FISHERIES ADMINISTRATIVE)
ORDER NO. 214 :
Series of 2001 ……)

SUBJECT: Code of Practice for Aquaculture

Pursuant to Section 47 of R.A. 8550, this code of practice for aquaculture outlining the general principles and guidelines for environmentally sound design and operation for the sustainable development of the industry is hereby promulgated for the information and guidance of all concerned.

SECTION 1. Definition. – The terms used in this order shall be construed as follows:

a. Aquaculture – Fishery operation involving the breeding and farming of fish and other fishery species in fresh, marine and brackishwater areas.
b. Aquaculture project – shall refer to fish cages, fishpens, fishponds, fish hatcheries, seaweed farms, mollusk (pearls, mussels, oysters) farms and other related projects.
c. Biofilter – Organisms, which ingest impurities from the water, making the ponds meet the required optimum physical and microbiological parameters for the cultured species such as mussels, seaweeds and oysters.
d. Brackishwater aquaculture -- refers to a fishery operation involving the culture of fish in a mixture of seawater and freshwater with salinity less than 30 parts per thousand.
e. Carrying capacity – The size of population of a given species that can be supported in a given area or volume of a body of water which will not lead to the deterioration thereof.
f. Closed recirculating system – A system where the pondwater, instead of being discharged to the outside environment, is reused after undergoing filtration in a settling pond of water treatment process.
g. Code of practice – A code prescribing principles and standards for responsible practices with the end in view of ensuring the effective conservation, management and development of aquaculture.
h. Drugs – Chemical substances used to alter the state or condition of the fish and/or the culture medium.
i. Effluent – A general term denoting any wastewater, partially or completely treated, or in its natural state flowing out of a manufacturing plant, industrial plant or treatment plant and from ponds and hatcheries.
j. Endemic species – Species restricted or native to a particular region.
k. Exotic species – Species that are introduced or non-native; foreign.
l. Environmental Impact Assessment (or EIA) – The process of predicting the likely environmental consequences of implementing projects or undertakings and designing appropriate preventive, mitigating and enhancement and measures.
m. Fish cage – refers to an enclosure which is either stationary or floating, made up of nets or screen sewn or fastened together and installed in the water with opening at the surface or covered and held in place by wooden/bamboo posts or various types of anchors and floats.
n. Fishpen – An artificial enclosure constructed within a body of water for culturing fish, and fishery/aquatic resources made up of poles closely arranged in an enclosure with wooden materials, screen or nylon netting to prevent escape of fish.
o. Fishpond – A land-based facility enclosed with earthen or stone materials to impound water for growing fish.
p. Fishpond Lease Agreement (FLA) – A contract entered into by and between the Secretary of Agriculture and a qualified fishpond applicant for the use of public land for fishpond development purpose for a period of twenty-five (25) years.

q. Freshwater aquaculture – Fishery operation involving the raising and culturing of fish in a water body originating from lakes, reservoirs, streams and rivers having a salinity from 0 to 0.5 parts per thousand.
r. Genetically Modified Organism (GMO) – refers to organism whose genes are manipulated to produce certain desired characteristics and be propagated for experimental purposes.
s. Hatchery – refers to a lake-based or land-based structure growing or culturing fish for breeding and fish seed production.
t. Lake – An inland body of water, an extended part of a river, a reservoir formed by a dam, or a lake basin intermittently or formerly covered with water.
u. Mariculture – refers to seafarming of aquatic plants and fishes.
v. Outfall – refers to the outlet of a river, stream or lake.
w. Quarantine – Enforced isolation of organisms which are or which may be infectious to prevent the transmission of disease to other organisms or the environment.
x. Reservoir – An artificial impoundment where water is kept for future use. The use of pond reservoir is to allow the settling of organic matter from the water source before use in the ponds.
y. Settling pond – refers to a pond specially designed for the settling of heavily loaded particles and other organic matter in the water before disposal to the surrounding environment.
z. Zonation plan – A plan defining the boundaries of specific areas for fishery utilization and development purposes.

SEC. 2. Site selection/evaluation. – Potential sites for aquaculture shall be thoroughly evaluated by BFAR in consultation with DENR, LGUs, and NFARMC to ensure that ecological and social conditions are sustained and protected. The following practices shall ensure that the sites selected are appropriate for aquaculture farms.

a. Water source in the area shall be evaluated as to its quality and quantity;
b. Tidal patterns, freshwater influences and flood levels, offshore currents and existing water uses shall be determined;
c. Sustainability of topography, soil and ecosystem for siting and construction of ponds shall be ascertained;
d. Long-term climatological records for the last five (5) years shall be acquired to determine the occurrence of floods, droughts, storms and other calamities in the area;
e. Existing flora and fauna shall be determined relative to ecologically sensitive areas such as migration routes, nesting grounds, etc.
f. Alternatives to mitigate potential negative environmental and social impacts shall be considered;
g. Regulatory requirements for the site shall be documented and possible alternatives shall be considered for compliance and regulations; and
h. Availability of work force in the area shall be surveyed.

SEC. 3. Farm design and construction. – Proven and accepted designs and construction procedures shall be adopted to overcome problems related to flood levels, storms, erosion, seepage, water intake and discharge points and encroachment on mangroves and wetlands as well as social impacts. The following practices shall assure this goal:

a. An EIS shall be required to be submitted to the DENR for review and evaluation before initiating any development activity or construction;
b. Embankment shall be so designed as to prevent erosion and reduce seepage;
c. Farm shall be properly designed in such a way that the arrangement of the pond compartments, water control structures and all other facilities shall mutually harmonize with each other giving the most efficient water management and manipulation of stocks;

d. An ideal farm shall have wastewater treatment and settling pond areas which are necessary for conditioning intake water as well as settling wastewater before discharging to the environment;
e. Structural design shall consider storms and flood levels;
f. Required buffer zones shall be maintained as well as vegetative cover for exposed earthwork:
    1) For brackishwater, a buffer zone of at least 100 meters from the sea to the main peripheral dike and 50 meters along the river banks (for typhoon-prone areas) and 50 meters from the sea and 20 meters along the river banks (for non-typhoon-prone areas), shall be left undisturbed for ecological reasons and physical protection from flooding and wave action;
    2) For freshwater, a distance of 20 meters (for non-typhoon-prone areas) away from the embankment and 50 meters (for typhoon-prone areas) shall be maintained to serve as buffer zone to minimize flood risk and related environmental hazards.
g. Permit for the construction of deep wells for freshwater supply shall be obtained from the National Water Resources Board;
h. Fish cages, floating or stationary, shall be installed and kept at least one (1) meter between units and at 20 meters apart between clusters to provide water exchange;
i. Fishpens shall be spaced 200 meters apart; and
j. Marine cage farming shall be operated in definite zones established by the LGU concerned in consultation with the M/CFARMC.

SEC. 4. <u>Water usage.</u> – A good environment within the pond system shall be influenced by the following practices on water usage as well as the pondwater quality management:

a. The construction and operation of deep wells for freshwater supply shall be based on a design which prevents salt intrusion into freshwater aquifers and subsidence of ground level;
b. Closed recirculating water system shall be considered in the intensive and semi-intensive farming systems;
c. Water exchange shall be minimized by maintaining good water quality through moderate stocking densities and feeding rates, using high-quality feeds and good feeding practices.

SEC. 5. <u>Water discharge and sludge/effluent management.</u> – There shall be emphasized increased awareness of proper waste management in the aquaculture industry that shall enhance the protection of coastal land and water resources through the following practices:

a. Effluents, sediments and other wastes shall be properly disposed of through the use of wastewater treatment and settling ponds;
b. Outfall shall be so designed that no significant impact of effluents on natural waters occurs beyond the mixing zone;
c. Sediment from ponds, canals or settling basins shall be put back into the area from which it was eroded, used as earthfill or disposed on some other environmentally responsible way; and
d. Discharged water shall meet water quality standards (determined qualitatively and quantitatively). Qualitative standards shall include prohibition of the release of turbid and odorous water to the receiving water while quantitative standards shall include the maximum and/or minimum levels of suspended solid, measure of acidity (pH), dissolved oxygen, ammonia and other nitrogenous compounds, phosphorus, carbon dioxide and Biochemical Oxygen Demand (BOD).

SEC. 6. Use of drugs, chemicals, potentially toxic pesticides and fertilizers. – The following shall be practiced to foster awareness on the proper use of therapeutic agents and other chemicals without endangering food safety or threatening the environment.

a. Drugs, chemicals, pesticides and fertilizers including time shall be used only when clearly justified to treat specific problems;
b. If chemicals are used, pondwater shall not be discharged until they have degraded/dissipated or until the compound have naturally decomposed to non-toxic form;
c. Records shall be maintained regarding the use of chemicals in ponds as suggested by the Hazard Analysis and Critical Control Points (or HACCP) method;
d. Banned chemicals shall not be used for any purpose;
e. Drugs, antibiotics and other chemical treatments shall be in accordance with recommended practices and comply with the national and international regulations;
f. Aquaculture producers shall follow the information on product labels regarding dosage, withdrawal period, proper use, storage, disposal and other uses of the chemicals to safeguard environmental and human safety;
g. Therapeutants shall be stored in a cool place and in a secure manner and unused compounds shall be disposed of by methods preventing environmental contamination;
h. Biodegradable indigenous material such as derris roots, teaseed and tobacco dust shall be used to eliminate unwanted species in ponds instead of non-biodegradable compounds; and
i. Regulations on labeling the contents and percentage of active ingredients in all chemicals including fertilizers and limiting material shall be developed.

SEC. 7. Stock selection, stocking practices. – The following practices shall assure increased production of good quality and disease-free stocks promoting profitable fish farming:

a. Moderate and appropriate stocking density by species shall be employed;
b. Indigenous species shall be cultured whenever possible;
c. Stock only healthy fry and fingerlings. Genetically improved fish species for stocking shall be sourced from government and accredited non-government hatcheries; and
d. Hatchery fry and fingerlings shall be encouraged for use rather than those caught from the wild.

SEC. 8. Introduction of exotic and GMOs. – The introduction of exotic and GMOs shall be made after a sound ecological, biological and environmental justification based on scientific studies and subject to the bio-safety standard as provided for by existing laws and regulations.

SEC. 9. Feed, feed use and management. – The following practices shall be adopted to improve the efficiency of supplemental feeds and feed management in aquaculture and reduce the amount of waste entering the ponds.

a. Feeds shall be selected as to their high utilization rates to reduce nutrient pollution from uneaten feeds and excretory products;
b. Feed characteristics shall include balanced levels of amino acids and other nutrients appropriate for the age of the fish, high palatability to stimulate rapid consumption, and high stability to prevent rapid nutrient release;
c. Ideally, extruded feeds shall be used;
d. Feeds shall be stored in cool, dry areas to prevent mold and other contaminants from forming;

e. Medicated feeds shall be used only if and when necessary for the control of specific disease;
f. Feeding management in lake-based aquaculture shall be in conformity with the carrying capacity of the lake as specified in Chapter C of this order;
g. Good feeding practices shall include frequent feeding in small quantities of feed several times through the day, using feeding trays and even distribution of feeds in the pond;
h. DA Administrative Order No. 16 on the "Nutrient Standard for Aquaculture Feeds" and other regulations of the Bureau of Animal Industry shall be complied with; and
i. Records of daily feed application rates shall be kept to assess feed conversion ratio (or FCR).

SEC. 10. Fish health management. – The following practices shall be complied with to provide effective management of fish health focusing on disease prevention rather than disease treatment, eventually reducing the incidence of diseases and protecting the natural fisheries:

a. Sustainable farming practices shall be promoted;
b. Appropriate quarantine procedures, handling, transport and proper acclimatization of healthy fry and fingerlings prior to stocking shall be strictly observed;
c. Good water quality shall be maintained by using appropriate stocking and feeding practices;
d. For non-infectious diseases related to pond condition, specific corrective management measures shall be carried out;
e. For mild infectious diseases with potential to spread within a farm, the pond shall be quarantined and remedial measures shall be applied;
f. For serious infectious diseases that may spread widely, the pond shall be isolated and the remaining fish shall be harvested by net and the pond shall be disinfected without discharging the water;
g. Treatment shall be done only when necessary;
h. Dead, diseased fish shall be disposed of in a sanitary manner to prevent the spread of the disease;
i. When disease occurs, transfer of fish, equipment and pondwater shall be avoided;
j. Fishfarmers shall participate in the BFAR's national program on disease information, surveillance and reporting system; and
k. On-site disease monitoring shall be conducted only by a competent Aquatic Animal Health Officer

SEC. 11. Aquaculture Data Management. – Data management shall be properly coordinated with all agencies concerned to come up with a networking system to access aquaculture information. This shall be attained through the following:

a. Database shall be created out of environmental, social and land use impacts including collection and publication of statistics on aquaculture;
b. Newsletters and other informative papers on aquaculture shall be published;
c. Linkages with local and international government and non-government organizations for information networking shall be pursued;
d. Information from relevant agencies and organizations relating to aquaculture shall be requested regularly; and
e. All aquaculture operators shall submit annual reports of their production as requirement for renewal of the corresponding permits to the municipal or city government concerned, copy furnished the BFAR regional offices.

B. Incentives

The formulation of incentives shall encourage compliance with the environment standards and shall promote sustainable management practices on aquaculture.

SEC. 12. Incentives. – The following incentives may be granted for consistent compliance with the rules and regulations of this Code.

a. Eco-labeling
b. Technical and market assistance
c. Gawad Saka nominee
d. Training on aquaculture technologies

C. Carrying Capacity (Lake-based Aquaculture)

The measurement of carrying capacity in lakes and rivers is essential in rationalizing management and utilization of fishery resources in these areas.

SEC. 13. The criteria for the determination of the carrying capacity of lakes to control stocking density and feeding requirements are the following:

a. The carrying capacity of a lake shall be determined through the conduct of physico-chemical and biological study to determine plankton/algae density, nutrients and transparency and fish biomass and composition;
b. The carrying capacity of fishpens, cages in the lake shall be based on the physico-chemical and biological productivity measured in terms of biomass (g/m^3) and nutrient uptake ($gm/C/m^3$); and
c. The level of primary productivity in inland water that could support the good growth of planktivorous species like tilapia, carp, milkfish shall be less then 10 g/cu^3.

SEC. 14. This Order shall be subject to the existing laws, rules and regulations and local ordinance on these matters.

SEC. 15. Effectivity. – This Order shall take effect fifteen (15) days after its publication in the Official Gazette and/or in two (2) newspapers of general circulation and fifteen (15) days after its registration with the Office of the National Administrative Register. Issued this 17th day of September, 2001 at Quezon City, Metropolitan Manila, Philippines.

(Sgd.) LEONARDO Q. MONTEMAYOR
Secretary, Department of Agriculture

Recommended by:
(Sgd.) MALCOLM I. SARMIENTO, JR.
Director, Bureau of Fisheries & Aquatic Resources

(Sgd.) CESAR M. DRILON, JR.
Undersecretary for Fisheries & concurrently Chairman, NFARMC