STATUS OF POLICIES ON FISH HYGIENE IN NIGERIA

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INTRODUCTION

Fisheries resources, throughbiologically renewable can be made non renewable, if there is a drastic reversal in their ecological balance. Managing fish in its natural (or cultured) condition is often complex. A Fishery system comprises of the fin fish, the non fish acquatic resources, the water ecosytem in which the fish lives, the terrestial environment around that drains to the water body and man that manages or exploits the system. Any policy on fish health management must take cognizance on these aspects of fisheries. Policies therefore must be broadly spelt out to ensure the continual survival of the system. The water medium in which the fish lives, with complex interractions between the various fauna and flora communities, and the effect of the terrestial ecosystem make it particularly difficult for fish health management to be very successful in natural water bodies. Under cultured condition, a fish farmer however can influence to a great extent the health of the fish depending on the extent of control over feeding, fertilization, water quality, water source and other routine management practices. Fish health problems associated with fish farms are nutritional, bacterial, myxospora infection, excessive pigmentation, algal bloom, poor husbandry techniques and production.

The health of fish is significant to man when the fish is alive in its environment and when it is removed from water. In a living state, a healthy fishery will be self regenerative by biological reproduction. This will ensure the supply of fish protein to man. *Post-mortem* state, health policies are still necessary to protect fish consumers well-being.

In most developing countries, policies formulation on fish health are not common. This can be attributed to failures in formulation and/or implementation of fisheries management policies. Post-harvest fish products quality standards are also difficult to come by. the nutritional importance of fish and fishery products, and the economic roles they play make it necessary for sound fish health policies to be given priority in order to derive the maximum benefits possible from fisheries resources.

II. GUIDELINES TO FISH HEALTH POLICY FORMULATION

Any plan of action of fisheries must be aware of three general factors which are particularly influental in the fisheries sector (Spliethoff et al, 1990).

i) The complexity of fisheries, of its links with other sectors and the social and cultural contexts within it is carried out:

ii) The special characteristics of fisheries and the resulting differences in the ways in which it responds to interventions (uncertainity, limited yield, shared resources, multiplicity of products and obscurity of production techniques and social systems);

iii) The relatively low social and political status of fishing communities and low level of priority given.

However, despite these difficulties, policies on fish health and hygiene are still necessary to protect fish as living aquatic resources and also fish food at post harvest because of the immence nutritional, social and economic benefits derivable by man from fish.

Fish health policies must recognise the implications of aquatic environment pollution, the dangers of bad fishing methods and application of harmful fishing gears and appliances and *post mortem* handling practices. Well conceived and implemented policies of fish health is of tremendous benefits to the fish, its environment and to man, the ultimate consumer of fish products.

2.1 Policies on Pollution Prevention in Aquatic Environment

Water is the habitat of fish and other aquatic resources. Becuase of its universality, water has both social, economic, navigational, industrial and agricultural significance to man and animals. As a result, water bodies are constantly interefered with. The consequence of this is their gradual pollution. Major sources of wate pollution include domestic sewage, industrial wastes, agricultural run off, Navigational activities, deliberate and accidental volatile discharges by ships, concentration of volatile compounds as well as particulates from the air, and dumping of assorted types of metallic and non-organic materials and other solid wastes into natural water bodies. In the Niger Delta ecological zone of Nigeria, crude oil prospecting and exploration is mainly responsible for water pollution and death of fish and other aquatic resources, water can be rendered unsuable to man by pollution. Economic and nutritional losses may be the long term resultant effects. The health dynamics of the local population utilizing the water bodies could be altered as a result. Unsafe water is a major contributor to the 900 million cases of diarrheal diseases annually (World Bank, 1992) leading to 3 million deaths. At any point in time 500 million people suffer from hook worm, cholera, typhoid, and para-typhoid that continue to wreck havoc on human welfare. Water pollution is therefore a serious threat to existence of fish and man either directly by eating poisoned fish or indirectly from using the polluted water. The following policies on pollution prevention (through legislations) will go a long way in promoting the health of fish since polluted waters are the chief media of diseases to fish.

i) The use of agrochemicals on farmlands around aquatic eco-systems should be legislated against. In as much as human agricultural activities are commendable in boosting arable food production, these have serious effects on fish and the aquatic ecosystem. Use of pesticides (e.g DDT and fertilizers (e.g NPK) enchances biological accumulation or biomagnification on getting to the water (either by direct absorption or by leaching). Table 1. This has lethal or sub-lethal effect on aquatic lives and man. The intensive use of pesticides in rice paddies in Thailand in 1983, weakened the genetic resistance of fish to the bacteria, *Aeromonas hydrophilis*, killing millions of fish (FFI, 1987).

ii) Sanitation Authorities in Urban Centres in Nigeria should spell out Stiffer penalties to persons found guilty of dumping domestic wastes in drainage channels and streams/ rivers. These wastes eventualy get washed into the water bodies causing pollution and therefore threatening fish health.

iii) High environmental quality standards should be enforced on industries. Wastes treatment plants, that render effect of wastes harmless should be one of the standard requirement. Defaulting industries should be heavily taxed as a deterrrent to others. The same applies to oil companies and oil tankers. Formualtion and enforcement of legislation on all aspects of humn occasioned pollution of the aquatic environment is a means of safeguardding the health of fish and other aquatic resources.

2.2 Policies on prevention of bad Fishing Methods and Use of Destructive Gears and Appliances.

Methods of fishing that encourages the killings of undersized fish, use of dangerous chemicals to fish, use of poisonous plant extracts, use of gears and appliance that injure a captured or uncaptured fish are detrimental to fish and man. All these are areas for emphasis in fish health policy formulations and enforcement. Good fishing methods (e.g use of good mesh sized nets) willensure delivery of healthy fish to consumers at landing. Gears that wounds or injure fish encourage the onset of bacterial infection of the fish even in water.

2.3 Post Harvest (Post Mortem) Health Policies

At post harvest, the significance of ensuring a good health policy is to safeguard the fish consumers welfare. Despite the unsaturated market demand for fish in Nigeria (supply deficit current estimate is 0.8 million metric tons - F. O. S. 1985), large quantities of post harvest lossess of between 40 - 50% (FAO, 1983) are incurred annually. Physical losses of both wet and cured fish products and spoilage are common at landing, handling, distribution and marketing of the products.

In the industrial fish sector, legislation could be formulated and enforced to some extent on post harvest landing, handling, transportation and marketing because of the limited scope of their operation in coastal waters; The scattered nature of artisanal fisher (wo)men in the small scale fishery sector nation-wide makes it almost an impossible task to accomplish.

Post harvest fish health policies should emphasize hygiene of landing platform, better handling of fish at processing, at distibution and marketing to reduce losses and fish spoilage. In the Artisanal fishery sector, the education and encouragement of Fisher (wo)men and fish processors to adopt improved post harvest fish handling practices is the only way of promoting any post harvest fish health policies.

2.4 Policies of Personal Development and Training:

Since fisheries is still underdeveloped in the agricultural sector of the Nigerian economy, the issue of adequate pesonnel in aquatic pathobiology and fish pathology especially is still far from realization. Although, there are no specialised Institutes in the country for training fish health personel, veterinarians and other animal health workers should be involved in formulating and implementing fish health policy issues. The existing fisheries and animal health research institutes should also be well funded to expand their programmes in fish health research.

TABLE 1 PERSISTENCE OF PESTICIDES IN FISH

	Pesticide	Persistence
(a)	*Herbicide*	
	Diquat	3 Weeks
	Endothal	3 Weeks
	Simazine	3 Weeks
	Sodium Arsenate	16 Weeks
	Dischlobenil	2 Weeks
(b)	*Organophosphate*	
	Diazinon	1 Week
	Malathion	1 Day
	Parathion	1 Week
(c)	*Organichlorine*	
	DDT	5 Month
	DDD	6 Months
	Dieldrin	1 Month
	Camphechlor	6 Month
	Hepthachlor	1 Month
	Lindane	2 Days

Source: Data by Macek, 1970. Adapted from pesticides in Aquatic envrionments by Mohammed, A. Q. Khan palnum press, New York, 1977.

REFERENCES:

F. A. O., 1983: Food and Agriculture Organization of the United Nations. Cured Fish Market Pattern and Prospects. *Fish Tech. Paper* 233.

F. F. I., 1987: Fish Farming International
Farm Impact Study. September, 1987 Vol. 14 No. 9 Pp. 24

F. O. S., 1985: Federal Office of Statistics.
Annual Report, 1985.

Splicthoff P. N. Macpherson and M. Pena, 1990.
A Review of Experiences in and Guideliness for Fisheries Development Assistance, Brussels, Commisssion of the European Communities, Directorate General for Development, Evaluation Divisions C. E. C. Eval. Ser. (1): 470.

World Bank 1992; World Development Report.
New York April, 1992.