

## Sustainability of Shrimp Farming in Sarawak: A Case Study of Asajaya, Samarahan Division, Sarawak

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### Abstract

Shrimp farming is a relatively new industry in Sarawak. In many of the major shrimp producing countries, the sustainability of this industry is threatened due to poor management practices, pollution from ponds effluent and outbreak of viral diseases. The objectives of this study were to characterize and quantify effluent from shrimp ponds and identify some of the issues related to the sustainability of this industry in Sarawak. Data were obtained from the Department of Agriculture, Natural Resources and Environment Board Sarawak and field sampling at Asajaya. The results of this study indicate that shrimp farms discharged large amount of orthophosphate, nitrate-nitrogen, ammonia-nitrogen, biochemical oxygen demand and total suspended solids into the adjacent water body. This has resulted in the decline of the river water quality. Sarawak aquaculture industry must learn from the negative experiences of other shrimp producer countries because economic sustainability in shrimp farming cannot be achieved without environmental sustainability.

*Keywords:* Sustainability, shrimp farming, nutrients, Asajaya

### Introduction

World aquaculture probably has a history of about 4,000 years. However, it is only in the last 50 years that it has developed into an important worldwide industry (Currie 2000). One of the fastest growing components of the global aquaculture industry is shrimp farming (Hossain et al. 2004). The major shrimp producing countries are Asia, where black tiger (*Penaeus monodon*) is the predominant farmed species and Central America where the western white (*Penaeus vannamei*) is the predominant species (Flaherty et al. 2000).

Although this industry is a growing industry and is an important source of foreign revenue for many countries, its development has been accompanied by social, economic and environmental impacts. In many of these countries, the sustainability of shrimp farms is threatened by a combination of poor management practices, pollution as a result of effluents from ponds and the outbreak of viral diseases. Collapse or partial collapse of the once thriving industry have occurred in many countries such as Taiwan (Liao 1989; Lin 1989; Chen 1990), China in 1993 (Anonymous 1994a), Vietnam (Anonymous 1994b) and an annual production decline in Thailand (Funge-Smith 1997). In 1990s, the single most important factor that limits the continued expansion of this industry was diseases. Of the