# Sustainable Fish Cage Aquaculture in Cirata Reservoir West Java, Indonesia: A System Dynamics Approach

**Article** · March 2011

DOI: 10.17010//2011/v4i6/62485



**3 authors**, including:

Zahidah Hasan
Universitas Padjadjaran


Muhammad Tasrif
Bandung Institute of Technology

THE ARTICLE

# Sustainable Fish Cage Aquaculture in Cirata Reservoir West Java, Indonesia : A System Dynamics Approach

Written By:

**Wawan Gunawan**
Policy and Social-Economic Laboratory , Faculty of Forestry,
Winaya Mukti University, Sumedang, West Java, Indonesia (e-mail: wagunzah@gmail.com) Telp: 62-22-70020584 mobile 62-08112268830

**Zahidah Hasan**
Faculty of Fisheries and Marine Science,
Padjadjaran University, Bandung West Java, Indonesia
(e-mail: irahebatku@yahoo.co.id) Telp: 62-22-70020583

**Muhammad Tasrif**
Graduate Program in Development Studies, Institut Teknologi Bandung West Java, Indonesia
(e-mail: spitb@melsa.net.id)

***Abstract***

*The aims of this research were to identify and analyze processes causing fish productivity dynamic, to construct model, and to design policy for sustainable Floating net cage aquaculture (FNCA) using system dynamics approach. The result of this research showed that the acceleration policy scenario gave a better performance in fish productivity and water quality than that in eutrophication policy scenario. On the other hand, the acceleration policy scenario created the higher fish stocking density, environmental cost and fish price than the eutrophication scenario. The simulation showed that fish productivity fluctuated by interventing some importance parameters of the model such as FNCA unit regulation, aeration and change of fish stocking density.*

*Key words :System dynamics, policy, FNCA, eutrophication, price, environmental cost.*

## INTRODUCTION

Cirata reservoir widely 62.000.000 $m^2$ is a big water body covering three regencies in West Java, that are west Bandung Regency, Cianjur Regency and Purwakarta Regency, located at the basin with the height of 220 m above sea level (a.s.l.), used to produce electricity through hydroelectric power (PLTA). Since 1988, Cirata Reservoir was used