FRP boats because of their perception of danger and high risk.
* There is need for further training to fishermen on different aspects of reservoir management including seed rearing in pen and peripheral ponds.
* Positioning iron mesh net at water outlet points to check the persisting problem of fish escape at the outlet.

**12: FGD 13- WPY RSV 12 - PFCS Yenkuta balancing reservoir**

This a balancing reservoir located in Amadabakula village with TWSA of 150 ha at FRL (Official record) and in reality members feel it is more than 250 ha. The flushing ratio is high and has poor natural inflow. Earlier the reservoir was allotted to Kothkotta FCS and the lease was under litigation due to conflict on ownership resulting in court case for over seven years. Internally, the water body is informally subleased for 4 years to fish merchant who helped the society to fight court spending over Rs.7.00 lakhs. At present, the lender merchant is managing the reservoir including fish seed stocking, watch and ward and fishing. The following are the feedback points noted in the FGD with PFCS Yenkuta balancing reservoir:

* The Society is keen to take up seed rearing in the leased tanks once it take over possession of reservoir from the merchant after committed lease period is over. The focus of activity is to meet its own requirement for stocking reservoir and also supply to others at cost. Members are willing to bring in some margin money for the new initiatives.
* As for family fish consumption needs, members indicated that they consume fish twice a week and each time around 2-2.5 kg/household (16-20 kg/ month). Preferred varieties of fishes by consumers are murrel, catla and common carp in the order of preference.
* The other points that emerged out of the discussions were that there is urgent need to repair crest gate by irrigation department with the facilitative support of Department of Fisheries and that FCS request for this deserves to be considered on priority basis. Also the members expressed the strong need for DOF subsidy support for purchase of fishing net, boat, ice box, mopeds, fish transport vehicle etc.
* **FGDs – Tanks**
* **5.2.2: Feedback summary for tanks - Departmental tanks**

Thirteen departmental tankswere covered under the FGD in the study districts. The outcome of the interface and the suggestions that emerged from the FGDs has been summed up for drawing inferences.

**13: FGD 14 - KMR DPT 1- Ooracheruvu**

Ooracheruvu is a Department tank with TWSA of 125 ha. The tank has been allotted to FCS Machareddy. The tank size is much bigger than area in records and members perceive TWSA of 315 ha. The tank receives domestic sewage and is quite productive.

* The Society is also allotted GP tank at Kummata kunta in the same village. The tank is very small with an area of around 2 ha. The tank is Short seasonal and not productive due to alluvial soil. Water is turbid due to silt and is not being used as of now.
* FCS has earlier attempted seed rearing in peripheral tank of 0.5 acre size in Madubala. They had stocked 2 lakh fry and were successful in getting fingerlings with about 35% survival.
* None of the FCS members are trained except one who got training at Warangal Training Centre.

The Society is allotted large number of tanks in different locations and making good income, but records are not accessible for understanding its operations and income sharing. The profit sharing pattern and the amount accrued is not known.

**14: FGD 15 - KRN DPT 2- Kothapalli Ooru Cheruvu**

Tank was renovated under Kakatiya Mission by de-silting, but the work was not executed in support of fisheries activities and was not done orderly. Uniform de-silting by removal of accumulated silt on tank bottom is not done. Tank is infested with lots of stumps, vegetation, partial weed, siltation and peripheral encroachment. The notable points that emerged from the FGD are :

* Slow and tardy growth of fish seed stocked by DoF compared to the earlier stocking by society although in both the instances the seed was sourced from AP. This was reasoned out to be due to late stocking by DoF and the subsequent winter season effect.
* Under Mission Kakathiya de - siltation program, there was sudden de-watering of tank by deepening channel at the outlet point and letting of water in the night hours without advance intimation to FCS. This has resulted in total escape of fish (loss of over Rs.5 lakhs). Unscientific de-silting of tank under Mission Kakatiya without consideration of resource use for fisheries is a notable point.
* Earlier, water was used in an organized way by various users with better interaction and understanding.
* Problem of domestic sewage gaining entry in to tank at one point and associated pollution has affected fishery activity

**15: FGD 16 - KRN DPT 3 – Peddacheruvu**

Since beginning, this FCS was under the control of local merchants and had commitment for supply of fish catch. MOU was generally for 5-6 years and for an amount of Rs.2-4 lakh as advance. The merchants were taking care of all expenditure including seed stocking, lease amount, watch and ward, misc. expenditure like netting, harvest etc. The advance amount was increased to Rs. 4-5 lakh since last year. Deduction of advance payment was effected for 36 months. The purchase price of fish before 3 years was Rs. 30-40/ kg and the profit share /member was Rs.5000 apart from sharing of the advance amount with all the members.

After completion of the contract/agreement period, the society has taken over the tank and is performing well and getting good income by using alternative year stocking and harvesting method. The model is worth replicating with region specific modifications in tanks of similar characteristics in other mandals /districts.

**16: FGD 17 - KRN DPT 4 - Rangasamduram tank**

This year, the society is waiting for Govt. Seed supply for undertaking stocking. However, if the Govt. does not supply in time, the society is ready to stock as usual. The society also uses cow dung and rice bran and there is no objection from public. The tank has potential to produce 60 tons/year. Net screen is fixed at points of outflow/ overflow points to avoid escape of fish during flooding. The society spends Rs. 10000/month for 12 months towards watch and ward. The society is managing the tank very well and there appears to be good understanding and cooperation among members. However there is need for more transparency which could benefit all the members.

**17: FGD 18 - KRN DPT 5 - Mudiraj sangham**

The society has homogenous group (Mudiraj Community) and is regarded as one of the best FCS in the region, established about 20 years back and is a role model for many of its activities. There are about 500 families, and each family has 3-4 members.

It has 150 registered and about 30 non registered members. The funds are generated from among members each contributing Rs. 5000 for fish seed stocking. Sale of fish is free from any agreement or commitment to any lender. There is no dependency on merchants since three years. Earlier when merchants were involved in tank management, fish price was Rs.45 and now it is between Rs. 65- 70/kg.

Meetings are being conducted once in 3 months and GB meetings once in 6 months. FCS is getting annual audit of accounts done on a regular basis. Elections are held every five years with mutual cooperation as per the provisions of act by self - declarations and announcement; last election was held during 2014. The society has maintained all accounts including membership register, minutes of meetings etc. This society is well managed because it is homogenous society and supported by the community Sangam.

**18: FGD 19 - MDK DPT 6 - Royan Pally dept. Tank**

The tank has TWSA 220 ha (165ha EWSA) and in reality is about 280 ha and is allotted to FCS Royan pally which has 185 members. Growth of fish in general was low compared to previous years due to over- stocking. The output is reported to be 25 tons during 2016-17. The reported productivity of water is estimated at 160 kg/ha and is quite low for this type of tank as there is no fairness in sharing of information by the FCS. Over- stocking of tank is to be discouraged. Animal Grazing and natural carbonation is happening on a regular basis contributing to resource productivity. There is need to streamline working of this society and bring about transparency in operations.

**19: FGD 20 - RGR DPT 8 - Pedda Amber pet tank**

This is a departmental tank with TWSA of 75ha and is leased to FCS Pasuma mula village. The society is relatively new, formed in 1989 with 15 members and now has 45 members and 20 non members, all are skilled. All of them share benefits derived out of the activity. The tank is linked to Musi river canal and water is used mainly for irrigation activities. Hence, though water spread area is around 75 ha, there will be reduction by 40-50% in area and also in water depth (5 ft.).

From the discussions it was understood that aggregators work at two levels ie at village level and city level. The village level aggregators collect / handle around 500/600 kgs of fish /day

* Members expressed interest in involving in seed rearing activities if DOF supports them initially with supply of fry/ spawn through appropriate schemes.
* DOF support is also required for purchase of nets and craft, fish transport vehicle and there is need for training on fish seed rearing and tank fish farming.
* Govt. should provide revolving fund / soft loan with subsidy component to WPFCS and Support of institutional credit and linkage with banks for loan.
* The problem of African catfish coming from musi river canal needs to be tackled

The society is managing the tank resources well and no internal issues were reported. The demand for craft and gears is genuine but demand for vehicles is not justified. Training is necessary for the members.

**20: FGD 21 - WPY DPT 9 - Veerasamudram tank**

This is a department tank with TWSA of 160 ha at FRL (80 ha in Govt., records). Initially it was a seasonal tank but now after linking to canal it is perennial. The society is also allotted with 4 GP Tanks (6 ha WSA). This tank is leased to PFCS since 1983. The FCS has a membership of 95 registered persons and 30 non- registered members, in all 125 persons belong to Mudiraj community. The society has entered into a forward deal with merchants for a fixed sum of advance amount. The merchant has paid Rs. 5 lakh as advance. The agreement is for three years. Merchant also brings his own men for watch and ward and harvest.

* The membership composition includes 75 young and 20 old. About 40 of the young members are graduates and unemployed. These degree holders are interested in taking several entrepreneurial activities of fisheries and aquaculture and are interested in training on seed rearing and take up activity in small nearby tanks allotted to them.
* The members have skill in making cast nets and gill nets and they need to be supported to get additional income through these skills.
* The society conducts its executive committee meeting once in 3 months and the GB meeting once in 6 months.

There is scope to enhance productivity through better practices. As the society has more members with graduation and can learn quickly, there is an opportunity for seed rearing in peripheral tanks and needs to be supported by training them and facilitating to use such area for seed rearing and aquaculture activities.

**21: FGD 22 - BDR DPT 10 - Singhabhupalam tank**

It is a departmental Tank with TWSA of 480 ha and is leased to Singhabhupalam FCS for a lease amount of Rs.29998/year. The FCS is one of the oldest, registered way back in 1965 and has 231 members of Mudiraj Gangaputra, Bestha, Lambadi, Koya, Nayaka pod communities apart from STs and other tribes. About 80 members of FCS belong to tribal groups. Initially during the beginning of activity, FCS collect @ Rs. 5000/ member (Rs.10 lakh from all its members) to meet expenditure for purchase of fish seed (Rs.8 lakh) and to meet expenses of watch & ward and other miscellaneous (Rs.2 lakh).

* In spite of diversified caste composition in members, the FCS is working on good cooperation with minimal internal conflicts, working together in harmony and share benefits equally.
* FCS has one motorized boat and is being used for patrolling and strengthening watch and ward.
* Excessive with drawl of water for irrigation activities is resulting in less water storage in tank negatively affecting productivity and growth of stocked fish.
* Outbreak of diseases during periods of low water depth has been a problem.
* Yet another concern is high cost on watch & ward (night patrolling using motorized boat by 4 members / day, each paid @ 5000/ month; Exp. of Rs. 2.4 lakh).
* The society is working well and has no problems associated to management of society.

**22: FGD 23 - MBD DPT 11- Mahabhuba tank**

The tank is leased to FCS since 1956 and lease amount increased from Rs.3000 to Rs.36000/year over the years. The society has been bifurcated later, and the present member strength is 600. About 500 members represent 5 villages with Gangaputra (200 No), Muzaral (300 No) being dominating communities. There are three groups, each of about 150-200 members represent the society. About 90% members are active. The tank also covers 4 thandas (hamlets) and there is no control on thanda residents and around 50-60 members are engaged in poaching activities. The FCS is performing well, but transparency is absent.

Following are the problems reported:

* Tank being shallow due to siltation, can hold less water during most part of the year. There is also less overflow of water due to grass cover.
* Problem of over stocking / double stocking and late fish seed supply by DOF.
* Outbreak of ulcerative disease problem during influx of fresh runs off into tank.
* Problem of ulcerative disease during the initial phase.
* For perennial tanks, early stocking of fish seed by July month could be explored.
* Considering the existing water pockets in the tank, there is good scope for promoting resource integration viz., in situ fish seed rearing
* Poaching by non-members and mainly from the thanda residents

**23: FGD 24 - YDR DPT 12 - Muthukunda tank**

It is a perennial department tank with TWSA of 240 ha, Musi canal fed water source, minimal water level fluctuation and is allotted to the local FCS of Tummalagundam village. The tank is polluted due to inflow from Musi river canal and also heavy infestation of water hyacinth in the margins of the tank and if uncontrolled, there is every possibility of it, spreading across the tank which may tamper fishing over the period. For this, members of FCS have taken some initiatives by putting net barricade to prevent the entry of water hyacinth and prevent further spread. But has to be taken on large scale on regular basis to save the tank

* Large quantity of tilapia is harvested on daily basis as it has established well in the tank and dominated the catch.
* Water is abundant with Microcystis bloom due to sewage influx.
* Skin rashes is complained by the fishers due to polluted water.
* Periodic fish mortality associated to depletion of dissolved oxygen.
* Due to influx of Musi canal water, menace of African catfish was rampant.
* Routine patrolling is done by 10 members on shift with the help of a motorized boat.
* There is need for seed farm, hatchery, rearing tanks, fish seed conditioning and packing facilities, ice plant, etc.
* DOF support is also required for purchase of mobile vending units and also support for live fish marketing.

The tank is productive but pollution and other issues need to be attended to, including prevention of inflow of African catfish into this tank. FCS is functioning well with better coordination among members. However none of the members are trained in fisheries. Members feel that the DoF should supply seed early so as to avoid over stocking and also to get sufficient time for the fish to grow. The villagers’ specific request to govt is to take measures to prevent entry of Musi canal water to tank.

**24: FGD 25 - YDR DPT 13 – Peddacheruvu**

This Departmental tank located in Pochampally village has TWSA of 80 ha. The FCS is also allotted a small tank, Hanuman tank with TWSA of 18 ha. The lease amount for the tanks is Rs. 7000 and Rs. 2990 respectively. The tanks come under Musi river basin and are linked to Musi river canal. Lease amount for small tank Rs. 2990.The society has 60 members and equal number of non members.

The notable points that emerged from the FGD are:

* Seed related issues are mainly cantered on limited internal seed production and supply as the district does not have hatchery or seed rearing units of its own under govt or private sector.
* Members experience 20-25% loss of stocked fish due to fish escape through outlets during overflow and floods, also witnessed addition of new fish stock from adjacent tanks
* Additional loss upto10-20% due to poaching in spite of security
* Infestation by African catfish devastating stocked fish seed ( with fish growth of 12-15 kg size, but not preferred for consumption and hence is killed after catching)
* Due to weed infestation on tank sides , farmers complain of allergy reactions in the weed infested area (suggested use of chemical weedicide- 2-4 D application @ 4-6 liter/ ha along with emulsifiers or new molecules in market could be explored)
* Pollution from musi canal coupled with industrial pollutants (chemical water) gaining entry into tank and sudden mortality of fish on several occasions
* Dis satisfaction over outlet repair work under Mission Kakatiya (Farmers are frustrated, agitated and given representation to concerned authorities aginst poor quality work
* Lack of sequential activities, erratic removal of accumulated silt under Mission Kakatiya program resulting in more pits / pools in tanks rather than deepened flat surface in support of fish harvesting
* Lack of multiple activities related to fisheries and aquaculture for enhanced income and employment

There were many suggestions for betterment from the group members. They wanted the DOF to ensure timely supply of seed to facilitate early stocking. Suggestions on promotion of resource integration approach through use of small seasonal tanks for seed rearing and integrating with the development of long seasonal and perennial tanks for fish culture was well appreciated and agreed that such a initiative would be helpful. They were also supportive for bringing in effective collective action of FCS members for the weed control, de-silting, inlet and out let management, control of industrial pollution. There was concurrence on positioning of watch dog committee of trained FCS members for regular monitoring of water quality, use of water for multiple activities without affecting the fisheries activities. It was felt that exclusive groups within the FCS, based on interest and investment capacity could pursue focused activities from seed rearing to marketing. The following were the specific action points that emerged in the FGD.

* Roping in of interested and enthusiastic voluntary youths from among the FCS as exclusive group in support of sector growth in all mandals/ districts; associating them in all the selected tasks through focused trainings, capacity building, empowerment and entrepreneurial activities, extending additional handholding
* Promotion of in situ seed rearing, pen seed rearing, seed rearing in coves in the tank
* Support of DOF for purchase of motor boat for patrolling
* Positioning of one time support scheme to FCS for de-weeding by “Members Participatory Approach” combined with use of mechanical tools
* Establishment of ETP at point of effluent entry and diversion canal to control sudden entry of effluents by the Water supply and Sewage board

From the above, certain policy implications can be derived for improvement of the situation. This would mean addressing inadequacy of law/policy to protect the interest of fishers in terms of maintaining minimum water storage level/dead storage in tanks, taking action against polluters and restructuring Mission Kakatiya program to be more supportive for organized development of resources (water bodies) and fisheries sector growth. Further there is also need to focus on institutional level interactions and modifications to ensure convergence, better integration and participatory sharing of responsibilities by the members especially in de-siltation, weed removal, norms for use of water source for multiple activities.

* **FGDs on Grampanchayat tanks**

Four FGDs were held with FCS allotted Gram panchayat tanks viz., Ranipuram kunta (FGD 26 - KRN GPT 1), Oora cheravu (FGD 27 - WPY GPT 2) Malayal Tank (FGD 28 - MBD GPT 3) and Lingappa cheruvu (FGD 29 - YDR GPT 4). In three of these tanks the TWSA varies from 10 ha to 15 ha and the fourth one which is smallest is only 1.6 ha. The average productivity of these tanks is in the range of 200 to 500 kg per ha. The harvested fish from these tanks is mainly sold in nearby villages and sale returns is shared among the members. The watch and ward is shared by members by rotation. One of the problems seen is the societies not having own funds to meet the operational costs. The low productivity and lack of transparency in providing data makes it difficult to judge the realities of yearly catch and incomes of the stakeholders.