NATIONAL BUILDING RESEARCH ORGANISATION

2022 ANNUAL REPORT

Ministry of Defence

The Annual Report 2022 was approved by the NBRO Interim Management Committee (IMC) on its meeting held on 21st February 2023

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தேசிய கட்டிட ஆராய்ச்சி நிறுவனம்
NATIONAL BUILDING RESEARCH ORGANISATION
99/1, ජාවත්ත පාර, කොළඹ 5. 99/1, ஜாவத்தை வீதி, கொழும்பு 5. 99/1, Jawatta Road, Colombo 5.
Tele : 011-2588946 Fax : 011-2502611 e-mail : info@nbro.gov.lk Website : www.nbro.gov.lk

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1. Chairman's Review

It is my privilege to present this Annual Report together with Consolidated Financial Statement of National Building Research Organisation (NBRO) for the year 2022 before you as the Chairman of the Interim Management Committee of NBRO and the Secretary to the line ministry, the Ministry of Defence.

As a premier research & development and multi-disciplinary technical services providing institution playing a significant role in the national development process, this report presents a full cross section of NBRO's technical capabilities and its financial sustainability.

As a line agency under the Ministry of Defence, NBRO plays a predominant role in disaster management with regard to landslide risk management in the country, while meeting related sustainable development goals and working within the guidelines of Sendai Framework of Action.

During the year 2022, NBRO as the national focal point for landslide risk management performed well across the diversified subject areas of landslide hazard identification, zonation, mapping, vulnerability assessment, mitigation, awareness creation and issuance of early warnings that are commonly known. Issuing Landslide Risk Assessment Reports with suitable technical recommendations for development activities in landslide prone areas by NBRO has now become a pre- requisite for building permits issued by local authorities which is considered as a decisive step in minimizing damages due to unplanned human interventions in landslide prone districts.

Major infrastructure development projects / programs have been facilitated by providing geotechnical investigations, foundation engineering and designs. Issuing condition reports of buildings, especially to buildings damaged or needing retrofitting and improved structural integrity is a unique service offered by NBRO. In addition, testing the quality of building materials and monitoring adherence to environmental quality standards in air quality, water quality, and noise levels are the NBRO services mostly sought.

Reduction of Landslide Vulnerability by Mitigation Measures Project (RLVMMP) under AIIB financing is an ongoing landmark event, the outcome of which permits much needed safety from landslide and unstable slopes for road commuters, buildings including schools and hospitals, and infrastructure including highways and the upcountry railway line.

NBRO made a strong endeavour to collaborate in the disaster management field with leading local and foreign institutions especially with the Japan International Cooperation Agency, University of Salford, UK, the World Bank and UN Agencies. This effort led NBRO to establish fruitful international collaborations paving way onto ongoing mitigation projects, joint research and development studies and technical capacity building of NBRO.

Annually a comprehensive R & D program is designed by NBRO after research needs are identified in consultation with the industry. A research symposium is held every year to publish and present outcome of their R&D program. Symposium in 2022 was remarkable for having ground-breaking achievements such as receiving a patent for the development of fibre reinforced paving block with improved

shock absorption and water infiltration characteristics.

I am delighted to report that in spite of number of difficult conditions NBRO faced during the previous years, the year 2022 proved to be a very positive year. NBRO is privileged to receive GOSL funds for landslide disaster risk mitigation given annually as a national priority. Foreign donor agencies and collaborating institutions have also granted some funds for research and project work of NBRO.

NBRO heavily relied on self- earning and most of its financial requirements including recurrent expenditure were generated through the provision of consultancy & testing services offered to the state and the private sectors. Continuously from 2010, significant net annual profits have been recorded. Over the years, the financial stability of the institution has been firmly established during which period the revenue, profits and reserves have been steadily growing.

Such successful performance would not be possible without the dedicated effort of the Director General, Eng. (Dr.) Asiri Karunawardena and his team who have worked with enduring commitment and loyalty to engage in every opportunity that has come in their way. I was able to give directions and guidance not only as the Chairman, IMC but also as the Secretary to the Ministry of Defence and was even able to appreciate their services by paying an annual bonus to all staff members.

In conclusion, as a focal institution for landslide risk management in the country under the Ministry of Defence, the years ahead will be especially challenging to NBRO with the increasing trend of disasters. Mitigation of slope instability and rockfall risk in Malapattawa in Nuwara Eliya District, slope failure at Kadugannawa in Colombo Kandy Road, and the Landslide at Nallathanniya blocking the access road to Sri pada are the challenging tasks that NBRO successfully addressed in the recent past. NBRO is also well known for their commendable services in monitoring and management of ambient air quality in urban cities in Sri Lanka. NBRO played a dynamic role and made timely decisions for authorities to take crucial decision in incidents such as the recent increase in air pollution levels and the fire in MV X-press Pearl ship near Colombo port.

The NBRO needs to foster an organizational culture to develop innovative strategies to address complex and challenging situations of disasters and NBRO should be able to play a wider role by strengthening its ties with the ministry and other stakeholders enabling NBRO to be even more nimble in a fast-changing dynamic environment.

I take this opportunity to express my sincere gratitude to H.E the President and Hon. State Minister of Defence and members of the National Council for Disaster Management (NCDM), whose leadership and foresight has steered the NBRO to this success. I extend my sincere thanks to the Members of Interim Management Committee (IMC) for the support given to us in achieving these goals. In addition, I express my thanks to the Director Generals of institutions under Disaster Management Division of my ministry and our stakeholders for their continued confidence on us.

I am sure NBRO will strive by working hard in pursuit of its corporate goals and the national goals, and thus make all our endeavour a worthy accomplishment.

General Kamal Guneratne (Rerd.)
WWV RWP RSP USP ndc psc MPhil
Chairman
Interim Committee of Management,
National Building Research Organisation
(Secretary / Ministry of Defence)

2. Executive Report

NBRO in the preceding year of 2022, continued staying at the forefront fulfilling its duties and responsibilities to the best of its ability in spite of obstacles challenges faced from time to time. NBRO continued to accomplish assigned tasks on time and perform financially well ensuring institutional stability. I take great privilege to compile this Annual Report and the Financial Statement of NBRO for the year ended on 31st December 2022.

I am happy once again to proclaim that NBRO as a reputed public enterprise excelled in its performance in 2022 in all areas, meeting its set targets and NBRO continued to thrive achieving its corporate objectives in a responsible manner in an ever changing and challenging socio-economic environment in the country.

In 2022, NBRO recorded consolidated turnover of LKR 894.05 Mn. in spite of the stiff competition NBRO faced from competitive agencies for testing and consultancy services. This turn over resulted in the net profit of LKR. 105.55 Mn. The consolidated revenue of year under review reflects a growth of 6.5% over the previous year 2021 and revenue from testing and technical services LKR 586.71 Mn. shows remarkable 12% growth in 2022.

Commitment of staff towards achieving the present status of NBRO had been outstanding. NBRO now stands as a leading and reliable technical service provider having a wide scope of services covering sectors such as disaster management, housing, construction and environment aiming building disaster resilience in the country.

NBRO embarked on several large projects as Disaster Risk Reduction measures, initiating them from 2019 and commencing project implementation in 2020. AIIB-financed Reduction of Landslide Vulnerability by Mitigation Measures Project is by far the first mega project NBRO has undertaken to implement.

NBRO is a technical agency among line agencies of the Disaster Management Division of Ministry of Defence, and hence has a key role to play in fulfilling mission of the ministry. NBRO focuses its attention mainly onto the technical aspects of building disaster resilience in the country in line with achieving Sustainable Development Goals while following guidelines of the Sendai Framework of Actions. NBRO's effort, as depicted by its Strategic Plan, concentrates strongly onto building disaster resilience in the country, through its Research & Development, mitigation, early warning, awareness creation training programs and other technical interventions.

In 2022, several incidents of slope failures, cutting failures, rock falls and retaining wall failures were reported during May – June and August to December mainly in Kandy, Kegalle, Nuwara Eliya Matale and Rathnapura districts apart from the minor events occurred in Kalutara, Kurunegala, Badulla, Galle and Matara districts. Accordingly, NBRO covered the pre-assigned roles of monitoring, issuing early warning for evacuation, timely investigation and implementation of corrective and preventive measures.
NBRO continued the implementation of on-going Disaster Risk Reduction projects, with

funds coming from the General Treasury and other financial institutions.

Importantly, in the Asian Infrastructure Investment Bank (AIIB) financed "Reduction of Landslide Vulnerability by Mitigation Measures Project" NBRO already completed 12 sites out of the 24 critical locations where mitigation works commenced under phase I. NBRO expects completing all the mitigation work in the selected 127 sites by 2025 that were identified as threatening the functioning of schools, hospitals and important buildings, major roads and railway lines.

Mitigation of slope instability and rockfall risk in Malapattawa in Nuwara Eliya District and rectification of unstable slope failure in Kadugannawa in Colombo Kandy Road were the challenging tasks that NBRO successfully tackled recently. NBRO continued to extend technical services to governmental development programmes. NBRO provided geotechnical investigations, designs and technical support for Central Expressway development project and also for restoration of Watawala landslide along the upcountry railway line, and rehabilitation of slope failure in Nallathanniya (Hatton- Maskeliya Delhouse road) which were highly acclaimed.

NBRO thrived to assure the quality and timely delivery of outputs of technical consultancy and testing work. This always seems to give NBRO a leading edge when procuring competitive contracts. Further, as a measure of maintaining high standards, NBRO has all the three laboratories accredited to ISO 17025 and continued all internal and external audits on time and supported by having further training programmes for staff.

NBRO holds in the beginning of the year the Annual Industry Consultation Meeting with its stakeholders to learn the research needs in industry for incorporating them in the Research and Development programme. NBRO holds its Annual Research Symposium to present the outcomes of research by NBRO and collaborative work with local and international stakeholders and publish outcomes as symposium proceedings. The 12th Annual Research Symposium was held on 26th Jan 2023 at the BMICH Colombo. Attendance in these symposia is very good and stakeholder participation and assistance are at a high level. A patent was received for the fibre reinforced paving block developed using the textile waste under the R & D program which was a remarkable achievement during the year 2022.

CONTRIBUTION TOWARDS NATIONAL DEVELOPMENT

As the national focal point for landslide risk management, NBRO carries out several important functions including landslide identification, zonation mapping, hazard risk assessment, issuing early warning, training & awareness and policy development. Hazard and risk maps are produced and used in the national physical planning and development activities.

Review of the existing methodology of landslide hazard zonation mapping and risk assessment, preparation of total impact zone maps for three pilot sites using Red zone and Yellow Zone concept; conducting landslide flow path simulation using Hyper KANAKO model for three pilot sites, preparation of total impact zone maps in areas other than pilot sites, improvements to the existing landslide early warning issuance process and improving existing observation system and alerts and development of a guideline for disaster resilient land use regulation & development standards were among the important tasks carried out under the SABO project implemented through JICA technical cooperation.

NBRO issues Landslide Risk Assessment Reports (LRAR) with technical

recommendations to local government bodies for granting approval for construction or development activities in landslide hazard-prone areas in 14 districts. Over one hundred thousand reports have been issued after conducting necessary investigations since such issuance started in March 2011 by a special circular.

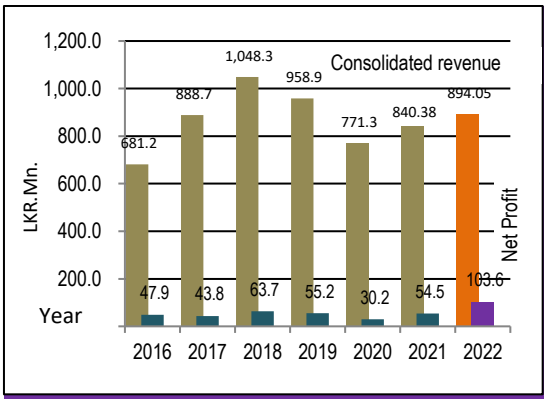
Landslide early warning is a very important responsibility that NBRO carries out diligently. Landslide Early Warning Centre (EWC) at NBRO Head Office for issuing timely early warning and evacuation orders and this Centre is now working around the clock during extreme weather situations. NBRO has a network of over 300 automated rain gauges installed in landslide vulnerable areas that record rain fall and send data to EWC. In addition, NBRO improved its capacity in landslide monitoring with ground movement detection instruments and moisture sensing instruments.

Monitoring of ambient air quality in urban cities is one of the important technical interventions. Air quality is monitored by NBRO using high-technology automated mobile air quality monitoring unit operated at Colombo Municipal Council (CMC) premises as a reference location for the validation of other monitoring techniques. In addition, real time air quality measuring data is received from 20 sensor-based monitoring stations installed at 20 district centres in Sri Lanka. NBRO is updating and maintaining quality control database using these monitoring network and able to take crucial decision-making within a short stretch of time for authorities to make timely decisions such as recent incidents of severe urban air pollution and air pollution due to fire in a ship near Colombo Port.

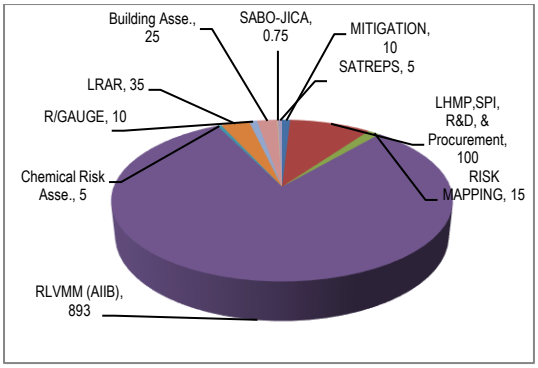
SATREPS, the joint research project titled Development of early warning technology of rain-induced rapid and long-travel landslides in Sri Lanka with the support of JICA/JST is an important research work carried out together with International Landslide Consortium (ICL) in Japan. Several local and Japanese collaborating universities and support agencies participate in this project work and major works have been already started. The technologies that are developed will ensure the safety of the public and secure vulnerable communities from landslides and associated hazards. The project office was established in Kyoto and several NBRO scientists are following Ph.D. studies in Japan under capacity development. Equipment to strengthen the geotechnical engineering laboratory with sophisticated equipment such as Ring shear apparatus have been installed to facilitate this research.

REVENUE

NBRO generates revenue for its recurrent expenditure mainly through the provision of consultancy & testing services offered to state and private sectors. As such NBRO heavily relies on its self-earned revenue to provide for staff salaries and most institutional expenses.



Total operating revenue vs. Net profit for last 7 years



Govt. Grant for projects & programs – Year 2022

CONSTRAINTS

- Act of NBRO is yet to be approved by relevant authorities for presenting to the Parliament.
- Staff turnover at NBRO continue to remain high as NBRO cannot offer fringe benefits and high remuneration compared to other government statuary bodies and private sector organizations. Recruitment is difficult and recruits often lack of sufficient experience.
- NBRO earns recurrent expenditure by providing testing and technical consultancy services. As regulations restrict, it is difficult for NBRO to be very competitive for bidding consultancies.

INITIATIVES FOR PRODUCTIVITY IMPROVEMENT

- ✓ Maintain all 3 laboratories accredited
- ✓ Strengthen institutional capacity through technical cooperation programs with international agencies
- ✓ Enhance capacity for geotechnical risk assessments of high-rise and large building complexes
- ✓ Initiate joint research with international agencies to provide opportunities for foreign training and international exposure and this resulted in staff motivation.
- ✓ Strengthening design unit for contribution effectively to mitigation of landslides and unstable slopes.

FUTURE PLANS

- ➢ Continuing landslide mitigation & related capacity enhancement and preparing hazard maps / risk profiles
- ➢ Developing and enhancing capacity for issuing landslide early warning for last mile communication
- ➢ Assessing condition of buildings as a disaster reduction measure
- ➢ Developing alternative and sustainable uses of building materials and technologies
- ➢ Assisting in the development of National Building Code for Sri Lanka

APPRECIATION

I take this opportunity to thank Hon. Ranil Wicremesinghe, Minister for Defence and Hon. State Minister of Defence, Mr. Premitha Bandara Tennakoon and General Kamal Gunaratna (Retd.), Secretary of the Ministry of Defence, and also the Chairman of Interim Management Committee (IMC) of NBRO, whose direction and guidance have paved NBRO the way to this success.

I also wish to thank members of the IMC and Audit & Management Committee, Director Generals of Disaster Management Centre and Department of Meteorology, the Director Generals of Department of National Budget, Department of General Treasury, National Planning Department, External Resources Department (ERD) and Director National Disaster Relief Services Centre (NDRSC) who deserve great appreciation.

At this juncture our gratitude is also extended to our international stakeholders, JICA, the World Bank, UNDP, ADPC, NGI, AIIB, USGS, ICL, SATREPS of Japan, THINKlab of University of Salford UK, and all the local collaborating institutions and universities for providing technical and financial assistance for various projects and programs. In addition, I express my sincere thanks to our local stakeholders and valued customers for their continued confidence on us.

I am grateful to the dedicated employees of NBRO, without the help of whom we will not be able to perform during the recent unfavourable economic condition. Our appreciation is gratefully extended to this remarkably competent team, whose knowledge, skills and professionalism make the backbone of NBRO.

We will continue working cooperatively to improve the NBRO performance further in the coming years and accomplish the mission and objectives set by Strategic Plan. We are sure that our team members will be very supportive to each other and collaborate across teams in sharing ideas and achieving great outcomes.

Eng. (Dr.) Asiri Karunawardena
Director General

3. About NBRO

National Building Research Organisation (NBRO) was established on 4th March 1984 following the approval of the Cabinet of Ministers. Today, after nearly 39 years in existence, the NBRO stands out as a leading R & D institution and a reputed technical service provider.

Roles of the Organization extend from (i) being the focal point for landslide disaster risk management and conducting related research and development. (ii) Encouraging research and development into appropriate technology for housing & construction sector. (iii) Promoting construction capable of withstanding the impact of natural disasters and providing technical guidance for building resilience and (iv) Providing technical consultancy and testing services in areas of institutional expertise.

NBRO is a multi-disciplinary institution, having six technical divisions namely, Building Materials Research & Testing Division, Environmental Studies & Services Division, Geotechnical Engineering & Testing Division, Human Settlements Planning & Training Division, Landslide Research & Risk Management Division and Structural Eng. Research & Project Management Division, supported by the Administration Division, Finance Division, ICT & Program Unit and Internal Audit Unit.

As a reputed research institution, NBRO conducts research related to its scope of work and also as requested by stakeholder institutions. Being the national focal point for landslide risk management in Sri Lanka, NBRO carries out activities of identification of slope instability, assessment of associated risk, mapping of hazardous zones, monitoring of ground movement in landslides and rainfall in landslide-prone areas, issuance of landslide early warning, mitigation of landslides and unstable slopes and building of awareness of landslide hazard. In addition, NBRO issues Landslide Risk Assessment Reports (LRAR) for all construction and development activities in landslide-prone areas in the country as a unique service. General Treasury provides annual allocations for research and makes provisions for landslide risk management projects implemented by NBRO.

NBRO as a self-funded institution meets its recurrent expenditure, by earning revenue by the provision of testing and technical consultancy services. With its ISO accredited and best-equipped laboratories NBRO performs geotechnical engineering investigations and testing of building materials for suitability in construction, testing of water, wastewater, soil, sediment, air and stack emissions; assessment of building condition & structural integrity, and various other related studies as technical consultancy services that bring in NBRO its much needed revenue.

NBRO as a dutiful service provider together with technical experts from various disciplines is always geared up to provide suitable solutions to maintain and improve the quality of life of all citizens.

4. Vision, Mission & Goals

VISION

A nation living in a safer, sustainable & disaster resilient built environment

MISSION

Reduce disaster risks through building resilience to ensure safer & sustainable built environment for all

GOALS

- Goal 1: Achieve technical excellence in disaster risk assessment in related disciplines & subject areas
- Goal 2: Achieve legal status, statutory powers and the recognition in DRR in related disciplines and subject areas.
- Goal 3: Be an apex national entity in providing quality accredited testing & technical consultancy services in environmental, geotechnical engineering, building materials, resilient built environmental planning and resilient construction technology.
- Goal 4: Achieve excellence in Research and Development in DRR and in disaster resilient development technology & innovation.
- Goal 5: Establish national and regional cooperation and connectivity to promote and sustain DRR and resilient development science and technology
- Goal 6: Strengthen institutional capacity for effective disaster risk reduction in related disciplines & subject areas
- Goal 7: Achieve financial sustainability of NBRO for effective performance in DRR.
- Goal 8: Become the centre of excellence for landslide disaster risk management as the national focal point.
- Goal 9: Build disaster resilience through Climate Smart early warning technology
- Goal 10: Build disaster resilience through ecosystem-based risk mitigation technology
- Goal 11: Build disaster resilience through community science-based risk mitigation process
- Goal 12: Build disaster resilience through rehabilitation and reconstruction technology

5. Management of NBRO

MINISTER IN-CHARGE OF THE SUBJECT

Hon. Ranil Wicremesinghe
Minister of Defence

Hon. Premitha Bandara Tennakoon
State Minister of Defence

Presently a Cabinet approved Interim Management Committee (IMC) with Secretary of the line ministry as the Chairman guides and directs the administrative, financial and management functions of NBRO.

INTERIM MANAGEMENT COMMITTE OF NBRO (IMC)

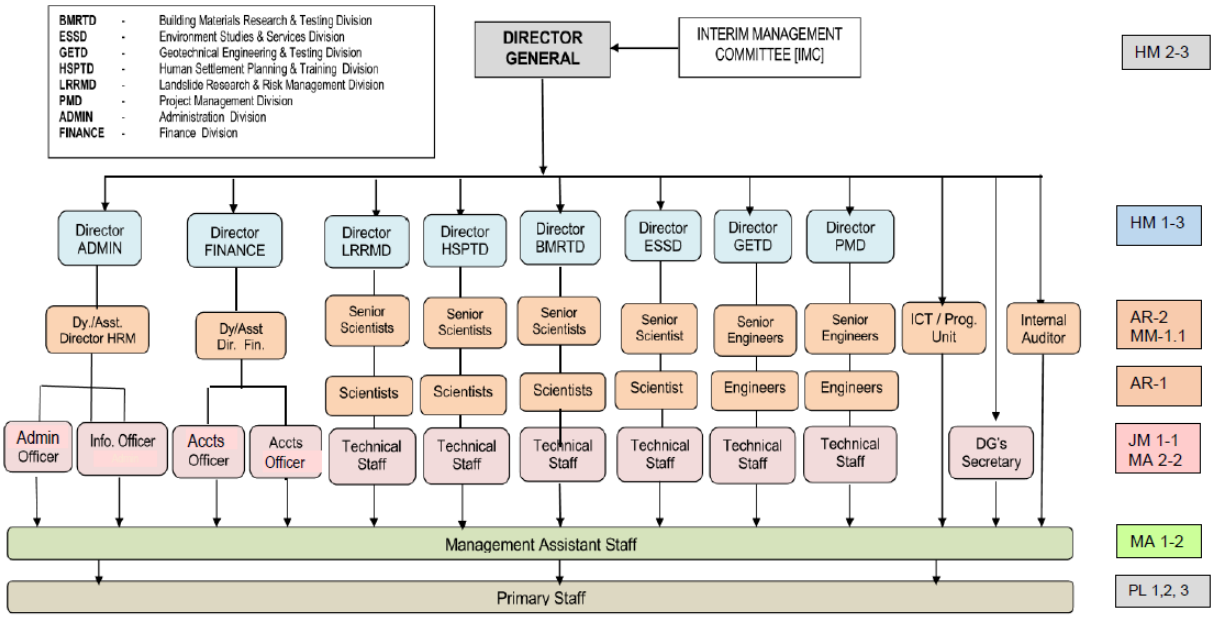
General (Retd.) Kamal Gunaratna **(Chairman)** Secretary, Ministry of Defence	
Major General Sudantha Ranasinghe Director General, Disaster Management Centre	**Dr. Sugath Yalegama** Addl. Secretary (Policy & Admin), Ministry of Urban Development & Housing
Mr. A K Karunanayake Director General, Department of Meteorology	**Mr. H U R Fonseka,** Chief Accountant, Disaster Management Division, Ministry of Defence
Mrs. M. C. N. Balasuriya Addl. Director General, Department of Management Services	**Eng. (Dr.) Asiri Karunawardena** Director General/Secretary IMC National Building Research Organisation

AUDIT & MANAGEMENT COMMITTEE

Mrs. M. C. N. Balasuriya **Chairperson** Addl. Director General, Department of Management Services	**Mr. H. U. R. Fonseka** (Member) Chief Accountant, Disaster Management Division, Ministry of Defence	**Mr. A. K. Karunanayake** (Member) Director General, Department of Meteorology
Observer		
Mrs. L. B. G. Sandamali Act. Audit Superintendent Audit Office		**Mrs. J. A. W. K. Jayakody** Chief Internal Auditor Disaster Management Division, Ministry of Defence
In participation		
Eng. (Dr.) Asiri Karunawardena Director General National Building Research Organisation	**Mrs. Kumudu Randeny** Director (Finance) National Building Research Organisation	**Mr. H. L. Ruwanthilaka** Internal Auditor National Building Research Organisation

Organisation Structure

ORGANISATION CHART



SENIOR MANAGEMENT OF NBRO

Eng. (Dr.) Asiri Karunawardena	Director General
Mr. Kishan Sugathapala	Director, Human Settlements Planning & Training Division
Mr. Sarath Premasiri	Director, Environmental Studies & Services Division
Mr. Kithsiri N Bandara	Director, Geotechnical Engineering & Testing Division
Mrs. Sunethra Muthurathna	Director, Building Materials Research & Testing Division
Ms. Dammika Kahahengoda	Director, Structural Engineering Research & Project Management Division
Dr. Gamini Jayatissa	Actg. Director, Landslide Research & Risk Management Division
Mrs. Kumudu Randeny	Director, Finance
Mr. Sarath Cooray	Actg. Director, Administration
Mr. Senerath Bandara	Project Director (PMU), RLVMM Project

6. Analysis of Financial & Operational Performance



During the year under review NBRO carried out the following specific tasks in line with its designated functions and Strategic Action Plan.

Projects under Public Investment Program

1. Landslide Risk Assessment Reporting Process (LRAR)

This process has been implemented targeting to reduce life loss and property damages due to man-made activities and haphazard development in the hilly areas. NBRO issues Landslide Risk Assessment Reports to local governmental authorities recommending whether to grant or not approval to a building permit or approval of a development project when sites are in landslide-prone areas. By 31st December 2022 NBRO has granted approval over 100,000 applications since the issuance first started in March 2011. The number of approvals issued in 2022 was 5157 and the number of applications rejected for the entire period was 815. NBRO charges a nominal fee to process an application, carry out necessary investigations and issue a report. The General Treasury provided Rs. 35.0 Mn in the year 2022 to cover the recurrent expenditure of this process and balance expenditure was borne by NBRO revenue as CSR.

Table : LRAR details since the process inception in March 2011

Progress of the Issuance of Landslide Risk Assesment Certificates for Construction and Development Activities in Landslide Prone Areas (LRAB & LRAD)

නායයෑම් අවදානම් සහිත ප්‍රදේශ වල ඉදිකිරීම් හා සංවර්ධන කටයුතු සඳහා නායයෑම් යෝග්‍යතා සහතික නිකුත් කිරීම පිළිබඳ ප්‍රගතිය

(01.03.2011 - 31.12.2022)

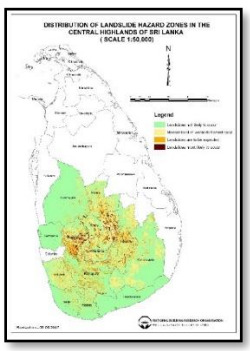
අනු අංකය Item No.	District දිස්ත්‍රික්කය	01.03.2011 - 31.12.2022				01.01.2022 - 31.12.2022				Total applications pending (අතිරික්ත ඉල්ලුම්පත් සංඛ්‍යාව) {1-(2+3+4)}	Pending Application Details (අතිරික්ත ඉල්ලුම්පත් පිළිබඳ විස්තර)		
		Applications Received (ලැබූ ඉල්ලුම් පත්) (1)	Permission granted (අනුමැතිය ලබාදුන්) (2)	Permission not granted (අනුමැතිය ලබා නොදුන්) (3)	Applications Cancelled due to other reasons (වෙනත් හේතූන් මත අවලංගු කරන ලද ඉල්ලුම්පත්) (4)	Applications Received (ලැබූ ඉල්ලුම් පත්)	Permission granted (අනුමැතිය ලබාදුන්)	Permission not granted (අනුමැතිය ලබා නොදුන්)	Applications Cancelled due to other reasons (වෙනත් හේතූන් මත අවලංගු කරන ලද ඉල්ලුම්පත්)		Pending For initial Investigation / report preparation (මූලික පරීක්ෂණ සඳහා/වාර්තා සැකැසීම)	Referred to revisit / detailed inspection (වැඩිදුර අධ්‍යයනයට යොමු කිරීම සඳහා)	Details Pending from Client (ඉල්ලුම්කරුගෙන් අදාල ලියකියවිලි ලැබෙන තෙක්)
1	Kandy	22,463	20,393	317	1,698	926	1,072	1	31	55	55	0	0
2	Matale	9,670	9,620	17	32	446	454	-	-	1	1	0	0
3	Nuwaraeliya	8,581	8,129	86	306	357	327	3	125	60	18	3	39
4	Badulla/Monaragala	14,181	13,602	246	320	817	876	25	-	13	13	0	0
22	Kagalle	12,712	12,091	72	512	480	502	5	72	37	26	3	8
6	Rathnapura	13,447	11,757	47	1,570	699	652	1	57	73	33	4	36
7	Kalutara	1,404	1,332	16	48	123	111	5	18	8	8	0	0
8	Galle	18,345	18,197	9	92	1,150	1,053	-	68	47	47	0	0
9	Matara/H'tota	2,400	2,389	5	6	62	62	-	-	0	0	0	0
10	Kurunagala	60	58	-	1	16	15	-	-	1	1	0	0
11	Colombo/Gampaha	86	84	-	-	35	33	-	-	2	2	0	0
	එකතුව/**Total**	**103,349**	**97,652**	**815**	**4,585**	**5,111**	**5,157**	**40**	**371**	**297**	**204**	**10**	**83**

2. Landslide Investigations, Research & Development

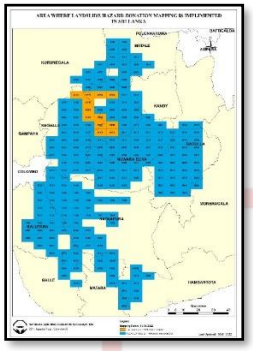
2.1 Landslide Hazard Zonation Mapping Programme (LHMP)

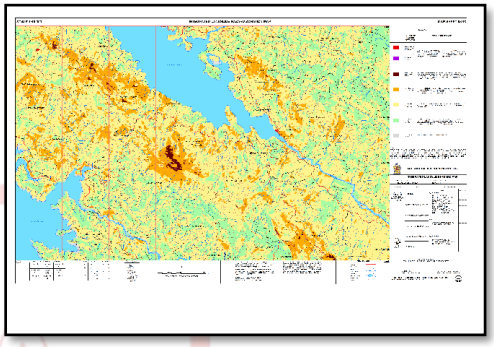
Landslide Hazard Zonation Mapping Project (LHMP) is implemented by NBRO and landslide hazard zonation maps to the scale of 1:50,000 have been prepared to cover 32,593.1 sq. km in 13 districts identified as landslide-prone. Also, landslide hazard zonation maps to the scale of 1:10,000 have been prepared to cover 9440 sq. km in identified priority areas up to end 2022. 480 sq. km. mapping has been completed in year 2022 in the boundaries of Kandy & Kegalle district utilizing Rs. 23.0Mn.

The maps produced by this project are being used in the issuance of landslide early warning, and in landslide investigation work leading to hazard risk assessment, issuance of Landslide Risk Assessment Reports (LRAR), and identification and prioritization of potentially dangerous sites for mitigation. The maps are also used in national and regional level planning by various institutions. Most of these maps are available for downloading free of cost in the NBRO website (www.nbro.gov.lk).



Hazard Zonation Mapping Area





A Hazard Zonation Map

2.2 Landslide Special Investigations (SPI)

District and Divisional Secretaries, and officials of governmental institutions often request NBRO to conduct landslide special investigations for the purpose of identifying risks in particular sites in relation to the safety of neighbouring human settlements, infrastructure and plantations and to provide immediate recommendations. A total of 4600 landslide special investigations were performed in 2022. The General Treasury has provided Rs. 69.5 Mn for this work.

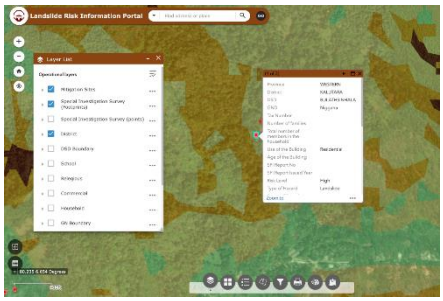
3. Landslide Mitigation Program (GOSL Funded)

Among the landslides and slope instabilities needing mitigation that were identified by the LHMP and the SPI, mitigation works for Zaheera College in Nuwara Eliya and Bolthumbe in Ratnapura were prioritised for 2022 along with other slope improvement work. However, these two projects were postponed as per the directives by the National Budget Circular 03/2022.

Investigations & design work and construction of supporting work for collapsed cut slope segment situated in front of Wishnu Devalaya, Dalada Maligawa, restoration of subsurface drains and directional gravity drains by cleaning at Watawala Landslide, design for rectification of unstable slopes at Kahangama Buddhist College and design for cutting failure rectification in Thalapitiya cemetery premises were carried out utilizing Rs. 10.00 Mn. imprest. In addition, work at Malapattawa landslide and rockfall site in Nuwaraeliya District commenced in 2021 was successfully mitigated.

Malapattawa Landslide/RF Site

4. Development of Risk Profile for landslide prone areas



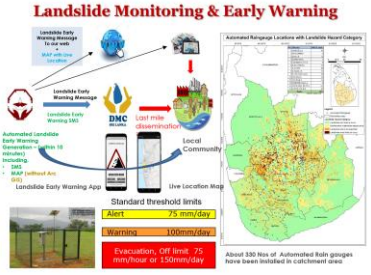
Landslide risk profile development project was initiated in 2016, for developing series of outputs to guide local, regional and national level decision makers in disaster risk reduction and development planning. Under the project, landslide risk profiles covering landslide prone districts were developed to enhance the capacity of national and sub-national level agencies in assessing the disaster risk and formulating short, medium and long-term disaster risk reduction decisions.

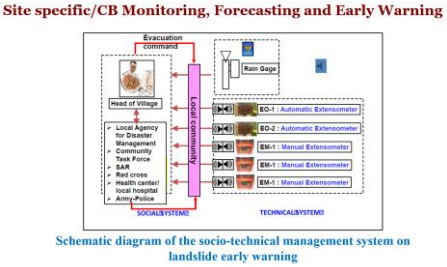
Landslide risk information portal developed under the project is an online platform that enables efficient and quick retrieval of data. Elements at risk are the population, properties, economic activities, or any other defined values exposed to hazards in a given area. The aim of elements at risk analysis is to assess the characteristics of the inhabitants, characteristics and use of the buildings of the elements at risk of landslides. So far 84,000 records have been uploaded. (https://lrip.nbro.gov.lk/). In addition, following activities were carried out in 2022 out of the 5-year planned work.

- Establishment of 16 community disaster management committees in Ratnapura district
- Development of DSD level risk profiles (Kandy, Matara, Kandy, Matale, Ratnapura, Kalutara, Galle and Hambantota Districts)
- Landslide Risk Information dissemination workshops for reginal and local level decision makers – 5 workshops
- Data publishing in Landslide Risk Information Portal, training and awareness on relevant authorities and stakeholders for use of the portal (DMC, NDRSC, District Secretariats in 10 landslide prone districts – (Nuwara Eliya and Kalutara work fully completed.)
- Simulation of Landslide Flow Path (Yellow Zone & Red Zone) - Model Simulation for 24 LHMP map layers
- Identification of Risk Clusters and Risk Reduction Measures - for 53 DSDs

5. Enhancing real time landslide forecasting & early warning capacity (Maintenance of the system)

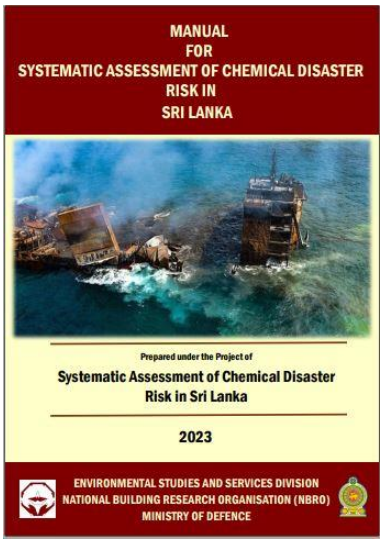
NBRO maintains a network of 330 automated rain gauges for monitoring rainfall in landslide-prone areas for effective issuance of landslide early warnings, as triggering of landslides mostly occurs due to increase in soil moisture by high intensity rainfall. Scientists of Landslide Early Warning Centre at the NBRO study weather forecasts issued by the Department of Meteorology and analyze rainfall data acquired from the automated rain gauges for issuing early warnings combinedly with Emergency Operation Centre of Disaster Management Center. In addition, NBRO has improved its capacity in landslide monitoring with ground movement detection instruments and moisture sensing instruments. 99 early warnings have been issued in 2022 and treasury provided Rs. 10.0 Mn for repairs and maintenance work of the system.





Schematic diagram of the socio-technical management system on landslide early warning

6. Systematic assessment of chemical disaster risk in Sri Lanka



Chemical disasters are still relatively frequent in many industrial countries in the world. In Sri Lanka, the frequency and severity of chemical accidents have also increased in the last few years due to the rapid development of chemical-related industries. Risks and impacts of chemical disasters should be assessed systematically for safeguarding the affected communities is an essential requirement.

Realizing this urgent need, NBRO formulated the "Systematic assessment of chemical disaster risk in Sri Lanka" Project. This project mainly aimed to develop a systematic method to assess the chemical disaster risk associated with chemical industrial facilities in Sri Lanka. Under this project, NBRO developed a chemical industry database framework to conduct a desk-type preliminary-level risk assessment, a chemical data platform, a database with past chemical disaster incidents, and database frameworks for baseline environmental quality was developed. A mobile app which enables the collection of field data which can be fed into the databases and displayed in the digitized map of chemical-related industries in Sri Lanka was also developed under this project.

The assessment method was compiled and published as "Manual for Systematic Assessment of Chemical Disaster Risk in Sri Lanka". Relevant policy recommendations need to be developed for the smooth conduct of the assessment system were identified. Since there is an increasing need for improved coordination between different stakeholder entities and the national disaster coordinating mechanism, the project recommended a structure for a National Taskforce to manage chemical disasters in Sri Lanka along with policy recommendations related to chemical disaster management in Sri Lanka.

7. Developing a system for building assessment and condition reporting

A system is in place to assess state owned public buildings and other high occupancy buildings commonly used by the general public having conditions such as older than design life, showing evidence of deterioration due to advanced age, having inferior structural integrity, suffered physical damage during a disaster, because of poor maintenance or resulted by impact of construction activities in the surroundings. NBRO issues technical/structural assessment report and make recommendations. NBRO carried out structural assessment and investigation of 156 buildings in 2022 utilizing Rs. 25 Mn.

Orugodawatte Majeed Place Housing complex

Rathnawali Balika Vidyalaya, Borella

7. Research & Development Program

A comprehensive R & D program is designed by NBRO and research needs are often identified in consultation with the industry. NBRO holds in the beginning of the year the Annual Industry Consultation Meeting with its stakeholders to learn the research needs in industry. An annual research symposium is held every year to publish and present outcome of this R&D program. NBRO received Rs. 7.5 Mn in 2022 as the annual government research grant. The NBRO Research Committee continued to provide guidance to scientists to conduct their research projects and NBRO provided necessary assistance and facilities.

The following table gives information of the R & D Projects of 2022.

Principal Researcher	Division	Research Topic
SADAS Suraweera	BMRTD	Suitability of offshore sand sludge for value added building products
S.R.Randika		Development of Test Method & Specification of Coir Fiber Geotextiles
D.R.Ratnasinghe		Development of plant growing pervious concrete by utilizing waste materials
E.G.H.D.B.Ellegama		Production of ISO standard sand for cement testing
Harshini Kumarapeli	ESSD	Assessing ventilation conditions and use of indoor plants to improve the indoor air quality of urban residences
SAMS Dissanayake		Preparation of Guidance on Environmental, Social, Health and Safety (ESHS) Traffic Management on Landslide Mitigation projects
R.Ruhunuge		Expansion of pilot project of Roof Rainwater Harvesting System (RRWHS) in Anuradhapura district and assuring drinking water safety
N.D.C.Lakmal		Enhancing existing air quality monitoring capacity by adding important air pollutant parameters and development of air quality forecasting system
H Hemasinghe	LRRMD	Validation and Improvement of Existing Landslide Hazard Mapping Procedure at NBRO
P.M.G.R. Bandara		Dimension and the Level of Risk based Classification for Landslides in Sri Lanka
M. Amarasinghe		Strengthening the prediction power of landslide hazard zonation maps by incorporating zone-based rainfall thresholds through infiltration modelling
A.M.R.S.Amarathunga	PMD	Artificial Intelligence in Non-destructive Testing of RC Structure
N.G.R.K.Ganathunga		The implications of Adopting Eurocodes for Designing Disaster Resilient Buildings in Sri Lanka

8. Symposia

12th NBRO Annual Research Symposium 2022

"Building Resilience Amidst Economic Challenges"

Building Resilience amidst Economic Challenges

Inauguration of 12thAnnual Research Symposium - 2022on **"**Building Resilience Amidst Economic Challenges**"** organized by National Building Research Organisation was successfully held on 26th January 2023 at Cinema Lounge of BMICH Colombo. This graceful event was hosted as a physical participation of researchers, disaster management practitioners, policy makers and eminent experts from local and international institutions and many other participants witnessed the event through the online form. The event provided an excellent platform to have discussions, exchange ideas and share experience.

Speech by Eng. (Dr.) Asiri Karunawardena

Gen. Kamal Gunaratne (Retd), Secretary to the Ministry of Defence participated as the chief guest of this event. During the Inaugural Session, Eng. (Dr.) Asiri Karunawardena, Director General of NBRO delivered the welcome address. Thereafter, Mr. Yamada Tetsuya, the Chief Representative of JICA Sri Lanka Office addressed the audience. Keynote address was delivered by Prof. Sirimal Abeyratne, Head, Department of Economics, University of Colombo. Afterwards, a special event was held to launch the following items;

- NBRO Symposium proceedings -12th Annual Research Symposium 2022
- Manual on Systematic Assessment of Chemical Disaster Risk in Sri Lanka
- Launching SABO Project Manuals
- Annual Report on Urban Air quality in Sri Lanka 2022 and Video presentation
- Video Briefing on Patent license received for fabric reinforced paving block
- Demonstration on the database of the mitigated landslide locations
- Demonstration of the Living lab system developed for Kalutara through NBRO and the University of Salford under technical collaboration.

Address by the Chief Guest

A panel discussion on Inclusive Risk Management and Resilience-Building amidst Economic Challenges demarcated the beginning of the symposium that was moderated by Ms. Vositha Wijenayake and held under four main aspects related with Building Resilience amidst Economic Challenge. Mr. Susith Arambepola, Consultant DRR Specialist, Former Executive Director, ADPC

talked on Economic Challenges and Climate-Induced Disaster Risk; Dr. A Saarakan, the Additional Director General, Department of Development Finance of Ministry of Finance, talked on Economic Challenges and Risk Management Strategies; Prof. Ranjith Dissanayake, Senior Professor, Department of Civil Engineering, University of Peradeniya talked on Resilience in the Built Environment, Key concerns for a long term approach; Landslide Risk Management amidst Economic Challenges were described by Dr. H.A.G. Jayathissa, Director, Landslide Research and Risk Management Division, NBRO and Best practices on risk finance and transfer in the context of climate change and human mobility was discussed Mr. Dennis Mombauer, Director, Research & Knowledge Management, SLYCAN Trust.

Speech by Mr. Yamada Tetsuya – JICA SL Office

Day was dimensioned with four technical sessions related with the main theme of Building Resilience amidst Economic Challenges. Four researchers were privileged to present their researches under each of the four technical sessions making a total count of sixteen research presentations.

Keynote Speech by Prof. Sirimal Abeyratne

The first technical session themed “Understanding Disaster Risk” was chaired by Prof. Ranjith Premasiri, Professor of Department of Earth Resources Engineering, University of Moratuwa.

“Risk Reduction for Resilience” the second technical session was chaired by Prof. Udeni Nawagamuwa, Professor, Department of Civil Engineering, University of Moratuwa.

Prof. Chintha Jayasinghe, Senior Professor of Department of Civil Engineering, University of Moratuwa chaired the third technical session on Regulating Development for Resilience

The fourth technical session on Quality Assurance for Resilience was Chaired by Prof. S.M.A. Nanayakkara, Senior Professor, Department of Civil Engineering, University of Moratuwa.

The symposium attracted researchers, disaster management practitioners, policymakers, and eminent experts from local and international institutions and provided an excellent platform to have discussions, exchange ideas, and share experiences. Printed version of Symposium proceedings containing 36 research papers was made available to participants

Panel discussion on Inclusive Risk Management and Resilience-Building amidst Economic Challenges

NBRO expresses overwhelming gratitude towards all the parties including invitees, researches, academics, funding agencies and participants who contributed towards making this event a success.

9. Major Consultancy Projects

Geo-technical Clearance for Assessing Possible Adverse Impacts to Adjacent Built Environment

NBRO receives requests from developers for their building construction activities through Project Approving Agencies such as Urban Development Authority (UDA), Department of Coast Conservation and Coastal Resource Management (CCD), Central Environmental Authority (CEA) and Sri Lanka Tourism Development Authority (SLTDA) for obtaining a Geotechnical clearance from NBRO for the proposed development activities including ***pilling and/or deep excavation***. The requirement is enacted by the UDA as per their newly published Gazette (Clause no. 57 (3) c. of the UDA Planning & Development Regulations 2021 gazette No. 2235/54 published on July 08, 2021).

The main objective of this Geotechnical clearance is to assess impacts of a particular proposed development to adjacent properties and surrounding built environment especially during the construction of the substructure of the building.

Accordingly, NBRO issued 21 geo-technical clearances and renewals for the year 2022 and received LKR 3.7 million as consultancy fee. Following table illustrate the issued clearance and renewals from 2017 to 2022.

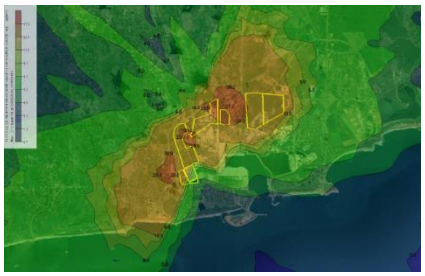
Year	2017	2018	2019	2020	2021	2022
No. Reports & Renewals	32	38	20	09	35	21

Issuing condition reports on buildings

NBRO conducts investigations to assess the condition of buildings and their structural integrity and then issues relevant reports as a fee-based service. This is done as per a client request or a court order. Often such services are required to assess damage to buildings caused by construction activities in adjacent properties. This process has been carried out for considerably long period by NBRO and the following table gives recent details.

Year	2015	2016	2017	2018	2019	2020	2021	2022
No. Reports	42	60	148	116	124	116	141	173

Cumulative Impact Study on Ambient Air Quality in Mirijjawila Export Processing Zone and Arabokka Industrial Area



Board of Investment (BOI) of Sri Lanka, requested National Building Research Organisation (NBRO) to conduct a cumulative impact study on ambient air quality due to the selected industries proposed to be located at Mirijjawila Export Processing Zone (EPZ) and the proposed Arabokka industrial area in Hambantota. Air pollution sources in each industry were examined individually in a comprehensive manner to assess their contribution to the ambient air quality of the surrounding environment and finally assessed the cumulative impact due to all the existing and proposed industries. USEPA AERMOD Air Dispersion Model (Version 10.2.1) was used for the estimation of the ground-level concentrations of pollutants by each point source of proposed industries to assess the individual and cumulative impact on ambient air quality in the surrounding area. Both point source emissions and fugitive emissions were considered in assessing the cumulative impact.

Mitigation of Landslide at Kadugannawa on Kandy-Colombo highway

Followed by the activation of Landslide at Kadugannawa, traffic was totally interrupted on the Kandy, Colombo highway at 98 km post. NBRO adapted immediate mitigation measures to control and rectify the Landslide and which helped the relevant authorities to re-open the highway for the traffic.

Immediate Rectification Measures: Immediate installation of directional gravity drains to release the poured water pressure leading for the landslide and amount of 11,000 litters per day was successfully removed from the sliding mass.

Long term mitigation Measures: Activities were undertaken for the permanent stabilization of the landslide are surveying, detailed geotechnical investigation, geotechnical exploration, relevant laboratory testing and stability analysis to finalize the permanent mitigation designs. Currently, NBRO is playing the technical advisor / consultant for the mitigation project of Kadugannawa landslide.

Restoration of unstable cut slope situated in front of Sri Dalada Maligawa

Followed by the collapse of “Walakullu Bemma” in Dalada Maligawa a new retaining wall was designed by NBRO. During the construction of the same cut slope was de - stabilized which let for unstable situation against Sri Wishnu Devalaya and Rajawasala of Dalada Maligawa. A team was deployed to restore the unstable cut slope by adapting the soil nailing for stabilization.

Restoration of Directional Gravity Drains at Watawala Landslide

One of the major landslides situated at Watawala occurred in year 1992 and mitigation was completed in year 1995. However, over the time due to the lack of maintenance of surface and subsurface drainage system the landslides were getting activated. This will lead for total interruption against the up-country railway transport. NBRO with its high-pressure hydro jet cleaning devise the subsurface horizontal drains have been restored. This restoration helps to uninterrupted railway transport during the heavy rain.

Income by testing & consultancy

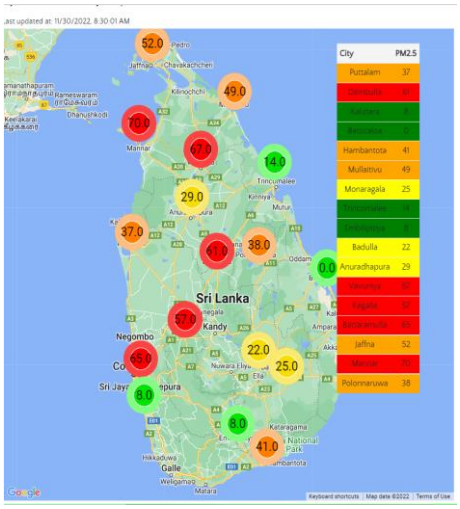
Provision of technical testing and consultancy services in the fields of landslide studies and services, geotechnical engineering, project management services, building materials, human settlements planning and environmental management was continued as summarized below:

Activity/ Division	No. of consultancy jobs	No. of testing/Investigation jobs	Total Income Generated (Rs. Mn.)
Landslide Research & Risk Management Division	908	5197	110.43
Geotechnical Engineering & Testing Division	123	98	193.13
Environment Studies & Services Division	-	540	47.94
Building Materials Research & Testing Division	-	1837	31.54
Structural Engineering Research & Project Management Division	173	-	41.30
Human Settlements Planning & Training Division	43	-	8.93
Consultancy work RLVMM Project	-	-	62.52
Other Revenue	-	-	90.92
Total			**586.71**

Other Technical Interventions

Ambient air quality monitoring in Sri Lanka

A reliable, comprehensive and continuous air quality monitoring network is essential in assessing the corelation of air quality with its impacts on health, productivity, biodiversity, ecosystem, crop production and climate change, etc. NBRO has developed such monitoring network in Sri Lanka to monitor ambient air quality with low-cost sensor-based monitoring units along with reference high-tech monitoring stations. The present network consists of 20 sensor-based monitoring stations at the major urban areas and reference automated monitoring stations at Colombo (operated by NBRO), Kandy and Battramulla (operated by CEA). Data collected by this monitoring network are analysed to assess trends, seasonal and spatial variations, impact assessments, etc. for the development of policies, strategies and action plans to manage air quality in Sri Lanka. Also, data were published though websites, digital displays for the public awareness and provided data to other researchers free of charge for their research activities.



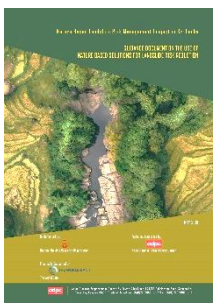
A special attention was given to identify any sudden increase of air pollution levels and creation of public awareness in such conditions by using mass media to take necessary actions to minimize exposure to high air pollution levels. Daily air quality reports were prepared and readily shared with the relevant agencies for necessary actions and identified and prepared emergency action plans to face critical situations. NBRO published the “Air Quality Status Report in Sri Lanka 2022” at their Annual Symposium and is in the process of upgrading its monitoring network.

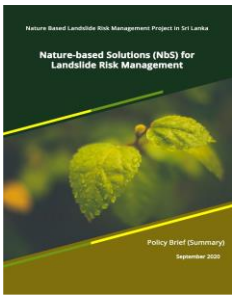
Development of Landslide Information Management System

In order to maintain the consistency of the data and the report formats, and to increase the efficiency of landslide investigation and landslide risk assessment process, and to facilitate easy access to information on landslides for research and decision-making purposes, NBRO created a digital landslide information management system (LIMS) with the support of JICA

Introducing bioengineering techniques for landslide mitigation

Introducing bioengineering techniques such as promoting the planting of suitable varieties of vegetation that can effectively strengthen soil in slopes and thereby lower the occurrence of landslides has been started by NBRO. This will be a cost-effective, sustainable and climate-resilient measure over the traditional structural measures that are being used at present.





Application of Drone Technology

As the premier research & development institute, NBRO is using drone technology for various developments and investigations in Sri Lanka. Drone technology has become increasingly popular in the construction industry, as it allows for safer, more efficient, and more accurate data collection. Drones can be equipped with various sensors and cameras that can capture high-resolution images, videos, and 3D models of buildings, bridges, and other structures.

In the field of research and development, drones are being used for a variety of purposes, such as:

- Site surveys: Drones capture high-resolution images and create 3D models of construction sites, which can be used for site analysis and planning.
- Building inspections: Drones are used to inspect buildings and structures for damage, wear and tear, and other issues that may need attention. They can quickly and safely access hard-to-reach areas, such as roofs, facades, and other high elevations, without putting human workers at risk.
- Environmental monitoring: Drones are used to monitor air and water quality, track changes in vegetation, and assess the impact of construction on the surrounding environment.
- Project monitoring: Drones are used to monitor construction progress and ensure that projects are being completed on time and within budget.

Overall, drone technology has the potential to revolutionize the field of building research and construction, providing safer and more efficient ways to gather data and monitor projects.

Projects with Foreign / Donor Collaboration

NBRO-JICA Technical Cooperation Program

1. Development and deployment of structural and non-structural measures for effective mitigation of landslides and associated hazards and related capacity strengthening (JICA) - SABO

Project “SABO” commenced as a three-year project aiming at capacity strengthening on the development of non-structural measures for landslide risk reduction in Sri Lanka with especial emphasis on conducting landslide hazard zonation mapping (total impact zone mapping) and risk assessments, issuing landslide early warning at local level, improving existing observation system and alerts, and applying risk assessments of sediment disasters to land-use planning and development standards. The Local Sediment Disaster Risk Reduction Plan (LSDRRP) consist of following broad objectives.

- Reduce landslide vulnerability of the old landslide valleys
- Introduce non-structural landslide DRR measures
- Optimum utilisation of lands prone to landslide hazard
- Zero the damage and minimise the casualties due to landslides
- Minimise the economic damage

1.1 Hazard Analysis and Risk Assessment

Review of the existing methodology on Landslide Hazard Zonation Mapping and Risk assessment, preparation of site specific hazard maps for the three pilot sites using Red zone and Yellow Zone concept; conducting landslide flow path simulation using Hyper KANAKO model for three pilot sites, and conducting site-specific hazard mapping in areas other than pilot sites were carried out. (Pilot site – Morawakakanda in Matara District, Weeriyapura in Badulla District and Udapotha in Kegalle District) Online landslide information management system was developed to improve and enhance the capacity of the landslide risk assessment process.

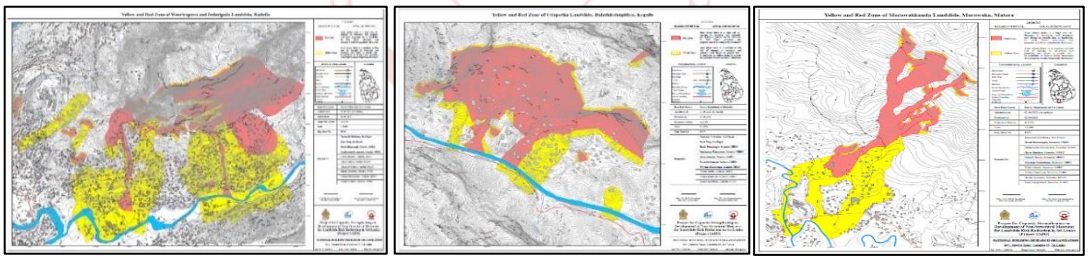


Figure 1. Yellow zone and red zone map of three pilot sites of project SABO

1.2 Sediment Disaster Early Warning System

Efficiency of issuance the landslide early warning and rainfall monitoring activities were improved adding Soil Water Index method with tank model which helps to calculate accumulated rain water of the soil. The site-specific early warning system installed in Udapotha and Weeriyapura which includes direct observation of deformation of soil mass in landslide sites, issues warnings based on the observed soil mass movement. Therefore, warning thresholds of each observation items should be determined for the site-specific early warning system, such as displacement, strain, inclination, etc.

NBRO early warning (NBRO EW App) and rainfall data visualization

1.3 Land Use Planning and Development Standards.

"Guideline for Disaster Resilient Land Use Regulation / Development Standards" to apply in landslide-prone communities in the country was developed as a major outcome.

The main target users of the guideline are the practitioners of land use planning and development control of both the national government and local governments. The officials of Local Authorities (LA), Urban Development Authority (UDA), National Physical Planning Department (NPPD), Land Use Policy Planning Department (LUPPD), and NBRO are the target users of national and local government level.

This project was successfully completed and the project manuals were launced diring the 2022 symposium.

2. Development of early warning technology of rain-induced rapid and long-travel landslides in Sri Lanka - SATREPS (JICA)

The International Landslide Consortium (ICL) and NBRO jointly carry out a project titled "Disaster risk reduction of rain-induced rapid and long-travelling landslides" under Science and Technology Research Partnership for Sustainable Development (SATREPS) of Japan Science and Technology Agency (JST). This five-year Japan-Sri Lanka joint project is implemented during 2019-2023 period. This project introduces advanced technology through the global partners of ISDR-ICL Sendai Partnerships 2015-2025, to disaster risk reduction of rain-induced rapid and long-travelling landslides. Several local and Japanese collaborating and support agencies participate in this project work.

Work related to following outcomes have been commenced.

- Technology of 24 hours in-advance prediction of heavy rainfalls and resulting ground water pressure build-ups is developed. A technology to identify locations of rain-induced rapid long-travelling landslides and their moving areas is developed.
- Technology and framework for effective risk communication to community people living in mountains and local cities are developed.
- A system for early warning of rain-induced rapid long-travelling landslides is developed by integrating the technologies mentioned above based on the joint research in the pilot study sites. The developed system with guidelines and manuals is provided for the use in other areas in Sri Lanka.
- The above technologies that are developed will ensure the safety of the public and secure vulnerable communities from landslides and associated hazards.

Project office was established in Tokyo and five NBRO scientists are reading for Ph.D. and M.Sc. in Japan universities under capacity development. Equipment to strengthen the geotechnical engineering divisional laboratory with sophisticated equipment including Undrain Ring Shear apparatus have been received.

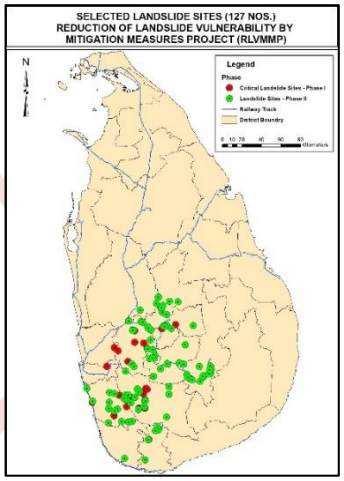
Reduction of Landslide Vulnerability by Mitigation Measures Project (RLVMMP)

NBRO commenced the Reduction of Landslide Vulnerability by Mitigation Measures Project (RLVMMP) originated from Cabinet-approved Integrated Landslide Mitigation Programme. This mega project includes mitigation of identified high-risk landslide sites and also, roadside unstable slopes and unstable slopes along the railway lines in the hill country over 5 years. The main components of this project are:

- Civil work and associated design and construction supervision/management activities
- Policy and Regulation Enhancement
- Institutional Capacity Building
- Technical Support and Project Management

Sri Lankan Government and the Asian Infrastructure Investment Bank (AIIB) provide funds to carry out this mega project. Project financing has been revised recently in June 2022 from USD 110 Mn. to USD 101.3 Mn. Accordingly, the total number of sites to be mitigated was also revised from 147 to 127. The Province/District wise summary of the selected sites and the Sites location map are stated below.

Province	District	No. of Sites
Western	Colombo	1
	Gampaha	1
	Kalutara	20
Central	Kandy	16
	Matale	10
	Nuwara-Eliya	7
Southern	Galle	2
	Matara	6
North Western	Kurunegala	4
Uva	Badulla	18
Sabaragamuwa	Ratnapura	26
	Kegalle	16
TOTAL		**127**



The civil works contracts for all the Packages in Phase I (24 critical landslide sites) and seven (07) Packages (33 landslide sites) in Phase II were awarded at present. The procurement process for the balance civil works contracts (70 landslide sites) is in-progress. The summary of the present progress of Phase I and Phase II stated in the following tables.

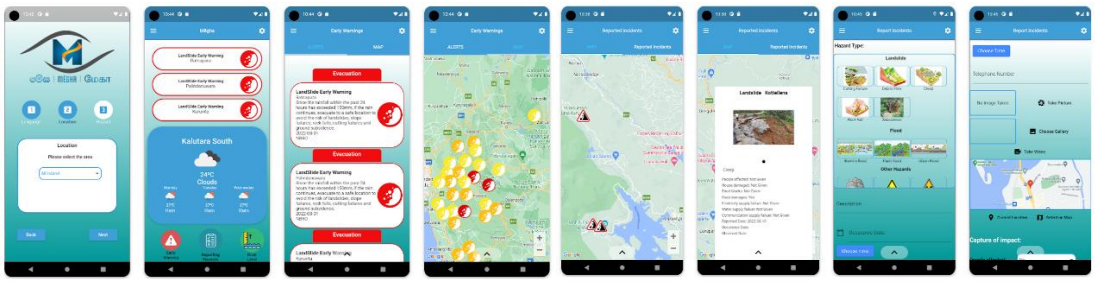
Progress of Phase I - Component 01			
Package	**No of Sites**	**District(s)**	**Status**
Package 01	04	Ratnapuna	100% completed, defect liability period in progress
Package 02	07	Ratnapura, Kalutara	
Package 03	02	Matara	
Package 04 A, B, C	11	Kegalle, Kurunegala, Kandy, Gampaha, Colombo	Construction in progress - 04A 39%, 04B 79%, 04C 59%

Progress of Phase II - Component 01			
Package	**No of Sites**	**District(s)**	**Status**
Package 09	01	Nuwara-Eliya	Construction in progress 17%
Package 07 (Lot 1-6)	32	Ratnapura, Kalutara, Galle, Matara	Awarded and mobilization in progress
Package 05 (A-E)	25	Kandy, Matale, Kegalle, Kurunegala	05B Bid evaluation in progress. The procurement process is in progress for others
Package 06 (A-F)	23	Nuwara Eliya, Kegalle, Ratnapura, Badulla, Matara, Galle	The procurement process is in progress
Package 08	22	Railway Line (Rambukkana-Badulla)	

Landslide mitigation sites Durekanda, Ratnapura (Left), Pitabeddara, Matara (Middle) and Ayagama, Ratnapura (Right)

MOBILISE 3.0: Digital Toolset for Building Resilient Communities

The National Building Research Organisation (NBRO) is collaborating with THINKlab at the University of Salford in the UK to enhance the country's technical capacities for Disaster Risk Reduction (DRR) activities. As part of this collaboration, a research project called "MOBILISE 3.0: Digital Toolset for Building Resilient Communities" is being conducted in the Kalutara District with the support of the Kalutara District Secretariat. The goal of this project is to use innovative ideas and solutions to transform current practices into a data-driven decision-making approach for creating resilient communities, involving collaborative local partnerships. This local transformation is being investigated through a Living Lab established at the Kalutara District Secretariat office. The “Megha” a multi-hazard local risk communication mobile application is being developed to establish a “whole society” approach to building community resilience. Overall, this project aims to empower the local community and decision-makers with the tools and knowledge they need to make informed decisions and take action to increase resilience to natural hazards and climate change.

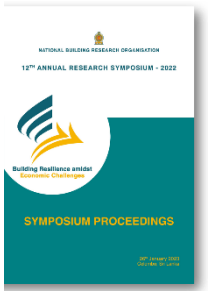


WFP Assisted Disaster Risk Reduction Project – 2021/2022

NBRO initiated a programme to establish roadside hoardings to create awareness among public on disaster risk reduction practices and enable them to deal with natural disasters effectively with less impacts under the WFP assisted programme. Accordingly, four roadside hoardings which includes public awareness advertisements were placed in 4 locations of 4 main roads in hilly areas as follows;

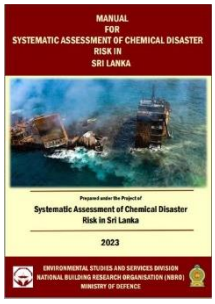
10. NBRO Publications

1. Symposium Proceedings of the 12th Annual Research Symposium of the NBRO



NBRO Annual Research Symposium Proceedings are a collection of research papers and academic studies presented at the annual NBRO Research Symposium. These proceedings showcase the latest research and developments in the field of building and housing construction and cover a wide range of topics such as structural engineering, materials science, building codes and standards, and natural hazards and disaster risk management. The symposium proceeding includes 36 research papers that present the latest research and developments in these areas.

2. Manual on Systematic Assessment of Chemical Disaster Risk in Sri Lanka



Chemical disasters still are relatively frequent even in many industrial countries in the world. In Sri Lanka also the frequency and severity of chemical accidents has increased in last few years due to rapid development of chemical-related industries. Risks and impacts of chemical disasters should be assessed systematically for safeguarding the affected communities is an essential requirement. Realizing this urgent need, NBRO conducted a study on developing a systematic assessment of chemical disaster risk in Sri Lanka for past two years and one of the main outcomes of the project is "Manual of Systematic Assessment of Chemical Disaster Risk in Sri Lanka".

This is a guideline document providing step by step technical know-how of conducting a systematically assessment of the chemical disaster risks in Sri Lanka. The manual can be used by government and non-government organizations to conduct chemical disaster risk assessments throughout the country irrespective of size and the location.

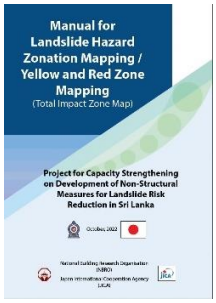
3. Launching SABO Project Manuals

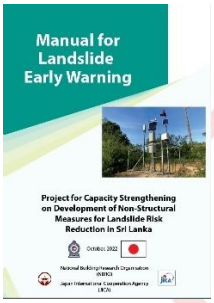
NBRO jointly with the Japan International Cooperation Agency (JICA), executed a project called TCLMP-I (Technical cooperation for landslide mitigation project) during 2013–2018. In TCLMP-I, various structural countermeasures were implemented at selected pilot sites from Matale, Nuwara-Eliya and Badulla districts thereby transferring technical knowledge and enhancing structural mitigation capacities of NBRO. After the successful implementation of the TCLMP I, JICA extended further support to NBRO to implement TCLMP-II (also known as project "SABO") that focused on capacity strengthening on the development of non-structural measures for landslide risk reduction in Sri Lanka.

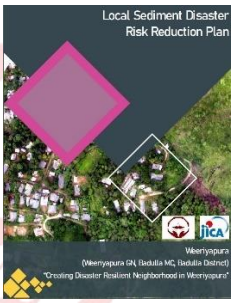
Non-structural measures are measures not involving physical construction, which use knowledge, practice or agreement to reduce disaster risks and impacts, in particular through policies and laws, public awareness raising, training and education.

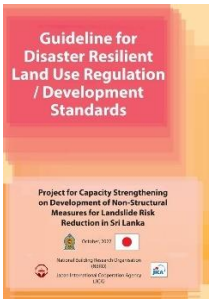
The project has been successfully completed in 2022, and a Number of publications were generated through the project. All these documents can be freely downloaded through the NBRO web site. www.nbro.gov.lk.

1. Disaster Resilient Land Use Planning Guideline
2. Case study disaster resilient reports for three local authorities
3. Guideline for Disaster Resilient Land Use Regulations/ Development Standards

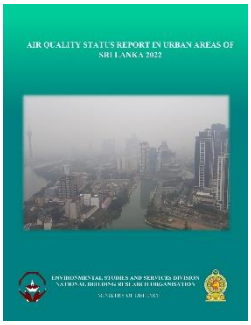








4. Air Quality Status Report in Urban Areas of Sri Lanka 2022



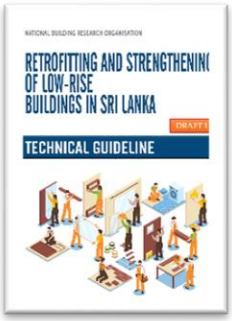
Air pollution is regarded as the 5th leading risk factor for mortality worldwide. In Sri Lanka, this condition could be significant since more than 90 % population in Sri Lanka exposed to PM2.5 levels exceeding the WHO Guidelines value. According to the air quality monitoring data in 2021, long term pollution levels in some urban areas in Sri Lanka are alarmingly high with respect to both PM2.5 and PM_{10} and in almost all urban areas exceeded the WHO annual guideline levels. The pollutant levels in most of urban areas were significant and may even exceed 24 hr average standard levels, during the period of November to March in each year due to the contribution of trans-boundary air pollution.

Therefore, having a real time Island-wide air quality monitoring network is very important to the country to identify air pollution hazard situations that are experienced in November – March period in the management of man-made disasters in Sri Lanka. NBRO have developed such a network for Sri Lanka though Research and Development program and the final report “Air Quality Status Report in Urban Areas of Sri Lanka 2022.

5. Demonstrating the database of the mitigated landslide locations

NBRO implements various structural measures to mitigate landslides in the country since 2008. These measures are designed to stabilize slopes and prevent landslide occurrences and are based on engineering knowledge and research. Currently, more than 125 vulnerable sites have been mitigated and about 120 sites will be mitigated in the near future. These measures protect infrastructure facilities and critical elements such as roads, schools, hospitals, and administrative buildings from slope failures and landslides.

The spatial locations and the relevant information on the implemented mitigation sites are incorporated in the Landslide Risk Information Portal of NBRO. This platform intends to spread the situation awareness and disseminate information on elements at landslide hazards among the scientific communities and authorities for decision-making purposes.



6. Publishing of Retrofitting Guideline

This Guideline has been developed to promote the use of basic retrofitting techniques when carrying out such works for low rise residential buildings in Sri Lanka. The goal of the guideline is to develop a set of practically applicable retrofitting methods through basic engineering practices. Furthermore, it attempts to inculcate among the communities to renovate their own existing livelihoods to overcome structural issues and to enhance the resilient capacities.

As the first edition of this Guideline, this will cover the general retrofitting techniques of low-rise buildings, retrofitting of masonry elements, retrofitting of R/C elements, retrofitting of finishes and retrofitting of building services.

7. Publishing of Home Safety Guideline

This manual is to show the different risks and hazards that can be found in and around the house and how to react them correctly. Reading this manual carefully may take some time and effort but it provides useful information for everyone in homes. And it helps to deal with potential accidents and it encourages you to take proper precautionary measures.

8. Landslide Awareness through social media (Facebook, YouTube, Twitter and etc.) on landslide risk management

NBRO launched several public awareness programmes on disaster preparedness aiming the two monsoons in 2022 through the social media such as Facebook, twitter and WhatsApp

9. Electronic Newsletters

NBRO published two electronic newsletters in the year 2022

11. Training, Seminars and Workshops Organised

Under the NBRO Training and Awareness Programme following activities were performed in the year 2022;

1. Workshop on "Piloting the Housing Value Assessment Methodology (VAM)"

The Value Assessment Methodology (VAM) is one of the main tools developed under the project, United Nations Environment Programme (UNEP) and United Nations Office for Project Services (UNOPS) and funded by the One Planet Multi- Partner Trust Fund for SDG 12. The aim of the VAM is to assess the sustainability of housing projects during the total project lifecycle.

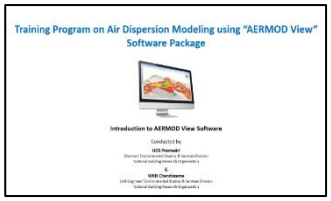
The Value Assessment Methodology was to pilot on a housing project in Sri Lanka under the topics of:

1. Context, governance & regulations,
2. Housing & urban design
3. Resources & circularity
4. Environmental impact and resiliency

Accordingly, NBRO collaborated with UN-Habitat to piloting the Value Assessment Methodology on NBRO's technically assisted housing project which was initiated in 2017 for relocation of families identified as living in landslide high risk areas.

2. Training Program on Air Dispersion Modeling using "AERMOD View" Software Package

As per the request made by Deputy Plant Manager of Lakvijaya Power Plant, we have successfully conducted a two-day training program for Air Dispersion Modelling using the "AERMOD View" software package on 15th & 16th of December 2022 for four staff members of the CEB.



3. Webinar on Monitoring, Management and Compliance of Industrial Emissions in Sri Lanka

Environmental Studies and Services Division of the National Building Research Organisation (NBRO), conducted a " Webinar on Monitoring, Management and Compliance of Industrial Emissions in Sri Lanka". This webinar consisted of two sessions conducted by a competent panel of two resource persons having expert knowledge and experience in the field. Public and private sector personnel especially those who are engaged in industry-related environmental monitoring activities find this as an opportunity to enhance their essential competencies.

4. Training program on "Standards on Water Quality and Regulations on Management of Water Pollution"

To address the training needs of the staff and to further develop their knowledge and skills in key technical disciplines performed in the division, Environmental Studies and Services Division have initiated a series of training programs for its staff. Accordingly, Environmental Studies and Services Division successfully completed a training program on "Standards on Water Quality and Regulations on Management of Water Pollution" on 27th June, 2022. The resource person of the training program was Ms. Madara Dissanayake, Senior Scientist from the Environmental Studies and Services Division.

5. Training program on "Air Quality Monitoring Regulations and Techniques"

The ESSD conducted a training program on "Air Quality Monitoring Regulations and Techniques". This was conducted by Mr. HDS Premasiri, Director of Environmental Studies and Services Division on 25th July 2022.This was the second training program of a series of training programs scheduled as per the training requirements of ISO 17025 QMS system.

12. Audit & Management Committee Report

Audit and Management Committee Report of the National Building Research Organisation for the Year 2022

The composition of the Audit and Management Committee (AMC) of the National Building Research Organisation (NBRO) as of 31 December 2022 is as follows.

S/N	Name, Designation and Institute	Designation in the Committee
01	Mrs. M.C.N. Balasuriya, Additional Director General, Department of Management Service.	Chairperson
02	Mr. A.K.Karunanayake, Director General, Department of Meteorology.	Member
03	Mr. H.U.R. Fonseka, Chief Accountant, Disaster Management Division, Ministry of Defence.	Member
04	Mrs. J.A.W.K. Jayakody. Chief Internal Auditor, Disaster Management Division, Ministry of Defence.	Observer
05	Mrs. L.B.G. Sandamali. Act Audit Superintendent, National Audit Office.	Observer

Observations of the NBRO's Internal Audit Unit (IAU) on the audit queries issued by the National Audit Office were discussed at the AMC meetings. In particular, the Annual Internal Audit Plan prepared by the IAU of the organization for year 2022, was further reviewed and the audit observations and recommendations were made in relation to the organization's operational, control, and risk management processes. The AMC has made recommendations for improvement and rectification of these audit observations.

Accordingly, the roles set out in Financial Regulations 133 and 134, the instructions stated in the circulars of the Department of Management and Audit, Department of Public Enterprises, the Audit Standards of Sri Lanka and the provisions of the National Audit Act No. 19 of 2018 have been taken into consideration at the AMC, to guide the management of the NBRO to achieve the objectives of the Organisation. The quantitative and quality of the corrections and recommendations made by the organization, on the observations and recommendations of the AMC made in the audit queries and reports, were also examined.

Three AMC meetings were held in the year 2022 and the Committee has directed the management to provide necessary guidance to maintain the internal control systems in a proper and accurate manner.

13. Audited Financial Statements

STATEMENT OF FINANCIAL POSITION AS AT 31ST DECEMBER 2022

Rs.

		Annex No	As at 31.12.2022		As at 31.12.2021
Current Assets					
Cash and cash equivalents		**1**		14,641,682	228,837,920
Receivables	Trade Debtors	**2**	190,290,744		65,763,151
	Sundry Receivables	**3**	24,982,172	215,272,916	27,159,302
				229,914,598	**321,760,373**
Inventories		**4**		4,575,467	4,339,084
Receivables from staff		**5**		73,827,278	90,245,053
Pre-payments		**6**		31,290,393	60,682,622
Other Current Assets					
	Project work in progress	**7**	69,984,069		183,777,832
	Term Deposits	**8**	592,710,492	662,694,561	443,621,164
Non - Current Assets				**1,002,302,297**	**1,104,426,128**
Infrastructure, Plant & Equipment		**9**	150,971,424		115,110,148
Land and buildings		**9**	53,506,140		3,001,370
Intangible Assets		**9**	4,201,850		7,328,312
Leasehold land		**9**	7,965,000		7,965,000
New Lab Building Working in Progress			648,610,079		540,050,649
Mini Laboratories Work in Progress			1,380,000	866,634,493	22,006,166
Total Assets				**1,868,936,790**	**1,799,887,771**
LIABILITIES					
Current Liabilities					
Payables	Advance Received from Clients	**10**	295,853,607		516,527,805
	Sundry payables	**11**	129,789,852	425,643,460	106,807,992
Non – Current Liabilities					
Long term provisions					
	Provision for Gratuity	**12**	86,940,688	86,940,688	84,698,369
Total Liabilities				**512,584,148**	**708,034,166**
Net Assets				**1,356,352,642**	**1,091,853,605**
NET ASSETS / EQUITY					
Capital contributed by Government & Other entities		**13**	589,982,586		589,982,586
Reserves – Revaluation Surplus			27,875,989		27,875,989
				617,858,575	
Accumulated Surplus/ (Deficit)					
	Surplus brought forward	**14**	471,508,338	471,508,338	403,533,592
Surplus for the year				266,985,728	70,461,437
Net Assets / Equity				**1,356,352,642**	**1,091,853,605**

STATEMENT OF FINANCIAL PERFORMANCE FOR THE YEAR ENDED 31ST DECEMBER 2022

Rs.

Revenue	Annex No	Year 2022	Budget 2022	Year 2021
Revenue				
Environmental Studies & Services Division	**15**	55,843,122	70,023,000	69,555,218
Geo Technical Engineering & Testing Division	**16**	252,180,913	284,000,000	221,030,070
Landslide Research & Risk Management Division	**17**	248,413,086	266,724,490	261,085,907
Human Settlement Planning & Testing Division	**18**	46,763,750	74,300,000	72,147,579
Building Materials & Testing Division	**19**	40,157,465	51,250,000	46,784,101
Structural Eng. Research & Project Management Division	**20**	159,768,826	151,672,800	134,924,942
Total Operating Revenue		**803,127,161**	**897,970,290**	**805,527,817**
Other Income	**21**	90,920,313	41,680,000	34,851,314
Total Revenue		**894,047,475**	**939,650,290**	**840,379,131**
LESS - Expenses				
Salaries, Wages and Employee Benefits	**22**	437,423,552	514,160,233	406,993,732
Supplies and consumables used	**23**	241,709,502	280,460,000	269,483,120
Depreciation	**24**	59,156,348	50,000,000	56,387,258
Impairment of Property, plant and Equipment	**25**	20,875,246	21,245,000	17,251,255
Other Expenses	**26**	22,259,111	29,995,000	34,628,737
Finance Cost	**27**	75,833	100,000	110,640
Total Expenses		**781,499,592**	**895,960,233**	**784,854,743**
Net Operating Profit before Tax		112,547,882	43,690,057	55,524,389
Income Tax		9,000,000	-	1,000,000
Net Operating Profit after tax		**103,547,882**	**43,690,057**	**54,524,389**
Non Exchange Revenue	**28**	178,504,297	10,000,000	19,888,377
Less : Depreciation for Grant Assets	**24**	15,066,452	3,000,000	3,951,329
Total Surplus for the year		**266,985,728**	**50,690,057**	**70,461,437**

CASH FLOW STATEMENT FOR THE YEAR ENDED 31ST DECEMBER 2022

Rs.

	Year 2022	Year 2021
Surplus / (Deficit)	**266,985,728**	**70,461,437**
Adjustments		
Depreciation	74,222,800	60,338,586
Provision for Gratuity	15,863,377	(11,629,401)
Gratuity Payment	(13,621,058)	(7,316,420)
Under/Over provision for debtors	(264,760)	(103,971)
Disposal of Fixed Assets	(299,299)	-
Non Exchange Revenue	178,504,297	(18,958,377)
unrealized Interest Income	(24,021,439)	(25,301,196)
Operating Surplus(Deficit)before working capital changes	**497,369,646**	**67,490,658**
Changes in working capital		
Increase in Receivables	(156,696,278)	20,427,822
Increase in Receivable from Staff	16,417,775	2,115,818
Increase in Pre payments	29,392,230	83,972,193
Increase in Inventories	(236,383)	(928,844)
Increase in Working In Progress	113,793,763	(79,493,510)
Increase in Deposits	(149,089,328)	25,699,918
Money Received from Client	(220,674,197)	196,617,192
Increase in Sundry Creditors	22,981,860	(10,037,320)
Net Cash flows from Operating Activities	**153,259,088**	**305,863,927**
Cash flows from Investing Activities		
Interest Income	58,632,012	1,956,883
Purchase of Fixed Assets	(247,953,041)	(192,724,849)
Disposal of Fixed Assets	370,000	10,000
Net cash flow from Investment activities	**(188,951,029)**	**-190,757,966**
Cash flows from Financing Activities		
Grant (Procurement)	(178,504,297)	8,445,694
Other Government Grants		10,512,683
Cash flows from Financing Activities	**(178,504,297)**	**18,958,377**
Net change in Cash and Cash equivalents	(214,196,238)	134,064,338
Cash and cash equivalents beginning of the period	228,837,920	94,773,584
Cash and cash equivalents as at 31.12.2020	**14,641,682**	**228,837,922**
Note- Cash and Cash equivalents		
Cash at Bank and hand	14,641,682	228,837,920
	14,641,682	**228,837,920**

Notes to Accounts

1. Accounting Policies.

Financial Statements have been prepared by Complying with generally accepted Accounting Principles, Fundamental assumptions, Public Sector Accounting Standards and Accounting Standards introduced by the Institute of Chartered Accountants from time to time and also by considering the followings.

(a) Going Concern

(b) Consistently Application of Accounting Policies.

(c) Revenue and expenses recognition on accrual basis.

(d) Disclosure to deviations to Standards

2. General Accounting Policies.

2.1 Depreciation Policies.

(a) Depreciation is provided based on number of days used

(b) Fixed assets are depreciated on Straight Line basis using the following rates.

Fixed asset type	%
Buildings	2.5
Machinery and Lab Equipment	20
Furniture & Fitting	10
Vehicles	20
General Office Equipment	20
Computer Hardware & Accessories	20
Computer Software	20
Drawing Office Equipment	10
Tools	50
Library Books	5
Fire Extinguishers	10

2.2 Valuation of Closing Stock

Unutilized materials stocks have been valued at cost.

2.3 Provision for Gratuity

Provision for gratuity is calculated based on the Actuarial Valuation Method and payment is made based on the Gratuity Act

2.4 Provision for doubtful Debtors

A provision has been made for doubtful debts on the basis of;

(a) 1 % Provision for debts outstanding over 2-10 years.
(b) 25 % Provision for debts outstanding over 10 years.

2.5 Grant Received

Local and Foreign grants received for completed projects were considered as non- exchange revenue as per the SLPSAS 11 and Grants received for other ongoing projects were considered as current liabilities

Reference Annex are given in the Annexures to the financial statements at page 46

Statement of Responsibility for Financial Statements in terms of Sec. 7 A.

The Accounting policies & Notes to Accounts on pages 06 form an integral part of these Financial Statements. The Board of Directors is responsible for the preparation and presentation of these Financial Statements. These Financial Statements were approved by the Board of Directors and signed on their behalf.

Chief Financial Officer of NBRO

K.K.H.Randeny
Director (Finance)
National Building Research Organisation

K.K.H. RANDENY
DIRECTOR FINANCE
NATIONAL BUILDING RESEARCH ORGANIZATION
FINANCE DIVISION
99/1, JAWATTA ROAD,
COLOMBO - 05.

Chief Executive Officer of NBRO

Eng.(Dr.) Asiri Karunawardena
Director General
National Building Research Organisation

Director General
National Building Research Organisation
No. 99/1, Jawatta Road
Colombo 05

Member of the Interim Management Committee of NBRO

H. U. R. Fonseka
Chief Accountant
Disaster Management Division
Ministry of Defence

H. U.R. Fonseka
Chief Accountant
Ministry of Defence
Disaster Management Division
Vidya Mawatha, Colombo 07.

General (Retd) Kamal Gunarathne WWV RWP RSP USP ndc psc MPhil
Chairman of the IMC
Secretary
Ministry of Defence

General Kamal Gunaratne (Retd)
WWV RWP RSP USP ndc psc MPhil
Secretary
Ministry of Defence

14. Auditor General's Report

Auditor General's Report is attached to
Sinhala Copy

15. Last 10 Years Financial Highlights

In 2022, NBRO recorded consolidated revenue of Rs. 894.05 Mn. Revenue from customary NBRO services is Rs. 586.71 Mn. in 2022. The institution depends mostly on this consultancy revenue generated to meet its recurrent expenditure.

Rs. 307.34 Mn. has been utilized for projects and programs carried out in year 2022 under government grant. The total consolidated expenditure for the corresponding period was Rs. 790.50 Mn. A net profit of Rs. 103.55 Mn. is recorded.

The expenses on personal emoluments for the staff strength of 359 including daily paid employees was Rs. 437.42 Mn. in 2022 as against the staff strength of 438 with daily paid employees was Rs. 406.9 Mn. In year 2021.

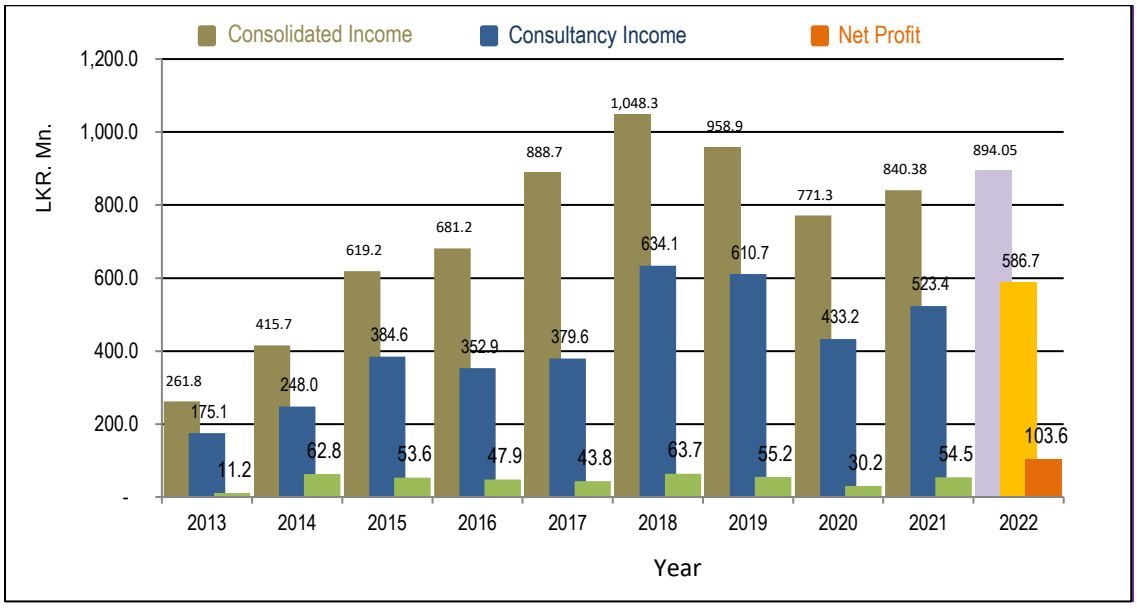
The institution growth and enhanced performance have been mainly due to the courageous effort of the management and the staff of NBRO

Last 10 years financial highlights

(Rs. Mn.)

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Consolidated Income	261.81	415.68	619.18	681.15	888.69	1,048.26	958.87	771.34	840.38	894.05
									860.26	1,072.55 ☞
Income by testing & Consultancy & other work	175.12	247.99	384.63	352.89	379.64	634.11	610.71	433.21	523.42	586.71
Net profit	11.23	62.75	53.55	47.92	43.83	63.69	55.24	30.17	54.52	103.55
									70.45	266.99 ☞

☞ *Value inclusive of Non exchange revenue*



Total Operating Revenue, testing & Consultancy income vs net surplus for last 10 Years

16. Corporate Governance Report

Human Resource /Capacity Development

NBRO's Vision and Mission were set to develop its capacity to cater the Ministry's DRR needs. With this in view NBRO is in the process of legalizing the institution mission by an act and developing staff capacities to deliver high standard outputs. Recruitment of new employees for essential vacant technical positions were not considered in 2022. However, 11 Management Assistants were recruited while 18 employees resigned and 2 retired.

No	Salary / Code	Staff Category	Approved Cadre	Staff Available (Permanent)	No of Vacancies (Permanent)	Staff Available (Other Basis)
1	HM 2- 3	Senior Manager (CEO)	01	01	0	-
2	HM 1-3	Senior Manager	08	05	03	-
3	AR2	Senior Academic/ Scientist	25	15	10	-
4	MM 1-1	Middle Management	12	08	04	-
5	AR 1	Academic/ Scientist	124	103	21	19
6	JM 1-1	Junior Management	25	19	06	02
7	MA 2-2	Management Assistant (Tech)	36	27	09	13
8	MA 1-2	Management Assistant (Non Tech)	53	50	03	05
9	PL 1,2&3	Primary	102	72	30	15
	TOTAL		**386**	**300**	**86**	**54**

Recruitment, retirements & resignation of permanent staff in 2022

No	Sal/ Code	Staff Category	No of Recruitment	No of Resignations	No. of Retirement
1	HM 1- 3	Senior Manager (CEO)	-	-	-
2	HM 1-1	Senior Manager	-	-	02
3	MM 1-1/JM 1-1	Middle/ Junior Management	-	-	02
4	AR2	Senior Academic/ Scientist	-	02	-
5	AR 1	Academic/ Scientist	-	02	-
6	MA 2-2	Management Assistant (Tech)	-	01	-
7	MA 1-2	Management Assistant (Non Tech)	11	-	-
8	PL 1,2&3	Primary	-	03	04
	TOTAL		**11**	**08**	**08**

Risk Control Committee on Covid-19 pandemic

The Covid-19 outbreak has affected the smooth operation of NBRO activities and in addition, causing health impacts on its staff. NBRO implements a level of protection as instructed by the national health authorities. Director-General of NBRO appointed a committee comprising of 10 members from all staff categories to manage the situation and to minimize the potential impacts of Covid-19 on the NBRO functions while ensuring good health & safety at NBRO premises, its staff and the clients.

Staff training / attending workshops & seminars

NBRO Nominated below employees for foreign training programmes and higher studies opportunities. 02 scientists were selected for Masters/ Ph.D. programmes abroad as given below.

Foreign Training Opportunities in 2022

No	Name	Designation Division	Training Program	Period	Country
1	K G N Saroja	Scientist/Geologist -LRRMD	Counterpart Training under the JICA Technical Cooperation Project for "Capacity Strengthening on Development of Non-Structural Measures for Landslide Risk Reduction"	11th to 27th July 2022	Japan
2	M V N Dhanushka	Scientist/Geologist - LRRMD			
3	D M C P Bandara	Scientist/Geologist - LRRMD			
4	P H C S Rathnasiri	Senior Scientist, HSPTD			
5	E M K S Ekanayaka	Scientist, Town Planner HSPTD			
6	W K C Kumarasiri	Scientist, Town Planner HSPTD			
7	Eng. (Dr.) Asiri Karunawardhana	Director General	ICL-KLC Conference *International Consortium on Landslide – Kiyoto Landslide Commitment*	21st Nov. to 01st Dec. 2022	Japan
8	Mr. K N Bandara	Director GETD			
9	Dr. H.A.G. Jayathissa	Act Director LRRMD			
10	Mr. Dayan Munasinghe	Senior Scientist, HSPTD			
11	Mr. B.I. Kumarage	Engineer, GETD			
12	Mr D M D S Dissanayaka	Scientist, GETD			
13	Ms. J.D.S.N. Siriwardana	Scientist/Geologist LRRMD	Technical Training to establish a maintenance system for the Landslide observation system	29th Nov. 02nd Dec. 2022	Japan
14	Mr. W.M.A.D. Wanasundara	Scientist/Engineer LRRMD			
15	Mr. W.K.S.M. Wakwella	Scientist/Geologist LRRMD			
16	Mr. N.K. Weerasekara	Scientist/Geologist LRRMD			
17	Mr. R.M.S.A.K. Rthnayake	Scientist, LRRMD			
18	Mr. W.A.K.S.Ariyakumara	Scientist/Geologist LRRMD	Ph.D. Programme in Environmental Studies, Degree Programme in Life and Earth Sciences, Graduate School of Science and Technology University of Tsukuba	01st Oct. 2022 to 1st Oct 2025.	Japan
19	Ms. H.A.A.I.S. Bandara,	Scientist/Geologist LRRMD	JICA Long Term Training (Master's Programme) under the "Project on Development of Early Warning Technology of Rain-Induces Rapid and Long Travelling Landslides''	05st Oct. 2022 – 30th Sep. 2024	Japan
20	Mr. P.A. Vijekumara	Scientist/Geologist HSPTD	Multi-Hazard Risk and Damage Assessment Framework Consultative Conference	08th to 09th Dec. 2022	Nepal

Procurement of lab and field equipment

Procurement of major laboratory and field equipment for research and capacity building was not initiated. However several major equipment including field accessories were received under technical cooperation projects as donation. The key items are listed in the following table.

Doner Agency	Item	Amount (Rs.)
JICA	Equipment for Landslide Monitoring data analysis	8,653,346.00
JICA	Equipment for Landslide Remote Monitoring System	20,844,091.40
Salford University	Computers & Accessories	1,780,562.00
JICA	Undrain Ring Shear Apparatus & Accessories	50,649,075.00
JICA	Tensiometer Measuring System	5,601,917.00
JICA	Weather Monitoring System	5,427,704.61
JICA	Monitoring System for Landslides	9,479,624.76
JICA	Landslide Observation Equipment	7,085,486.87
JICA	Forest rainfall measurement system	1,524,307.90
Total Value		**111,046,115.55**

17. Annexures to Financial Statements

Annexure 01

Cash and Cash Equivalents

Description	Sub Annexure	2022	2021
Cash and Bank - Head Office (Current Ac Integrated with Savings Ac)		9,162,641	220,268,232
Cash and Bank – District Office		397,654	364,198
Cash and Bank – District Office (Collection Account)		5,081,387	8,205,165
Petty Cash		-	325
	1a	**14,641,682**	**228,837,920**

Annexure 02

Receivables – Trade Debtors

Description	Sub Annexure	2022	2021
Trade Debtor		190,290,744	65,763,151
	2a	**190,290,744**	**65,763,151**

Annexure 03

Sundry Receivables

Description	Sub Annexure	2022	2021
Receivable Tender Payments	3a	385,410	410,410
Receivable Other Payments	3b	210,451	525,308
Receivable Guarantees	3c	211,313	211,313
Sundry Receivable D/O		153,559	187,015
Interest receivable		24,021,439	25,301,196
Receivable Other Payments		-	524,060
		24,982,172	**27,159,302**

Annexure 04

Inventories

Description	Sub Annexure	2022	2021
Printing and Stationary		3,049,509	2,946,913
Chemical and Glassware		1,525,957	1,392,171
	4a	**4,575,467**	**4,339,084**

Annexure 05

Receivables from Staff

Description	Sub Annexure	2022	2021
Festival Advance	5a	149,250	95,581
Special Salary Advance	5b	2,400	2,400
Travelling & Subsistence Advance	5c	28,951	618,521
Special Cash Advance	5d	5,134	69,096
Distress Loan	5e	11,817,149	14,929,340
MSC Loan	5f	156,025	500,365
Other Advances	5g	876,485	794,589
Staff Vehicle Loan	5i	24,826,440	34,198,463
Staff housing Loan	5j	35,965,445	39,036,698
		73,827,278	**90,245,053**

Annexure 06
Pre-Payments

Description	Sub Annexure	2022	2021
Advances to Contractors	6a	24,729,620	51,950,721
Other Pre Payments	5h	6,560,772	8,731,902
		31,290,393	**60,682,622**

Annexure 07
Project Work in Progress

Description /Division	Sub Annexure	2022	2021
Landslide Research and Risk Management			6,951,749
Building Material Research & Testing Division		-	362,153
Structural Eng. Research & Project Management Division		-	4,539,858
Geo Technical Engineering & Testing		66,611,345	160,440,333
Environmental Studies & Service Division		-	3,042,458
Human Settlements Planning & Training		3,372,724	8,441,279
	7a	**69,984,069**	**183,777,832**

Annexure 08
Term Deposits

Description	Sub Annexure	2022	2021
Term Deposit		592,680,492	443,607,164
Employee Security deposit investments		30,000	14,000
	8a	**592,710,492**	**443,621,164**

Annexure 09

Infrastructure, Plant & Equipment

Cost **LKR**

Description	2022	2021
Lab and Field Equipment & Plant & Machinery	548,264,537	466,651,041
Vehicles	70,783,026	70,783,026
Office Equipment	63,407,241	67,695,132
Computer Hardware & Accessories	78,604,710	58,692,868
Furniture and Fittings	25,833,154	24,763,395
Drawing Office Equipment	301,109	301,109
Library books and Periodicals	4,546,652	4,546,652
Tools	1,905,122	1,905,122
Fire Extinguishers	162,441	162,441
	793,807,992	**695,500,786**

Provision for Depreciation

Description	2022	2021
Pro. For Machinery & Lab equipment's	435,281,928	381,442,188
Pro. For Dep. Of Vehicles	70,783,026	70,587,530
Pro. For Dep. Of Office equipment's	58,368,359	59,254,299
Pro. for Dep. Computer Hardware & Accessories	55,191,753	48,055,863
Pro. For Dep. Of Furniture & Fittings	17,169,994	15,134,982
Pro. For Dep. Of drawing Office equipment's	301,109	301,109
Pro. For Dep. Of Books	3,700,297	3,606,363
Pro. For Dep. Of Tools	1,905,122	1,886,934
pro. For Dep. Of Fire extinguishers	134,980	121,372
	642,836,567	**580,390,639**

Net book Value

Description	2022	2021
Lab and Field Equipment & Plant & Machinery	112,982,609	85,208,853
Vehicles	0	195,496
Office Equipment	5,038,882	8,440,834
Computer Hardware & Accessories	23,412,956	10,637,005
Furniture and Fittings	8,663,160	9,628,413
Drawing Office Equipment	-	0
Library books and Periodicals	846,355	940,289
Tools	0	18,188
Fire Extinguishers	27,461	41,069
	150,971,424	**115,110,148**

Land and Building Cost

Description	2022	2021
Land and Building	65,448,492	14,274,901
	65,448,492	**14,274,901**

Provision for Depreciation

Description	2022	2021
Land and Building	11,942,353	11,273,532
	11,942,353	**11,273,532**

Net book Value

Description	2022	2021
Land and Building	53,506,140	3,001,370
	53,506,140	**3,001,370**

Intangible Assets

Cost **LKR**

Description	2022	2021
Compute Software	21,199,558	18,119,558
	21,199,558	**18,119,558**

Provision for Depreciation

Description	2022	2021
Compute Software	16,997,708	10,791,246
	16,997,708	**10,791,246**

Net book Value

Description	2022	2021
Compute Software	4,201,850	7,328,312
	4,201,850	**7,328,312**

Leasehold Land

Cost **LKR**

Description	2022	2021
Leasehold Land - Ratnapura (Note *)	**7,965,000**	**7,965,000**

The physical possession was given to NBRO by the UDA for the land allocated to construct District Office Building in Ratnapura District by their letter no. UDA/SABARA/27/06/147 dated 8.10.2020.

However, the agreement signing is being pending from UDA, and by their letter dated 26.08.2022 has informed NBRO that the vesting certificate is pending from the Land commission and Divisional Secretariate as per the Land Ordinance, Section 6 (1), and UDA will take necessary action to sign the lease agreement upon the receipt of vesting certificate.

Annexure 10
Advance Received from Clients

Description /Division	Sub annexure	2022	2021
Environmental Studies & Service Division		7,823,000	3,065,860
Geo Technical Engineering & Testing		86,382,321	130,602,980
Landslide Research and Risk Management		4,688,296	21,125,292
Human Settlements Planning & Training		142,454,583	212,252,889
Structural Eng. Research & Project Management Division		54,447,076	144,797,031
Unidentified Credits		58,332	4,683,753
	10a	**295,853,607**	**516,527,805**

Annexure 11
Sundry Payables

Description	Sub Annexure	2022	2021
Accrued Expenses		8,106,644	11,107,231
Repayable tender deposits		1,086,717	1,708,117
Repayable retention deposits		25,559,301	15,031,409
Repayable security deposits		174,596	34,000
Excess from customers		361,488	777,071
Payables to Contractors/Other		46,720,876	42,664,722
Provision for Leave Encashment		12,000,000	13,503,065
Provision for Bonus/Performance Incentive		4,035,000	3,059,000
Provision for Audit Fee		500,000	500,000
Provision to Other Staff		2,000,000	-
Income Tax Payable		11,972,055	3,503,215
Salary Payable		841,066	752,798
EPF Payable		4,367,410	4,325,940
ETF Payable		595,870	590,585
Stamp Duty Payable		24,025	24,900
VAT		11,290,343	9,225,940
SSCL Payable		154,463	-
	11a	**129,789,852**	**106,807,992**

Annexure 12

Provision for Gratuity **LKR**

Description	2022	2021
Opening Balance	84,698,369	103,644,190
Charge for the Year	15,863,377	(11,629,401)
Payments made during the year	13,621,058)	(7,316,420)
Closing Balance	**86,940,688**	**84,698,369**

Annexure 13
Net Assets / Equity

Description		2022	2021
Balance		589,982,586	590,995,987
Add			
Grant for Procurement			
Other Grants			
		589,982,586	590,995,987
Less			
Error Correction		-	(1,013,401)
		589,982,586	**589,982,586**

Annexure 14

Accumulated Surplus/ (Deficit)

	2022	2021
Opening Balance	403,533,592	373,363,926
Add		
Profit for the previous year	70,461,437	30,169,666
	473,995,029	403,533,592
Less		
Prior Year Adjustment	(2,486,691)	
Balance C/F	**471,508,338**	**403,533,592**

Divisional Revenue & Expenditure

Annexure 15

Environmental Studies & Service Division

Description	2022			2021		
	Income	Expenditure	Surplus/ (Deficit)	Income	Expenditure	Surplus /(Deficit)
ESSD Head Office activities	48,533,500	47,491,898	1,041,601	58,332,760	42,612,327	15,720,433
Chemical Disaster Risk Programme	4,250,000	4,114,614	135,386	8,180,000	7,841,242	338,758
RLVMMP - Supervision	3,059,622	2,851,572	208,050	3,042,458	2,889,920	152,538
	55,843,122	**54,458,084**	**1,385,038**	**69,555,218**	**53,343,489**	**16,211,729**

Annexure 16

Geo Technical Engineering & Testing Division

Description	2022			2021		
	Income	Expend,	Surplus/ (Deficit)	Income	Expend,	Surplus/ (Deficit)
GED Head Office activities	195,379,119	173,708,108	21,671,011	192,877,943	179,789,586	13,088,357
RLVMMP - Supervision	56,801,794	63,742,226	-6,940,432	28,152,127	29,712,477	-1,560,350
	252,180,913	**237,450,334**	**14,730,579**	**221,030,070**	**209,502,064**	**11,528,007**

Annexure 17

Landslide Research and Risk Management Division

Description	2022			2021		
	Income	Expend.	Surplus/ (Deficit)	Income	Expend.	Surplus/ (Deficit)
Automated rain gauges project	13,794,593	13,726,385	68,208	15,930,000	15,469,867	460,132
Landslide hazard Zonation Mapping	17,970,000	17,849,150	120,850	19,630,000	19,279,599	350,401
Building approval process	59,121,796	59,590,926	-469,129	62,031,218	61,371,336	659,882
Land Investigations	65,261,646	66,129,749	-868,103	74,255,408	73,476,104	779,304
Landslide Mitigation	2,548,563	2,543,109	5,454	7,752,714	6,899,316	853,397
TCLMP - Phase 11	2,832,002	2,795,030	36,972	4,285,000	4,167,989	117,011
Consultancies	86,884,486	75,949,712	10,934,774	78,131,567	55,737,433	22,394,135
	248,413,086	**238,584,061**	**9,829,025**	**262,015,907**	**236,401,645**	**25,614,262**

Annexure 18

Human Settlement Planning & Testing Division

Description	2022			2021		
	Income	Expend.	Surplus/ (Deficit)	Income	Expend.	Surplus/ (Deficit)
HSD Head Office activities	14,271,096	13,890,540	380,555	31,746,379	25,546,139	6,200,240
Landslide hazard Zonation Mapping	5,000,000	4,850,339	149,661	7,000,000	6,336,234	663,766
Precast Housing Project	4,770,000	4,694,071	75,929	9,761,200	8,984,472	776,728
Special Investigations	2,243,306	2,205,540	37,766	4,000,000	3,876,379	123,621
Landslide Risk Profile	18,944,140	18,764,109	180,031	15,010,000	14,457,581	552,419
TCLMP - Phase 11	1,535,209	1,533,040	2,169	4,630,000	4,059,581	570,419
	46,763,750	**45,937,639**	**826,111**	**72,147,579**	**63,260,386**	**8,887,193**

Annexure 19
Building Materials Research & Testing Division

Description	2022			2021		
	Income	Expend.	Surplus/ (Deficit)	Income	Expend.	Surplus/ (Deficit)
Head Office activities	36,085,535	39,600,485	-3,514,949	44,053,558	39,414,609	4,638,949
Building Assessment Project	2,806,169	2,730,523	75,646	2,368,390	2,225,078	143,312
RLVMMP - Supervision	1,265,761	1,847,990	-582,229	362,153	220,952	141,202
	40,157,465	**44,178,998**	**-4,021,533**	**46,784,101**	**41,860,639**	**4,923,463**

Annexure 20

Structural Eng. Research & Project Management Division

Description	2022			2021		
	Income	Expend.	Surplus/ (Deficit)	Income	Expend.	Surplus/ (Deficit)
PMD Head Office activities	43,289,551	23,101,422	20,188,129	32,892,627	27,746,062	5,146,565
Building Assessment Project	24,533,830	25,399,902	-866,072	16,798,862	16,682,163	116,698
RLVMMP - Supervision	1,388,139	1,332,676	55,463	1,716,669	1,441,021	275,649
Landslide Mitigation Projects	90,557,307	90,793,999	-236,693	83,516,784	83,147,160	369,624
	159,768,826	**140,627,998**	**19,140,828**	**134,924,942**	**129,016,406**	**5,908,536**

Annexure 21

Other Revenue

Description	2022	2021
Interest Income	82,653,451	27,258,076
Surcharge, bond& interest on distress loans	6,383,848	5,660,238
Disposal Income	299,299	10,000
Non Refundable Tender Deposit	1,469,715	1,745,500
Registration Fee	114,000	177,500
Other		-
	90,920,313	**34,851,314**

Annexure 22

Salaries, Wages and Employee Benefits

Description	2022	Budget 2022	2021
Salaries	223,370,525	230,700,000	206,658,967
Wages	60,905,814	80,700,000	68,162,855
Over Time and Holiday Payments	14,800,368	18,100,000	16,867,844
Risk Allowance	36,000	36,000	36,000
Special Allowance	17,961,262	20,750,000	16,835,839
Contribution to EPF - 12%	30,801,132	37,718,000	32,275,584
Contribution to ETF - 3%	7,640,663	9,429,500	8,175,813
Performance Incentives	9,032,195	31,950,000	15,991,531
Consultant's Payments	8,116,052	8,580,000	7,166,650
Encashment of Medical leave	8,963,486	16,766,733	9,199,413
Employee Insurance Scheme	5,985,142	11,360,000	6,284,630
Staff trainings - Foreign	50,388	600,000	52,625
Staff trainings - Local	60,000	515,000	90,000
Seminar & Workshop	274,965	750,000	681,537
Bonus	6,363,633	6,065,000	402,500
Travelling & Subsistence	22,558,334	25,275,000	25,138,090
Travelling - Foreign	487,633	100,000	-
Employee welfare	4,152,583	4,450,000	4,603,255
Gratuity	15,863,377	10,315,000	(11,629,401)
	437,423,552	**514,160,233**	**406,993,732**

Annexure 23

Supplies and Consumables used

Description	2022	Budget 2022	2021
Sub Contract Payment	90,293,795	126,000,000	136,759,953
Transport	53,380,094	87,500,000	73,419,775
Telephone and Postage	9,064,042	14,250,000	11,279,309
Electricity	6,527,437	8,100,000	6,561,001
Water	1,023,430	1,050,000	735,085
Rates and Taxes	282,042	1,450,000	289,242
Janitorial Services	2,431,479	4,115,000	3,048,927
Advertising	2,563,790	2,050,000	2,420,900
Hire charges - Equipment's	34,500	510,000	458,750
Printing and Stationary	7,454,554	9,600,000	8,845,599
Chemical & Glassware	608,222	1,000,000	1,246,726
Other Materials	44,309,824	10,950,000	12,185,459
Fuel	20,436,830	10,900,000	9,831,058
Security charges	2,421,506	2,500,000	2,033,635
Survey Maps	4,800		165,600
Information Technologies	873,158	485,000	202,100
	241,709,502	**280,460,000**	**269,483,120**

Annexure 24

Depreciation

Description	2022	Budget 2022	2021
Depr. Of Land & Buildings	356,873	50,000,000	72,399.53
Depr. Of Computer Hardware & Accessories	6,690,339		7,585,417.16
Depr. Of Computer Software	2,449,962		2,276,681.59
Depr. Of Lab & Field Equipment's	43,496,469		38,064,395
Depr. Of Office Equipment's	3,625,919		4,265,231
Depr. Of Furniture & Fittings	2,215,955		2,221,590
Depr. Of Vehicle	195,496		1,774,356
Depr.of Library Books & Periodicals	93,539		93,383
Depr. Of Tool	18,188		19,272
Depr. Of Fire Extinguisher	13,608		14,533
	59,156,348	**50,000,000**	**56,387,257**

Description	2022	Budget 2022	2021
Depr. Of Land & Buildings	311,949	3,000,000	
Depr. Of Computer Hardware & Accessories	1,134,751		284,473
Depr. Of Computer Software	2,671,500		71,500
Depr. Of Lab & Field Equipment's	10,701,193		3,348,297
Depr. Of Office Equipment's	221,501		221,501
Depr. Of Furniture & Fittings	25,163		25,163
Depr. Of Vehicle	0		
Depr.of Library Books & Periodicals	394		394
Depr. Of Tool			
Depr. Of Fire Extinguisher			
	15,066,452	**3,000,000**	**3,951,329**

Annexure 25

Impairments of Property, Plant & Equipment

Description	2022	Budget 2022	2021
R & M Of Building	0	50,000	7,326
R & M Of Plant and Machinery	2,986,153	2,350,000	1,174,364
R & M Of Vehicles	10,119,248	9,950,000	8,158,391
R & M Of Photocopiers	354,211	1,450,000	953,069
R & M Of Computers	1,290,635	1,050,000	1,019,101
R & M Of Other Office equipment	250	2,400,000	63,470
R & M of Machinery & Lab Equipment	4,197,568	3,400,000	3,181,504
R & M Of Office equipment	1,808,831	95,000	2,576,679
R & M Of Furniture & Fittings	118,350	500,000.00	117,350
	20,875,246	**21,245,000**	**17,251,255**

Annexure 26

Other Expenses

Description	2022	Budget 2022	2021
Rent	16,684,603	20,000,000	17,859,862
Safety Equipment	404,035	1,900,000	1,569,227
Sundry Expenses	132,277	345,000	31,680
Subscription & Memberships	629,591	555,000	474,872
Publicity/ Exhibition	-	100,000	42,450
Insurance - Life	2,507,514	3,800,000	2,608,602
Audit fees	450,000	500,000	900,000
Payment to board members	270,750	350,000	410,875
Chairman's Emoluments	187,500	300,000	302,000
Refreshments	651,635	1,095,000	502,560
Registration Fee	40,000	100,000	153,390
Legal Fee	33,840	350,000	27,900
Donations	-	600,000	115,000
Custom Clearance Charges	2,606		9,734,290
Bad Debts	264,760		(103,971)
Total	**22,259,111**	**29,995,000**	**34,628,737**

Annexure 27

Finance Cost

Description	2022	Budget 2022	2021
Bank Charges	75,833	100,000	110,640
	75,833	**100,000**	**110,640**

Annexure 28

Non Exchange Revenue

Item	Doner Agency	2022	2021
Property, Plant & Equipment	GOSL		19,888,376.90
Computers	JICA	8,653,346.00	
Custom Duty Paid - Computers	GOSL	542,381.43	
Lab & Field Equipment	JICA	20,844,091.40	
Custom Duty Paid - Lab & Field Equipment	GOSL	2,207,219.00	
Computer	Salford University	1,780,562.00	
Lab & Field Equipment	JICA	50,649,075.00	
Custom Duty Paid - Lab & Field Equipment	GOSL	5,822,810.00	
Monitoring Equipment	JICA	29,119,041.15	
Custom Duty Paid - Monitoring Equipment	GOSL	3,711,479.56	
Ratnapura Building	GOSL	51,173,591.20	
Landslide Management Information System	UNDP	2,600,000.00	
Landslide Detection Network	UNDP	1,400,700.00	
		178,504,296.74	**19,888,376.90**

NATIONAL BUILDING RESEARCH ORGANISATION

99/1, Jawatte Road, Colombo 5.

Tele: 011-2588946, Fax: 011-2502611

e-mail : info@nbro.gov.lk, web : www.nbro.gov.lk