



National Policy on Sand as a Resource for the Construction Industry

Printed By : EXCEL Solutions @ Kelaniya

Ministry of Environment and Natural Resources
“Sampathpaya”
No 82, Rajamalwatta Road
Battaramulla

National Policy on Sand as a Resource for the
Construction Industry

**National Policy on Sand as a Resource for the
Construction Industry**

Ministry of Environment and Natural Resources
“Sampathpaya”
No 82, Rajamalwatta Road
Battaramulla

Index

1.	Necessity for a national sand policy	01
2.	National sand policy	02-04
2.1	Objectives	02
2.2	Policy principles	03
3.	Policy statements	05-07
3.1	Activities not permitted	05
3.2	Activities with conditional permits	05
3.3	Inland sand deposits	06
3.4	Activities to be promoted	06
4.	Sand resource management procedures	08-13
5.	Revenue procedures	14
6.	Monitoring arrangements	15
7.	Supervision	16
	Annex – Explanation of key words and concepts	17-18

National Policy on Sand as a Resource for the Construction Industry

1. Necessity for a National Sand Policy

Sand is a mineral as defined in the Mines and Minerals Act No. 33 of 1992, and is the property of the state. The estimated annual national demand for sand for the construction industry is approximately 7 million cubic metres. Almost all of this is manually or mechanically harvested from riverbeds, carved from river sides, or mined from sand deposits on previous riverbeds and sand accumulated in reservoir beds. Unrestricted harvesting of sand is resulting in heavy rates of soil erosion, land degradation, increased river-water turbidity, lowered water tables and salinity intrusion in the lower reaches of rivers. Unregulated mining of river, shore and dune sand, both manual and mechanized, has caused irreparable damage to the ecology of the affected areas.

It is recognized that the sound management of sand, so as to minimize the risk of flooding and saltwater intrusion, is also necessary, because much of the human population too, lives close to and depends on major rivers, this has in turn led to severe water stress, especially for the poor in the western and south-western coastal areas, necessitating costly salt water extrusion schemes. Many rivers in the densely-populated western part of the island are already experiencing the risk of suffering serious habitat alteration and water quality loss: immediate remedial measures are therefore needed.

Article 28(f) of the Constitution makes it the duty of every person in Sri Lanka to protect nature and conserve its riches. Sri Lanka has also committed to the principle of sustainable development and to the sustainable use of its natural resources by subscribing to United Nations Conference on Environment and Development and its Agenda 21.

This policy statement reflects Sri Lanka's constitutional, international and national obligations, including the Mines and Minerals Act No. 33 of 1992, the National Environmental Act No 47 of 1980, the Coast Conservation Act No 57 of 1981 and other relevant legislation,

regulations and policy statements. It should be viewed within the evolving policy framework for sustainable development. It defines the commitment of government, in partnership with the people, to effectively manage the construction-sand resource for the benefit of present and future generations with minimal impacts on the natural and built environment and affected communities. This policy supports other national policy initiatives, such as the National Environmental Policy, which was adopted by Cabinet on 15 May 2003.

Hereinafter, the word “sand” shall mean sand intended for construction purposes. Technical terms used in the text are explained in Annex 1.

2. National Sand Policy

2.1 Objectives

- 2.1.1 To minimize the environmental impacts of utilizing Sri Lanka's sand resources, while sustaining the economic benefits, recognizing that sand resources are both “renewable” (e.g. offshore sand) and “non-renewable” (e.g. dune and inland sand), both of which need to be managed sustainably.
- 2.1.2 To develop a dual approach to the wise management of sand resources,
 - (a) Through an effective system of policing within a strong regulatory framework; and
 - (b) Through the granting of incentives including skills training and alternate employment, for the development of sustainable alternatives, including manufactured and offshore sand, and sand extracted from reservoir beds.
- 2.1.3 To establish the priority of environmental considerations over commercial considerations, assuring sound environmental

governance and accountability at all levels. This includes determining extractable volumes while applying the precautionary principle and the provisions of the relevant laws; ensuring that extraction methods have low-impact; and putting in place a restoration program that reduces risks to the environment and to society.

2.2 Policy Principles

- 2.2.1 Sand will be utilized only as a managed resource, using the precautionary approach, so as to assure that national supply needs are met in the long term (especially given the uncertainty over future alternatives and the effects they too, may have on local environments).
- 2.2.2 A transition to more environmentally friendly alternative sources of sand will be actively promoted through the support of appropriate research and development activities.
- 2.2.3 Exploitation of dune sand and terrestrial sand deposits will be controlled and permitted only after ecological and environmental studies have shown that such extraction is safe.
- 2.2.4 All mining above 5,000' contour to be prohibited
- 2.2.5 The guiding principle of environmental management, “the polluter pays”, will be applied throughout, making it the duty of miners to mitigate or reverse the impact their activities have on the environment. The permitted extraction of terrestrial sand resources will require environmental restoration programmes designed and implemented as integral elements of permission to extract. All such actions should be in compliance with the provisions of Fauna and Flora Protection Ordinance (Chapter 469) as amended by Act No. 44 of 1964, Act No. 01 of 1970 and Act No. 49 of 1993 and Forest Ordinance (Chapter 451) as amended by Act No. 13 of 1966, Act No. 56 of 1979, Act No. 13 of 1982, Act No 84 of 1988 and Act No. 23 of 1995.

- 2.2.6 Wise construction design that minimizes demand on natural resources, together with the recycling and reuse of construction materials are seen as the keys to reducing consumption, and will be encouraged through incentives and the establishment of quality standards.
- 2.2.7 Effective management of the environment affected by sand extraction is possible only by linking together the activities, interests and perspectives of all groups, including civil society, industry, non-government organizations and government at the central, provincial, and the local levels and by creating public awareness. This will be achieved through participatory, transparent, predictable and accountable decision-making processes, especially in relation to the locations from which sand is to be extracted, the quantity extracted and how the mined habitat should be restored.
- 2.2.8 The export of inland sand for any commercial purposes will continue to be prohibited.

3. Policy Statements

For the purposes of sustainable management of sand resources three categories of activities are distinguished:

3.1 Activities not permitted

- 3.1.1 **Shore sand.** Because of the likely impacts on hydrology, the mining of shore sand except for dredging for public infrastructure facilities will be prohibited altogether unless, such mining activities comply with the environmental impact assessments.
- 3.1.2 **Mechanized mining of sand in rivers.** In view of the significant environmental consequences this entails, all mechanized sand mining, both machine driven or manually operated, in the riverbed and within 60 metres from the banks of major rivers will be prohibited with immediate effect. All licenses awarded to date will, where legal provision exists to do so, be revoked.

3.2 Activities with conditional permits

- 3.2.1 **Coastal dunes.** Although coastal dunes offer significant reserves of sand, their exploitation will be not permitted within the Coastal Zone except for a public purpose.
- 3.2.2 **Non-mechanized mining in rivers.** It is recognized that non-mechanized sand mining is an important source of income and livelihoods in many areas that must, in the medium term, be supported. Community-based organisations and co-operatives whose membership comprises existing river sand extractors will be promoted. Riverfront land-owners will be given preference for sand extraction as they are forced to exercise added precautionary measures to avoid erosion of their own properties.
- 3.2.3 The GSMB will develop and enforce guidelines to establish No-mining zones so as to safeguard bridges, water intakes, roads, public amenities, etc.

3.3 Inland sand deposits

- 3.3.1 Inland sand deposits, whether or not on private land, shall in terms of the Mines and Minerals Act be treated as minerals.
- 3.3.2 Licences will be issued by the GSMB based also on consent given by the landowner and the recommendations of the relevant Divisional Secretary and the Environmental Officer for their extraction, only as an interim measure, until industrial capacity for extracting adequate renewable resources is sufficiently developed. In giving such permits, the GSMB shall give due regard to environmental and ground-water conservation.
- 3.3.3 A terrestrial sand resource survey will be completed and a time bound extraction management plan will be prepared by GSMB and updated at three-yearly intervals. The utilisation plan will be integrated with a defined time-bound program for the development of alternative sources of sand. Where sand is extracted from terrestrial reserves such as dunes and former river courses, it shall be the duty of the party extracting such sand, irrespective of the ownership of the land, to rehabilitate the land in accordance with standards specified within the relevant license or permit.

3.4 Activities to be promoted

- 3.4.1 **Offshore sand¹.** Offshore sand, in effect a renewable resource, offers the best long-term solution to meet the national demand for construction aggregate. While the extraction technology exists however, it has been neglected owing to:
- The high capital costs involved;
 - The relatively high cost of production compared with illegally-mined river sand;

Note: Because of its high chloride content, offshore sand cannot be used for construction until it has been washed. Such washing may be done (a) mechanically (involving significant demand for freshwater) or (b) by stockpiling the sand and permitting chlorides to be leached in the course of several months of rainfall. Both strategies carry significant environmental risks and potential costs which can, however, be mitigated while maintaining financial viability.

- The significant environmental impacts that need to be addressed; and
- The need to educate a construction industry that has become accustomed to using only river sand.

In view of the large investment capital involved and the significant national benefits that would accrue as a result, the establishment of an offshore-sand industry will be encouraged through appropriate incentives. For this purpose a subcommittee of the Standing Committee will be charged with the responsibility of ensuring sea sand resources are developed within an agreed timeline and with adequate quality, environmental and social safeguards.

- 3.4.2 **Alternate sand.** Encouragement will be given for major construction projects to optimise the use of sand and use alternate sands wherever possible, bearing in mind the need to also mitigate the environmental impacts of quarrying and crushing such aggregates. Actions will be taken to and promote and publicise technologies such as production of sand from quartz, identification and utilization of terrestrial sand deposits, production of bricks using soil and cement instead of sand and cement and use of lime, clay and paddy husks for masonry work in wall construction. However, minimizing of environmental impacts on crushing and powdering of rock minerals as an alternative for river sand, will be emphasized.
- 3.4.3 **Sand conservation.** The development of methods and technologies to minimise the use of sand in construction industry will be promoted.
- 3.4.4 Geological Survey and Mines Bureau will take action to prepare estimates for sand requirements for the next 10 years.
- 3.4.5 Action will be taken to amend Mines and Mineral Act to empower the police with adequate powers to search and arrest.

4. Sand Resource Management Procedures

4.1 The Geological Survey and Mines Bureau which has the statutory power with regard to sand mining and issuance of licenses, should explore suitable locations in rivers where sand can be mined and prepare information and maps on such locations where sand deposits exist and amount of sand that can be mined and submit to the District Committees and the National Committee. The assistance of the Department of Irrigation, Road Development Authority, Mahaweli Authority, Divisional Secretariats, and other relevant officers should be solicited to prepare these maps at district level. Recommendations, objections and observations, if any, on the locations recommended will be referred back to the District Committees to justify their reasoning.

It is expected that the District Committee will submit the suggestions and comments, if any, in relation to the district under reference.

4.1.1 Composition of the District Committee will be as follows:

District Secretary	-	Chairman
Additional District Secretary	-	Secretary
Senior Superintendent of Police	-	member
Divisional Secretaries of the district	-	member
Mining Engineer of the Geological Survey and Mines Bureau	-	member
District Forest Officer	-	member
Assistant Director (Dep. of Wildlife Conservation)-	-	member
Assistant Director/District Environment Officer	-	member
Regional Director/District Engineer-irrigation	-	member
District Engineer, Road Development Authority	-	member
Residential Project Manager, Mahaweli Authority	-	member
Director/Engineer, Provincial Road Development Authority	-	member
Others who are considered as important by District Secretary		

With the agreement of the Central Environmental Authority and the Department of Coast Conservation, Geological Survey and Mines Bureau will survey the sand resources and cause to be published the information on the amount of sand that can be extracted from each river along with the defined environmental safeguards.

The Geological Survey and Mines Bureau will take steps to use modern technologies to identify sand deposits wherever possible.

4.2 The National Committee will take steps to issue mining licenses for the locations recommended for mining with the approval of the district committees established at district level.

4.2.1 The Composition of the National Committee will be as follows

Secretary, Ministry of Environment	- Chairman
Additional Secretary, (N.R) Ministry of Environment	- Secretary
Secretary/Representative of the Ministry of Home Affairs	- member
Director General/Dep. of Wildlife Conservation	- member
Chairman/Director General, Central Environment Authority	- member
Chairman/Director, Geological Survey and Mines Bureau	- member
Deputy Inspector General of Police (In charge of environment activities)	- member
Director, Policy Planning	- member
Director/Deputy Director Irrigation	- member
Director/D.D, Road Development Authority	- member
Secretary/Representative of the Ministry of Planning & Implementation	- member

4.2.2 The quorum for national and district committees will be 05 members.

- 4.3 Applications are called from sand minors to extract sand from terrestrial sand deposits or sand deposits in state lands. Those applications will be evaluated based on experience of the minors and environmental clearance reports, if any, in a transparent manner. Qualified bidders should provide a bank guarantee or other security bond not less than 25% of the value of estimated gross income from sand that can be extracted within the specified period of time. If the bidder fails to rehabilitate the mines as per the defined environmental safeguards by the Central Environment Authority, Geological Survey and Mines Bureau will use the security bond for environmental restoration activities.
- 4.4 Provisions appearing in the Gazette No. 772/22 issued on 24th June 1993 for environmental impact assessments in relation to terrestrial sand mining will be amended to a limit of 01 ha in extent and depth to 5 meters.
- 4.5 River sand extraction will be managed under two regimes.
- (a) The total amount of sand that can be extracted per annum from rivers with sustainable management plans will be restricted to the sand extraction zones in rivers. Sand collection centers should be placed in that zone and the Divisional Secretary should be informed of the amount of sand, allowed to extract.
- 4.6 Special attention will be paid to the public and affiliated institutions such as Central Engineering Consultancy Bureau, State Engineering Corporation, Lanka Mineral Sands Limited, Road Development Authority, Sri Lanka Land Reclamation and Development Corporation, Pradeshiya Sabhas, and Co-operative Societies engaged in large scale construction activities in issuing licenses for sand subject to the charge of due royalty. A state management system will be incorporated into this process to avoid damages to the environment as of today.

- 4.7 Transport licenses can be issued to a person who has obtained a mining license and the license will be limited to transport of sand to a site specified by the Geological Survey and Mines Bureau, and from a certain site to another site or to a consumption site. However, if the transport of sand is transported out of the district, the Secretary, Ministry of Environment has the authority to determine that the sand storage site be located in a far place, considering views of the other agencies. Sand should not be stored within 10 m from the riverbank.
- 4.8 When transporting sand out of the district, the Secretary, Ministry of Environment has the right to lay down other important conditions or make decisions on transport of sand. Licenses for transportation of sand should be issued limiting its validity to the date specified in the license. The present transport license should be more formalized and those who transport sand should produce their monthly sand-transportation plan. This plan should include the transport date, time of start and time at destination, vehicle Number, route, amount of sand transported and other important details. A copy of the report will be written /pasted on the transport license, at the time of issuance.
- 4.9 Road barriers for checking the licenses for the transport of sand will be established on major sand transport routes, with the assistance of the police. Check points for checking the timber transport licenses established by the Department of Forest Conservation, road barriers operated by the police, and the checkpoints established by the GSMB will be used for this purpose.
- 4.10 There is no interruption for the permits issued by the Divisional Secretaries and Forest Conservation Officers, under the Provisions of the Forest Ordinance for disposal of forestry products, for genuine villagers for construction of houses. Yet, this permission is valid only within the respective GN Division subject to a maximum amount of 03 cubes per month per person. A request has to be made for such permits, actions should be taken not to exceed the limit and should satisfy that the person who applies for the permit is constructing a house.

The GSMB will issue the guidelines to the Divisional Secretaries including the volume, environmental safeguards, and provision for transportation, if necessary.

- 4.11 In view of the shift from river-sand mining to offshore mining, the controls on mechanized river mining entail a shift in human-resource needs and service provision. Priority will be given to the development of alternate skills and livelihoods among those adversely affected by this transition.
- 4.12 During the transition period from river-sand consumption to offshore-sand consumption, relevant institutions will be encouraged to conduct education and awareness-building within the construction industry on the safe and appropriate use of sea sand, and that sea sand is not a complete alternative for river sand.
- 4.13 Unwashed sea sand can pose a real threat to safety and quality in the construction industry. A strict regime of policing supported by a national standards and certification system will be introduced within the coastal zone to ensure that sea sand is not illegally collected and marketed as washed sea sand.
- 4.14 In the award of a license, consideration shall be given to the need for post-extraction environmental restoration. In cases where such concerns exist, a valid guarantee in respect of the full cost of restoration as estimated by the GSMB in consultation with the CEA and the respective District Sand Committee, shall be deposited by the applicant with the GSMB, whose responsibility shall be to ensure that such restoration takes place concurrently with the mining operation. Such guarantee shall be released only upon certification by the Central Environmental Authority that all mitigatory activities have been satisfactorily completed.
- 4.15 The capacity of regional offices of the GSMB and divisional secretariats to manage and regulate sand resources will be strengthened through appropriate programmes.

4.16 Issuance of permits for sand mining will be completely banned within an identified distance from the bridges, highways, pump-houses, bathing places, fishery harbours and irrigation structures which are known as socio-economic base structures. Due distance for sand mining will be decided in consultation with the respective institutions.

4.17 The GSMB will be vested with a special responsibility to establish environmental safeguards, and oversee such safeguards are adequately adhered to prevent environmental damages due to sand mining.

4.18 Ministry of Environment will take action to establish a fund for environmental restoration activities and the provisions of this fund will be provided to the Department of Irrigation, Road Development Authority, and Department of Forest Conservation for environmental restoration activities. This fund will receive money credited as a percentage (10%) from royalties or charges at the time of issuance of permits for removal of minerals and forestry products.

5. Revenue Procedures

- 5.1 There shall be established an Environmental Fund to which will be credited a part of the royalties received from sand extraction licenses. The assets of the Fund shall be utilized for environmental restoration; social insurance to local communities; research and development on alternatives to river sand, etc. The GSMB will charge a royalty for all sand extracted based on a percentage of market value.
- 5.2 For sand extracted from those rivers with management plans, royalties will be assessed on the amount of sand allowed to be extracted and should be paid to the GSMB at the time of issuance of the license.
- 5.3 For sand extracted from rivers without management plans, the royalty will be paid at the time of the issuance of a licence.
- 5.4 For off-shore sand, the royalty will be paid at the time of issuance of the mining licence and amount of sand extracted will be reconciled with the royalty paid at the end of every dredging period.
- 5.5 All permits and licenses relating to the extraction of sand and all royalties payable, should be in accordance with the Mines & Minerals Act and the National Environmental Act.
- 5.6 A system of rewards will be put in place for those supplying information on illegal activities and for officials who successfully prosecute offenders.
- 5.7 Simplified systems of procedures will be introduced by the GSMB to expedite processing of applications for mining licenses.

6. Monitoring Arrangements

- 6.1 Monitoring and regulation.
As sand is the property of all Sri Lankan citizens of both present and future generations, its use must be both wise and sustainable. Accordingly, its extraction, transport and use will be strictly monitored. Authority needed, if any, to delegate powers and functions for decentralizing the administrative processes will be provided for, through amendments to the prevailing laws.
- 6.2 Enforcement will be applied consistently and with the additional strength necessary, by way of amendments or additional regulations to the legal framework (i.e. the Mines and Minerals Act, Coast Conservation Act, National Environmental Act and other relevant legislation), at the earliest possible opportunity. This will include provision to prescribe officers of the GSMB, the Coast Conservation Department, the Provincial Council and the Central Environmental Authority with powers of search and arrest.
- 6.3 Institutional capacity for the monitoring of sand mining at the local level shall be strengthened by decentralisation and delegation of appropriate powers to relevant authorities. In addition to delegating authority to the Police Officers, the GSMB will establish law enforcement units (Flying squads) where appropriate.
- 6.4 GSMB will undertake systematic maintenance of information on sand deposits and will be in charge of stock assessments and through these, make as to the annual extractable volumes of sand with clear understanding on the objectives and the principles of this policy.
- 6.5 GSMB will regulate the extraction of offshore sand in consultation with relevant local and national authorities so as to establish and enforce environmental safeguards.

GSMB should conduct regular studies of the impact of sand mining on the natural and built environment, and especially on:
 - Danger to bridges, irrigation schemes, water intakes
 - Salinity intrusions
 - Condition of river banks
 - Condition of water table
 - Sand deposits under threat

7. Supervision

7.1 **Review:** The Minister in charge of the subject shall, prior to the budget each year as part of their annual review, table for the information of Parliament an annual *Status Review of Sand* outlining the production and consumption trends; pricing; environmental, social, economic and other relevant issues; needs for legislative reform, etc., together with a report on revenues and royalties, and how these are structured.

7.2 **National Committee on Construction Sand**

A national standing committee representative of the entire spectrum of stakeholders will be appointed as per Clause 4.2.1 above, to coordinate and oversee the implementation of this policy and make recommendations on any revision of the policy that may deem necessary.

7.3 **District Committee on Construction Sand**

A District Committee on sand will be appointed at district level representing the entire spectrum of stakeholders to coordinate and supervise activities related to implementations of this policy and to make recommendations on any revision of the policy that may deem necessary.

Annex 1

Explanation of Key Words and Concepts

Aggregate - Natural sands and gravels that are mixed together with cement to make concrete and mortar.

Construction sand - Sand is a resource rich in minerals (see *sand*, below). While the primary use of sand in terms of volume in Sri Lanka is by the construction industry, high-value minerals are also extracted from (especially coastal) sands, such as rutile.

Miner - Any person engaged in the extraction of sand for profit, or at the site of such extraction, any person directly engaged in the extraction, transport or handling of sand, whether self-employed, employed or contracted.

Non-renewable sand resources - Sand, of which there is only a limited quantity, and that could be exhausted in the near to medium term given present rates of extraction and/or demand.

Offshore - The seabed at a distance of more than 2 km from the tide line or beyond the 15 m depth countour.

Polluter Pays Principle - The principle those who extract or utilize resources are responsible for negating the negative environmental consequences of their actions.

Precautionary Principle - The principle that when an activity carries a potentially high environmental risk that cannot be fully assessed (e.g. for lack of time, money or information), action should be taken to prohibit or restrict the activity before the uncertainty is resolved

Renewable sand resources - Sand, of which there is a long - term supply given moderate rates of extraction, such as offshore sand.

Sand - usually small (diameter 0.02-2 mm) particles comprising mainly of quartz, containing small quantities of minerals such as feldspar, mica, garnet, tourmaline, zircon, rutile, illemenite, topaz and pyroxenes. In Sri Lanka, most river sand is of this kind, the result of long years of erosion.

Shore sand - along coasts contains much the same constituents as river sand, but involving a smaller, more spherical grain. Sea sand also contains significant "impurities" by way of salts such as magnesium and sodium chlorides, which lead to corrosion in iron. Sea sand is considered unsuitable for the construction industry because of its small particle-size and unless it is treated by washing with freshwater to reduce the chloride content that causes rusting.

Sustainable utilization - the utilization of a resource in a manner that is compatible with the long-term stability of environmental systems, particularly those essential to human well-being, respecting the rights of future generations also to access and utilize the benefits of the same resource. In the case of sand, utilization may be either strongly or weakly sustainable. The renewable component (excluding sea sand) should demonstrate strong sustainability, whereas weak sustainability may be acceptable where a non-renewable resource (e.g. terrestrial sand deposits) are depleted in a controlled manner while suitable substitutes are developed.

