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Skilled human resource development for fisheries sector

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INTRODUCTION

Fisheries production of the order of 6.4 million metric tones has taken India to 3rd position in the world in Fisheries and 2nd in Aquaculture (Ayyappan and Diwan, 2007). Inland fish production contributes 55% in the total. Fish as commodity is extremely precious as protein source. To combat problem of malnutrition it is an important and cheap source of protein. Present per capita availability of fish in India is 9.0kg. With increasing population and for combating malnutrition, fish production is to be increased. Fish besides domestic market is also revenue generating from export market. An amount of 7,200 crores is generated from export of fish annually. Sea food, processed fish products and other value additions, makes fish an attractive commodity. Fisheries sector besides as commodity also offers employment oriented avenues. Presently there are 3.5 million fisher folk and millions of people are involved in other employment generation avenues in the fisheries and allied sectors.

It is true that in wake of globalization, liberation and privatization, flow of technologies has increased. Fisheries and allied sectors are also transforming to industries at a faster pace. Therefore, there is demand for knowledgeable and skilled human resource for the development of standard products and services in the sector. Presently, skilled workforce to undertake these operations is developed on-the-job by the industries and farms involved in fisheries related enterprises. The skilled workforce/ human resource need to be prepared through Vocational Education and Training system. At present with 395,161 and 64 students intake capacity in Bachelors, Masters and Doctoral Programme respectively annually from 14 colleges of fisheries under State Agriculture Universities (SAUs) and deemed university at Mumbai, aspirants for white color job are coming out (Birader and Kumar). These students with degrees prefer supervisory jobs while the fact is that we need to have knowledgeable skilled workforce to operate at lower and middle levels *i.e.*, on-field-operations. This multiplier effect will create knowledge society. This is possible by launching Vocational Education and Training (VET) programmes nation-wide, to offer these courses at senior secondary level (MES, 2009).

Government of India has proposed Modular Employable Skill (MES) development programme to equip people with marketable skills. In view of fisheries being potential area for employment generation, this sector has also been included in the Govt. of India's MES programme. MES programmes in fisheries sector is required to gear up inland, marine and fish processing areas with skilled human resource. Under MES programme in fisheries sector, the proposed modules for curricula development include fish breeding, mussel culture, fish feed preparation, fish processing, fish boat building, etc. It is suggested that MES programme in fisheries may be implemented from state, district, block levels and up to cluster of villages. In this paper attempt has been made to present strategies and various dimensions related to the implementation, examination, accreditation and certification of MES in fisheries from school to village level skill centres, possibly in collaboration with professional ICAR Institutions/ Fisheries Colleges and Krishi Vigyan Kendras (KVK) of state agriculture universities.

MODULAR EMPLOYABLE SKILL (MES) PROGRAMME

MES refers to minimum skill set required to make a person employable. The term modular depicts as a short-term modular course for the purpose of specific skill development. The conceptual frame work of MES envisage the following dimensions as advantages :

(*i*) Skill development as per market demand
(*ii*) Enabling skill up-gradation, and/or multi-skilling
(*iii*) Flexible delivery mechanism with multi-entry and multi-exit opportunities
(*iv*) As an alternative training system for life-long learning
(*v*) Recognition of prior learning by testing and certification.
(*vi*) System offering accumulation of credits leading to acquire qualification equivalent to National Trade Certificate
(*vii*) Offering of courses of different levels 1 to 3 as per need of employee's organizations
(*viii*) Advantageous to cover large canvas of target groups such as educated unemployed and under-employed youth (higher level courses), school drop-outs or out-of-school youth (basic level courses), women and girls, SC/ST, Minority groups, BPL, etc.

MES DEVELOPMENT PROGRAMME IN FISHERIES SECTOR

The induction of educational component combining training, forms VET programme. This is critical input for developing skilled knowledge society. The educational component of any area facilitates over all development and equip a person with soft skills. Structure of the curriculum as per DACUM process include content of knowledge, skills and attitudes for undertaking particular task. Some occupation based modules have been listed below with knowledge, skill and attitude required for the accomplishment of the task.

Example : Fish processing technology [4].

Filletter

Competencies

No.	Task	Knowledge	Skills	Personality traits
1	Identification of common fin fishes	Physical features of commercial fin-fishes	Distinguishing the fin and shell fish	Judgmental
2	Quality assessment	Quality requirement of fish for processing	Judgment of quality by vision, touch and smell	Judgmental
3	Grading	Commercial importance of size of fish in marketing	Assessing the size of the fish for different grades	Quality consciousness
4	Filleting	Process of filleting for maximum yield	Efficient filleting of fish in desired way	Accuracy
5	Washing and chilling/ freezing	Factors affecting the quality of fish-filleting Need and effects of chilling/freezing	Proper washing and chilling/ freezing of fish promptl-	Comprehension
6	Waste disposal	Necessity of waste disposal and its utilization	Early disposal of the waste from the edible portion	Environmental consciousness

Example : Marine fisheries-mariculture hatchery.

Seed collector

Competencies

No.	Task	Knowledge	Skills	Personality traits
1	Collection of seeds of fin-fish, shell-fish (oyster, prawn, mussel) and sea-weed from natural resources	Location and seasonal availability of seeds Tidal amplitude and current pattern Methods of collection	Collection and handling of seeds of different species from natural sources	Perseverance
2	Group-wise segregation of the seeds	Key characters for identification	Species identification and segregation of different varieties of fish and shell fish seed Selection of healthy seed	Analytical
3	Packing of seeds	Methods for packing of seeds	Desired packing of seeds	
4	Transportation of segre-gated seeds from field to rearing area	Methods of transportation	Handling, packing and	Regularity

Example : Inland fisheries

Fish breeder

Competencies

No.	Task	Knowledge	Skills	Personality traits
1	Pituitary gland collection, preservation	Location, structure and function of pituitary gland Method of collection and preservation Donor species	Removal of pituitary gland and preservation	Accuracy
2	Maintenance of brood stock	Brood stock diets, stocking rate, age, maturity	Transportation of brood stock, selection of feed ingredients, age and maturity determination	Alertness

(Contd...)

No	Task	Knowledge	Skills	Personality traits
3	Sexing and selection of brood fish	External characters of male and female brooders maturity stages	Selection of male and female brooders and their maturity assessment	Keenness
4	Preparation of pituitary extract	Quantity required and quality of glands	Identifying good glands, calculation of hormone concentration	Accuracy
5	Injection to brooders and breeding	Methods of injection, dosages for males and females, other inducing agents	Calculating dosages Injecting fishes with inducing agents	Skillfulness
6	Collection of eggs and hatching	Collection technique, hatching technique, percentage of fertilization, egg density per incubation unit	Identifying the fertilized and un-fertilized eggs and handling hatching operation during hatching process Calculating percentage of eggs fertilized and percentage of hatching	Affinity with living specimens
7	Spawn collection	Methods of collection	Handling of spawn	Affinity with living specimens
8	Rearing of spawn	Nursery preparation and feeding of spawn	Control of aquatic weeds, eradication of unwanted organisms, living, fertilization, feeding techniques	Hard work Sincerity
9	Transportation of seed	harvesting time of fish seeds, packing of seed	Harvesting and packing of seeds	Promptness Alertness

(Project Coordinator and Contributor)

NATIONAL VOCATIONAL QUALIFICATION (NVQ) SYSTEM FOR FISHERIES SECTOR

As discussed earlier that inbuilt flexibility in the MES level, will also pave way to the development and setting-up of skill standards in various fisheries related industrial activities through out the country. This may also be useful in developing National Vocational System (NVQ) for Fisheries sector from level 1 to level 3. The NVQ system will include learning, training, retraining, assessment and accreditation facilities. The grouping or accumulation of modules under MES can lead to acquire different qualifications viz., certificate, advance certificate, diploma and advance diploma. This will be possible by acquiring different entry qualifications through multi-entry and multi-exit system of Vocational Education and Training (VET). This would require development of modular courses that meet the diverse vocational needs and work places requirements besides offering flexibility to individuals to move through different levels of education and training.

EVALUATION, ACCREDITATION AND CERTIFICATION OF MES

Discussion on the development of MES, acquiring different levels in NVQ system and with reference to skill standards, it is imperative to note that there will be the development of certain competencies for accomplishing certain task. We may refer them to as soft skills which will lead to the development of generic competencies such as confidence, building values, communication skills, leadership, entrepreneurship, innovativeness, scientific temper, environment consciousness, safety measures, personal hygiene, work ethics, etc.

Fisheries institutions and other agencies under government recognitions may play vital role in the evaluation process to award certificate for acquiring competencies and hard skills as per national standards. The focus of the programme is on 'performing' and not on 'knowing'. The implementation of MES may be taken up by professional educational institutions of the country, so that educational component could also be strengthened. Here, it is worthwhile to differentiate between Vocational Education and Training (VET) and Vocational Training (VT). The educational component of VET is responsible for the development of soft skills or elements of generic competencies, whereas in vocational training development of specific hard skills is the focus of the course.

The assessment of the competencies acquired may be done by recognized assessers. These should be different from training agencies, to ensure the quality of training. Keeping in view, the target of providing training/ testing of millions of learners throughout the country and to avoid monopoly, more than one assessing bodies may be appointed for a sector or an area. Successful persons be awarded competency-based certificates issued by Government of India or Government accrediting agency.

STRATEGIES FOR DEVELOPMENT OF MES PROGRAMMES

In the above perspective, it is important to focus that we have to develop human resource and not the skilled labour. This will only be possible, when MES programme is implemented by fisheries education institutions or in collaboration with other state agencies to strengthen educational component of VET i.e. 'E' of VET. To begin with, model fisheries skill centres may be established in collaboration with fisheries education institutions using existing infrastructure and or new centres.

Fisheries institutions of India can play vital role in the MES programme with the view of developing knowledge society for fisheries sector in association with NCVT. These institutions may be involved in MES in following initiatives :

1. *Identification of modules in different areas of fisheries sector* : Success of MES programme will depend upon the relevance of modules in terms of market demand. Therefore, identification of modules for MES programme should be done in consultation with state government and local industries to assess manpower needs of the area/district/state. In this process, fisheries colleges of state agriculture universities can provide technical guidance.
2. *Design and development of modular curricula* : Fisheries institutions and fisheries colleges of SAU's should be involved in designing and development of modular curricula as per requirement of the modules focusing the contents and different components of training. The curriculum development committee should be constituted wherein field experts/ personnel involved in the lower level operational processes to identify skill requirements, scientists, concerned entrepreneurs and industry representatives should be included.
3. *Development of instructional material* : Focus of the instructional material will be on specific skills and generic competencies required for particular module. These modules should also be self contained as far as possible. The contents of the modules should be decided keeping in view the applied aspect of the module and for developing generic competencies. Fisheries education institutions may take a lead role in the development of instructional material to achieve instructional goals and outcomes expected from trainees. For this task also, a committees should be constituted similar to curricula development committee. It will be desirable if committees for curricula development and instructional material are same. This will enable to match standards to be achieved as per curricula and instructional material.
4. *Assessment, Testing and Certification* : In the country fisheries institutions are the sole agencies responsible for imparting education and training to in-service officials and for interface with farmers/ field practitioners under lab to land programme. Industries impart training for specific jobs. No, other private institutions are offering this type of human resource development programme. Therefore, assessment of competencies and certification should be done by fisheries education institutions at state level. May be in future assessing bodies will be formed to take up this work as per guidelines. The Testing institutions may include professional fisheries institutions of ICAR, Colleges of Fisheries, Public and Private Fish Farms/ Industries and allied units recognized by Govt. of India.
5. *Accreditation* : After competency testing and assessment of learners by professional institutions or other organizations, registered as authorized accrediting individual or organizations, the report will be sent to certification agency. Accrediting and certification agency could be recognized by fisheries institutions to ensure fair assessment and certification.
6. *Establishing model fisheries skill centres* : HR Development in the area of fisheries for lower and middle level manpower is long over due. Under MES development programme, establishing model fisheries skill centers will provide access to youth of particular area to vocational education and training facilities for developing fisheries of that area. These will also serve as hobby centres and will attract large number of target groups including school dropouts, out of school youth and educated unemployed and under employed youth. These skills centres may run by central government support, established by industries/ state government/ run by state agencies including NGOs. This will provide opportunities to both employers and employees as indicated below:

Employers :

(*i*) Improved performance of employees
(*ii*) Improved quality of products and services
(*iii*) Less wastage and better customer services
(*iv*) Increased productivity
(*v*) Increased employee motivation

Employee :

(*i*) Recognition of competencies.
(*ii*) Improved career progression.
(*iii*) Re-tooling of competencies and transferability of skills.
(*iv*) Improved employability.
(*v*) Multi-Skills Development leading to increased job security.
(*vi*) Life-long learning and training leading to better employability.

REFERENCES

S. Ayyappan & A.D. Diwan. National Fisheries Development Board and Fisheries Policy. In Indian Fisheries: A Progressive Outlook, CMFRI Publication (2007).

R.S. Birader and Dilip Kumar. Human Resource Development in Indian Fisheries-Past, Present and Future. In India Fisheries: Progressive Outlook, CMFRI Publication, Kerala.

MES - DGE & T (2009), Govt. of India

Occupation based Modules in Inland and Marine Fisheries-PSSCIVE Publication, Author, Project Coordinator and Contributor.