

State Environmental Conservation Department
(ECD), Sabah, Malaysia

State Policy on River Sand and Stone Mining

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State Policy on River Sand and Stone Mining

1. Vision

The State of Sabah foresees a near future where the river sand and stone materials in Sabah are utilised only in selected and approved rivers or river sections and where the allowed river sand and stone mining activities are implemented in a financial viable and environmental friendly manner.

2. Policy Statement

The State of Sabah, through the implementation of the State Policy on River Sand and Stone Mining, wishes (i) to support an appropriate and environmental friendly utilisation of the natural resources of the rivers, (ii) to contribute to the conservation of the beauty and cleanliness of the rivers in Sabah, and (iii) to minimise the risk of channel erosion and the subsequent damage to private and governmental property.

3. Principles

- River natural resources is a State heritage and it must be managed and utilised for the benefit of the present and future generations
- It is the responsibility of all sectors to maintain the river resources of Sabah and ensure that it is prudently managed and developed
- Awareness is essential for ensuring the protection of river natural resources and the proper utilisation of riverbed materials.

4. Objectives

- To develop a State Action Plan for the control and management of the utilisation of river sand and stone materials based on the identification of the key issues, geographical locations and stakeholders
- To implement, monitor and enforce the State Action Plan for the control and management of river sand and stone materials
- To impose socio-economic measures in the management of river sand and stone mining activities
- To ensure that all Government Agencies and the public are aware of and adhere to existing regulations, requirements and procedures
- To strengthen the present framework for cooperation, control and management of river sand and stone mining activities.

5. Rationale

Overview

The total number of land applications approved by Lands and Survey Department for purpose of river sand and stone mining up to January 2000 is 458. The known number of current river sand and stone mining activities in operation is 54, with production capacity ranging from small individual operator of less than 10,000 MT/year to large company operators of more than 50,000 MT/year. The total number of rivers currently affected is 14, with a high number of operations concentrated along Sg Tuaran (14 locations), Sg Papar (11 locations) and Sg Kadamaian (9 locations).

The total length of rivers affected by the project is estimated at 808 kilometres, covering total catchment area of 16,800 square kilometres. Based on a conservative estimate, approximately 2.0 million MT of sand, gravels, rocks, boulders and other riverbed deposits are extracted annually from rivers in Sabah. This figure excludes amount extracted from sand dredging offshore. In comparison, there are approximately 86 known operational land-based quarries in Sabah with capacity ranging from 50,000 MT/year of small quarry operators to 2.0 million MT/year of large company operators.

River sand and stone mining in the State of Sabah is carried out mainly for two purposes, namely construction requirements - road construction, building materials, etc. - and engineering requirements - flood control, maintaining water supply intake point, etc.

Needs

Like many resources management decisions, those related to river sand and stone mining activities have been based historically on perceived short-term benefits with the rights of the individual prevailing.

More recently, it has become clear that short-term benefits must be weighed and balanced against the resulting long-term effects of resource depletion and decline in the state of the environment. This has arisen from:

- Increasing evidence of potential problems from over-extraction of river sand and stone
- The community's increasing demands on, and expectation of, the river system.

Therefore future management decisions about river sand and stone mining should be based on the principle of sustainable development, not just of the riverbed materials resource but also of other river uses and values. In this context, sustainable development means that resources should be used in ways that do not jeopardise future use of all river natural resources. Management decisions therefore should also include as much input as possible from the community, industry and other agencies.

The State Policy on River Sand and Stone Mining will help to ensure that such management decisions are implemented on a statewide basis.

Legislation

The need for control of river sand and stone mining has been recognised for many years. It is reflected in a number of legislative controls administered by various government agencies as outlined below:

- Environmental Conservation Department, Sabah – **EIA Approval** to carry out river sand and stone mining activities from the Director under the *Conservation of Environment Enactment 1996* and the *Conservation of Environment (Prescribed Activities) Order 1999*. River sand and stone mining is a Prescribed Activity, which requires an EIA approval prior to project commencement
- Lands and Survey Department, Sabah - **Licence** to remove stone, earth and sand from State land and alienated land from the Assistant Collector of Land Revenue under Section 23 of Land Ordinance 1930 and Land Rule 3(2)
- Drainage and Irrigation Department, Sabah – **Written Approval** for the removal of material from a river or river reserve from the Director under Section 41 of Water Resources Enactment 1998.

Most of the approvals under the above legislation however are issued on a piecemeal basis, and little attention has been given to the cumulative effects, which a number of existing or future operations may have on the river system as a whole.

Environmental Impacts

The major adverse environmental impacts of river sand and stone mining activities are:

Channel erosion. River sand and stone mining within or adjacent to a river channel can initiate channel erosion and degradation. If in-stream mining alters channel geometry enough to create local inflection of stream gradient or if point bar mining increases the river channel gradient enough to increase water velocity above and at the mined sites, then local channel scouring and erosion may result. Although it is recognised that erosion is a natural process, it is generally accepted that mining and dredging exacerbates the problem. The processes most commonly associated with channel degradation are: (a) Large-scale removal of river sediment, (b) digging below existing riverbed and (c) alteration of channel bed form and shape.

Water quality contamination. The ways in which mining activities might impact upon the rivers water quality include increased short-term turbidity at the mining site from re-suspension of sediment and oil spills or leakage from excavation machinery and transportation vehicles. Mining activities may therefore increase suspended solids and chemical contamination in the water at the site and downstream and this may adversely affect water users and the aquatic ecosystem. The impact is particularly significant if water users downstream of the site are abstracting water for drinking/domestic use. Suspended solids can also significantly increase water treatment costs.

Ecological impacts. River sand and stone mining can impact the ecology of a stream from the base of the food chain - aquatic plants - through to the benthic communities and higher order fish and mammals. Mining and dredging of the river channel can destroy in-stream

and river reserve habitats for a broad range of species as well as indirectly impair the functioning of the aquatic ecosystem in the affected nearby areas. Aside from the direct loss of habitat, increased stream turbidity as a result of the mining activity may temporarily reduce light penetration within the river, which will impact rates of photosynthesis and therefore primary production rates. In general, however, if the site is mined within acceptable limits, there is evidence that disrupted sites are resilient and maintain a high potential to recover.

Other environmental impacts of river sand and stone mining activities include:

- Loss of land use for agriculture or settlement
- Loss of water used for fishing, leisure, eco-tourism or navigation
- Objectionable noise levels from mining and transportation activities
- Dust and atmospheric pollutants from machinery and transport vehicles
- Increase in traffic density from transportation activities.

6. Strategies

Effective management of river sand and stone mining activities to achieve the objectives of the State Policy will be guided by the following strategies and actions:

Strategy 1. State River Sand and Stone Mining Action Plan

The State Action Plan for river sand and stone mining activities should be based on a survey that document the existing river sand and stone mining activities in Sabah, assesses its direct and indirect benefits and identifies the potential threats to the individual rivers in Sabah.

The State Action Plan should divide the rivers or river sections in Sabah into the following two categories:

- Rivers or river sections selected for river sand and stone mining
- Rivers or river sections where river sand and stone mining activities are prohibited.

The survey should furthermore review and update existing legislation to reflect river natural resources needs and propose new legislation where appropriate. This will include for example the identification of existing legislation pertaining to river sand and stone mining, a review of their adequacy, and the identification of areas where new legislation or major enhancements to existing legislation are needed for the protection of river resources.

Strategy 2. River sand and stone mining in selected rivers/river sections

Based on the State Action Plan, river sand and stone mining activities in selected rivers or river sections are allowable depending on written permissions from the respective Government departments/authorities and approved Environmental Impact Statement (EIS) from the Environmental Conservation Department.

Strategy 3. Protection of specific rivers/river sections

Based on the State Action Plan, river sand and stone mining activities will be prohibited (and/or phased out if ongoing activities exists) in specific environmental sensitive rivers or

river sections, e.g. areas within or close to conservation areas or areas with high channel erosion risks.

River sand and stone mining in these prohibited areas will only be allowed for activities related to specific purposes such as flood mitigation, water supply or river rehabilitation. In these cases, written permissions from the respective Government departments/authorities and approved Environmental Impact Assessment (EIA) from the Environmental Conservation Department are required.

Strategy 4. Socio-economic control on river sand and stone mining

Royalty shall be imposed on river sand and stone activities and paid to the State based on production volume. The amount of royalty shall be determined by the State and payable upon application.

The export of river sand and stone from the State are prohibited.

Liaison and co-operation with major markets for sand and gravel shall be undertaken to minimise illegal river sand and stone mining activities.

Strategy 5. Awareness enhancement

In order to implement an effective protection of river natural resources and acceptable river sand and stone mining activities, awareness activities will be implemented towards contractors, institutions, governmental authorities and the public.

This shall for example include an increased awareness within the civil service at State and local government levels as well as in professional bodies and the private sector through road shows, seminars and training programmes and an enhanced mass media coverage of river sand and stone mining and river natural resources issues.

Strategy 6. Establishment of a Task Force

In order to implement the State Action Plan, a State Task Force shall be established. The task force will supplement and reinforce the existing mechanisms for planning, administration and management of river sand and stone mining activities in Sabah.

Policy formulation, coordination, monitoring and advisory tasks constitutes the main functions of the task force. The task force shall for example assist in the identification of allowable areas for river sand and stone mining activities, formulation of guidelines for monitoring and enforcement of protected rivers or river sections, and the implementation of socio-economic control mechanisms and awareness activities.

The task force will include representation from all relevant State departments and agencies (Lands & Survey Department; Natural Resources Office; Environmental Conservation Department; Drainage & Irrigation Department; Fisheries Department; Public Works Department, Geosciences & Minerals Department, Ministry of Local Government & Housing, State Federal Economic Planning Unit). The private sector and non-governmental organisations shall be included where appropriate.