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Scope of Ornamental Fisheries in Madhya Pradesh

Commerce

KEYWORDS : MPEDA, NFDB, FFDA, NABARD, Indigenous, Marketing etc.

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ABSTRACT

Madhya Pradesh with its highly conducive climatic conditions provides scope for the development of ornamental fisheries. This sector assumes special significance due to its huge potential in providing employment to the people hailing especially from rural and semi urban sectors. Low production cost and higher returns with in a very short time, growing demand for fishes both from domestic and international market are the major attractions of this sector, when compared to any other sector. Study revealed that approximately 168 numbers of ornamental fish trade units (aquarium shops) are functioning in the state. Many exotic varieties of ornamental fishes are bred in captivity. The state is also having rich resources of indigenous ornamental fishes in various river systems and streams, which have the potential to earn income to the state. A survey revealed that 136 fish species of the state, out of which more than 58 fish species (42.65%) are considered as possible ornamentals such as Dwarf Gourami, Honey Gourami, Banded Gourami, Zipper Loach, Fighting Loach etc. are very valuable in the international market. MPEDA, NFDB, FFDA and NABARD are providing financial and technical assistance for the establishment of ornamental fish breeding/farming units. The ornamental fish trade is promoted by the State Government by organizing International Aqua Show, Meenakshi Matsya Mahotsav in 2012 and seminars (Fishermen Days) on annual basis ensuring participation of scientists, administrators, breeders, traders and entrepreneurs. A major derivative of this initiative is formation of NFDB assisted OF demonstration unit at Satna district by the Department of Fisheries (GoMP). Ten numbers of OFBUs (08 Large Scale and 02 Small Scale) are established by MPEDA schemes, which provide a unique platform for the investment and trade opportunities of the stake holders. In present study we are trying to focus on the scope and possibilities available within the state.

INTRODUCTION:

Ornamental fish keeping and its propagation has been an interesting activity for many, which provide not only aesthetic pleasure, but also financial openings. About 600 ornamental fish species have been reported worldwide from various aquatic environments. Indian waters possess a rich diversity of ornamental fish, with over 100 indigenous varieties, in addition to a similar number of exotic species that are bred in captivity. This fishes are fascinating organisms, abundantly distributed in freshwater, brackish water and inshore marine ecosystems around us. In recent years, ornamental fishes are receiving increased attention due to the local and global demand and the consequent growth of the export market and trade. In India, the potentials of ornamental fishes and their stock need to be assessed for rational utilization and export. The current status and challenges for the development of ornamental fish culture in freshwater and wild collection of ornamental species for future prospects are outlined. The indigenous ornamental fishes, which are available in the rivers and it can easily be collected from the wild resources and can be cultured and reared for keeping in the aquarium. Country exports fish worth Rs. 20,000 crore a year, of that, the share of ornamental fish is around Rs. 300 crore. There is still scope to increase production of ornamental fish varieties, the importance of successful entrepreneurship in ornamental fish trade are emphasized (Raja *et al*., 2014).

Ornamental fish culture is fast emerging as a major branch of aquaculture globally. Aquarium or aquarium fish keeping is the second largest hobby in the world next to photography. Ornamental fish and aquatic plant industry are fast gaining importance due to its tremendous economic opportunities and prospects. The growth of ornamental fish trade in India is very much encouraging. Most of the ornamental fishes cultured and marketed in India are exotic species. Our country has a rich and unique biodiversity with a variety of indigenous ornamental fishes. But these resources have not been properly exploited. The Western Ghats of India is a gold mine of tropical ornamental fishes and it is one of the 25 "hotspot" areas of the world. It exhibits exceptional mega biodiversity and high degree of endemism with respect to fresh water fishes. The potential of streams and rivers of the Western Ghats as a rich source of the ornamental fishes is yet to be recognized. About 80% of ornamental fishes are from fresh waters and the rest from brackish and marine waters, while most of the ornamental species are warm water tropical except some eurythermal Carps like Gold Fish and Koi carps are cold temperate in origin and now having a worldwide distribution (DoF, Kerala, 2015).

METHEDOLOGY:

The primary data were collected using personal interview method (Churchil, 1995) and E-mail survey (Malhotra, 2001) during the month of April, 2015 to September, 2015. Questionnaire was structured to address the primary objectives of the research (Aaker *et al.,* 1997). Secondary data were collected from published literature and institutions like Marine Product Export Development Authority (MPEDA, 2015) and Department of Fisheries, Government of Madhya Pradesh (DoF, 2014). The data on biodiversity of fishes inhabiting rivers of Madhya Pradesh, India was gathered from the literature (Das and Jha, 2014). Classification is based on fish base (Fishbase, 2015). Red list status of the available indigenous ornamental fishes was determined according to the IUCN, 2015.

PRESENT STATUS OF ORNAMENTAL FISH FARMING AND TRADE IN INDIA:

India is blessed with a rich diversity of freshwater fishes both in the Western Ghats and North Eastern hills. The Western Ghats of India is one of the 34-Biodiversity 'hotspot' areas of the World (Mercy, 2007). Among the 300 species of freshwater fishes in the Western Ghats, 155 are considered ornamental fishes of which 117 are endemic to the Western Ghats. At present, only a small fraction of the endemic fish diversity is utilized in ornamental fish trade. All the ornamental fishes marketed in India are exotic. Even though there are quite a lot of indigenous fishes, having high potential as ornamental fishes, they have not been properly exploited. The fish fauna of the Western Ghats include variety of Barbs, Rasboras, Killifishes, Glass Fishes, Catfishes, Catopra, Hill Trouts, and Danios, which are ideal candidates for ornamental fish industry. More than 100 varieties of indigenous freshwater ornamental fish species are known in Indian waters. Some of the species fetch high price in the world market and support trade outside the country. This ornamental fishes due to the nature of

breeding are broadly classified as live bearers and the egg layers. Molly, Platy, Guppy and Swordtail are typical examples of live bearers. Gold fish, Barbs, Koi Carp, Gouramies and Fighters are egg layers (Raja *et al.*, 2014). MPEDA reported 119 Freshwater ornamental fishes of India, which are exported in export markets (MPEDA, 2015).

ABOUT MADHYA PRADESH: After India's independence, Madhya Pradesh state was created with Nagpur as its capital: this state included the southern parts of the present day Madhya Pradesh and north eastern portion of today's Maharashtra. In 1956, this state was reorganized and its parts were combined with the states of Madhya Bharat, Vindhya Pradesh and Bhopal to form the new Madhya Pradesh state with Bhopal as its capital; the Marathi speaking Vidarbha region was removed and merged with the then Bombay State. This state was the largest in India by area until 2000, when its south-eastern Chhattisgarh region was made a separate state (Wikipedia, 2015).

Madhya Pradesh literally means "Central Province" and is located in the geographic heart of India, between latitude 21.2°N-26.87°N and longitude 74°02'-82°49' E. The state straddles the Narmada River, which runs east and west between the Vindhya and Satpura ranges; these ranges and the Narmada are the traditional boundary between the north and south of India. The state is bordered on the west by Gujarat, on the northwest by Rajasthan, on the northeast by Uttar Pradesh, on the east by Chhattisgarh and on the south by Maharashtra (Wikipedia, 2015).

RESOURCES: Madhya Pradesh possesses 4.03 lakh hectare water area in form of large, medium and small irrigation reservoirs, ponds and tanks, out of which 3.37 lakh hectare water area (about 83.62%) of the reservoirs and 0.66 lakh hectare water area (about 16.38%) of the village ponds and tanks. Around 3.94 lakh ha (about 97.77%) water area has been brought under fish culture (DoF, Madhya Pradesh, 2014).

The Inland Fisheries resources of Madhya Pradesh state are vast and varied and contain one of the richest diversity in India. It includes five river basins and extensive network of irrigation canals, man-made reservoirs, ponds and tanks. The State possesses five river basins namely the Narmada, Tapti, Ganga, Mahi, Godavari and its tributaries. River Narmada is the life line of Madhya Pradesh. In the State river system and their tributaries form a network of 17088 kms. The major tributaries of the Ganga and Yamuna i.e. Chambal, Betwa, Ken, Sone and Sindh originate to the State.

PRESENT STATUS IN MADHYA PRADESH: Madhya Pradesh with its highly conducive climatic conditions provides scope for the development of ornamental fisheries. This sector assumes special significance due to its huge potential in providing employment to the people hailing especially from rural sector and as a foreign exchange earner. The low production cost and higher returns with in a very short time, growing demand for fishes both from domestic and international market are the major attractions of this sector when compared to any other sector. It is estimated that 168 ornamental fish trade units (aquarium shops) are functioning in the state. The state has rich resources of indigenous ornamental fish in various river systems and streams that have the potential to earn income to the state. A survey revealed that 136 fish species of the state, out of which more than 58 fish species (42.65%) are considered as possible ornamentals such as Dwarf Gourami, Honey Gourami, Banded Gourami, Zipper Loach, Fighting Loach etc. are very valuable in the international market. The list of popular ornamental fishes distributed in freshwater of the state is given in Table-01.

In order to make ornamental fisheries an export oriented industry, National Fisheries Development Board (NFDB), Hyderabad; Fish Farmers Development Agency (FFDA), National Bank for Agriculture and Rural Development (NABARD) and Marine Products Export Development Authority (MPEDA) are providing financial as well as technical assistance for ornamental fish breeding and export (Domestic and International) (NFDB, 2015; DoF, Madhya Pradesh, 2014; NABARD, 2015 and MPEDA, 2015). The ornamental fish trade is promoted by the State Government by organizing International aqua show, Meenakshi Matsya Mahotsav - 2013 at Bhopal and seminars on biannual basis ensuring participation of scientists, administrators, breeders, traders and entrepreneurs (DoF, Madhya Pradesh, 2013). A major derivative of this initiative was formation of NFDB assisted Ornamental Fish Demonstration Unit at Village – Paoundi Maihar, Tehsil – Maihar, Dist - Satna by the Fishermen Welfare and Fisheries Development Department (Govt. of Madhya Pradesh) and 10 numbers of Ornamental Fish Breeding Units (08 Large Scale and 02 Small Scale) are established by The Marine Products Export Development Authority (Ministry of Commerce and Industry, GoI), Kochi, Kerala, which provides a unique platform for the investment and trade opportunities of the stake holders.

SCOPE AND PROSPECTS IN MADHYA PRADESH:
Ornamental fish culture and export is one of the recent areas in aquaculture diversification. About 99% of the ornamental fish sold globally are caught from the wild (**Nasser and Rajkumar, 2001**). There is ample scope for ornamental fish culture, because of its high commercial value and significant market demand worldwide. Ornamental fishes are known for their colour and shapes. There are only 10 numbers of private sector and 03 numbers of Govt. Sector Ornamental Fish Breeding and Rearing Units functioning in the state. Rather than demand of the state itself is very high. As an assessment there are more than 2 crore rupees trade of ornamental fishes and aquarium accessories and trade is gaining popularity in day by day. This sector is providing self employment to unemployed young youth and support to increase the economy of the state as well as our country. There are some key points on Ornamental Fisheries Sector:

The export of ornamental fishes from India is worth only US$ 0.2 million, which is not sufficient with regard to the rising demand of these beautiful colored species in the world ornamental fish market. This may be attributed to the lack of involvement of technical people in ornamental fish farming.

A large number of very beautiful ornamental fish species are still neglected, which are easily available in the natural waters of Madhya Pradesh. Due to congenial climatic conditions Madhya Pradesh have emerged as promising breeding centers for ornamental fishes, where a considerable number of small fish farmers and amateurs will engaged in this trade.

The indigenous fish fauna of the state includes a wide variety of small fishes, which are unsuitable for conventional fish farming, but could be gainfully utilized as ornamental fish for their attractive coloration and other features. These species are found in different qualities of water bodies, like deep perennial ponds, puddles, annual and seasonal ponds, rivers, reservoirs and lakes. Most of the fish species can tolerate variations in temperature, salinity and pH.

CONCLUSION: Ornamental fish industry is heavily dependent on the supply of native ornamental fishes from the North Eastern states. The trade opportunities of these live fishes have been recognized by the producers, collectors and traders. It has been stressed in this paper, that agribusiness opportunities in ornamental fish farming can be realized at every stage, viz. production, marketing and wild catch of ornamental fishes. The ornamental fish production in the Madhya Pradesh state has been observed to be financially as well as economically viable and investment friendly. With some initiatives by the government like providing incentive to establish ornamental fish produc-

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tion units, considerable private investment can be attracted to this industry, which would generate additional employment opportunities. With the concerted efforts of all stakeholders, the ornamental fisheries can be developed substantially in the region, which in turn, will gain a larger share in the world market. Public private partnership can be encouraged through establishment of ornamental fish production units in different parts of the region to make this sector more vibrant and remunerative.

FUTURE OUTLOOK: It is evident that the aquarium fish industry in Madhya Pradesh state is experiencing rapid growth. In contrast to the scenario a few years back, the industry is now more widespread. Madhya Pradesh has the necessary ingredients to develop the industry to its full potentials. It should take advantage of the limitations in labour costs and land resource facing by the traditional exporting countries, to provide greater support to the industry. Provision of better infrastructures especially in the export of aquarium fish is imperative. Efforts should also be focused on seeking direct international markets for the local aquarium fishes. This can be achieved with the opening of the new small scale units throughout the state. Support services should also be intensified and given due attention.

Table:-01: Freshwater Ornamental Fishes of Madhya Pradesh, India

S. No.	Order	Family	Species	Common Name	Local Name	IUCN Status
1	Anguilliformes	Anguillidae	*Anguilla bengalensis* (Gray, 1831)	Indian mottled eel	Endha, Bamil	NT
2	Beloniformes	Belonidae	*Xenentodon cancila* (Hamilton, 1822)	Freshwater garfish	Suja	LC
3	Cypriniformes	Nemacheilidae	*Acanthocobitis botia* (Hamilton, 1822)	Mottled loach	Gunguai, Gunguch	LC
4	Cypriniformes	Cyprinidae	*Barilius evezardi* (Day, 1872)	Day baril	Jhora, Persee	DD
5	Cypriniformes	Cobitidae	*Botia dario* (Hamilton, 1822)	Bengal loach	Bedri	LC
6	Cypriniformes	Cobitidae	*Botia rostrata* (Günther, 1868)	Gangetic loach	Gunguch	VU
7	Cypriniformes	Cyprinidae	*Chela cachius* (Hamilton, 1822)	Silver hatchet chela	Chal	LC
8	Cypriniformes	Cyprinidae	*Crossocheilus latius* (Hamilton, 1822)	Stone roller	Gauma	LC
9	Cypriniformes	Cyprinidae	*Cyclocheilichthys apogon* (Valenciennes, 1842)	Beardless barb	Pane	LC
10	Cypriniformes	Cyprinidae	*Cyprinus carpio* (Linnaeus, 1758)	Common carp	Common carp	VU
11	Cypriniformes	Cyprinidae	*Danio rerio* (Hamilton, 1822)	Zebra danio	Patter	LC
12	Cypriniformes	Cyprinidae	*Devario aequipinnatus* (McClelland, 1839)	Giant danio	Patai, Debari	LC
13	Cypriniformes	Cyprinidae	*Devario devario* (Hamilton, 1822)	Sind danio	Patai, Debari	LC
14	Cypriniformes	Cyprinidae	*Esomus danricus* (Hamilton, 1822)	Flying barb	Dedu	LC
15	Cypriniformes	Cyprinidae	*Esomus thermoicos* (Valenciennes, 1842)		Miseri	LC
16	Cypriniformes	Cyprinidae	*Hypselobarbus mussullah* (Sykes, 1839)	Humpback mahseer	Badas, Mahseer	EN
17	Cypriniformes	Cyprinidae	*Labeo bata* (Hamilton, 1822)	Bata	Bhana	LC
18	Cypriniformes	Cyprinidae	*Labeo boggut* (Sykes, 1839)	Boggut labeo	Nunia	LC
19	Cypriniformes	Cyprinidae	*Labeo calbasu* (Hamilton, 1822)	Orangefin labeo	Kalot	LC
20	Cypriniformes	Cyprinidae	*Labeo fimbriatus* (Bloch, 1795)	Fringed-lipped peninsula carp	Tambir	LC
21	Cypriniformes	Cyprinidae	*Labeo gonius* (Hamilton, 1822)	Kuria labeo	Kusra	LC
22	Cypriniformes	Cyprinidae	*Laubuka laubuca* (Hamilton, 1822)	Indian glass barb	Chal	LC
23	Cypriniformes	Cobitidae	*Lepidocephalichthys guntea* (Hamilton, 1822)	Guntea loach	Gunguch	LC
24	Cypriniformes	Cyprinidae	*Osteochilus vittatus* (Valenciennes, 1842)	Bonylip barb	Nimla	LC
25	Cypriniformes	Cyprinidae	*Pethia conchonius* (Hamilton, 1822)	Rosy barb	Karita, Pothi, Beda	LC
26	Cypriniformes	Cyprinidae	*Pethia gelius* (Hamilton, 1822)	Golden barb	Karita, Pothi, Beda	LC
27	Cypriniformes	Cyprinidae	*Pethia ticto* (Hamilton, 1822)	Ticto barb	Karita, Kaoli, Beda	LC

28	Cypriniformes	Cyprinidae	*Puntius chola* (Hamilton, 1822)	Swamp barb	Karita, Kerrundi, Beda	LC
29	Cypriniformes	Cyprinidae	*Puntius sophore* (Hamilton, 1822)	Pool barb	Karita, Katchakarawa	LC
30	Cypriniformes	Cyprinidae	*Puntius vittatus* (Day, 1865)	Greenstripe barb	Karita, Beda	LC
31	Cypriniformes	Cyprinidae	*Rasbora daniconius* (Hamilton, 1822)	Slender rasbora	Dhera	LC
32	Cypriniformes	Cyprinidae	*Rasbora rasbora* (Hamilton, 1822)	Gangetic scissortail rasbora	Rasobi	LC
33	Cypriniformes	Cyprinidae	*Systomus sarana* (Hamilton, 1822)	Olive barb	Karpata	LC
34	Cyprinodontiformes	Poeciliidae	*Gambusia affinis* (Baird & Girard, 1853)	Mosquitofish	Masamachali	LC
35	Mugiliformes	Mugilidae	*Rhinomugil corsula* (Hamilton, 1822)	Corsula	Karsul	LC
36	Osteoglossiformes	Notopteridae	*Chitala chitala* (Hamilton, 1822)	Clown knifefish	Patola, Chital	NT
37	Osteoglossiformes	Notopteridae	*Notopterus notopterus* (Pallas, 1769)	Bronze featherback	Patola	LC
38	Perciformes	Anabantidae	*Anabas testudineus* (Bloch, 1792)	Climbing perch	Kewai	DD
39	Perciformes	Badidae	*Badis badis* (Hamilton, 1822)	Badis	Kali Potiah, Telin machli	LC
40	Perciformes	Ambassidae	*Chanda nama* (Hamilton, 1822)	Elongate glass-perchlet	Kakhai, Chahal	LC
41	Perciformes	Channidae	*Channa gachua* (Hamilton, 1822)	Brown snakehead	Mathia, Bhutna, Gilwa	LC
42	Perciformes	Channidae	*Channa marulius* (Hamilton, 1822)	Great snakehead	Sambhal, Kharra, Dhok	LC
43	Perciformes	Channidae	*Channa punctata* (Bloch, 1793)	Spotted snakehead	Sambhal, Kabra, Mathia	LC
44	Perciformes	Channidae	*Channa striata* (Bloch, 1793)	Striped snakehead	Morrel, Sambhal	LC
45	Perciformes	Gobiidae	*Glossogobius giuris* (Hamilton, 1822)	Tank goby	Khasua	LC
46	Perciformes	Nandidae	*Nandus nandus* (Hamilton, 1822)	Gangetic leaffish	Bhongal, Singer, Chamri	LC
47	Perciformes	Ambassidae	*Parambassis lala* (Hamilton, 1822)	Highfin glassy perchlet	Sudi	NT
48	Perciformes	Ambassidae	*Parambassis ranga* (Hamilton, 1822)	Indian glassy fish	Kakhai, Chahal	LC
49	Perciformes	Osphronemidae	*Trichogaster chuna* (Hamilton, 1822)	Honey gourami	Gaschi	LC
50	Perciformes	Osphronemidae	*Trichogaster fasciata* (Bloch & Schneider, 1801)	Banded gourami	Khardia, Ellai	LC
51	Perciformes	Osphronemidae	*Trichogaster lalius* (Hamilton, 1822)	Dwarf gourami	Ellai	LC
52	Siluriformes	Clariidae	*Clarias batrachus* (Linnaeus, 1758)	Philippine catfish	Magur	LC
53	Siluriformes	Bagridae	*Mystus bleekeri* (Day, 1877)	Day's mystus	Katua, Tengra	LC
54	Siluriformes	Bagridae	*Mystus vittatus* (Bloch, 1794)	Striped dwarf catfish	Singharh	LC
55	Siluriformes	Siluridae	*Ompok bimaculatus* (Bloch, 1794)	Butter catfish	Gangwari, Pabda	NT
56	Siluriformes	Siluridae	*Ompok malabaricus* (Valenciennes, 1840)	Goan catfish	Gangwari, Pabda	LC
57	Synbranchiformes	Mastacembelidae	*Mastacembelus armatus* (Lacepède, 1800)	Zig-zag eel	Baam, Karbaam	LC

58	Synbranchi-formes	Synbranchidae	*Monopterus cuchia* (Hamilton, 1822)	Cuchia	Endha	LC

Plate-01: Photographs of MPEDA assisted Ornamental Fish Breeding Unit in Madhya Pradesh.

M.P. Ornamental Fish Breeding and Training Centre, Bhopal (M.P.)

Suhani Rangeen Machhli Palan Avam Matsya Beej Utpadan Kendra, Khargone (M.P.)

Blue Pearl, Bheelkheda, Sehore (M.P.)

Global Nursery, Bhedaghat, Jabalpur (M.P.)

Raza Fish Farm, Dharampuri, Dhar (M.P.)

A. V. Aquaria, Bhopal (M.P.)

Ganesh Fish Farm, Nitava, Hoshangabad (M.P.)

Fishdom India, Sohagpur, Shahdol (M.P.)

Hussain Fish Farm, Kheda Madhopur, Dewas (M.P.)

A. K. Aquaculture, Matana Kalan, Ujjain (M.P.)

REFERENCE

1. Aaker, D. A.; Kumar, V. and Day, G. S. (1997): Marketing research, 6th edn., John Wiley & Sons Inc, New York, USA, 776 p. 2. Churchil, G. A. Jr. (1995): Marketing research, 6th edn., Methodological Foundations. Chicago, USA, 1117 p. 3. Das, A. K. and Jha, B. C. (2014): Final report, Biodiversity of fin and shell fish in natural waters of Madhya Pradesh, the river systems. Central Inland Fisheries Research Institute (CIFRI), Barrackpore, Kolkata. 4. DoF, Kerala (2015): Ornamental Fisheries, Govt. of Kerala, Department of Fisheries, http://www.fisheries.kerala.gov.in/index.php?option=com_content&view= article&id=78&Itemid=46. 5. DoF, Madhya Pradesh (2013): Annual Report, Fishermen Welfare and Fisheries Development Department (GoMP), 2012-13. 6. DoF, Madhya Pradesh (2014): Annual Report, Fishermen Welfare and Fisheries Development Department (GoMP), 2013-14 and 2014-15 (Up to the December, 2014) 7. Fishbase (2015): http://www.fishbase.org/ ver. (08/2015). 8. IUCN (2015): IUCN Red List of Threatened Species, Version 2015.3. IUCN 2015. 9. Malhotra, N. K. (2001): Marketing research, 1st edn., Addison Wesley Longman Pvt. Ltd., New Delhi, India, 761 p. 10. Mercy, A.; Gopalakrishnan, T. V.; Kapoor, A. and Lakra, W. S. (2007): Ornamental Fishes of Western Ghats of India. National Bureau of Fish Genetics (NBFGR), Lucknow: 234pp. 11. MPEDA (2015): Status report of Ornamental Fish Division (2011-15). The Marine Products Export Development Authority (MPEDA), Project Office, Bhopal, Madhya Pradesh. 12. MPEDA, Kochi (2015): Freshwater Ornamental Fishes of India (Colour Chart). The Marine Products Export Development Authority (MPEDA), Kochi, Kerala. 13. NABARD (2015): Knowledge Bank on Ornamental Fisheries, National Bank for Agriculture and Rural Development (NABARD), https://www.nabard.org/english/fish_ornamental_fish.aspx. 14. Nasser, A. K. V. and Rajkumar, U. (2001): Ornamental Fish Prospects for Culture, Regional Centre of Central Marine Fisheries Research Institute (CMFRI), Visakhapatnam. http://eprints.cmfri.org.in/8426/1/Nasser.pdf 15. NFDB, Hyderabad (2015): Guidelines in Brief: NFDB Schemes &Blue revolution -Inland Fisheries Schemes, National Fisheries Development Board (NFDB), Hyderabad, 5p. 16. Raja, S.; Babu, T. D.; Nammalwar, P.; Thomson Jacob, C. and Dinesh, K. P. B. (2014): Potential of Ornamental Fish Culture and Marketing Strategies for future prospects in India. International Journal of Biosciences and Nanosciences. Vol. 1 (5): 119-125. 17. Wikipedia (2015): https://en.wikipedia.org/wiki/Madhya_Pradesh.